

An Independent Zambian Organisation

Strong Governance, Management & Integrity

A Dedicated Partner to Government

Driving Innovation in Healthcare Delivery & Research

Training the Next Generation of African Health Leaders

Using Better Data to Control the HIV & TB Epidemics

2015 Annual Report



CIDRZ

Centre for Infectious Disease Research in Zambia

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CIDRZ: A Trusted Public Health Leader in Zambia



CIDRZ TB Director, Dr Monde Muyoyeta and Dr German Henostroza welcoming Ministry of Home Affairs Permanent Secretary, Dr Chileshe Mulenga to CIDRZ, May 2015



Lusaka Provincial Medical Officer Dr Kennedy Malama & CIDRZ Deputy CEO Dr Izukanji Sikazwe exiting the Hot FM Radio broadcasting booth at CIDRZ at the start of Child Health Week, December 2015



CIDRZ Head of Pharmaceutical Services Department Helen Mulenga, CIDRZ CEO Dr Charles Holmes and Mpande Mwenechanya with attendees of the Annual Pharmacy Research Conference for private and government pharmacists, August 2015



Dr Elizabeth Chizema, Ministry of Health Director of Disease Surveillance, Control & Research visiting the CIDRZ Central Lab, September 2015

About CIDRZ

Our Mission

To improve access to quality healthcare in Zambia through capacity development, exceptional implementation research, and impactful, sustainable public health programmes

CIDRZ is the largest independent health research non-governmental organisation in Zambia

Since 2001, we have served as a progressive, pro-active and responsive partner to the Government of the Republic of Zambia assisting in the development of the public health sector through collaborative working relationships and Memoranda of Understanding with multiple Ministries.

By attracting talented Zambian and international academics, programme implementers and researchers we bring the brightest minds and leading methodologies to our holistic programmes and cutting-edge research

We align our work with Zambian national health priorities, goals, and strategic plans. We focus on relevant, resource-appropriate health systems development, human resource capacity-building, and high-impact interventions so we can transition sustainable, and accountable, improvements to the government in the following areas:

HIV/AIDS Prevention, Care & Treatment

Tuberculosis Diagnosis & Treatment

Maternal, Newborn & Child Health

Women's Health

Primary Care & Health Systems Strengthening

Hepatitis & Infectious Disease

CIDRZ is now "Equivalent" to a U.S. Charity Organisation

In 2015, CIDRZ underwent rigorous evaluation by NGOsource that concluded we are equivalent to a U.S. 501(c)(3) charity based on the strength of our financial practices, governance, and management. Earning Equivalency Determination status makes it easier for potential donors to confidently consider CIDRZ as a trusted grantee, and more efficient for CIDRZ to operate with donors.

Letter from the Executive

Welcome to our 2015 Annual Report and we thank you for your interest in learning about the “new” CIDRZ!

2015 has been an outstanding year for the people and mission we serve. As we complete our 4th year as an independent Zambian organisation, we have built strong operational and programmatic functions and could not be more pleased with our teams and their achievements, including:



Dr Charles Holmes
MD, MPH
Director & CEO

Dr Izukanji Sikazwe
MChB, MPH
Deputy CEO

Accelerating training and development of Zambian talent:

We hosted our largest ever group of HealthCorps Fellows, pharmacy and medical students, PhD candidates, and post-docs, and integrated them into our research and public health programmes. We also signed a MoU with the University of Zambia - School of Medicine, and CIDRZ faculty are now mentoring UNZA trainees, teaching on medical wards, examining student theses, and lecturing on public health and medicine.

Building a talented team of experts in monitoring & evaluation, data management & analysis, and quality improvement:

Their capacity ensures accuracy of our reporting, and increasingly enables us to link data to programme improvement in real time.

Improving national public health system capacity:

Working with government and The U.S. Centers for Disease Control and Prevention (CDC) and other partners and colleagues we launched decentralised labs in busy government clinics, strengthened government contributions to prison health, trained healthcare providers for the ebola response, and supported expansion of solar refrigerators for the vaccine cold chain.

Making progress towards an AIDS free generation:

Through funding from the President’s Emergency Plan for AIDS Relief (PEPFAR) and the partnership with CDC, CIDRZ has contributed to Zambia’s efforts to achieve this goal through testing more than 92% of pregnant women seeking antenatal care and once learning their HIV status 89% of infected mothers initiated lifelong ART for prevention of mother to child transmission of HIV, as well as for their own health.

Performing cutting-edge science:

We have brought important clinical trials to Zambia, including HIV and TB vaccines and new and shorter TB treatment regimens. By partnering with the University of Alabama at Birmingham; an award winning clinical trials unit of the U.S. National Institutes of Health (NIH), we have strengthened our clinical trials unit. Our CIDRZ Laboratory now meets NIH standards and we are currently undergoing assessment by the Southern African Development Community Cooperation in Accreditation to become the first ISO-15189 accredited clinical laboratory in Zambia.

Expanding our focus on women’s health:

With support from multiple funders we work with government programmes to ensure safer deliveries, prevention of mother to child transmission of HIV, and expanded access to women’s HIV treatment, cervical cancer screening and treatment, and breast cancer screening and education.

All of this work is done with integrity and the strongest commitment to Zambia. Our staff works with a deep sense of calling and routinely goes above the call of duty to deliver the many contributions you will see in this report. Thank you for your ongoing support and partnership.

Dr Charles B. Holmes

Dr Izukanji Sikazwe

for a healthy Zambia

Message from the Ministry of Health of Zambia

“The Ministry of Health enjoys the closest of working relationships with our colleagues at CIDRZ. Our partnership has resulted in extraordinary health gains against the HIV pandemic, childhood diarrhoea, tuberculosis, maternal health and many other areas. CIDRZ is a data driven organisation that provides tremendous support for the ongoing capacity development of our staff and systems, and contributes their public health and research expertise to tackling the most pressing health issues of our time. I fully expect that the next great innovations and research discoveries in health services delivery, clinical trials of new vaccines and drugs and new diagnostics will emerge from our close ongoing collaboration. We are proud as Zambians to call such a fine organisation our own.”

Dr Peter Mwaba, Ministry of Health Permanent Secretary



Ministry of Health Permanent Secretary (PS) Dr Peter Mwaba, and member of the Better Information for Health in Zambia Study Advisory Committee making a contribution to Dr Virginia Bond of Zambart and CIDRZ CEO Dr Charles Holmes

CIDRZ Board of Directors

Board recruitment in 2014/2015 was guided by the CIDRZ Strategic Plan, Board of Directors Skills Register and an Ernst & Young governance review generously funded by Ark and Comic Relief. CIDRZ now boasts a Board of highly qualified Zambian and international leaders with experience in government, non-profit management, business, research, public health and community programming.

The Board is governed by a newly ratified Board Charter, meets quarterly and is supported by a certified Board Secretary, Mr Ronald Sinkala MSc, LLB in accordance with the Companies Act of 2005.

Full Board Member profiles are available at www.cidrz.org/about-us/board-of-directors/



Bradford Machila LLB, LLM
Board Chair

Lawyer, Wright Chambers; former Deputy Minister of Justice, Minister of Livestock & Fisheries Development, and Minister of Lands



Ambassador Eric Goosby MD
Member, Research & Programmatic Performance Committee

U.N. Special Envoy for TB; Distinguished Professor of Medicine University of California San Francisco; former U.S. Global AIDS Coordinator



Beatrice Grillo CA
Member, Finance & Audit, and HR & Operations Committees

Managing Partner of Gadsden Grillo & Company; Fellow of Zambia Institute of Certified Accountants; Member of Certified Accountants of UK



Dr Chipepