



ANNUAL REPORT  
2018



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IMAGE, FRONT COVER:  
BOYS LAUGH AND POSE OUTSIDE A VILLAGE  
MADHYA PRADESH, INDIA

IMAGE, OPPOSITE:  
WORKERS COLLECT SAMPLES OF MALARIA-CARRYING  
ANOPHELES MOSQUITOS  
GUNA YALA COMARCA, PANAMA

# MESSAGE FROM LEADERSHIP

Every human life is sacred. Every child, regardless of their place of birth or their family's financial circumstances, deserves to have the opportunity to fulfill his or her potential free from premature death or debilitating disease. Good-quality national health systems that can accomplish these goals are essential to lift people from poverty. These are the beliefs that motivate CHAI and our people.

In 2018, CHAI grew almost 20 percent. We are on track to do the same in 2019, increasing the contribution to our mission of saving lives, reducing the burden of disease, and strengthening health systems in low- and middle-income countries.

CHAI was founded in 2002 on the principle that it was morally unacceptable that millions of people were dying each year of AIDS in Africa, Asia, and the Caribbean while treatment was readily available in wealthier countries. We did not agree with the arguments often made at that time, that treating people with AIDS in resource-poor settings was too expensive or too complicated to be successful.

We began our work with a focus on scaling up care and treatment for HIV/AIDS in low- and middle-income countries. Over time, at the urging of our partner governments and donors, we expanded our efforts to help prevent and treat infectious diseases including malaria, tuberculosis (TB), and hepatitis, and save the lives of women and children through accelerating the rollout of lifesaving vaccines, reducing maternal and newborn mortality, preventing deaths from diarrhea and pneumonia, combatting chronic malnutrition, and enabling more effective family planning services. We are helping partner governments to improve health financing systems and educate health workers with

an eye toward universal health coverage. And, we are supporting them to tackle non-communicable diseases including cancer, a growing issue in many low-income countries.

CHAI's strategy is defined by our approach to accomplishing our mission. We take on large, ambitious projects that will have a major impact in saving lives. We do not deliver health services ourselves. We believe the best way to create large scale sustainable programs is to improve government and local private health delivery systems so that the programs can continue long after we are gone. We work in the service of our partner governments to help them deliver better health outcomes for their people.

We help make healthcare delivery more efficient and effective, allowing limited resources to reach more people. We negotiate global agreements that lower the prices of essential health products to make them more affordable and available in low-resource countries. In parallel, we help governments and local private sectors in these countries to better organize and manage the delivery of the best health services and health products and to accelerate their introduction and usage.

The 2018 annual report highlights our work with government partners around the world and their successes in delivering lifesaving care and treatment to their people. We thank our many partners and donors for their tireless commitment to saving lives and ensuring that all people, no matter where they live, have access to quality, affordable health services.

— CHAI Management

IMAGE:

A MOTHER RECEIVES A NEWLY FORMULATED, HEALTHIER NUTRITIONAL SUPPLEMENT PACKET FOR HER DAUGHTER MADHYA PRADESH, INDIA



# HOW WE WORK

## Our aim is not just to impact a problem, but to solve it.

Using a business-minded approach to shape healthcare markets to reduce the costs of lifesaving medications, diagnostics, and other health products in low- and middle-income countries, we work with governments to reform their health systems, targeting areas where current approaches are failing, moving too slowly, or at a scale that leaves too many dying or suffering needlessly. With each new program our strategy remains the same: we work on large, ambitious projects; we work to make healthcare delivery more efficient; and we work with governments so change can be sustained without our support. The results have been transformational. CHAI's programs have helped millions of adults and children access lifesaving medicine to treat diseases they otherwise would have died from 15 years ago.



## KEY MILESTONES

**2002: CHAI founded.** CHAI is founded to help save the lives of millions of people living with HIV/AIDS in low- and middle-income countries.

**2002–2003: CHAI's first program: HIV/AIDS.** First programs begin in Africa and the Caribbean, aimed at scaling up HIV/AIDS care and treatment in entire countries. 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: HIV first-line agreement.** CHAI negotiates lower prices for first-line HIV drugs by over 60 percent, enabling over 60 countries to access the new prices.

**2003: ART program in South Africa.** CHAI begins work with South Africa to scale up treatment, laying the foundation for the largest antiretroviral therapy (ART) program in the world.

**2004: Reducing CD4 test prices.** 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: Pediatric HIV treatment.** CHAI leads global efforts alongside Unitaid to scale up treatment for children with AIDS in 34 countries, from around 75,000 on treatment to over 900,000 today, lowering the price of medications from over US\$600 to around US\$60 per child, per year.

**2004–2006: Engagement in China and India.** CHAI assists the governments of China and India to scale up HIV/AIDS care and treatment. These efforts help stem the growth of HIV/AIDS in these countries.

**2005–2007: HIV second-line agreement.** CHAI works with Unitaid to negotiate agreements to lower the price of second-line HIV/AIDS treatments by 75 percent and accelerate the roll out of these drugs to over 30 countries where patients were failing on first-line treatments.

**2005–2008: Engagement in Southeast Asia.** CHAI works with governments in Southeast Asia to scale up care and treatment programs for AIDS, including areas such as Papua New Guinea and Papua Indonesia, which have the highest AIDS rates in Asia and are among the most remote places on earth.

**2007: Expansion into malaria.** CHAI launches a malaria program, which 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: Mother-to-child transmission of HIV.** CHAI helps reduce mother-to-child transmission of HIV by 40 percent in high-burden areas in six countries.

**2009: Scale-Up HIV care and treatment in South Africa.** CHAI assists the government of South Africa with the largest scale-up of

HIV care and treatment ever attempted, from 800,000 people in 2009 to approximately 3 million today. CHAI helps negotiate agreements to lower HIV and TB drug prices that save the South African government almost US\$1 billion.

**2010: Rapid diagnostic tests for malaria.** CHAI begins to scale up access to rapid diagnostic tests for malaria in places where malaria cases are treated but diagnosis is not available. CHAI helps procure nearly 2 million low-cost tests across Kenya and Tanzania.

**2011: Expansion into vaccines.** CHAI begins work to lower costs and increase access to vaccines. Alongside the Bill & Melinda Gates Foundation, CHAI negotiates a landmark agreement to lower the price of the Rotavirus vaccine by 67 percent and the Pentavalent vaccine by 50 percent, saving the global community over US\$800 million and US\$150 million respectively.

**2011: MATCH study launch.** CHAI, with support from the Bill & Melinda Gates Foundation, conducts the Multi-Country Analysis of Treatment Costs for HIV/AIDS (MATCH) with the governments of Ethiopia, Malawi, Rwanda, South Africa, and Zambia. Results were used to inform the debate on affordability and sustainability of universal access to treatment and decisions that made an additional 443,000 patients eligible for treatment.

**2011: Expansion into human resources for health.** CHAI helps the government of

Rwanda establish a world-class health system through educating doctors, nurses, and health managers. CHAI eventually expands this work to other countries including Liberia, Malawi, and Zambia.

**2012: Long-acting reversible contraception.** CHAI negotiates an agreement to lower the price of long-acting reversible contraceptives from US\$18 to US\$8.50 per implant and accelerates rollout of the products to save the lives of women.

**2013: Treating childhood diarrhea.** CHAI begins work to reduce mortality from diarrhea for children under five, scaling up access to lifesaving zinc/ORS treatment in India, Kenya, Nigeria, and Uganda. CHAI supports governments to lower the cost of zinc/ORS products, resulting in wholesale prices dropping by approximately 60 percent.

**2014: Viral load diagnostics deal.** CHAI negotiates a global access price for viral load diagnostics of US\$9.40 per test, which will save over US\$150 million over five years and dramatically improves the quality of care for HIV patients.

**2014: Point-of-care CD4 price reduction.** CHAI negotiates a 67 percent price reduction for service and maintenance of the first point-of-care CD4 diagnostic tool, called Pima, for HIV. CHAI accelerates the market entry of a second supplier, called BD FACS Presto, which will facilitate further price reductions for point-of-care CD4 tests.

**2014: Scale up of early infant diagnostic tests.** With the support of Unitaid, more than one million HIV diagnostic tests for infants are performed globally, up from 80,000 tests in 2007.

**2014: Ebola response in Liberia.** CHAI helps lead case management and health worker training in response to the Ebola crisis in Liberia, serving as a critical link between the international emergency response and the Liberian government.

**2015: Expansion into new programs.** CHAI introduces new programs in hepatitis, pneumonia, and cancer.

**2015–2016: Reducing mother and infant deaths in Nigeria.** CHAI introduces a comprehensive community-based approach to save mothers and newborns in Northern Nigeria through improved outreach, treatment, and training of health workers, resulting in a sustained 37 percent reduction in maternal deaths, a 43 percent reduction in newborn deaths, and a 15 percent reduction in stillbirths within 12 months.

**2016: Lowering the cost of hepatitis C treatment.** CHAI helps reduce the cost of hepatitis C treatment in seven countries by 71 to 95 percent, from US\$2,618 per patient to between US\$133 and US\$789 per patient treated. In 2018, CHAI negotiated the lowest price ever for a full patient course of WHO prequalified HCV treatment to US\$60.

**2017: Increasing access to cancer medications.** CHAI announces an agreement with the American Cancer Society, Pfizer Inc., and Cipla Inc. to expand access to 16 essential cancer treatment medications, including chemotherapies, in Kenya, Tanzania, Ethiopia, Uganda, Nigeria, and Rwanda, where 44 percent of cancer cases in sub-Saharan Africa occur.

**2017: Affordable single-pill HIV regimen with DTG.** CHAI and partners announce a groundbreaking agreement to accelerate the availability of the first affordable, generic, single-pill HIV treatment containing DTG, a best-in-class HIV medication, to public sector purchasers in low- and middle-income countries at around \$US75 per person, per year.

**2018: Breakthrough pricing agreement for latest diagnostic technology.** CHAI and partners reach a breakthrough pricing agreement to significantly lower the cost of state-of-the-art diagnostic testing for HIV, hepatitis, and cervical cancer in low- and middle-income countries at a price of US\$12 per patient sample.

IMAGE: STAFF PERFORM HIV RAPID TESTS ON PATIENTS AT A HEALTH FACILITY YEN BAI, VIETNAM

# 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 the 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 CHILDREN HOLD NEW, LONG-LASTING  
INSECTICIDE NETS, WHICH WERE DISTRIBUTED  
AS PART OF A PILOT PROGRAM  
GUNA YALA COMARCA, PANAMA

# WHERE WE WORK

Countries where CHAI currently operates program activities:

37

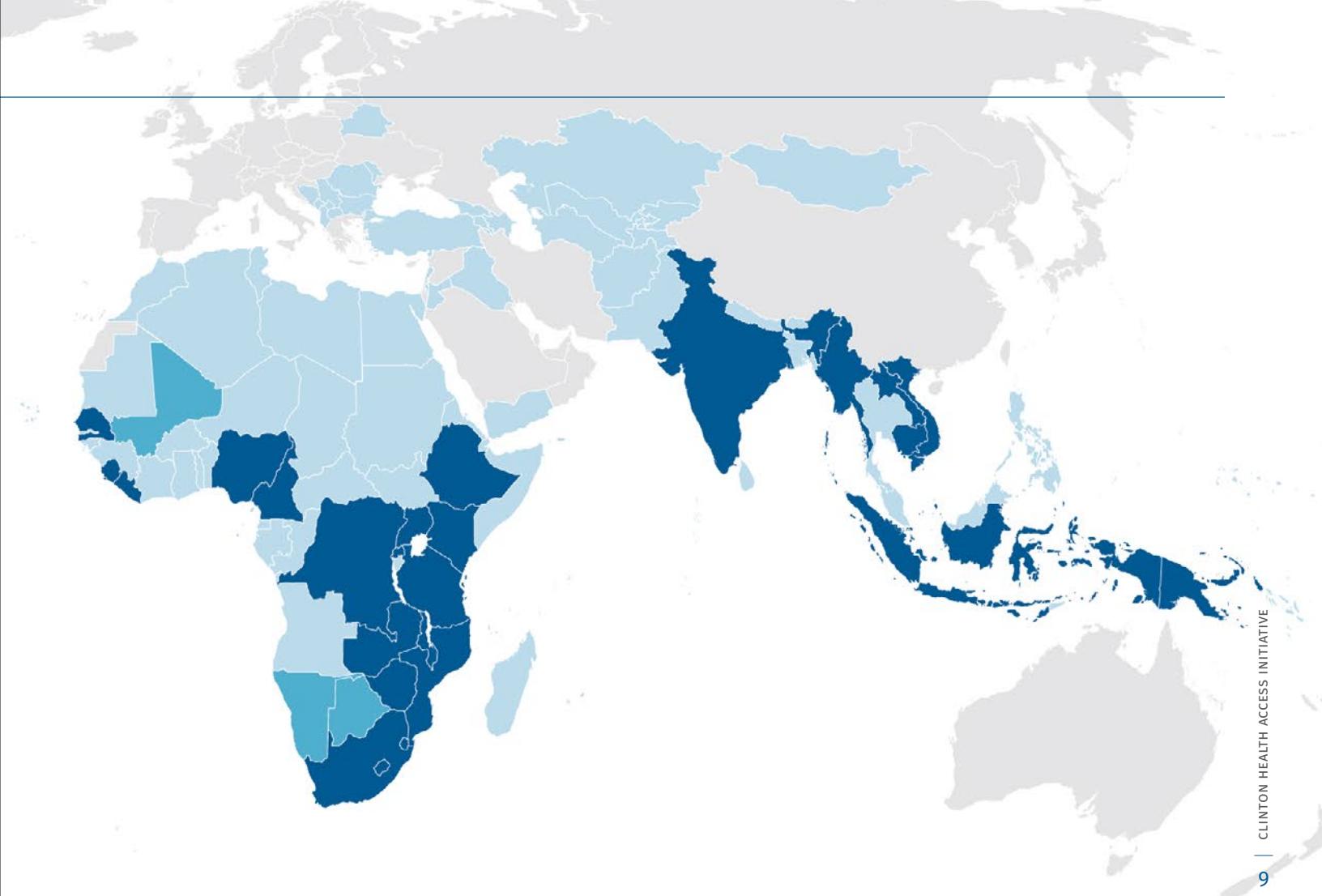
Countries participating in CHAI access agreement activities:

130

Countries with a CHAI country office:

28

BOSTON, MA, USA  
GLOBAL OPERATIONS



**MAP KEY:**

Access Agreement Countries

Program and Access Agreement Countries

Countries with offices, programs, and Access Agreement

**2018 PROGRAM COUNTRIES**

Countries where CHAI had programmatic engagement with the government in 2018.

Belize	Mali
Botswana	Mozambique
Cambodia	Myanmar
Cameroon	Namibia
Congo, Dem. Rep.	Nicaragua
Dominican Republic	Nigeria
El Salvador	Panama
Eswatini	Papua New Guinea
Ethiopia	Rwanda
Guatemala	Senegal
Haiti	Sierra Leone
Honduras	South Africa
India	Tanzania
Indonesia	Uganda
Kenya	United States
Lao PDR	Vietnam
Lesotho	
Liberia	Zimbabwe
Malawi	

**2018 COUNTRY OFFICES**

Countries where CHAI operated out of an office location in 2018.

Cambodia	Rwanda
Cameroon	Senegal
Congo, Dem. Rep.	Sierra Leone
Eswatini	South Africa
Ethiopia	Tanzania
Haiti	Uganda
India	United States
Indonesia	Vietnam
Kenya	Zambia
Lao PDR	Zimbabwe
Lesotho	
Liberia	
Malawi	

**2018 ACCESS AGREEMENT COUNTRIES**

Countries that have access to CHAI-negotiated price reductions for high-quality medicines, diagnostics, vaccines, devices or other life-saving health products and services.

Afghanistan	Cabo Verde	Eswatini	Kenya	Mongolia	Samoa	Tonga
Albania	Cambodia	Ethiopia	Kiribati	Montenegro	Sao Tome and Principe	Trinidad and Tobago
Algeria	Cameroon	Fiji	Kosovo	Morocco	Senegal	Tunisia
American Samoa	Central African Republic	Gabon	Kyrgyz Republic	Mozambique	Serbia	Turkey
Angola	Chad	Gambia, The	Lao PDR	Myanmar	Sierra Leone	Turkmenistan
Armenia	Colombia	Georgia	Lebanon	Namibia	Solomon Islands	Tuvalu
Azerbaijan	Comoros	Ghana	Lesotho	Nauru	Somalia	Uganda
Bangladesh	Congo, Dem. Rep.	Grenada	Liberia	Nepal	South Africa	Uzbekistan
Belarus	Congo, Rep.	Guatemala	Libya	Nicaragua	South Sudan	Vanuatu
Belize	Costa Rica	Guinea	Madagascar	Niger	Sri Lanka	Venezuela, Rb
Benin	Cote D'Ivoire	Guinea-Bissau	Malawi	Nigeria	St. Lucia	Vietnam
Bhutan	Djibouti	Guyana	Malaysia	North Macedonia	St. Vincent and The Grenadines	West Bank and Gaza
Bolivia	Dominica	Haiti	Maldives	Pakistan	Sudan	Yemen, Rep.
Bosnia and Herzegovina	Dominican Republic	Honduras	Mali	Papua New Guinea	Suriname	Zambia
Botswana	Ecuador	India	Marshall Islands	Paraguay	Tajikistan	Zimbabwe
Brazil	Egypt, Arab Rep.	Indonesia	Mauritania	Peru	Tanzania	Thailand
Bulgaria	El Salvador	Iraq	Mauritius	Philippines	Romania	Timor-Leste
Burkina Faso	Jamaica	Jordan	Micronesia, Fed. Sts.	Romania	Thailand	Togo
Burundi	Equatorial Guinea	Kazakhstan	Moldova	Rwanda		
	Eritrea					

# HIV/AIDS



PHYSICAL COUNT AT PHIN DISTRICT HOSPITAL PHARMACY  
LAO PDR

Over the last two decades, there have been enormous strides in reducing the burden of HIV in low-and middle-income countries. Millions of lives have been saved, treatments have improved, and new and effective tools for prevention continue to be developed. Even so, there is a risk that we will not reach the goal of epidemic control. In 2018, there were 1.7 million new infections and 770,000 deaths from the disease—around the same number as the year before.

## INCREASING ACCESS TO OPTIMAL TREATMENTS

CHAI is working to ensure that the latest and best medications and diagnostics are available to all who need them in low- and middle-income countries. With the support of Unitaid, the Bill & Melinda Gates Foundation, and the UK Government's Department for International Development (DFID), in 2018 we focused on optimizing treatment in 26 countries. Building on efforts to increase availability of lifesaving dolutegravir (DTG), an

optimal HIV treatment option, CHAI helped drive a global shift to the new fixed-dose combination known as TLD.

TLD (a combination of tenofovir disoproxil fumarate, lamivudine, and DTG) is highly effective, easy to use, and has fewer side effects than older medications. In 2017, CHAI helped negotiate an agreement to lower the price of the medication to around US\$75 per patient, per year—significantly lower than other common first line regimens. In 2018, we worked with partner governments to increase usage of DTG across low- and middle-income countries with a high HIV burden, helping to provide early lessons to drive scale up of the medication within and across countries. As a result, by the end of 2018, over 26 countries had adopted DTG, and nearly two million patients had access to TLD. With product transition plans in place across these countries, national HIV programs will be able to provide improved treatment options for patients, enabling them to achieve treatment targets and unlock savings that can be redirected to prevention, diagnosis, or other treatment goals.

In **South Africa**, CHAI supported the National Department of Health (NDOH), the largest single market for antiretroviral (ARV) medication, to adopt and incorporate TLD into the national three-year ARV tender, a key component to shape the market and lower the cost of the medication. CHAI engaged with the NDOH and suppliers to accelerate development of TLD across multiple suppliers, and provided guidance on optimally timing the tender to ensure competition in the market. The NDOH has estimated that South Africa will save more than US\$1 billion over six years, benefitting over four million people living with HIV.

In **Ethiopia**, CHAI helped the government to revise the national HIV treatment guidelines to adopt TLD as the preferred treatment regimen for everyone over the age of 10, and supported rollout of the medication countrywide. In **India**, CHAI supported the National AIDS Control Organization (NACO) in conducting treatment optimization workshops, drug forecasting, and development of transition plans which resulted

## HIV/AIDS PROGRAM HIGHLIGHTS

### Global

26

countries have adopted lifesaving dolutegravir

2M

patients have access to TLD medication combinations

250,000

estimated new infections averted through 2030 from conducting 18.6M VMMCs

### Target Countries

Annual targets reached for VMMCs:

123%

95%

92%

Zambia

South Africa

Zimbabwe

Increase in number of people initiating oral PrEP preventative HIV treatment:

200%

145%

92%

South Africa

Zimbabwe

Kenya

in the adoption of DTG-based regimens for over one million patients. We are now supporting NACO to build a machine learning-based algorithm to predict loss-to-follow-up among patients on ART. The algorithm is expected to roll out alongside a CHAI-built electronic patient and supply chain management system.

In **Uganda**, we supported the development of the national rollout plan for DTG, which expedited its adoption as the preferred adult first-line regimen. In **Nigeria**, CHAI supported the Federal Ministry of Health to develop a transition plan for adults and adolescents to TLD. Research conducted on DTG in both Nigeria and Uganda provided local evidence to support national scale up of TLD in the two countries. Transitioning 700,000 patients to TLD and other DTG regimens will save Nigeria at least US\$1.8 million annually in treatment costs and transitioning 400,000 patients to DTG based regimens will save Uganda over US\$807,000.

In 2018, we also supported countries to adopt the latest HIV guidelines from the World Health Organization

(WHO) and accelerate access to the best available treatments for children. We supported ministries in 12 countries to adopt WHO recommendations extending access to DTG for children weighing over 20 kg. With funding from Unitaid, we also collaborated with ViiV Healthcare and two generic companies to launch an innovative public-private partnership to accelerate the development of optimal pediatric formulations of DTG.

### SUPPORTING COMMUNITY VOICES

Women and adolescents are disproportionately affected by new HIV infections in eastern and southern Africa and it is critical to ensure that they have access to the best medications to stay healthy and reduce transmission. In 2018, CHAI worked with governments and community advocates for women living with HIV to ensure that the best medications were available to them, including DTG. CHAI supported governments to assess and adapt strategies to roll out optimal medications to patients, while advocating

and supporting policies and practices that enable women to access DTG according to their choices and preferences. Together, we worked to foster government collaboration within HIV and reproductive health programs to identify opportunities to address barriers to treatment access for women living with HIV. Working directly with communities of people living with HIV, CHAI helped ensure that their voices were at the center of efforts to deliver newer and better HIV treatments. CHAI, alongside Unitaid, created a cross-country network of treatment advocates, known as the Optimal ARV Community Advisory Board (CAB), to engage and support ministries of health and partners in strengthening treatment literacy and generating demand for new products.

With support from CHAI, AfroCAB, a pan-African network of advocates for HIV treatment, organized a meeting in **Rwanda** for women living with HIV from 18 countries to discuss equitable access to DTG for women. This discussion resulted in a consensus

statement on women's right to access DTG and family planning options and helped inform policy decisions at the national level. In **Zimbabwe**, CHAI and partners facilitated community dialogues, and then compiled those findings into a report for the Ministry of Health and Child Care to inform the country's new HIV guidelines, including TLD as the preferred first-line treatment regimen. CAB members also developed user-friendly tools, treatment literacy materials, and communication materials to improve patients' understanding of new treatment options and to advocate for new and improved medications. In **Uganda** and **Malawi**, the ministries of health officially adopted the treatment literacy materials that were developed by CAB members. As a result of these efforts, combined with technical support to the government, the Ministry of Health and Population in Malawi expects to move close to 500,000 patients on ART to TLD.

Engagement and partnership with communities of those affected by the disease has become central to

### OUR APPROACH IN ACTION

Voluntary Male Medical Circumcision (VMMC) is one of the most cost-effective ways to prevent HIV, reducing female-to-male transmission of the disease by 60 percent. Since 2015, the Bill & Melinda Gates Foundation has funded CHAI to catalyze the scale-up of VMMC in **Zambia**, **Zimbabwe**, and **South Africa**, through enhanced coordination and management structures and adopting evidence-based targets within each country. Using an inclusive approach CHAI works together with government and implementing partners to jointly plan and continuously review progress. CHAI has focused on consistent, collaborative coordination to match supply and demand of services during VMMC campaigns.

The approach is focused on localized, innovative demand creation through partnerships with influencers within communities such as local chiefs and religious or business leaders to reach more men and boys. CHAI works with partners to develop target geographies where resources can be maximized to have the most impact. In order to ensure that programs are effective, CHAI utilizes continuous performance monitoring to make data-driven decisions to address challenges and redirect resources to improve outcomes and efficiencies.

This work has driven improvements in country-led VMMC campaigns, and significantly increased impact. From 2008 to 2017, CHAI-supported countries accounted for one third of the 18.6 million VMCCs conducted in the 14 priority countries.

In 2018, the three CHAI-supported countries—Zambia, Zimbabwe, and South Africa—conducted a total of approximately 1.4 million VMCCs. Zambia achieved 123 percent of its annual target, Zimbabwe achieved 92 percent, and South Africa achieved 95 percent. Contributing to this success were innovative and intensive media campaigns, decentralized coordination and management that encouraged community-led strategies and local engagement, and optimized resources and data to improve decision-making that helped fill the gap for underfunded districts. CHAI will continue to support countries to define and establish structures for program sustainability.



A PREGNANT WOMAN RECEIVES A ROUTINE HIV TEST AS PART OF HER ANC VISIT TO KASAMBYA HEALTH CENTER III  
UGANDA

CHAI's approach in HIV, and CHAI is now expanding this community advocacy work to HIV diagnostics and advanced HIV disease.

#### CONNECTING CHILDREN TO TREATMENT

CHAI is helping governments to pursue a comprehensive approach to pediatric HIV across the cascade of care from targeted testing and identification, linkage to and retention on optimal treatment, and ultimately viral suppression. We are helping to address policy barriers, generate evidence to inform normative guidance, conduct proofs of concept and costing for adoption and scale up of promising models for service delivery and innovative technologies, and supporting governments to increase usage and availability of the most effective products. At the end of 2018, with support from the ELMA Foundation, CHAI helped identify over 213,000 new HIV positive children and initiate over 140,000 on ART across **Malawi, Uganda, Zambia, and Zimbabwe**.

Diagnosing HIV in infants requires the use of complex technologies and it can take months before HIV-positive

infants receive treatment. Through support from Unitaid, CHAI facilitated the expansion of point-of-care (POC) early infant diagnosis (EID) testing to diagnose and initiate infants on treatment in a single day.

Across **Cameroon, the Democratic Republic of Congo, Ethiopia, Kenya, Malawi, Mozambique, Zimbabwe, and Uganda**, CHAI supported the governments to provide POC EID testing to 125,000 infants. In Mozambique, over 90 percent of eligible infants tested on a POC device were initiated on treatment the same day. CHAI also supported five early adopter countries, Cameroon, the Democratic Republic of Congo, Kenya, Tanzania, and Zimbabwe, to pilot and introduce POC Viral Load (VL) testing for pregnant and breastfeeding women to allow timely clinical interventions for the prevention of mother-to-child transmission. Through pilot programs in Malawi and Zimbabwe, CHAI successfully demonstrated the potential of integrated testing for EID, tuberculosis (TB) and VL on the GeneXpert® platform. These efforts showed that these tests could be run on a single device without compromising TB services. Cameroon, the Democratic Republic of

Congo, Ethiopia, Kenya, Malawi, Uganda, and Zimbabwe adopted integrated testing as a rapid and economical way to accelerate the scale-up of POC EID and VL testing services.

Across the countries where we work, we are helping governments strengthen systems to track mothers and their babies to retain them on treatment and reduce transmission. We are helping revise national policies on pediatric testing to catalyze diagnosis and linkage to care in key facility entry points and develop practical operational guidance, curriculums, and training materials to streamline facility practices for pediatric testing and treatment initiation.

In **Zambia**, CHAI supported the Ministry of Health to develop and scale-up a Pediatric HIV Change Package to over 767 sites nationally. This package consists of simple, high-impact interventions such as the HIV testing services in all entry points at health facilities, the provision of escorted patient referral to ART clinics, and the establishment of patient tracking systems. In **Uganda** and **Malawi**, CHAI supported the development of electronic tracking systems to expedite results for EID to improve treatment initiation and retention of mother-infant pairs on treatment. In Uganda, evidence generated from POC EID testing at Alternative Entry Points (AEPs), including nutrition and pediatric wards, paved the way for policy shifts to enable national scale up of POC EID in the country. The deployment of POC devices increased testing volumes by over 100 percent, and the number of HIV positive infants identified more than doubled over a six month period. Forty percent of HIV-infected infants were identified in the AEP sites, highlighting the need for this type of alternative entry point testing.

#### IMPROVING DIAGNOSIS FOR ADULTS

To increase the number of people living with HIV that are aware of their status and link them to lifesaving treatment, CHAI kicked off work supporting governments to strengthen their adult HIV testing services in 2018. Supported by the Bill & Melinda Gates Foundation, CHAI began work with ministries of health in **Kenya, Malawi, Uganda, and Zimbabwe** to optimize national HIV testing services strategies, utilizing data to drive development

of evidence-based targets to effectively direct efforts and resources across the national programs and partners. In 2018, CHAI also began supporting the planning and execution of HIV self-testing introduction and uptake in **India, Kenya, Malawi, South Africa, and Uganda**. We supported national programs to develop and adopt policies and guidelines for innovative and targeted testing channels such as index testing and HIV self-testing, which is critical to drive scale-up of these strategies beyond operational research and demonstration sites.

For patients on treatment, routine viral load monitoring provides insight about treatment response. In 2018, CHAI announced a breakthrough agreement with partners including DFID, MedAccess, PEPFAR, and the African Society for Laboratory Medicine (ASLM), along with the **Zambian** government, to significantly reduce the cost of diagnostic testing for HIV, hepatitis, and human papillomavirus (HPV) in low-and middle-income countries. The agreement enables public sector programs in these countries to access the Hologic® Panther system, an integrated molecular diagnostic instrument,



A NURSE OPERATES A PIMA CD4 TESTING MACHINE AT A HEALTH CENTER LILONGWE, MALAWI



A DRIVER WITH RIDERS FOR HEALTH, WHICH TRANSPORTS DIAGNOSTIC SAMPLES AND THEIR RESULTS FROM PRIMARY CARE FACILITIES TO DISTRICT LABS LESOTHO

at a price of US\$12 per patient sample, and simplifies the procurement logistics. The new platform generates faster results for HIV VL to patients to help adherence to medication and identify treatment failure. In **India**, CHAI also supported NACO in setting-up a first of its kind public private partnership (PPP) to rapidly scale-up routine VL monitoring, which is expected to support the nation in conducting over one million tests over three years.

### SUPPORTING PREVENTION

In 2018, through support of the Bill & Melinda Gates Foundation, CHAI partnered with the Aids Vaccine Advocacy Coalition (AVAC) to support the launch of the Biomedical Prevention Implementation Collaborative (BioPIC). This innovative initiative, consisting of over 80 organizations, will work to develop and jointly implement a comprehensive, coordinated introduction strategy for long-acting cabotegravir, which, if approved, will be the first long-acting injectable product for HIV prevention.

CHAI also continues to support the scale-up of oral PrEP to prevent HIV infection. In 2018, there were significant increases in the number of people initiated on this effective prevention intervention—**South Africa** achieved around 200 percent of its target, **Zimbabwe** achieved over 145 percent, and **Kenya** achieved over 92 percent. In **Eswatini**, CHAI, under the leadership of the Ministry of Health, continued with the implementation

of a demonstration project on the feasibility of PrEP implementation in six primary healthcare facilities in the Hhohho region. Early results helped contribute to decision making around a national scale-up beginning in 2019.

CHAI also continued efforts to support Voluntary Male Medical Circumcision (VMMC) as a tool for prevention of HIV, supporting 1.4 million circumcisions in CHAI focal countries in 2018. Between 2008 and 2018, 7.8 million VMCCs were conducted in CHAI program countries.

### LOOKING AHEAD

In 2019, CHAI will continue to support governments to take a more targeted and evidence-based approach to identify cases of HIV. We will work to ensure that those who are HIV positive are linked to lifesaving treatment and that those who test negative are linked to effective tools for prevention. We will use our lessons learned with pediatric HIV to expand this work to new areas. We will continue to improve access to the best treatments for adults and children and expand this work to improve care and treatment of those with advanced HIV disease.



**Carolyn Amole**  
Senior Director, HIV

When I joined CHAI in early 2010, I planned to stay for two years and then go to graduate school. I never intended to build a career at CHAI, but quickly fell in love with the mission and the work. Prior to joining, I worked in management consulting, and after a few years, I was eager to have a positive impact in the world. I came to CHAI because of its unique approach and the opportunity to use the skills I learned in the private sector to create transformational impact in global health. I have stayed because of the core organizational value of urgency that drives us, because of our close partnerships with governments through which we create real and lasting change, and because of the difference we make in the lives of the people we serve.

Although we have had many successes over the past decade in our work in HIV, it is our failures that keep me up at night and push me to do more. Several years ago, I learned from a friend who is an advocate living with HIV in sub-Saharan Africa that his brother had recently died from AIDS after a long battle. He had waited years to get access to an optimal antiretroviral medication, which was widely available in the United States but was not yet available in his country. I was so sorry and sad for my friend, and I felt the weight of his brother's death as a personal responsibility. The country where he lived is a country where CHAI works, and eventually we managed to support the government to adopt, introduce, and scale up the drug. But we didn't move fast enough, and I wonder if he would still be alive today if we had succeeded in introducing that drug in his country more quickly.

A significant part of our HIV work focuses on shaping global markets—on accelerating access to the highest quality drugs and diagnostics for the 39 million people living with HIV around the world, and preventing new infections for the millions more who are at risk. The numbers are very large, and sometimes it can be difficult to remember that there are individual lives behind those numbers—people with great dreams and potential, each with stories of triumph and struggle.

# UNIVERSAL HEALTH COVERAGE



A COMMUNITY HEALTH ASSISTANT COMPLETES A MALARIA TEST FOR A PATIENT DURING A HEALTH FACILITY VISIT  
ZAMBIA

To address health and development goals, all people must have affordable access to quality health care. Even so, half of the world's population lacks access to basic health services. Countries where CHAI works are home to 41 percent of the global population under 50 and experience almost half of the global disease burden, yet they account for only 8.5 percent of total health spending. At the same time, many countries are facing reductions in funding from external sources, which can slow progress and result in gaps in the availability of quality health services. As a result, providers are increasingly relying on patients to cover medical expenses out-of-pocket which can create significant

financial hardship, particularly for those who are poor. In low- and middle-income countries, 97 million people are driven below the poverty line by health care spending, forcing many to seek substandard care, or forgo it altogether.

Across the globe, governments are increasingly committed to the goal of universal health coverage (UHC) to ensure that all people can access the essential health services they need without paying more than they can afford. CHAI is working with partner governments to achieve this goal through strengthening health financing systems, health workforce, and other delivery systems.

## SUSTAINABLY STRENGTHENING HEALTH FINANCING SYSTEMS

How health is financed has a significant impact on the performance of a health system and its ability to improve patient outcomes equitably across the population. All countries, at any stage of development, can strengthen national health financing systems to spend available resources more efficiently and equitably, delivering quality, essential services for the entire population. With support from the Swedish International Development Agency (Sida), Irish Aid, the Surgo Foundation, the UK government's Department for International Development (DFID), and the Bill & Melinda Gates Foundation, CHAI is helping governments to strengthen domestic health financing systems, including through insurance and tax-based reforms. We are working across countries to build government capacity to implement and continuously improve financing systems including: defining priority health services for health benefit packages by assessing costs and prioritizing needs; securing investments to upgrade health systems; developing health financing strategies; implementing reforms to mobilize and redistribute tax and insurance resources based on need; and strengthening management of resources.

**Ethiopia** has a growing economy and has made significant progress toward its health goals, but health spending per capita is low (estimated at less than US\$33 per capita) and it is largely dependent on donor funding and out-of-pocket payments. In past years, CHAI has supported the government to develop its Health Care Financing Strategy to address long-term gaps and reduce out-of-pocket spending and reliance on donor aid. We are now working with the government to align and improve efficiency in budgeting and spending of general revenue, insurance, and donor funds. In 2018, with funding from Irish Aid Ethiopia and Sida, CHAI supported the Ethiopian Health Insurance Agency in piloting a new model of insurance, working with a regional branch office in Tigray region to move

from district-level risk pools to regional-level. Working with a technology partner, we supported the Ethiopian Health Insurance Agency to develop and test a mobile and web-based insurance management information system in order to manage insurance administration across a number of districts. The system is being tested in an initial district, with the community and facilities providing input on requirements through user-centered design. This system aims to improve the efficiency and reach of insurance and generate an unprecedented level of patient information that can be used to control costs and improve health care quality.

In **South Africa**, the government took significant strides toward passage of the National Health Insurance reform bill in 2019. National Health Insurance (NHI) aims to address one of the largest gaps in health equity in the world by ensuring that all South African citizens are able to access quality health care, regardless of ability to pay. CHAI is supporting the National Department of Health, and more recently the National Treasury, to successfully design and prepare for NHI by developing institutional capacity for insurance reform, including the development and standardization of a benefits package and services to be provided. This work is helping to inform resource allocation and upgrading of service delivery for primary care to drive alignment of public and private sector services. In 2018, we worked with the Northwest Province to review private sector contracts in the health sector, identifying in the potential for around US\$20 million in annual savings. We are now working with National Treasury to engage with Department of Health to secure additional savings across the health sector, which can be re-programmed to critical needs.

In 2018, CHAI continued to support the **Zambian** Ministry of Health as it passed the National Health Insurance Act of 2018. This new health system will initially cover the formal public and private health sector, with the informal sector initially opting in on a voluntary basis. CHAI is supporting the implementation of National

## UNIVERSAL HEALTH COVERAGE *continued*

Health Insurance by conducting a simulation model to guide discussions on financial feasibility over time. We are also helping the government to encourage prioritization of standard health services offered and improve health system efficiencies to improve health outcomes for more people.

In other countries CHAI is working with governments to improve efficiency and effectiveness of health spending, with a focus on coordinating limited donor and government funds. In **Eswatini**, approximately 50 percent of the health sector is domestically funded, but these domestic resources for health fluctuate significantly, and available donor support is declining. The country continues to face a high burden of disease and poor health outcomes. The government is committed to sustainably providing quality health services for those in need and improving its budgeting and resource management to do so. In 2018, CHAI supported the

government to prepare for transition from funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and PEPFAR by planning for the absorption of donor-funded healthcare workers onto government salaries in the national budget. We also assisted the National Emergency Response Council on HIV and AIDS to develop procurement plans to ensure absorption of Global Fund resources and prevent disruption of service delivery for key health products. We helped the government save \$US1.2 million by pooling the procurement of vaccines; this savings has been re-allocated toward the introduction of the human papilloma virus (HPV) vaccine planned for 2020.

In 2018, CHAI also supported the **Malawi** Ministry of Health and Population to prepare its national and district health budgets, developing new templates for improved workplanning and budgeting. This work has helped the government better define national strategic priorities

with input from districts on what is needed to deliver services. These streamlined tools have also helped link the government budgeting process with the donor process to facilitate joint planning and coordination, as well as mobilization of resources to address gaps.

In 2018, CHAI helped the government of **Lesotho**, in collaboration with the World Bank and UNICEF, to develop its Public Expenditure Review to analyze spending patterns in the country's public health sector and identify opportunities to improve the efficiency, equity, and effectiveness of its financial resources. Alongside these partners, CHAI conducted a follow-on study to explore current bottlenecks that are preventing maximum budget utilization. Findings of the study are expected to be published in 2019.

In 2018, CHAI also joined the International Decision Support Initiative (iDSI). This initiative supports a regional network of practitioners and experts to

strengthen the priority setting processes for aligning benefits to be provided with the resources available. Together with iDSI and with funding from Sida, CHAI brought together government partners at the Health Systems Research Symposium in 2018 to compare practical experience and priority setting. Following this meeting, CHAI and iDSI are working with governments including **Rwanda**, **South Africa**, **India** and **Kenya** on benefits package design.

## STRENGTHENING THE HEALTH WORKFORCE

Developing a qualified and available health workforce is also critical to reach the goal of UHC, but these efforts are often hampered by budget constraints. CHAI is helping partner governments to develop sustainable systems to educate health workers at all levels and to understand and build the health infrastructure necessary to provide quality health services.

### OUR APPROACH IN ACTION

Increasingly, governments are making unprecedented political and financial commitments to universal health coverage (UHC). In 2018, the Government of **India** launched Pradhan Mantri Jan Arogya Yojna (PM JAY), the largest government-funded insurance system in the world. This reform aims to expand on past efforts to provide quality, affordable health services to 40 percent of the population—over half a billion of India's poorest and most vulnerable citizens. This system, together with investments in primary care, is critical in a context where each year 18 percent of the population experienced catastrophic health spending and 50 million people were driven below the poverty line.

During the launch of this reform, CHAI supported the office of the CEO of the new National Health Authority (NHA) in building up the management systems that would be critical to a successful launch of the new system. With some support from donors such as Surgo Foundation, CHAI was able to quickly respond. CHAI staff supported the NHA to set up performance management systems, drawing on routine data systems for enrollment, claims and provider data, and developing management dashboards and data visualization for leadership. Initial work enabled NHA leadership to centrally track progress on beneficiary identification down to the district, block, and village level and determine where to best allocate resources and make changes

in order to accelerate the pace of scale-up to reach remote areas of this country. This work helped the government update census records (specifically contact details) for nearly 55 million Indian families in a short period of time. Within 75 days of launch, health cards were issued to two million families and half a million beneficiaries received care in hospitals.

CHAI's initial support also helped to create demand for a more permanent Data Insights Hub within the NHA, which was staffed by the government and other partners to analyze and manage health data. CHAI is helping to develop and train this new team and is continuing to support performance management, strengthen data systems, and use routine claims data analyses to revisit initial design decisions such as contracting arrangements with the private sector.

CHAI has partnered with the International Decision Support Initiative, funded by the Bill & Melinda Gates Foundation, to continue to support the NHA leadership and directorates and work with the NHA to build similar institutional capacity at the state-level. We will support the state and central governments to roll-out the reform and continuously improve on its design and implementation to ensure it is successfully and sustainably improving access to affordable quality services.



AN INSTRUCTOR WORKS WITH STUDENTS AS PART OF AN EMERGENCY OBSTETRIC AND NEONATAL CARE TRAINING PROGRAM  
ZAMBIA

## UNIVERSAL HEALTH COVERAGE *continued*

In 2018, CHAI supported **Malawi's** Ministry of Health and Population to develop and launch its Human Resources for Health Strategic Plan which will guide targets for healthcare worker development, management, and planning for the next five years. The plan uses data about the primary health workforce to estimate and optimize workforce requirements to fill public sector vacancy rates, which currently stand at 48 percent. We are also supporting the government to make critical investments in education systems and infrastructure for health workers. In 2018, CHAI supported the government to begin construction of 100-bed student hostels at universities in northern and southern Malawi, and handed over a newly built 32-bed maternity unit.

**Sierra Leone** has long suffered from healthcare worker shortages, exacerbated by the 2014 Ebola epidemic which reduced the workforce by of 25 percent. Budget constraints have for a long time limited the ability of the government to expand its formal health workforce to the levels required. More than 700 healthcare workers are working in health facilities on a voluntary basis, waiting to be absorbed onto government payroll. At the current pace of health worker training and absorption, by 2030 Sierra Leone will not be able to reach its health worker demand. Recognizing that its health workforce budget may not grow significantly but that there is still an opportunity to optimize utilization of the existing workforce, CHAI supported the government in 2018

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I feel excited and privileged to work with policymakers on reforms that will transform health systems and will have an impact long after CHAI's engagement.

— Samantha Diamond

[READ MORE P. 24](#)

to develop a Rural Retention Action Plan for better distribution and management of healthcare workers in remote areas. The plan is based on a massive data collection exercise covering 100 percent of Sierra Leone's localities to understand the monetary and non-monetary incentives for health works in 'hard to retain' areas and plan accordingly. CHAI also supported the government of Sierra Leone to raise USD \$2.1 million to increase the production of state registered nurses, which will increase the state-registered nurse cadre by 75 percent and the overall workforce by two percent in the next three years.

In **Zambia**, CHAI is helping the government to improve its health infrastructure, including the construction of the first School of Midwifery in the Northern Province. This region has historically recorded one of the highest rates of maternal deaths in the country, driven by the large number of pregnancies handled by unskilled health providers. The new school is training registered midwives and skilled birth attendants to help save the lives of women and their babies. In 2018, construction of the library and skills lab was completed, allowing the school to double enrollment numbers. The first cadre of midwives is expected to graduate in 2019. With funding from Sida, CHAI is also providing support to improve education around emergency obstetric and newborn care. In 2018, 50 community health workers were trained on these services. CHAI also supported the Zambia Union of Nurses Organization (ZUNO) in 2018 to develop



COMMUNITY HEALTH ASSISTANTS VISIT A COMMUNITY FACILITY  
ZAMBIA

continuous professional development content for in-service nurses and midwives to improve quality of care. CHAI supported the government to develop and launch the 2018-2024 National Human Resource for Health Strategic Plan which outlines strategies for the Ministry of Health to ensure sufficient numbers of health care workers are being trained, deployed, and retained according to the country's needs.

### STRENGTHENING OTHER SERVICE DELIVERY SYSTEMS

A strong organizational infrastructure is also key to the success of a sustainable health system. **Lao PDR's** Ministry of Health implemented fundamental supply chain reforms across the country in 2018, which have significantly reduced stockouts of 18 key HIV, tuberculosis, malaria, child health, and reproductive products in more than 90 percent of facilities. The

### LOOKING AHEAD

In 2018, there was significant momentum around the goal of UHC, with more and more governments making unprecedented political and financial commitments to reach this goal, while moving away from a reliance on donor aid. In response to government requests, CHAI will continue to deepen and expand support for these reforms.

In 2019, we will continue support for the implementation of comprehensive health financing reforms in **Ethiopia, Rwanda, South Africa, Malawi, Eswatini, Zambia, and Zimbabwe**. This work ranges from setting and costing priority services, to developing an investment case for health systems strengthening, to mobilizing and pooling resources, and finally improving how resources are used to pay for services. For example, we will expand work with South Africa's National Treasury in addressing efficiency in private sector engagement as a key component of NHI reform and we will work with the government of Rwanda to improve the sustainability of the insurance scheme. We will also expand

reforms, which began in 2015 as a CHAI-driven pilot in one district and one warehouse, have now reached every province and nearly 110 of the country's 186 province and district hospitals and warehouses. The reforms have improved the quality of patient care across the country and saved several hundred thousand dollars through reduced expiries and cost savings through pooled procurement.

In **Sierra Leone**, CHAI supported the Ministry of Health and Sanitation to re-establish management and operations of the Free Healthcare supply chain which had been supported by outside organizations following the Ebola outbreak in 2014. We also supported the ministry with the central level rollout of an electronic logistics management information system to ensure that the government is able to view medical stock levels online across all nine warehouses to inform distributions and avoid expirations of supplies.

our support in countries including **India, Kenya, Nigeria** and **Mali** to move from significant political and financial commitments to implementation of reforms to provide affordable access to quality health services for those most in need.

We will continue to support our partner governments in their efforts to strengthen national and community-based health workforces, and will work on new projects with the governments of **Kenya, Malawi** and **Zambia** to plan and coordinate their national pediatric workforces. In Zambia, we will continue to increase access to basic health services in rural communities by supporting training, deployment, and supervision of community health assistants. In Zimbabwe, we will support the government to develop and launch a National Community-Based Health Strategy to provide an essential package of preventative and curative services at the community level and will support the Ethiopian Federal Ministry of Health to develop a plan for improving training quality for healthcare specialists across the country.



## Samantha Diamond

Associate Director, Health Financing

In 2010, I was conducting a research fellowship during my master's program, working with organizations in Haiti that were supporting policy changes to improve health in prisons. When I completed my degree, I applied to CHAI in Haiti. I had encountered many NGOs that were delivering urgent relief in the aftermath of the devastating 2010 earthquake. CHAI was different in its focus on what would happen next; working with Haitian policymakers to strengthen institutions and management systems that would be needed for sustained impact.

CHAI reminded me more of a start-up than an international NGO. We were a 15-person team in Haiti, tackling challenges big and small, from setting up a national laboratory referral system, to organizing a pharmacy training. My colleagues came from different backgrounds—management consulting, IT, medicine and statistics, among others. We approached problems differently and pushed each other's thinking.

In my role in Haiti, I had the opportunity to work within the Ministry of Health units for AIDS, tuberculosis (TB), and malaria. The director I worked with at the ministry needed to put together a plan to coordinate and align hundreds of development partners and donors to maximize very limited resources. One of my first tasks was to conduct a study on different models of prevention and treatment to find the

most cost-effective options. I worked with Ministry of Health staff to use this evidence to develop costed and prioritized national plans for ambitious goals toward universal access to HIV/AIDS and TB prevention and treatment, as well as malaria elimination. Armed with these plans, the ministry submitted successful proposals to the Global Fund and asked other large donors to re-program funds to align with national priorities.

I later joined CHAI's global health financing team and applied the same approach across countries. I worked with colleagues to arm decision makers in government with evidence, plans, and budgets to make the case for their goals. At that time, global HIV treatment guidelines stated that only the very sick were eligible for treatment in poor countries. There was a global perception that increasing eligibility would be unaffordable, but we were committed to reducing costs and ensuring that all those in need of treatment received it. CHAI and our partners had already significantly lowered the cost of lifesaving HIV medications and diagnostics through negotiations. We conducted a study with five governments to show that the overall cost of treating patients in low-and middle-income countries was five times lower than previously thought—only \$200 per patient each year. I worked with colleagues and governments to analyze the costs of scale-up and we showed that treating more people could be affordable.

Governments used this evidence to assess what it would really take to scale up treatment and change national policies. In just two years Ethiopia, Malawi, Zambia, Rwanda, and Eswatini together made 443,000 more people eligible for treatment and treated more people with the same resources by improving management and efficiency. These examples and mounting evidence for the benefits of early treatment made an irrefutable case for change. In 2015, the World Health Organization (WHO) updated its guidelines, making everyone living with HIV eligible for treatment. Today 23 million people are accessing treatment worldwide, an incredible increase from 8 million people in 2010.

In the past few years, CHAI's health financing strategy and my work has shifted to domestic financing with the goal of universal health coverage. Evidence from across countries shows that as donor aid declines, millions of people will pay more than they can afford on health, while others will not seek care at all because of prohibitive costs. Already, 97 million people in low-and middle-income countries are impoverished by health expenses every year.

We work with governments to address this challenge by building systems that will finance and deliver quality services long after donor aid. In Ethiopia for example, at the request of the former Minister of Health, we worked with the newly established Ethiopian Health Insurance Agency to develop policies and set

I had encountered many NGOs that were delivering urgent relief in the aftermath of the devastating 2010 earthquake. CHAI was different in its focus on what would happen next; working with Haitian policymakers to strengthen institutions and management systems that would be needed for sustained impact.

# MALARIA



A WORKER COLLECTS SAMPLES OF MALARIA-CARRYING ANOPHELES MOSQUITOS  
GUNA YALA COMARCA, PANAMA

Each year, nearly 220 million people become sick with malaria worldwide, causing over 400,000 deaths. Malaria is a debilitating, sometimes deadly, parasitic disease spread by certain species of mosquitos. Children are the most impacted, with over 700 deaths a day for those under five, the great majority occurring in sub-Saharan Africa. Although funding for malaria significantly increased from 2000 to 2017, resulting in a 48 percent decline in malaria-related deaths, these gains may not be sustainable. Approximately 3.2 billion people (nearly half of the world's population) remain at risk of malaria.

The history of anti-malarial efforts clearly demonstrates how the threats of vector and parasite resistance, donor fatigue, and programmatic or community complacency will eventually reverse progress unless additional efforts are undertaken. Making further gains will require an increased focus on improving the efficiency and effectiveness of available resources through government-owned disease surveillance and response systems.

CHAI supports countries throughout Africa, Mesoamerica, Hispaniola, and Southeast Asia to accelerate progress

toward malaria elimination by strengthening disease surveillance, improving management processes, and increasing access to optimal tools that limit transmission, cure disease, and prevent deaths. In 2018, we helped governments target over a half billion dollars in domestic and international multi-year funding, including from The Global Fund to Fight Aids, Tuberculosis, and Malaria, to address clearly defined gaps in evidence-based plans. We helped governments strengthen routine case management to ensure that people who are sick with malaria are appropriately tested and treated. We worked with governments to adopt appropriate case management policies and guidelines through community platforms, and trained and supervised community case management providers in **Nigeria, the Democratic Republic of Congo, Uganda, Namibia, Zimbabwe, Panama, Guatemala, Honduras, Cambodia, Lao PDR, Myanmar, and Vietnam**. We helped national malaria programs institute data-driven micro-planning and improved monitoring and evaluation of long-lasting insecticidal net and indoor residual spraying (IRS) campaigns in **Botswana, Eswatini, Namibia, South Africa, Haiti, Honduras, Guatemala, Panama, and Lao PDR**.

## SOUTHEAST ASIA

With support from the Bill & Melinda Gates Foundation, CHAI worked with the national malaria program in **Lao PDR** to launch the country's sub-national malaria elimination acceleration project at the beginning of 2018. A dedicated team is now supporting five southern provinces with the highest malaria burden. Through this embedded support, program implementation has been strengthened, and reporting timeliness has improved from 35.3 percent in August 2017 to 80.3 percent in December 2018. More timely data allowed the malaria program to detect and promptly respond to eight malaria outbreaks, preventing additional cases. We also supported the rollout of case management and surveillance trainings to 500

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We are getting tangible results in malaria elimination in specific areas, giving credibility to our actions and to the establishment of long-term relationships of trust with governments.

— Carlos Uribe  
[READ MORE P. 31](#)

Ministry of Health staff and 1627 healthcare workers and village malaria workers. In **Cambodia**, CHAI worked in collaboration with the government and partners to reactivate the village malaria worker (VMW) program, which had stalled due to funding constraints. Through 2018, over 4,000 VMWs were successfully re-enrolled in the program through the expansion of an electronic payment scheme. Between 2017 and 2018, the number of tests conducted by VMWs increased by 190 percent, with VMWs conducting 57 percent of the total malaria tests in the country in 2018 compared to 14 percent in 2017.

In **Myanmar**, CHAI helped the Ayeyarwady Region identify and map high-risk forest worksites through a risk factor study, and began devising targeted plans for preventing new infections. We also launched support in Sagaing Region, the fourth highest burden region in the country, and completed an assessment of regional programmatic gaps to inform future support. We completed the transition of the national electronic logistics management information system (mSupply), which strengthens commodity forecasting and distribution, to the national malaria control program. In **Vietnam**, CHAI laid the groundwork for a sustainable approach to surveillance for elimination, including supporting development of a costed

## MALARIA *continued*

surveillance roadmap and the beginnings of the Malaria Management System (MMS) information system that will integrate with the national notification system for 43 infectious diseases. Beyond surveillance, we worked on improving case management practices in the highest burden provinces (3 percent of the total population, yet 49 percent of 2018 cases) through healthcare worker trainings.

### MESOAMERICA AND HISPANIOLA

In **Panama**, also with support from the Bill & Melinda Gates Foundation, CHAI's work with the government helped inform a new strategic plan for malaria, including a network of community health workers equipped with rapid diagnostic tests (RDTs) and anti-malarial medication. This plan was modeled on a pilot program CHAI supported in the high-burden region of Guna Yala in 2016 and expanded to Madungandi and Wargandi in 2018. This network now covers high-risk

indigenous communities that represent 61 percent of all malaria cases in Panama. In **Guatemala**, CHAI helped train 195 community health workers and 97 vector control technicians from high-risk districts of Escuintla on case management and supervision and opened 13 new testing points on sugar cane plantations where disease transmission is high. CHAI helped the government implement an expanded IRS campaign in 11 localities of Escuintla, the region with the highest number of malaria cases in the country. We supported the government in **Honduras**, to scale up the DHIS2 malaria information system nationally, building off a successful pilot led by CHAI in 2017. As a result, 20 regions of the country now report case notification and investigation electronically. In addition, CHAI facilitated IRS campaigns in high-risk areas of Roatán, Islas de la Bahía, and Kaukira, Gracias a Dios, achieving over 90 percent coverage of targeted households.

In **Haiti**, and as a member of the Malaria Zero consortium funded by the Bill & Melinda Gates Foundation, we

supported the government to scale up a new case-based electronic information system to the 12 communes of Grand'Anse, the highest risk region of the country. CHAI also coordinated risk mapping and mathematical modeling to guide the expenditure of available resources, including placement of community health workers and geographic targeting of mass drug administration and IRS.

### AFRICA

In **Zimbabwe**, CHAI supported the national program to target IRS and monitor spray coverage in malaria hot spots across six wards in Matabeleland North using electronic data capture tools. This enabled the districts to identify and 'mop up' missed buildings during the campaign and achieve 91 percent coverage of all at-risk homes. Co-funded by the Bill & Melinda Gates Foundation and Malaria No More UK, CHAI successfully helped the National Vector Borne Disease Program in **Namibia** to build entomological capacity, capturing

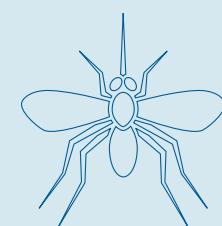
insecticide resistance data and demonstrating a case for introducing new categories of insecticide to the country. We then secured a donation of next-generation insecticide and had it delivered to the country in time for the spray season.

In **South Africa**, CHAI, in collaboration with University of California San Francisco, supported the National Department of Health to successfully advocate for an additional US\$24 million in domestic funding over three years through the National Treasury, as well as US\$4.4 million which will be dedicated to source reduction activities in **Mozambique**. We also worked with the government in Mozambique in 2018 to stratify and prioritize the activities included in the Operational Plan for Malaria Elimination in the southern area of the country, based on case origination data. This information informed the development of two successful proposals to the Global Fund resulting in a combined US\$44 million to finance key interventions. In **Botswana**, CHAI improved malaria disease intelligence

### OUR APPROACH IN ACTION

In **Honduras**, the department of Gracias a Dios has historically had the highest number of malaria cases in the country, particularly in the area of Kaukira and the coastal strip. Although indoor residual spraying (IRS) has been shown to be a safe and effective tool in combatting the mosquitos that transmit malaria, this spraying has typically been conducted with minimal planning in Honduras, limiting its effectiveness.

Recognizing this challenge, in 2018 CHAI led several activities to improve the spraying campaign. We began by introducing a more robust planning process that included engagement with the central and regional governments to review needs and discuss the plan for implementation. We then helped conduct a one-and-a-half-week training for all vector control technicians in the region on the use, cleaning, and care of spray pumps, insecticide management, spray technique and reporting. To protect workers, we facilitated adoption of new government policies for mandatory use of full personal protective equipment, a crucial safety element that had not previously been required. Finally, we supported bionomic studies to generate an entomological baseline for ongoing routine surveillance.



91% ↓

Reduction of reported malaria cases following IRS campaign in Kaukira region of Honduras



AN OLD MALARIA COMMUNITY HEALTH WORKER SIGN  
GRACIAS A DIOS, HONDURAS

## MALARIA *continued*

by completing a blood survey in the three highest endemic districts in the country. This information will help define the limits of local malaria transmission and augment data available from the routine surveillance system. In addition, CHAI provided significant support to the Ministry of Health and Wellness to update and cost the national strategic plan and to secure a US\$1.28 million Global Fund transition grant.

To improve access to effective malaria treatments, CHAI, through a partnership with the Swiss Tropical and Public Health Institute, UNICEF, and local research partners, and funded by Unitaid, helped generate initial evidence that will ultimately inform how best to scale up rectal artesunate (RAS), the preferred pre-referral treatment for severe malaria in children at the community-level. **The Democratic Republic of Congo, Nigeria, and Uganda** launched robust patient surveillance to collect baseline data on severe malaria and treatment-seeking behavior for over 3,500 children. With funding from the UK government's Department for International Development (DFID), eight drug and diagnostic importers across Nigeria and Uganda

participated in a model that allowed them to procure low-cost RDTs at approximately US\$0.23 through CHAI's negotiated prices. In Uganda, CHAI advocated for and secured a value-added tax (VAT) exemption on imported RDTs, which should further reduce prices. With funding from Comic Relief, CHAI trained 1,467 private drug shops (ADDOs) across four regions in **Tanzania** on febrile case management, and introduced a surveillance system to gather disease intelligence from the private sector.

### LOOKING AHEAD

We will continue to support our partners to drive down the burden of malaria and eventually eliminate the disease by building strong, sustainable systems for case management and disease surveillance, evidence-based program planning, and data-driven responses.



## Carlos Uribe

Regional Operations Director,  
Mesoamerica

Hispaniola by 2020 that was extremely challenging and still in its initial stages. I was immediately drawn to the project and, at the same time, attracted by CHAI's expressed values of urgency, action, frugality, humility, entrepreneurial culture, and dedication to the service of the government. It sounded like a common approach among private companies, but applied by a non-profit organization. I thought my profile was a good fit and that I could contribute something to the project. And so I joined the CHAI family.

Today, after more than two years of work in the Mesoamerican region and Hispaniola, we have been able to build a solid team of young, competent, and enthusiastic professionals, currently operating in five different countries: Panama, Guatemala, Honduras, the Dominican Republic, and Haiti. We have applied best business practices aimed at effectiveness and efficiency; and we have achieved this by delegating and entrusting the local project leadership to teams within the countries where we work. Our staff continues to work intensively, in conjunction with governments, to strengthen public health surveillance systems, improve febrile case management systems with the use of tests and medication, train local staff and transfer knowledge, aimed at making government programs capable of continuing operations even after we have left. At the same time, we are getting tangible results in malaria elimination in specific areas, giving credibility to our actions and to the establishment of long-term relationships of trust with governments.

The application of 'CHAI's approach' is proving successful in the region and governments are increasingly reaching out to us to increase our collaboration efforts. Without a doubt, these acknowledgements invite us to contemplate and work for a more robust and consolidated CHAI in the Americas, working in more programs and in more and more countries—a task, I believe, we are ready for.

# MATERNAL, NEWBORN, AND REPRODUCTIVE HEALTH

Each year, over 300,000 women, around 830 a day, die from preventable causes related to pregnancy and childbirth. Nearly 99 percent of these deaths occur in low- and middle-income countries. Around 7,000 newborns die each day, with 2.5 million succumbing within the first month of life. Most of these deaths are due to lack of access to quality prenatal, delivery, and postnatal care, but interventions such as access to skilled birth attendants and referrals to quality, well-equipped health facilities when needed, have been shown to significantly improve survival rates and reduce life-threatening complications.

Unintended pregnancies also contribute significantly to maternal mortality; in low- and middle-income 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 to do so. 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 reproductive health, but also to increasing education and breaking the cycle of poverty.

## AN INTEGRATED APPROACH

CHAI believes that integrating sexual, reproductive, maternal, and newborn healthcare is the most effective approach to dramatically reducing unintended



A NURSE COUNSELING A PREGNANT WOMAN IN HUNKUYI  
KADUNA, NIGERIA

pregnancies, maternal and newborn deaths, and stillbirths. Combining our experience in family planning and maternal and neonatal health, this approach begins by educating adolescents about their reproductive health and the services available to them, and supports women throughout their reproductive years to avoid unplanned pregnancies and sexually transmitted infections; safely space births; promote healthy pregnancy and childbirth; and help newborns thrive. In 2018, CHAI utilized this integrated approach in **Nigeria, South Africa, Uganda, and Zambia**, implementing key elements of the program across several other countries.

## IMPROVING OPTIONS FOR REPRODUCTIVE HEALTH

Effective contraception and family planning services are essential to help women safely plan pregnancies, improve economic outcomes, and save lives. CHAI is working with partner governments to expand the range of contraceptive methods available to women to increase usage rates and improve choice.

In 2018, we completed work on the groundbreaking Implant Access Program which has helped double the volume of contraceptive implants procured by over 80 low- and middle-income countries since 2012 and saved more than US\$450 million. Though popular, contraceptive implants were historically an underutilized method of contraception in low- and middle-income countries due to their high price. In 2012, CHAI worked with a consortium of donors to negotiate a price reduction of more than 50 percent for these implants (making them the most cost-effective hormonal method on the market), from US\$18 to US\$8.50. The deal also launched the Implant Access Program, which improved the global implant market and built systems across low- and middle-income countries to deliver the contraceptive methods that women were seeking. For example, the percentage of

married couples utilizing contraceptive implants in **Kenya** increased from five percent in 2009 to 38 percent by 2018, driving an overall increase in contraceptive use from 39 to 61 percent. Because of increased demand for the product, manufacturers have committed to maintaining the reduced price for contraceptive implants beyond 2018. CHAI also developed a strategy and provided support for a third supplier to enter the quality-assured implant market (at a price of \$6.90 per unit) to help further ensure that affordable pricing is sustained.

In 2018, CHAI also began efforts to support the governments of **Ghana, Malawi, and Myanmar** to

## MATERNAL, NEWBORN, AND REPRODUCTIVE HEALTH PROGRAM HIGHLIGHTS

### Impact Access Program

2X

volume of contraceptive implants procured

80+

low- and middle-income countries accessed reduced cost implants

US\$450M

saved across partner countries since 2012

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

introduce a new, easy to use, injectable contraceptive product that is inserted subcutaneously. This new device can be inserted without having to visit a health facility which can increase access for women, particularly in remote areas. CHAI is providing technical assistance to the governments in these countries to support the introduction and availability of these new contraceptives by developing costed introduction plans, coordinating training efforts, and integrating the product into the supply chain.

Contraception can also play a vital role in helping women to safely space pregnancies. Although nearly all postpartum women prefer to delay or prevent future pregnancies, globally only 35 percent use a modern contraceptive method during the first year post childbirth. CHAI is working with the governments of **Nigeria**, **Ethiopia**, and **Uganda** to provide information about family planning methods and increase usage in rural areas where rates of maternal mortality are

highest. CHAI-trained health workers are helping to improve awareness about contraceptive methods and increase usage, particularly in the 48 hours after childbirth while women are in a health facility. Implants and Intrauterine Devices (IUDs) are two highly effective contraceptive methods that can be initiated immediately postpartum, unlike many other hormonal contraceptives. In 2018, CHAI increased the percent of women receiving an IUD or implant immediately postpartum from 0 percent at baseline to 26 percent in Nigeria and 1 percent to 17 percent in Ethiopia.

CHAI is also working to help countries better understand gaps in family planning services. In **Sierra Leone**, CHAI developed a database to map healthcare workers trained on long-acting reversible contraception (LARC) usage. This database helped identify gaps in training and access to family planning services in communities and is helping the government to improve national capacity to provide supervision and



A NURSE GIVES A FAMILY PLANNING TALK AT AN  
IMMUNIZATION CLINIC AT KASAMBYA HEALTH CENTER III  
UGANDA

oversight and better understand where these services are available. In **Uganda**, CHAI conducted analyses of usage of family planning methods and worked with National Medical Stores (NMS) to support districts to complete their annual procurement plans for fiscal year 2019/2020 to minimize stock outs, particularly for LARCs.

### IMPROVING MATERNAL AND NEWBORN CARE FROM THE GROUND UP

CHAI is also working with governments to address gaps in maternal and newborn care before, during, and after childbirth. From the ground up, we are helping governments integrate each level of care to create strong linkages that stretch from the community to the hospital, via health facilities, and we are facilitating new levels of communication, collaboration, and accountability across all stakeholders. We engage closely with women to ensure that they are aware of the importance of prenatal and postnatal care and delivery at health facilities and address the barriers they face in accessing care. We are helping to train and mentor health workers to deliver high-quality care throughout pregnancy, childbirth, and after delivery, and are supporting referral systems, including emergency transportation, to higher levels of care when necessary.

### OUR APPROACH IN ACTION

CHAI's comprehensive approach to maternal and newborn health was developed because we knew we needed to act more quickly to save more lives. Our approach focuses on fundamental reforms in the health system to provide lifesaving interventions from the ground up.

Our initiative first launched in three states across Northern **Nigeria** in 2015. Covering a population of 10 million, we supported the government to address critical gaps in care by integrating the entire health system, from home—where over 80 percent of births occur—to the hospital. We helped train and mentor health workers to deliver care and refer and transport complicated cases to the appropriate health facilities. At the same time, we worked to ensure top-quality health products were available where and when they were needed. As a result of the program, within 18 months, neonatal

At the same time, we work to ensure that health facilities and workers have the lifesaving tools and medicines that they need to provide appropriate care.

With funding from the Norwegian Agency for Development Cooperation (Norad), following an initial pilot program in **Ethiopia**, CHAI first applied this approach at scale in three states across Northern **Nigeria** in 2013. In 2016, independent researchers found that the program directly contributed to sustained significant reductions in maternal and neonatal mortality and stillbirths (a 43 percent decrease in newborn deaths, 37 percent decrease in maternal deaths, and a 15 percent decrease in stillbirths). In 2018, CHAI began replicating this approach in **Uganda**, **Zambia**, and **South Africa**. In these countries, we are focusing on regions that face the greatest maternal and neonatal health challenges. Working with the national governments, we conducted extensive baseline assessments to identify gaps in the provision of high-quality maternal, newborn, and reproductive health services. CHAI is now supporting the Ministries of Health to implement strategies to mitigate the identified gaps, including improving the skills and ability of health workers, strengthening the national health supply chains and improving data management systems.

deaths dropped by 43 percent, maternal deaths by 37 percent and stillbirths by 15 percent.

In 2018, CHAI was awarded a Horizon Birth Day Prize by the European Commission and the Bill & Melinda Gates Foundation. The €1 million award, provided by the Bill & Melinda Gates Foundation, was one of three awards presented to programs that proved demonstrated and scalable solutions to reduce or prevent death 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. We are now working to replicate this approach with partner governments in other countries including **Zambia**, **Uganda**, and **South Africa** with the goal of making sustainable impacts that will continue to save thousands of lives.

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

By increasing demand for facility deliveries and bringing services closer to the community level, CHAI is working to significantly improve the proportion of deliveries supported by a skilled birth attendant. In **Zambia** and **Uganda**, we are supporting the ministries of health to strengthen emergency referral systems to increase the proportion of women, girls, and newborns referred and transported in a timely manner to the appropriate level of care during emergencies. In 2018, CHAI worked with the Ministry of Health in Zambia to implement a community owned and managed emergency transport system in three districts, which deployed 20 motorbike ambulances that are operated by volunteer riders selected by the community. These riders are then trained and equipped by CHAI to respond to emergency calls and transport women from the community to the nearest health facility. Since deployment, communities have taken over ownership and management of the motorbike ambulances by constructing storage sheds,

taking up the costs of fueling and servicing, and coordinating community volunteer riders. To date, a total of 134 women have been successfully transported to the nearest health facilities to receive emergency medical care.

In **Uganda**, CHAI supported the Ministry of Health's Emergency Medical Services (EMS) department to develop a national EMS strategy to provide efficient and responsive emergency medical care to all Ugandans. CHAI supported the ministry to develop a five-year strategic plan to operationalize this strategy and strengthen capacity of the health sector to deliver integrated emergency services nationwide through improvements to emergency care infrastructure and information systems, strengthening leadership, governance and health worker capabilities, and ensuring that essential medical equipment, medications, and supplies are available. The plan will also include referral

guidelines for emergency care for children, newborns, and pregnant women to help more women and children access emergency care services when necessary.

To address obstetric hemorrhage, the single largest cause of maternal death, and asphyxia, which is a major contributor to newborn death in childbirth, CHAI is working with the ministries of health in **Zimbabwe**, **South Africa**, **Zambia**, and **Uganda** to introduce lifesaving equipment such as the non-pneumatic anti-shock garment (NASG) as an important component of wider systems support to prevent deaths from childbirth complications. For instance, in 2018, CHAI distributed 918 NASGs and 1,648 neonatal resuscitators (NNR) in 85 facilities in 11 districts in the Northern Province of Zambia and equipped health workers with the knowledge and clinical skills for their use. As a result, the NASG has been applied on 49 women with obstetric hemorrhage, with no fatalities.

In **Ethiopia**, CHAI has been working alongside the government since 2011 to make lifesaving health interventions for women and newborns sustainable nationwide. CHAI began work in four regions in (Amhara, Oromia, Tigray, and the Southern Nations, Nationalities and Peoples' Region) across 203 health facilities representing some of the highest rates of maternal and newborn deaths and adolescent pregnancy in the country. We have helped the government mentor health workers in key skills around pregnancy and childbirth and to recognize the signs of a life-threatening emergency and refer and transport these cases to higher level health facilities when appropriate. The success of this program has influenced national government policy. Key components of the program, such as new approaches to the management of obstetric hemorrhage and midwife mentoring, are being adopted and are now being implemented nationwide.



A HEALTH WORKER DISCUSSES FAMILY PLANNING OPTIONS AT A CLINIC  
KANO, NIGERIA



A HEALTHY MOM AND BABY AT KASAMBYA HEALTH CENTER III  
UGANDA

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I work with the mindset that I am not just an employee of CHAI, but work on behalf of the whole community: our patients, children, and mothers.

— Dr. Foday Karim Kanneh  
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## MATERNAL, NEWBORN, AND REPRODUCTIVE HEALTH *continued*

### ADDRESSING HEALTH GAPS TO SAVE MORE LIVES

CHAI is also working to identify and scale up emerging and neglected innovations to address gaps in the diagnosis and treatment of major causes of death for mothers, newborns, and stillbirths. For example, syphilis, a sexually transmitted bacterial infection, can have serious consequences for pregnant women and newborns. The disease contributes to an estimated 7.7 percent of stillbirths globally and 11.2 percent of stillbirths in sub-Saharan Africa. Testing women for syphilis during prenatal care visits and providing treatment with an inexpensive antibiotic, has been shown to reduce stillbirth risk from syphilis by 82 percent and newborn mortality by 80 percent. These interventions also significantly reduce the risk of complications from pre-term birth, low birth weight, and newborn syphilis infections.

Working in close partnership with the World Health Organization (WHO), CHAI is engaging in a targeted, yet comprehensive, approach to improve maternal testing and treatment to pave the way for the global elimination of congenital syphilis.

### LOOKING AHEAD

Over the next two years, CHAI will continue to apply our integrated approach to sexual, reproductive, maternal, and newborn health in **Nigeria, Uganda, Zambia, and South Africa** while also implementing aspects of the approach in several other countries. We will also continue to improve access to innovative treatments and technologies to expand this reach further to save more lives.

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## Foday Karim Kanneh

Reproductive Health Clinical Mentor

I work with the mindset that I am not just an employee of CHAI, but work on behalf of the whole community: our patients, children, and mothers. This was especially true during the Ebola epidemic from 2014 to 2015.

At the start of the Ebola epidemic, my role shifted greatly. Until the end of 2015, I worked as a training coordinator with the Ministry of Health, the World Health Organization (WHO), and CHAI, training over 9,000 healthcare workers across the country. The training, which was under the leadership of CHAI as the National Ebola Case Manager for the Ebola outbreak, also included all of the non-governmental organizations (NGOs) and partners that came into the country to help end the epidemic. I was assigned by the CHAI country director to coordinate training of Ebola Treatment Unit (ETU) healthcare providers across the entire country. This comprehensive health worker mentoring program is still being operated by the WHO and the Ministry of Health to help address challenges in the health system, including emergency care and management.

Today, I am a clinical mentor for our Reproductive Health program. In this role I help train and mentor health providers, including nurses, midwives, and physicians' assistants in clinics, health centers, and hospitals in seven priority areas across the country to ensure that women are able to access tools to safely plan their families and save lives. This experience, as with every other at CHAI, has made me appreciate our unique approach of collaborating with the government to apply innovative and sustainable solutions to saving lives and expanding access to quality healthcare.

# DIARRHEA AND PNEUMONIA

Diarrhea and pneumonia are the leading causes of death for children under five worldwide, even though these deaths are often preventable with appropriate diagnosis and treatment. CHAI is working with partner governments that account for almost 40 percent of all child deaths from diarrhea and pneumonia to remove market barriers, reform policy environments, and improve health worker capabilities to ensure that the appropriate treatments and screening tools are available to all children in need, no matter where they seek care.

## DIARRHEA

Every minute a child under the age of five dies from fluid loss and dehydration associated with diarrhea.



A CHILD HAS HIS OXYGEN LEVELS MEASURED USING A PULSE OXIMETER AT A HEALTH FACILITY  
BULUGUYI, UGANDA

Diarrhea is the second-leading cause of death in this age group. Even children who recover can face life-long repercussions due to slowed or stunted growth and persistently weakened immune systems. Fortunately, diarrheal deaths are easily prevented with inexpensive medicines. Combined treatment with zinc and oral rehydration salts (ORS), the recommended treatments for diarrhea by the World Health Organization and UNICEF, can prevent 93 percent of these deaths, but children in many low-resource settings do not have access to them. With funding from Absolute Return for Kids, the Bill & Melinda Gates Foundation, ELMA Foundation, Global Affairs Canada, the IKEA Foundation, the International Zinc Association, and the Norwegian Agency for Development Cooperation (Norad), CHAI has

worked since 2012 to improve access to and increase usage of zinc and ORS in **Ethiopia, India, Kenya, Nigeria, and Uganda**—where 42 percent of deaths from diarrhea occur.

Before this, less than a third of children with diarrhea received ORS and less than five percent received zinc, globally. Using a holistic approach, we helped partner governments address supply and demand barriers to increase treatment rates through strategies tailored to the unique issues facing each country. We worked with over 300,000 health providers in both the public and private sectors to reach children with diarrhea where they sought treatment. We crafted targeted messaging based on a nuanced understanding of caregiver behaviors and managed marketing campaigns. Through household surveys and audits of health facilities, we rigorously monitored performance to measure our impact, improve our approaches, and track treatment rates. As a result of these efforts, average combined zinc and ORS coverage among children with diarrhea increased from one to 24 percent in CHAI focal countries—averting an estimated 76,000 diarrheal deaths.

Given the unique nature of healthcare market in **India**, where around 80 percent of care is sought in the private sector, the program helped create an innovative, self-sustaining last-mile distribution channel that extended deep into the rural areas where 67 percent of the population resides. The program was implemented over a three year period from 2013 to 2016 in the states of Madhya Pradesh (MP), Gujarat, and Uttar Pradesh (UP) that accounted for around 43 percent of the total diarrhea burden for children under in India annually. CHAI collaborated with local entrepreneurs to promote scaling up zinc and ORS to around 150,000 rural clinics and pharmacies. This resulted in a significant increase in coverage from 22 percent to 48 percent for ORS, and from less than 1 percent to 34 percent for zinc. Since 2017 we have continued with this initiative in Madhya Pradesh, and a recently concluded household survey

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The CHAI approach seeks transformative change, amidst what might seem to be overwhelming need and obstacles that many have considered insurmountable. Hand-in-hand with the government and our partners, we overcome these barriers to save lives.

— Audrey Battu  
[READ MORE P. 45](#)

indicated that ORS coverage has increased to 62 percent and zinc coverage has increased to 47 percent. CHAI also supported the Ministry of Health in its campaign to improve awareness and resources for scaling up zinc and ORS usage and delivery nationwide.

Starting in 2015, CHAI expanded our model to **Ethiopia**—where we are working with the Federal Ministry of Health (FMOH) and the Ethiopian Pharmaceutical Supply Agency (EPSA), through the Child Survival Program, to package zinc and ORS together. According to the 2016 Ethiopia Demographic and Health Survey, three in 10 children with diarrhea received ORS for treatment; 33 percent were given zinc, but only 17 percent received the combination of both ORS and zinc. Co-packaging zinc and ORS makes treatment easier for caregivers and helps patients to receive both lifesaving treatments. In 2019, the ministry allocated funding to procure seven million co-packs to distribute to healthcare facilities. Importantly, the co-packaged product is being produced locally, helping to ensure quality and reduce costs. As a result, co-packaged zinc and ORS are now available at nearly every health center and health post.

## DIARRHEA AND PNEUMONIA *continued*

### PNEUMONIA

Pneumonia, a common respiratory infection, is the largest single cause of death in children worldwide. Like diarrhea, pneumonia is treatable. When administered on time, amoxicillin dispersible tablets (DT) can cure a significant number of cases. Without treatment, patients can develop severe pneumonia—which kills over 20 percent of all affected children in as few as three days. But even severe pneumonia deaths can be prevented with aggressive treatment: supportive therapies like medical oxygen can keep children alive while injectable antibiotics—like gentamycin and ampicillin—work to clear the underlying infection.

Pneumonia disproportionately impacts poor and vulnerable children: 99 percent of all child deaths from pneumonia occur in low-resource countries. CHAI is

working in five focal countries—**Ethiopia, India, Kenya, Nigeria, and Uganda**—that are home to 40 percent of all pneumonia deaths to ensure that every child seeking treatment for respiratory illness is diagnosed and treated.

CHAI applies a multi-pronged approach to reduce pneumonia deaths. We are helping to shape global markets to lower the cost of lifesaving treatments such as amoxicillin DT and oxygen, and diagnostic tools such as handheld pulse oximeters (simple, non-invasive tests that determine the level of oxygen in the blood), while supporting partner governments to increase patient access. Working directly with manufacturers, we help them broker relationships with reliable, in-country distributors, establish service and maintenance agreements, and identify opportunities for direct sale

to health facilities. Overall, these efforts reduce costs along the supply chain and have decreased the average price for handheld pulse oximeters by 58 percent from US\$344 to US\$144. In **Kenya**, CHAI has developed an innovative and sustainable pricing and procurement model that have helped to reduce the price of quality pulse oximeters over 60 percent (from US\$450 to US\$139). We first identified multiple high-quality and affordable devices available for consideration and then connected global suppliers with local Kenyan distributors. We also negotiated a bundled procurement package that will ensure the devices offer continued service. CHAI is also helping partner governments in focal countries mobilize resources and coordinate stakeholders to improve access to treatments. These efforts are forging a path toward dramatic reductions in childhood pneumonia mortality.

### SPOTLIGHT ON NIGERIA



**Impact of introducing routine pulse oximetry:**

**11% to 76%** *increase in hypoxemia screening and treatment rates*

**19% to 71%** *increase in oxygen therapy received*



**A MOTHER VISITS A LOCAL HEALTH PROVIDER TO TREAT HER DAUGHTER'S DIARRHEA  
RURAL UGANDA**

### OUR APPROACH IN ACTION

In a small, rural village in east-central **Uganda**, baby Josephin was suffering from a persistent case of diarrhea. She visited a local health provider as her family had done often in the past. This time, she was prescribed zinc and ORS, and quickly recovered.

The local health provider, Florence, knew to prescribe zinc and ORS due to training she received through a CHAI-led program to increase health worker awareness of these lifesaving diarrhea treatments. Through this program, Florence also received several one-on-one mentorship visits to help her to diagnose and appropriately treat diarrhea.

CHAI uses a holistic approach to increase access to lifesaving diarrhea treatment across focal areas in **Uganda, Nigeria, India, Kenya, and Ethiopia**. We focus on increasing treatment rates at national and state levels, using an approach tailored to country needs to address barriers to access and usage.

Working hand-in-hand with these governments, we are helping to improve health provider awareness and confidence in zinc and ORS. Through trainings

and mentorships, we work with public and private providers to ensure that they are prescribing the right treatments at the right dosages. To generate demand, we leverage communication platforms with the greatest reach to inform caregivers and health workers of the lifesaving benefits of zinc and ORS. At the same time, we are working to increase local supply and reduce prices for the treatments by partnering with governments and manufacturers to help them produce high-quality products at lower costs.

We are also working to foster collaboration among governments and partners to reduce redundancy and drive integration. In Uganda, the government formed a Diarrhea and Pneumonia Coordinating Committee that included participation from more than 10 organizations to coordinate on healthcare provider mentoring sessions and demand generation campaigns.

Because of the efforts to increase availability, improve access, and ensure that health providers know to use these lifesaving treatments in Uganda, baby Josephin is one of thousands who are now being prescribed these treatments when they have diarrhea.

## DIARRHEA AND PNEUMONIA *continued*

In **Nigeria**, with funding from the Bill & Melinda Gates Foundation, CHAI worked with the government to improve pneumonia and hypoxemia management across 30 hospitals in three states. Twenty-nine percent more children (from 33 percent to 62 percent) with non-severe pneumonia were treated with amoxicillin as result. For children with severe pneumonia, the introduction of routine pulse oximetry made a transformational impact in hypoxemia screening and treatment rates: significantly more children were screened (76 percent; up from 17 percent) and received oxygen therapy (71 percent; up from 17 percent). This means an estimated 8,000 additional children with hypoxemia received life-saving oxygen therapy due to improved screening and treatment. CHAI also worked with the government to help sustain these gains through changes to national and state policies (aligning standard practice for treating pneumonia, diarrhea, and hypoxemia with WHO recommendations) and market conditions.

In **Ethiopia**, with funding from the Bill & Melinda Gates Foundation, CHAI supported the government to develop the country's first Medical Oxygen and Pulse Oximetry Scale Up Roadmap which has led to significant coordination of partners and further investment in oxygen systems throughout the country. A recent survey found that 100 percent of hospitals now have functioning oxygen therapy devices as well as pulse oximeters (up from 62 percent and 45 percent, respectively, in their in-patient pediatrics department on the day of the visit). There was also a significant increase from the previous year on the percentage of severe pneumonia cases with documented pulse oximetry measurements (up 52 percent from 20 percent), and the number of hypoxemia cases prescribed oxygen therapy (up 85 percent from 57 percent). CHAI, along with Result for Development (R4D), also supported the Federal Ministry of Health and Pharmaceutical Supply Agency to introduce amoxicillin DT at the health center level by changing guidelines, supporting supply planning and procurement, as well

orientation for providers at the facility level. By the end of 2018, more than 90 percent of health centers had amoxicillin DT available on the day of the visit, compared to a zero baseline.

In **Kenya**, CHAI facilitated an 85 percent price reduction of amoxicillin DT in the public sector (from US\$1.77 to US\$0.27), as part of a strategy to increase competition, including the introduction of the medication through a local manufacturer. CHAI also worked with the National Medical Stores (NMS) to fully replace amoxicillin syrup with amoxicillin DT in the public sector supply chain and the main private sector/faith-based organization supply chain, Mission for Essential Medical Supplies (MEDS). We also helped apply innovative approaches to increase oxygen availability, using evaluations to determine optimal supply types and negotiating for lower costs and improved efficiency. These efforts have resulted in a 54 percent increase in 2018 oxygen volumes sold in the public sector by the lead supplier in Kenya.

### LOOKING AHEAD

We will continue to work with partner governments to replicate achievements in increasing access to lifesaving interventions, while shaping markets to make health products more affordable.

To ensure childhood deaths from diarrhea and pneumonia continue to fall, we must sustain funding for child health. While these two illnesses remain the largest killers of children under five, donor funding has shifted away from increasing access to these simple and inexpensive treatments. This trend must be reversed for the global community to make progress against preventable child deaths.



**Audrey Battu**  
Director, Essential Medicines

After quick assessment of the situation, health workers connected these two children to oxygen cylinders that were available in the room. I soon saw the fast breathing child start to slow down, but I feared it might be too late for the other child. Making it even scarier, there were no pulse oximeters in the facility. If you have ever gone to an emergency room in a high-resource setting, this is the first thing they stick on your finger to check the level of oxygen in your blood. Without this tool, it is hard to monitor oxygen use. Instead, staff must carefully watch clinical signs and symptoms to know when to stop the oxygen therapy. This can be extremely difficult even for a trained clinician.

As a mother to two young boys, I often find myself watching my children breathe and taking in this privilege. I realize there is another mother somewhere watching her child take their last breath. The CHAI approach seeks transformative change, amidst what might seem to be overwhelming need and obstacles that many have considered insurmountable. Hand-in-hand with the government and our partners, we overcome these barriers to save lives.

And we have come so far. At the facility I visited, they have the option to give a child oxygen therapy—something that didn't exist not long ago—because there is a plant onsite producing oxygen cylinders. CHAI has worked diligently alongside the government of Uganda to build plants at all of the regional referral hospitals and we are working to develop distribution strategies to reach the lower level hospitals. We are helping to get pulse oximeters and oxygen analyzers in place and routinely used. There is more work to do, but we've already made immense progress.

In my ten years at CHAI, I have seen many facets of our organization. The people that I work with have inspired and challenged me, and this has been such a privilege. What I hoped for when I accepted a job at CHAI has proven to be true: our values are lived and the results are real and sustainable. It has been more than I could have imagined.

# VACCINES



Immunization is one of the most successful health interventions in history. It saves millions of lives, is highly cost effective, and contributes to economic and social development through saved medical costs, increased labor productivity, and improved child cognitive and educational achievement. Yet, vaccine-preventable diseases kill more than 1.5 million children each year, largely because key life-saving vaccines are still not available in low- and middle-income countries where the majority of these deaths occur. One out of every five children do not receive even the most basic vaccines. CHAI is working to increase access to lifesaving vaccinations by making vaccine markets and national immunization programs more sustainable.

A CHILD WAITS IN LINE TO RECEIVE HIS VACCINATIONS  
KANO, NIGERIA

## IMPROVING VACCINE SUPPLY SECURITY

We are working to improve vaccine supply security for low- and middle-income countries and negotiating prices with manufacturers to make their temperature-controlled supply chains, known as cold chains, more affordable. When exposed to high or freezing temperatures, vaccines are at significant risk of losing their potency. In **Cameroon**, in 2018, CHAI worked with the government to eliminate the majority of such exposures by introducing new management systems at central and regional vaccine storage facilities, which collectively store almost US\$15 million worth of vaccines each year. The success of the project prompted a country-wide revision of cold chain management policies. In **Tanzania**, CHAI helped the government ensure vaccines were not damaged through prolonged freezing. Together, we introduced data review meetings where district officers studied the performance of storage sites and held them accountable. This led to a 25 percent improvement in frozen vaccine response times at 40 district stores with 84 percent of sites responding within an hour (per World Health Organization regulations).

In **Tanzania**, CHAI also helped save US\$1.1million on a US\$6 million investment in safer, better-performing cold chain equipment, allowing the country to procure about 350 additional refrigerator units. Ordered through a Gavi funding platform, equipment suppliers initially quoted high costs that would have required Tanzania to reduce the size of its order. CHAI worked with the government to provide evidence that the quotes exceeded historical trends, which helped our partner, UNICEF, negotiate a better deal. UNICEF has since used this price negotiation strategy to help other countries on the same Gavi platform.

Having vaccines available at all levels of the supply chain is critical to ensuring children are immunized with high-quality vaccines on time and wherever they live. In

2018, CHAI helped **Uganda** increase vaccine availability at national and district levels by improving how vaccines were ordered and through the review of key supply chain indicators. By June 2018, all antigens (components required for immune response) at national warehouses were at appropriate stock levels, up 38 percent from 2017.

Supply chain data reviews are an important way for countries to monitor and improve their vaccine delivery and storage methods. Over the last few years CHAI, along with John Snow International (JSI) and VillageReach, have implemented supply chain data review meetings across seven countries in sub-Saharan Africa and the Middle East. In 2018, through Gavi Strategic Focal Area Funding, CHAI and partners generated guidance for Gavi, country, and other stakeholders on how to ensure effective supply chain data review.

## BETTER VACCINE PROGRAM MANAGEMENT

CHAI works with countries to improve the impact of national immunization programs. We directly support 11 countries in Africa and Asia, which represent 49 million births per year. Our global market and delivery work

### SPOTLIGHT ON UGANDA



National coverage of HPV vaccine among adolescent girls

2017

41%

2018

76%

“

I have confronted issues of social inequity and poverty, and heard deeply touching human stories that have shaped my values.

— Chizoba Fashanu

[READ MORE P. 49](#)

## OUR APPROACH IN ACTION

Supply constraints have recently plagued multiple vaccine markets, limiting access to this lifesaving protection for people around the globe. As a result, it is increasingly important to encourage a diverse and healthy supplier landscape, with manufacturers that are commercially viable over the long run.

In 2018, CHAI worked with a manufacturer of an oral cholera vaccine to mitigate the risks of demand volatility and to ensure the company's long-term viability. Because this vaccine is only required when there is an outbreak of the disease, the company had been struggling due to unpredictable demand and was unable to recover its fixed costs. As one of the only suppliers of the vaccine, this jeopardized the future supply security.

CHAI supported the manufacturer to rethink its pricing strategy in a way that allowed it to cover its fixed costs over the minimum expected volumes. Based on this new strategy, the supplier was able to maintain an affordable weighted average price to UNICEF SD (the biggest purchaser of the vaccine) at 50 percent less than the main competitor and remain sustainable while significantly increasing production to meet demand from countries that need the vaccine, ensuring that those at risk are protected from cholera. The work also contributed to the ability of Gavi and UNICEF SD to double the volume of oral cholera vaccines used in outbreak response year-on-year since 2015 from 2 million doses a year to 16 million a year in 2018. As cholera outbreaks have increased over the last few years, increasing access to affordable cholera vaccine is a crucial part of the strategy to reach global eradication by 2030.

also benefits the 79 million children born annually in Gavi-supported countries.

In 2018, CHAI expanded our immunization work with six partner countries (**Cameroon, Lesotho, Ethiopia, Kenya, Uganda, and Tanzania**) from national to regional levels in order to better reach children in even the remotest areas. To reach that last mile, CHAI worked with governments to bolster the governance processes of existing decentralized regional systems. For example, in Ethiopia, Kenya, and Tanzania, CHAI helped develop subnational management tools for planning, budgeting, and quarterly reviews, which provided the data necessary to lobby central governments for more funding. In Tanzania, these changes resulted in a 47 percent increase in domestic funding across 32 councils. In Kenya, similar support enabled one region to raise an additional 129 percent in funding.

**Lesotho** implemented a pilot aimed at setting up a last-mile distribution system for vaccines using motorcycles. The project successfully increased vaccine availability at health facilities across three districts by up to 14 percent. CHAI is also working with the government to improve supply chain data visibility. In 2018, CHAI advocated for and facilitated the capture of vaccine supply stock status at health facilities. Accurately calculating vaccine wastage has long been a problem, with only wastage at the country's central vaccine storage facility being known in the past. With CHAI's support, 90 percent of all health facilities now know their stock status, which will allow an informed and effective forecasting national vaccine supply needs.

In 2018, CHAI also helped **Nigeria** develop a national strategy to strengthen national immunization and primary healthcare programs. CHAI led advocacy efforts to the government which resulted in an additional US\$3.63 billion in government and Gavi funding for vaccines for children over the next 10 years.

## INTRODUCING NEW VACCINES

CHAI supported **Tanzania** and **Ethiopia** to launch vaccination programs for human papilloma virus (HPV) in 2018. In both countries, CHAI helped coordinate introduction strategies, including identifying challenges in organizing a successful launch. In **Uganda**, CHAI helped raise coverage of the HPV vaccine among adolescent girls. In 2017, two years after launching the HPV vaccination program, coverage remained low at 41 percent. Working with the Ministry of Health, CHAI used a rapid assessment to identify root causes of the low coverage. Based on the results, the ministry and CHAI developed a national coverage improvement plan. In 2018, the first phase of this coverage improvement plan ran in 55 districts, and contributed to raising national coverage to 76 percent.

## LOOKING AHEAD

CHAI is working with several countries in the midst of transitioning ownership of their vaccination programs from Gavi. In 2018, CHAI began new partnerships with the governments of **Papua New Guinea** and **Vietnam** to strengthen their immunization programs and prepare for this transition. CHAI also helped **Nigeria** develop a ten-year financing strategy for the country's national immunization program. CHAI-led advocacy efforts resulted in the government allocating an additional US\$2.6 billion to the program to complement Gavi's commitment of US\$1.03 billion over the next decade. This money will allow the program to expand, offering new vaccines to Nigerian children while also increasing domestic commitment in light of the ongoing Gavi transition out of the country.



# Chizoba Fashanu

Deputy Program Director,  
Malaria and Essential Medicines,  
Nigeria

I joined CHAI in 2012 at the height of insecurity in the Niger Delta region of Nigeria where I lived with my family. At the time, there were few groups interested in working in this high-risk area, despite the significant health and developmental needs of the region. Motivated by this, I was eager to do something meaningful. I was unsure if I wanted to pursue a career in public health or return to my background of clinical medicine, but I was moved by my belief that health is a fundamental human right. Whatever path I chose needed to reflect that.

CHAI was one of the few organizations working in the Niger Delta at the time, stepping up efforts in response to the increasing health challenges of the region. After an insightful meeting with Dr. Owens Wiwa, CHAI's country director in Nigeria, my mind was made up. I was convinced that a career in public health was absolutely what I wanted and where I needed to be. I have not looked back.

When I first joined CHAI, I worked as a volunteer in the CHAI Niger Delta office on the pediatric HIV program covering three high-burden states in the South-South region to improve access to care and treatment for children—an overlooked population at the time. I will forever remember the young children I met who had a better chance of survival through this program. While it was heartbreaking to see the challenges they faced, our contributions made an immense difference in their lives and in their communities. It reinforced to me that I was in the right place doing the right thing.

CHAI was an exciting, purpose-filled, and vibrant place to work. The work was tough, but always interesting and full of new insights. I learned how to work in unstructured environments, how to improvise and lend myself to a variety of tasks and skills, and most importantly, how to understand the deep challenges and barriers that healthcare providers and families face in providing and accessing care.

Since that time, I have worked on CHAI's malaria program to improve severe malaria outcomes for children through an intervention to scale-up the use of injectable artesunate, the preferred treatment for childhood severe malaria. I have also led our Essential Medicines program in Nigeria which has significantly improved access to childhood diarrhea and pneumonia treatment across many high-burden states in Nigeria. The most rewarding aspect of this work is seeing many children with pneumonia now receiving lifesaving oxygen in hospitals and knowing that through this simple intervention, I was able to impact their lives.

From my early days as a volunteer, to my current role as the Deputy Director for CHAI Nigeria's Malaria and Essential Medicines programs, I have grown in many ways. I have left my comfort zone behind; I have confronted issues of social inequity and poverty, and have heard deeply touching human stories that have shaped my current values. There have been rewarding moments with remarkable accomplishments, such as in 2018, when I was named one of the Just Actions global pneumonia champions in recognition of the work we have done in improving pneumonia outcomes in the country. While it is has been disheartening to see child health indicators in Nigeria worsen over the past years, I have hope that there are opportunities to do more meaningful work. I am further strengthened in my resolve to continue the work that we do.

In my seven years in CHAI, I have had the unique opportunity to work across many different programs, at the national and sub-national levels, and across public and private sectors. In this time, I have been privileged to work with mission-driven, entrepreneurial, and innovative people both within and outside of CHAI to deliver results that have not only improved the lives of the communities where we work, but also mine.

# TUBERCULOSIS

Tuberculosis (TB) is a bacterial infection that is spread through the air and primarily impacts the lungs. Even though it is often curable and preventable, TB remains one of the leading causes of death globally, with 95 percent of cases occurring in low-and middle-income countries. In 2017 alone, there were around 10 million new cases of the disease and around 1.6 million deaths worldwide. About a quarter of people are living with the latent (or non-infectious) form of TB, but those that are infected have a five to 15 percent risk of becoming ill from the disease over their lifetimes. People with weaker immune systems, such as those living with HIV or children, are particularly vulnerable.

Although the global incidence of TB is falling, it is not fast enough to meet the 2020 goals of the World Health Organization's (WHO) End TB Strategy which aims to reduce global TB deaths by 95 percent and incidence by 90 percent by 2035. In particular, there is a significant gap between the number of people infected versus those diagnosed and identified. Currently, 3.6 million people living with TB are either undiagnosed or diagnosed, but unreported. In addition, drug resistant TB (DR-TB) remains a threat in many places. In 2017, there were over 550,000 new cases of TB that were resistant to the most effective first-line medication and only one out of every four people with DR-TB were placed on treatment at all. By finding more people living with TB and treating them before they are able to transmit the disease, there is potential to effectively eliminate TB within three years in certain countries.

## INTRODUCING NEW TREATMENTS

CHAI is working to help countries find, diagnose, and treat patients infected with TB through a focus on preventive therapy, TB case identification, and better management of DR-TB. We are helping to lower the costs of key medications, diagnostics, and other health tools to help governments improve treatment and save lives. We are

supporting countries to introduce key TB commodities, such as 3HP, a short-course medication regimen to prevent the development of active TB. CHAI is helping **South Africa, Cambodia, Kenya, India, and Zimbabwe** to roll out this medication through updating national guidelines, registering products, and launching sample sites, alongside development of forecasting tools, training health providers, and ensuring readiness of the supply chain. CHAI is working with the HIV and TB departments in **South Africa, Tanzania, Uganda, Botswana, Lesotho, Nigeria, and Malawi** to ensure that TB preventative therapy and point-of-care LAM testing (a test that detects the lipoarabinomannan antigen, a virulence factor for TB) are incorporated into an integrated package of care for patients with Advanced HIV Disease. CHAI is also helping to increase the use of new DR-TB drugs by supporting National TB Programs on optimal regimen selection, guideline updates, site readiness preparation, active drug safety monitoring, and supply chain activities.

In 2018, in **South Africa**, CHAI assisted the National Department of Health (NDoH) to quantify and secure funding for a national rollout of bedaquiline (BDQ), which is used in combination with other TB drugs to

### SPOTLIGHT ON SOUTH AFRICA



51% ↓  
bedaquiline cost reduction,  
resulting in over  
8,400  
patients receiving treatment  
at this lower price

treat pulmonary TB in adults when they have DR-TB. CHAI also helped to negotiate a 51 percent reduction in the cost of the medication, resulting in over 8,400 patients receiving treatment at this lower price. In collaboration with Unitaid, the Aurum Institute, and IMPAACT4TB we assisted the NDoH to deliver the investment case for the introduction of 3HP at the national level, which will avert over 6,300 cases of active TB and result in nearly 19,500 fewer adverse events than standard preventive therapy. The results of this study informed the NDoH's decision to implement this new approach at scale and will potentially help inform the work of other countries.

## IMPROVING CASE IDENTIFICATION AND CARE

To better identify cases of TB and improve care, we are helping National TB Programs to develop effective models that address critical gaps in the delivery of

### OUR APPROACH IN ACTION

**Lao PDR** struggles with a lower rate of tuberculosis (TB) detection than the global average, and cases of TB are estimated to be much higher than known. This lack of awareness can increase transmission and lead to preventable death.

To help the government better understand the prevalence of TB in the country, CHAI worked with the Laos National TB Program to initiate a case finding project in two districts in Champasak Province. This project aimed to design and refine a decentralized TB case finding model that could be adopted and scaled nationally, using increased district and provincial management of case finding, extended screening and sample collection services, and increased use of optimal screening and diagnostic tools.

Initially, we engaged with district and health facility staff in Champasak to better understand gaps in TB diagnosis. During facilitated sessions with Ministry staff, we helped identify solutions to improve methods of detection and case reporting.

health services and standardize care. We are helping to design and test context-specific rural and urban models of comprehensive care at the sub-national level and to scale up effective approaches to improve detection, diagnosis, and treatment. We are using a multi-pronged approach that ensures that patients are accurately diagnosed and initiated on recommended treatments through public and private sector engagement. We are helping improve diagnosis through universal testing and LAM for high-risk groups such as those living with HIV, improving diagnosis among children using stool sample testing, and using more sensitive diagnostics to screen facility visitors, household contacts, and high-risk populations at the community level.

To assist the Ministry of Health and Family Welfare in **India** to reach its ambitious target of TB elimination by 2025, CHAI worked with partners including the Centre for

This work complemented routine TB screening already occurring in villages, health centers, and hospital service points.

The project helped enhance critical interventions such as optimizing sputum transport routes and scheduling, extending sample collection to the village level, developing a monthly data review to better target health worker mentorship, as well as mapping high-risk groups to better direct interventions and improve coverage of chest x-ray screening for hard-to-reach individuals.

As a result of these efforts over 300 community and district health workers were trained on sample collection and transport practices and optimized sputum transportation networks were established down to the village level. Job aides for village health volunteers are helping to aid screening and sample collection. The project is also expected to improve access to a more sensitive test for TB diagnosis, increasing overall case notification and DR-TB case notification.

## TUBERCULOSIS *continued*

Heath Research & Innovation (CHRI) and FIND to create the Joint Effort for Elimination of TB (JEET) project. This innovative model, funded by the Global Fund, is working to reach TB patients and improve the quality of care in the private sector. In 2018, CHAI helped to successfully operationalize the project in 150 districts across seven states, engaging close to 10,000 private sector providers. The project has also increased notification of cases to the national surveillance system by 50 percent, reporting nearly 100,000 new cases. The project aims to eventually reach over 450 districts across the country over three years, reporting 1.6 million cases to ensure that at least 70 percent of patients complete treatment.

In **Vietnam**, CHAI facilitated the introduction and trial of innovative medications to target DR-TB. CHAI worked with the government to set up an active drug safety monitoring and management system and provided technical support for procurement quantification. This work helped enroll 155 patients on a regimen containing BDQ and 1,000 patients on a Shorter Treatment Regimen (STR) in 2018. It is also helping to lay the groundwork to update the national treatment guidelines in 2019. CHAI's innovative Access to Care Information System (ACIS), a mobile app platform that helps detect and refer suspected cases of TB for testing

and treatment, has become a crucial component of the Zero TB Vietnam (ZTV) project, a comprehensive TB model supported by the Stop TB Partnership in Ho Chi Minh City, Hoi An City, and Hai Phong Province. The system automatically receives patient data from VITIMES, Vietnam's national electronic routine surveillance system for drug-sensitive TB treatment, and forwards information to health workers nearest to patients. These workers are then able to visit patients in their home, provide a verbal screening of the household and community, and refer any suspected TB cases for further testing. From 2017 to 2018, ZTV staff verbally screened over 388,000 people, facilitating over 56,000 x-ray screenings, and tested over 16,000 for the disease. As a result, 1,134 people were diagnosed with TB across three locations, 83 percent of whom were placed on treatment.

CHAI is also working to enhance alignment within the global TB community through improving global coordination on drug regimen transitions and the dissemination of market data to countries and donors. We are working to strengthen countries direct role in evidence generation and knowledge sharing and helping to accelerate the development of promising new approaches to TB elimination.

### SPOTLIGHT ON INDIA

#### Joint Effort for Elimination of TB (JEET)

150  
districts operationalized across seven states  
  
10,000  
private sector providers engaged  
  
50%  
increase in notification of cases to the national surveillance system

### LOOKING AHEAD

With the goal of elimination, CHAI will focus on preventative therapy, case finding, and management of DR-TB to help countries strengthen their TB control efforts, reduce incidence, and save lives. We will help countries deliver interventions to improve care and case management, improve access to affordable, quality medications and diagnostics, and coordinate public and private sector engagement.



## Parth Bahuguna

Associate Director, India

Growing up in India, most of my career decisions were guided by the aspirations of a middle class family. I pursued computer engineering, followed by an MBA in the United States. My education allowed me a fairly steady progression—first as a software engineer, and then a financial services consultant in New York. However, it wasn't until I started volunteering with CHAI's HIV team that I got excited about making my work more meaningful. In 2012, I moved back to India to join a small 10 member team that epitomized CHAI's values of operating with urgency, serving our mission, and delivering results. Their grit and dedication pushed me to challenge myself every day, and it continues to do so now.

My first assignment at CHAI was to operationalize our diarrhea treatment program in India. At the time, diarrhea claimed the lives of over 200,000 young children in the country every year. To better understand the healthcare lapses leading to this loss of life, I spent most of my time in rural communities in Uttar Pradesh (UP) and Madhya Pradesh (MP). I found that while simple and affordable treatment with zinc and oral rehydration salts (ORS) could prevent over 90 percent of these deaths, only a third of the caregivers were using ORS and less than one percent were using zinc to treat diarrheal episodes. Poor treatment practices were especially prevalent among the large and unregulated sector of informal rural providers who treated over 80 percent of all diarrhea cases in the country and predominantly prescribed ineffective antibiotics and anti-diarrheal medication.

In order to improve prescription rates for ORS and zinc by informal private providers we needed to establish a financially sustainable product distribution and knowledge network in underserved and difficult to operate rural areas. This wasn't a particularly easy task given the size and complexity of the Indian private market. At that time, even the large pharmaceutical and consumer product companies hadn't made major in-roads in the rural market. Nevertheless, resolute in our

mission to save lives, over the next three years we established a private sector-led rural supply chain which regularly supplied ORS and zinc to over 150,000 informal provider clinics. Operating with a group of mid-sized pharmaceutical companies and entrepreneurs, over 10 million packets of ORS and six million units of zinc were sold to caregivers in the rural markets.

Encouraged by the success of the diarrhea treatment program, we were excited to broaden our work to other health issues impacting young children, including nutrition. Malnutrition affects a third of Indian children, severely limiting their ability to thrive. Malnourished children are not only susceptible to infections and disease, but suffer from impaired cognitive development. To arrest this irreversible damage, CHAI formed an alliance with the Indian government's complementary feeding program—the Integrated Child Development Services (ICDS)—in 2016. The ICDS is considered to be the world's largest food program, providing complementary food to over 40 million children annually. At the time, these food products were loaded with excessive sugar and an insufficient amount of protein, which rendered 'empty calories' to growing children. To address this, we worked with the Madhya Pradesh government to introduce an improved complementary food formulation for over 3.5 million children in the program. The new product consists of adequate milk powder as the primary protein source, caps the level of sugar content to comply with World Health Organization (WHO) complementary food recommendations, and is fortified with all essential micronutrients. Today, we are working with the Indian government to set complementary food quality standards throughout the country.

Over the last few years, CHAI in India has experienced steady growth. Being a part of this journey has been nothing short of exciting and nurturing. I feel incredibly empowered and humbled for the opportunity to build healthier communities that lead to productive and fulfilling lives.

# HEPATITIS



A HEALTH WORKER PREPARES SAMPLES FOR HCV TESTING AT A LAB  
RWANDA

Viral hepatitis, including hepatitis B (HBV) and hepatitis C (HCV), is one of the leading causes of death from infectious disease worldwide. An estimated 328 million people are chronically infected with HBV and HCV globally, resulting in around 1.34 million deaths from liver disease each year—and these numbers continue to grow. More people are dying each year from viral hepatitis than from either HIV, tuberculosis (TB), or malaria. HBV and HCV are the primary drivers of liver cancer globally, accounting for nearly nine percent of total yearly deaths from cancer. This is despite the fact that HCV is curable in over 95 percent of cases

with direct acting antivirals (DAAs) and HBV can be prevented through vaccination and managed with antiviral therapy.

## LOWERING THE COSTS OF LIFESAVING TREATMENTS

Through support from the UK government's Department for International Development (DFID), CHAI has helped governments in seven countries initiate public viral hepatitis programs to simplify patient care models and lower the costs of medications since 2015. Through

market shaping and price negotiations, CHAI has helped lower the cost of HCV treatment with World Health Organization (WHO)-prequalified DAAs by 81 to 97 percent (depending on the country), from an average of US\$2,618 to as low as US\$60 per cure. Since the program's inception, over 100,000 patients have been initiated on treatment in these countries.

To support HCV elimination efforts, CHAI works with governments to mobilize global and domestic funding for programming, negotiates agreements to lower the costs of drugs and diagnostics, and assists ministries

of health to develop and implement evidence-based plans to effectively diagnose, treat, and prevent new HCV and HBV infections. To combat HBV, CHAI is working with Gavi, The Vaccine Alliance, and governments to accelerate the introduction of the HBV birth dose vaccine in countries that have yet to introduce it and increase coverage in countries that have already introduced the vaccine. We are also helping governments leverage existing programs to reduce transmission of HBV from mothers to babies, while utilizing market-shaping efforts to make diagnosis and treatment of chronic HBV more affordable.

## HEPATITIS PROGRAM HIGHLIGHTS

### Global

81 - 97%  
reduction in treatment cost for  
World Health Organization-prequalified  
direct acting antivirals



from  
US\$2,618  
average cost per cure,  
to as low as  
US\$60

### Rwanda

by the end of 2018

700,000  
people screened for HCV  
10,000  
treated and cured

### Vietnam

50%  
HCV drug cost coverage recently  
announced by the government  
of Vietnam's public health  
insurance scheme

### Myanmar

Helped design an innovative public-private partnership promoting:

- collective action
- multi-stakeholder engagement
- more affordable treatment

Leading to:

60%  
reduction in medication  
and testing costs

### Cambodia

National HIV/Hepatitis Co-Infection  
Elimination plan launched

28,400  
patients screened

## WORKING TOWARD ELIMINATION

While all WHO member states have committed to achieving elimination of viral hepatitis by 2030, limited funding has prevented governments from launching elimination programs. **Rwanda**, however, is demonstrating that with strong political will and partnerships, a commitment to HCV elimination is possible. Since 2015, the Rwandan government has been taking an aggressive approach to combating the disease, with over 700,000 people screened for HCV and 10,000 treated and cured by the end of 2018. In 2018, the government of Rwanda publicly committed to eliminate HCV in five years—the first country to do so in sub-Saharan Africa, well ahead of the global 2030 target. With the launch of the elimination program, which has been approved by Rwanda's cabinet, efforts will further accelerate with plans to screen over 4 million

people and treat around 110,000 people. In addition to supporting the implementation of elimination scale-up efforts, CHAI has helped the Rwandan government negotiate significant reductions in cost for quality-assured DAAs down to \$60 per course, from over \$700 dollars per course. Negotiations for testing commodities are ongoing, which are expected to reduce the prices by half in 2019. Due to falling commodity prices, and the opportunity to leverage existing infrastructure, Rwanda estimates that they can eliminate HCV with a five-year budget of \$ 43.5M, which is less than a third of what it costs to run the country's HIV program for a single year. Rwanda's strong political will, backed by ambitious plans to leverage domestic financing, has put HCV elimination within reach.

Likewise, **India** established a national viral hepatitis program in 2018 with the goal of curing 300,000 people



A HEALTH WORKER REVIEWS HCV TESTING PAPERWORK AT A LAB  
RWANDA

of HCV in three years. Together with state governments, the federal government will collaborate and co-finance efforts to aggressively scale up HCV treatment programs to eliminate the disease. This effort will model a CHAI-supported program in Punjab state which has already initiated over 60,000 patients on treatment. In addition, to accelerate the launch of the national program, CHAI is supporting the development and implementation of a national electronic monitoring and evaluation system which will be scaled up across the country.

## INNOVATIVE EFFORTS TO PRIORITIZE TREATMENT

In **Vietnam**, the government formally announced in 2018 that 50 percent of HCV drug costs will be covered by the public health insurance scheme—a significant step towards sustainable financing. This effort will reduce the financial burden to patients, who currently face high out-of-pocket expenses for drugs and diagnostics. By December 2018, over 2,000 HCV patients, 30 percent co-infected with HIV, were initiated on HCV treatment through CHAI's collaboration with the National Hospital of Tropical Diseases. Data from this project helped inform the Ministry of Health's decision to include DAAs in the health insurance reimbursement list. In the future, CHAI will focus on helping to improve access to these drugs by lowering the purchase price for the government and by helping provinces to implement the new public health insurance scheme.

In **Myanmar**, to supplement the limited number of publicly funded free treatment courses, CHAI enabled rapid scale up of affordable treatment to patients by expanding treatment access through the initiation of a public-private partnership (PPP) model. Through the PPP initiative, patients diagnosed in both the public and private sectors that are ineligible for free care through the public program, but willing and able to pay out of pocket, have access to high-quality drugs and lab services at reduced costs. As a result, there has been a 60 percent reduction in price from the commercially available cost of the package of care, with close to 3,000 patients initiated on treatment through the PPP initiative in 2018, the first year of the program. CHAI will support an expansion plan for the PPP to allow

“

Our program is leveraging CHAI's government-centered approach to work together with ministries of health and partners to design and refine strategies that are specific to addressing the barriers in each place.

— Oriel Fernandes

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## OUR APPROACH IN ACTION

The burden of hepatitis C among **Cambodia**'s HIV positive population is significant, with initial estimates noting five to ten percent of the population being co-infected with hepatitis C. Co-infected patients have triple the risk of advanced liver disease and 10 times the risk of liver-related mortality. But these risks can be significantly decreased with early detection and treatment.

Prior to 2018, Cambodia's Ministry of Health lacked the resources to launch a co-infection program, which could identify hepatitis cases among the HIV positive population and link them to treatment. Using lessons learned through similar efforts in countries like Rwanda, CHAI and partners supported the Ministry, through the SHAPE grant funded by DFID, to advocate for an HIV/HCV Co-infection Elimination Program. This resulted in Cambodia securing critical funding from the Global Fund to launch a National HIV/HCV Co-infection Program.

CHAI supported the government to develop national co-infection guidelines, train healthcare workers, improve data management at HIV antiretroviral treatment sites, and strengthen linkage to care and treatment through clinical trainings, distribution planning, and mentorship visits. By the end of 2018, over 28,000 patients were screened, representing approximately 57 percent of the total eligible adult ART cohort, and close to 300 co-infected patients were initiated on curative treatment for hepatitis C. The program is continuing to screen and diagnose patients throughout 2019 and is seeking further funding to continue.

Implementation of this program puts Cambodia on track to eliminate HCV from the HIV-infected population and has provided the critical impetus for the Ministry of Health to develop a nationwide HCV response for other populations.

for rapid expansion of treatment services in 2019 and beyond and to catalyze further price reductions.

In **Nigeria**, strong advocacy efforts and the scale-up of state programs through CHAI support is elevating viral hepatitis as a national public health priority. HBV and HCV were included in Nigeria's largest HIV prevalence study ever conducted and a World Hepatitis Alliance financing project supported by CHAI has highlighted a strong investment case for elimination.

In 2018, using initial CHAI-supported treatment sites as a model, **Indonesia** expanded its national hepatitis program to seven new provinces. This effort led to hepatitis treatment being available in 14 out of 34 provinces. CHAI has also supported the implementation of a data reporting system, which is increasing data visibility and ensuring the Ministry of Health has critical patient and program data to monitor performance as the program scales.

### LOOKING AHEAD

In 2019, CHAI will continue to support the governments of **Cambodia, India, Indonesia, Myanmar, Nigeria, Rwanda, and Vietnam** to scale up their HCV programs. We will continue to work to lower the cost per cure for DAAs below \$100 in each country where we work and continue to make the case to donors to support HCV elimination and the realization of an HBV-free generation. We will help countries improve case finding through the prioritization of limited resources to better implement screening strategies and link patients to care, and we will help build a data-driven HCV response to help target efforts and ensure information and evidence is used for program planning and advocacy.

To reduce the burden of HBV, we will collaborate with Gavi and partner governments to accelerate access and uptake of the HBV birth dose vaccination. And, we will promote HBV screening within Maternal, Newborn, and Reproductive Health and HIV systems to drive broader market shaping gains and increase access to HBV diagnostics and treatment.



## Oriel Fernandes

Associate Director, Viral Hepatitis

This government-led project to identify large-scale inefficiencies in the supply chain system included staff from several departments at the Ministry of Health, with CHAI providing technical assistance. The knowledge gained from this work helped the Ministry design a supply-chain reform strategy, launched in May 2015. The success of this effort prompted the United Nations Population Fund (UNFPA) and the World Bank to join the Global Fund and CHAI in funding the planned reforms. By mid-2018, these reforms reached all 18 provinces and more than 60 percent of the 186 facilities targeted by the strategy. The project is on track to reach full scale by the end of 2019.

Through this work, the Ministry of Health has eliminated large-scale stock outs of key life-saving health products in targeted facilities. The integrated supply chain will save several hundred thousand dollars through reduced expiries and cost savings. I've seen CHAI's values in action—challenging the status quo without being blinded by predetermined solutions, persevering with patience, being entrepreneurial, learning while we go, and ensuring the government is at the center of solution design.

In mid-2018, I transitioned from CHAI's program in Laos to join CHAI's fight against viral hepatitis. Recognizing the opportunity to save lives and eliminate a disease, CHAI is catalyzing scale-up of accelerated hepatitis C treatment across seven model countries. Our program is leveraging CHAI's government-centered approach to work together with ministries of health and partners to design and refine strategies that are specific to addressing the barriers in each place. As of the end of 2018, collective efforts helped ensure over 100,000 patients have been treated and cured.

As I reflect on my career in CHAI, I'm most grateful for the chances I've had to work alongside some of the smartest, most passionate and hard-working people in global health. I've seen how we can achieve goals that at first seem impossible, and how we can support governments to solve problems at national scale and improve the lives of people across the globe.

# NUTRITION

Malnutrition continues to be the single greatest predictor of death in children under five globally. Children with severe chronic malnutrition, or severe stunting, are five times more likely to die in early childhood than those who are well-nourished.

Malnutrition also severely compromises children's immunity to disease, and is estimated to be a contributing factor in almost half of all childhood deaths in low- and middle-income countries.

## REDUCING MALNUTRITION WITH LOCAL FOODS

CHAI's nutrition program focuses on improving the quality of food, as well as strengthening methods of local food production. In **Rwanda**, with the support



A GIRL HOLDS UP A NUTRITIONAL SUPPLEMENT PACKET  
MADHYA PRADESH, INDIA

of the UK Department for International Development (DFID) and the Netherlands Development Finance Company (FMO), CHAI has worked with the government to increase access to high-quality fortified blended food for women and children. Fortified blended foods are cereals fortified with vitamins and minerals that stave off malnutrition. In 2018, CHAI worked with the government to deliver fortified blended foods nationwide, reaching over 100,000 children between the ages of six and 23 months, pregnant women, and nursing mothers. As part of an impact evaluation to identify solutions that could lead to improved access to these fortified foods, we also worked with the government's National Early Childhood Development Program (NECDP) to interpret survey data on access

and consumption. The data have provided a number of lessons and strategies, such as revamping the enrollment process for beneficiaries to help improve access and usage of fortified blended foods which are currently being implemented.

## STRENGTHENING CROP QUALITY

To improve crop production, CHAI, supported by the New Zealand Ministry of Foreign Affairs and Trade (MFAT), also helped **Rwanda** implement a new model for post-harvest processing which is quicker and more efficient than current methods and helps minimize losses due to poor quality. This method, based on purchasing maize immediately after harvest, transporting it to a central processing facility for immediate thrashing and drying, and then delivering it to local agri-business, has already reduced post-harvest losses and doubled the amount of maize locally sourced between 2017 and

2018. We have also worked with over 18,000 farmers to help improve access to agricultural technologies and extension services, in turn improving farmers' yields and ultimately increasing their household incomes. As a result of these efforts, agriculture production value has improved by an estimated US \$2.1 million.

In **Ethiopia**, with support from MFAT, we have worked alongside the government to reach more than 33,600 farmers with improved agricultural technologies. In 2018, CHAI helped support the government to train more than 8,500 farmers on techniques to improve production and processing practices to boost soybean crop yields. We helped facilitate distribution of soybean inputs such as select seed varieties, Rhizobium, and fertilizers to help facilitate growth, reaching 2,000 farmers. We supported efforts to improve post-handling processes and storage through hands on training and demonstrations and procurement of mechanized

## OUR APPROACH IN ACTION

Thirty-eight percent of **Rwandan** children suffer from chronic malnutrition, contributing to unnecessary deaths each year. CHAI has worked to reduce the burden of severe malnutrition holistically, from product development to distribution to those in need.

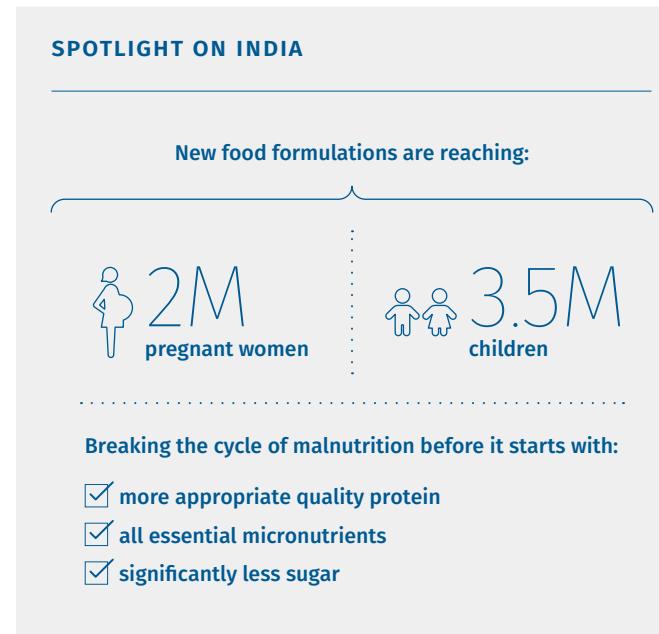
Working directly with government nutritionists and food technologists, the World Food Program (WFP) and Royal DSM (the world's leader in micronutrients), we helped develop a suite of nutritious products for young children and pregnant and lactating women that can be produced locally and is based primarily on locally sourced products that suit local eating habits.

CHAI helped facilitate a joint venture between the government of Rwanda and international investors, called Africa Improved Foods, Ltd. This company, developed in 2016, produces fortified blended foods at international quality standards for children between the ages of six and 23 months and for pregnant and lactating mothers for sale to commercial markets and to partners for distribution to the local community. The company

also sells Super Cereal Plus to WFP for use in emergency settings. It is the first African company to meet the WFP's exacting standards.

The ingredients included in these fortified blended foods are sourced as much as possible from local farmers. In order to ensure that these ingredients are available and high-quality, we helped train farmers in techniques to improve crop yields and quality, in turn increasing their incomes and generating supply.

Through partnerships with the Rwandan government, WFP and private partners, CHAI also facilitated the establishment of distribution systems as well as targeted messaging campaigns to ensure that products are reaching those most in need. And to ensure that these efforts are having an impact, we supported the government to develop routine monitoring and evaluation. This holistic approach has helped to reach thousands of women and children struggling with malnutrition and has helped save lives. It will also create a sustainable system to provide nutritious food locally, while improving the livelihoods of the community.



ADOLESCENT GIRLS HOLD PACKETS OF NUTRITIONAL SUPPLEMENTS  
MADHYA PRADESH, INDIA

equipment for post-harvest handling processes. And, we helped implement a low-cost approach to control post-harvest pests by using specialized chemical-free storage bags and facilitated procurement of 50 thresher machines for organized groups of farmers. Combined, these efforts helped reduce post-harvest losses to less than one percent and have resulted in an increased production value of over US \$1.9 million.

#### IMPROVING NUTRITION SUPPLEMENTS

In **India**, rates of malnutrition remain very high, despite strong economic growth. Thirty-five percent of children under five are underweight and an equal number are stunted. In addition, 59 percent of children and 50 percent of pregnant women are anemic, contributing to high rates of premature birth and low birth weight

babies. To address this, CHAI, with support from the Ikea Foundation, is working with the government of Madhya Pradesh to strengthen the state's Integrated Child Development Services (ICDS) program. CHAI's support to the state focuses on three key areas: improving the nutrition of complementary food distributed through ICDS and increasing its availability at village health centers; improving the formulation and availability of the Iron Folic Acid (IFA) supplements distributed under the government-led anemia control program; and engaging community health workers to improve the quality of counseling services to bolster the adoption of nutritious behaviors. We are also helping the government to develop sustainable, cost-effective models to improve access to safe drinking water. As a result of this work, three new wholly nutritious complementary food recipes were introduced across Madhya Pradesh in 2018. The new food formulations, which have more appropriate quality protein, all essential micronutrients and significantly less sugar, are being consumed by around 3.5 million children and around 2 million pregnant women to help break the cycle of malnutrition before it starts.

Aligning ourselves with the national government's flagship program on arresting malnutrition, we also

helped the government train over 59,000 community health workers and over 83,000 community nutrition workers to provide improved nutrition counseling services. Further, to improve access to Iron Folic Acid (IFA) supplementation, we helped pilot an ambitious supply chain strategy which reduced incidence of stockouts by around 90 percent at village health centers and by around 40 percent at schools. The government of Madhya Pradesh is now taking steps to replicate this supply chain strategy throughout the state and also add other essential medicines to improve health outcomes.

#### LOOKING AHEAD

CHAI will continue to work closely with **Rwanda**'s NECDP to ensure the sustainability of the fortified blended foods program, including an evaluation of implementation as well as consumption patterns among children, pregnant women, and nursing mothers. In 2020, we will conduct an endline evaluation to assess results of the nutritional impact of the intervention before and after introduction.



## Dr. Habtamu Seyoum

Senior Program Manager,  
Essential Medicines/Child Survival,  
Ethiopia

Trained as a medical doctor, with a Master of Science in Tropical and Infectious Disease, I worked for nearly five years with government hospitals in Addis Ababa and at IntraHealth International, a non-profit international organization, before joining CHAI in 2009.

The AIDS epidemic was ravaging Ethiopia in the 1990s and 2000s. At that time, deaths were high and there was significant stigma and discrimination associated with the disease, and there was no access to treatment. I wanted to be part of the solution. In 2005, when antiretroviral treatment for HIV began in very few selected hospitals in Addis Ababa, I was one of the first physicians to be trained to prescribe this medication and treat HIV-related illnesses. My role was both exciting, in that I could help patients live longer and restore their family and social life, but also challenging, as so many patients were on the waiting list. Over subsequent years, I was proud to contribute to successfully delivering treatment to many more hospitals and primary care units throughout the country to reduce the HIV burden.

I first learned of CHAI in 2006 when it was providing technical assistance to hospitals in Addis Ababa, through its Ethiopian hospital management initiative. This unique program was designed to improve systems and processes for hospitals.

When I joined CHAI in 2009, we were intensively supporting the government to combat the HIV epidemic through expansion of pediatric HIV treatment and elimination of mother-to-child transmission (eMTCT) of the disease. We helped create models for scaling up eMTCT in remote facilities, using a comprehensive approach with community volunteers' called eMTCT FastTrack.

Subsequently, we were tasked with advising the government on HIV treatment failure, a situation where efficacy of first-line treatment fails for many reasons, requiring second-line treatment options. CHAI, along with the Federal Ministry of Health and regional governments, conducted detailed assessments, costing, and forecasts around treatment failure diagnoses and monitoring (via viral load testing) and accessing second-line treatment medications. This work resulted in the Ministry changing its HIV policies and guidelines to make viral load testing routine and to ensure regular access to optimal cost-effective second-line drugs. Following this model, we also successfully supported the government in setting up policies and systems for expansion of viral hepatitis and multi-drug resistant tuberculosis (MDRTB) services in Ethiopia.

Over the last three years, I have had the privilege of leading our Essential Medicines program which aims to reduce the deaths of children from pneumonia and diarrhea. This initiative has

intersected with the release of the country's new child survival strategy (2016-2021) which has set ambitious targets to reduce child mortality—including reducing deaths from pneumonia and diarrhea by 60 percent.

We are again applying CHAI's approach to systems strengthening and market shaping to address demand and supply side barriers, working directly with the government. Leading this program has been fulfilling; each day, I can see the transformational impact on child health. Lifesaving treatments such as antibiotics for pneumonia and zinc and oral rehydration salts (ORS) for diarrhea are now available at all health facilities, compared to only 50 percent when we began the work. Stockouts of these treatments have been reduced by nearly half, and availability of other lifesaving essential medicines, like oxygen, has significantly improved.

During my work with CHAI I have witnessed our evolution, but we have never wavered in the commitment to our mission of saving lives. CHAI is more than a workplace for me. It is a place where my career, personal, family, and social life have changed. The mission of saving lives is bold and something that every staff member carries to heart. This is a professional mission for me too. It has not taken me long to internalize CHAI values like urgency, humility, and serving as a government partner.

During my work with CHAI, I have witnessed our evolution, but we have never wavered in the commitment to our mission of saving lives.

# CANCER

Cancer is a significant and growing problem in low- and middle-income countries, with an estimated three million new cases and two million deaths from the disease in 2018 alone. In the next 17 years, the number of cancer cases is projected to increase by almost 55 percent. Due largely due to lack of access to quality treatment and diagnosis, death rates from cancer in these countries are significantly higher than in high-income countries.

CHAI is working with the American Cancer Society (ACS) to deliver lifesaving cancer treatments, diagnosis, and care to countries in Africa and Asia. The state of

cancer care in Africa today is very similar to that of HIV in the early 2000s. While highly effective tools to diagnose and treat the disease exist, they are largely unavailable in the region. The current global market for cancer treatment functions poorly for patients in these countries, resulting in high prices and limited availability. In addition, approximately 25 percent of cancers in low-income countries are infection-related. Patients with viral infections such as HIV, human papilloma virus (HPV), and hepatitis B or C are often experiencing—and dying from—a double burden of disease such as Kaposi sarcoma, cervical cancer, and liver cancer.



A NURSE DEMONSTRATES HOW TO USE AN HPV SELF TEST FOR A GROUP OF WOMEN AT A HEALTH FACILITY  
NAGURU, UGANDA

## MAKING TREATMENT AFFORDABLE

In 2017, CHAI and ACS reached two groundbreaking agreements with Pfizer, Inc. and Cipla, Inc. to expand access to 16 essential chemotherapies in **Ethiopia, Nigeria, Kenya, Uganda, Rwanda, and Tanzania**. Four countries (Ethiopia, Nigeria, Kenya, and Uganda) are currently procuring drugs under this agreement and have already saved US\$2.6 million in comparison to previous procurements.

In 2018, CHAI supported the Federal Ministry of Health in Nigeria to, for the first time, coordinate quantification and aggregate chemotherapy procurement among seven hospitals delivering cancer care. As a result, Nigeria is expected to save US\$16 million annually and procurement volumes are expected to quadruple. To ensure timely access of drugs for patients, we also

## GROUNDBREAKING MARKET ACCESS AGREEMENT



cost reduction in essential chemotherapies procured via access agreement by Ethiopia, Nigeria, Kenya, and Uganda, saving

US\$2.6M

## OUR APPROACH IN ACTION

When Workinesh\* felt a lump in her breast, she was afraid to have it checked in case she received a diagnosis she could do nothing about. In **Ethiopia**, shortages of trained workers and large distances between treatment facilities often hinder access to treatment. Until recently, there were no health centers outside of Addis Ababa offering cancer care. While Workinesh lives in the city, the scarce resources meant long wait times for treatment and often unbearable travel and accommodation costs for patients in and outside of the capital.

In Ethiopia, in 2018, over half of all women diagnosed with breast cancer died. CHAI recognizes that to reverse this trend a holistic approach is required, which can successfully guide patients through the health system and save lives. This includes raising awareness about the health issue and providing access to screening, followed by linkage to diagnosis and treatment.

The government of Ethiopia is also committed to delivering quality cancer care. With support from CHAI and ACS, the government is expanding breast cancer care to six regional

hospitals, including specialized training for health workers and procuring new technology in order to reduce travel and better diagnose and treat patients. The partnership is focused on strengthening training in breast cancer treatment for clinicians through short courses, mentorships and supportive supervision; improving diagnostic capacity and pathological analysis for breast cancer; and strengthening supply chain management to ensure that high-quality medicines are available.

In 2018, CHAI partnered with the Ministry of Health to offer free breast cancer screenings in Addis Ababa. Workinesh attended, and unfortunately, the clinical breast exam and subsequent pathological investigation confirmed she had breast cancer. She was then referred to a hospital where she started chemotherapy. Workinesh has now completed four cycles of therapy; her tumor has shrunk and her chest pains are gone. She is hopeful for her future.

\* Name changed to protect identity.

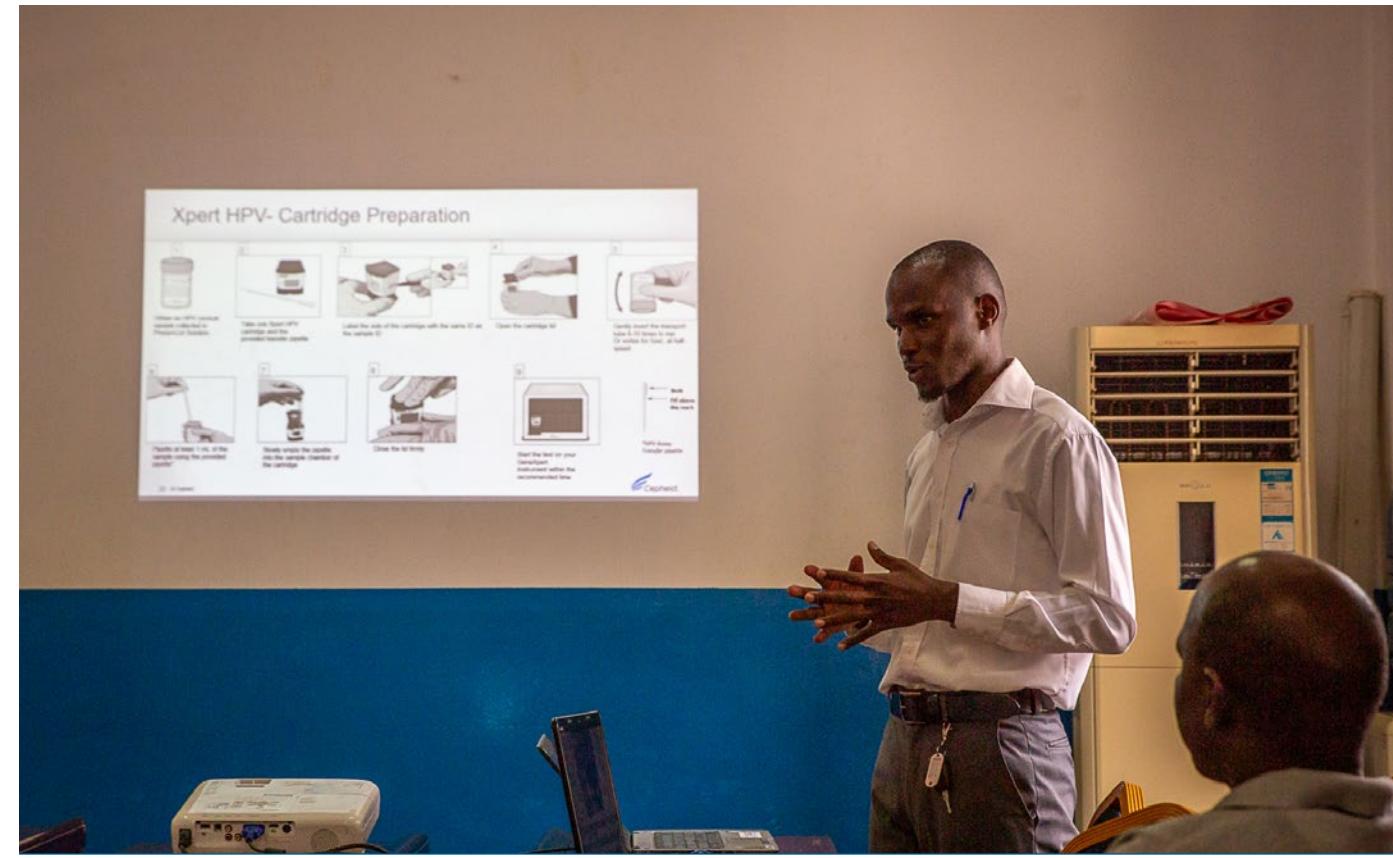
## CANCER *continued*

worked closely with World Wide Healthcare (WWHC), an in-country distribution firm for pharmaceutical companies, to ensure that the medications are delivered directly to the hospitals. We also engaged with a private sector partner in Nigeria to design and implement a payment and inventory management system to enable instantaneous remittances to pharmaceutical companies and other service providers as well as real-time visibility into stock availability. The country's first procurement alone cost 57 percent less than previous procurements, saving the country US\$2.5 million and enabling more patients to receive treatment.

### IMPROVING CANCER CARE

In **Ethiopia**, CHAI is working with the government to improve breast cancer care. Ethiopia faces a severe shortage of health workers specialized in cancer care. Currently, there are only 16 qualified active oncologists

for a population of around 100 million people. Because of this, cancer patients in the country face large geographic and financial barriers to treatment. CHAI and ACS are supporting the Federal Ministry of Health to expand breast cancer treatment services to six regional hospitals outside of Addis Ababa. Through this work, 148 healthcare personnel, including general medical practitioners, nurses, surgeons, pharmacists and pathology technicians from expansion hospital sites, have received specialized trainings and mentorship support to deliver safe and effective breast cancer care. CHAI has also delivered training and on-site support for expansion hospital pharmacists to strengthen anti-cancer medicines supply chain management and improve availability. At six regional hospitals where data has been collected, the number of breast cancer patients treated has doubled from around 300 before the program launched in 2016 to around 600 by May 2019. In addition, the onsite availability of tracer drugs (medications used to indicate stock availability), anti-



TECHNICIANS ATTEND A DIAGNOSTICS TRAINING SESSION TO LEARN HOW TO TEST HPV SAMPLES  
NAGURU HOSPITAL, UGANDA

cancer medication has improved by an average of 47 percent.

### LEVERAGING TECHNOLOGY

With more than 700,000 deaths and over 1.4 million new cases diagnosed each year, cancer has rapidly grown into one of the leading drivers of mortality and morbidity in **India**. Late detection and inadequate access to quality treatment leads to significantly higher rates of death from cancer than in higher income countries. Unsurprisingly, even cancers such as breast, cervical, and oral that are often treatable with early detection, account for 28 percent of all deaths from the disease.

CHAI has partnered with IBM to address gaps in cancer care by strengthening government systems through a two-pronged technology-enabled approach. In order to help expand access to quality cancer treatment that is closer to the community, CHAI and IBM are working together to build a cancer drug supply chain system to empower the government to better manage operations and plan more strategically to expand treatment coverage. The system will enable the government to understand demand and better forecast supply needs, providing real-time reporting on stock availability at health centers. At the same time, CHAI will help support the public health system at all levels with supply chain expertise. We are also helping the government to strengthen screening of common cancers for early detection and help patients successfully navigate pathways for referral, increasing access to appropriate treatment. In the states of Madhya Pradesh and Telangana, which together have around 123 million people, the program aims to catalyze the continuum of cancer care. We will continue to work over the long-term to support the Ministry of Health and Family Welfare's vision to sustainably scale these innovations across the country to reduce the burden of common cancers in India.

## LOOKING AHEAD

Ninety percent of the 429,000 children that develop cancer each year come from low- and middle-income countries. Due to lack of access to quality, affordable treatment, less than 30 percent of these children can expect to survive. This is in comparison to around 80 percent in high-income countries. Many childhood cancers can be effectively treated with affordable generic medications, but they are largely unavailable due to market inefficiencies and weak treatment systems.

CHAI and ACS are working with partner governments to lower the prices of pediatric chemotherapies, shift the market to high-quality products, and improve in-country availability. At the same time we are working to strengthen health systems to focus on forecasting and supply chain management for pediatric chemotherapies, build hospital capacity to improve care quality, along with patient education, tracking, and retention.

We are also working to accelerate the introduction of innovative cancer medications including chemotherapies and biologic therapies in nine low- and middle-income countries

(**Ethiopia, India, Kenya, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Vietnam**). We will work to build the capacity of select cancer treatment centers to demonstrate that cancer medications can be safely prescribed and administered and to expand access by helping to lower the price of products that are already in-market, but are currently unaffordable.



## Charlotte Lejeune

Country Director, Senegal

After five years in global management consulting, I realized that I needed more substance in my career. In June 2005 I volunteered with the Missionaries of Charity in India, where, for three months, I took care of disabled children. Despite the importance of this work, I soon came to the unsettling conclusion that regardless of our efforts, there was a general belief that the circumstances of these children could not be changed. I believed that more could be done.

In 2007, I took a six-month sabbatical to work with an NGO supporting the emergency earthquake-response in Pakistan. This experience was a turning point for me personally and professionally, leading to my pursuit of a career in the development sector. After working on emergency and post-emergency responses in Indonesia and Myanmar, I joined a global health non-profit in Myanmar to support programs providing basic health services in the north of the country. Safeguarding long-term health, without being able to work closely with the local government, proved to be a huge challenge. While we achieved significant impact, the same question emerged with sustainability of the response.

In 2011, I saw a job opening for a Deputy Country Director position with CHAI in Eswatini (formerly Swaziland). After I researched CHAI's approach to development and change, and had actually confirmed where the country was located, I felt I had found the organization where I belonged. During my six years with CHAI in Eswatini, I was inspired by our mission and values, energized by a team dedicated beyond words, and driven by the leadership and partnership established with the Ministry of Health. Together as a team, we achieved significant impact in the areas of malaria, HIV, and health financing.

CHAI played a key role in the country's success toward eliminating malaria. We worked with the ministry to increase patient access to lifesaving medicines and diagnostics at the best prices and highest quality, supporting programmatic decisions about HIV care

and treatment, systems for information management and analysis, and good stock management practices to prevent shortages at facilities. We helped increase the number of HIV positive adults and children receiving optimal antiretroviral medications at the right time, by demonstrating the feasibility, acceptability, clinical outcomes, affordability, and scalability of offering early antiretroviral therapy for all people living with HIV in the country. We worked with the Ministries of Health and Finance to help remove financing as a real or perceived barrier to accessing quality care, with a particular focus on improving the management and utilization of health resources. What a fulfilling six years!

I transitioned to CHAI Senegal in May 2018, to set up our country office and commence our engagement with the Ministry of Health, initially supporting the HIV Program to increase access to optimized treatment and diagnostics. Compared to Southern and East Africa, Western Africa is significantly lagging in its HIV response.

Soon after establishing a presence in Senegal, the former Minister of Health in Mali reached out to CHAI to support its ambition to reform Primary Health Care. This effort in Mali that started at the end of December 2018 represents the best of what CHAI can uniquely do.

Moving forward, our work in Mali will help serve as a model for other governments as they reform their health systems, particularly focusing on primary health care as the necessary path toward universal health coverage (UHC). We will continue to support governments to sustainably and substantially increase access to high-quality basic health services for those at greatest need.

IMAGE, OPPOSITE:  
PATIENTS WAIT TO BE SEEN AT A MALARIA CLINIC  
MALAWI



# FINANCIALS

Clinton Health Access Initiative, Inc. and Subsidiaries

End-year **2017** and **2018**

Amounts in Thousands of Dollars (\$000's)

## CONSOLIDATED STATEMENT OF ACTIVITIES

	2018	2017
<b>Total revenue</b>	<b>\$162,981</b>	<b>\$136,448</b>
<b>EXPENSES</b>		
East Africa	29,768	23,992
Caribbean	459	412
Southeast Asia	6,865	6,021
Southern African Development Community	33,614	27,693
West Africa	20,628	21,585
India	8,450	5,993
<b>Direct Country Team Expenses</b>	<b>99,784</b>	<b>85,696</b>
<b>Direct Global Team Expenses</b>	<b>45,596</b>	<b>37,078</b>
In-Country Indirect Cost	2,492	1,711
Executive & Program Management	3,054	2,333
General and Administrative	9,608	9,354
<b>Overhead</b>	<b>15,154</b>	<b>13,398</b>
Finance System	-	-
<b>Total expenses</b>	<b>160,534</b>	<b>136,172</b>
<b>Increase (Decrease) in Development Fund</b>	<b>2,447</b>	<b>\$274</b>

## CONSOLIDATED STATEMENT OF FINANCIAL POSITION

	2018	2017
<b>ASSETS</b>		
Cash and cash equivalents	\$7,233	\$1,165
Assets limited as to use	90,673	71,640
Accounts receivable	886	612
Contributions receivable	1,541	1,388
Grants receivable	1,890	2,768
Prepaid expenses	3,565	5,082
Property and equipment, net of accumulated depreciation	139	204
<b>Total assets</b>	<b>105,927</b>	<b>82,859</b>
<b>LIABILITIES AND NET ASSETS</b>		
Accounts payable	5,249	3,912
Accrued expenses	4,662	2,623
Deferred revenue	23,588	21,119
Obligations associated with assets held for commodities purchases	-	-
<b>Total liabilities</b>	<b>33,499</b>	<b>27,654</b>
<b>Total net assets</b>	<b>72,428</b>	<b>55,205</b>
<b>Total liabilities and net assets</b>	<b>\$105,927</b>	<b>\$82,859</b>



## ACKNOWLEDGEMENTS

**CHAI'S 2018 WORK IS POSSIBLE THANKS TO A COMMITTED NETWORK OF DONORS AND PARTNERS.**

AVAC	Foundation for Innovative New Diagnostics (FIND)	National Health Laboratory Service, South Africa	The Aurum Institute NPC
Aidsfonds (STOP AIDS NOW!)			The Children's Investment Fund Foundation
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American Cancer Society, Inc.	Gavi, The Vaccine Alliance	Nelson Madubuonwu	UK Department for International Development (DFID)
American Society for Clinical Pathology	GE Foundation	Netherlands Development Finance Company (FMO)	Unitaid
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	Malaria No More		
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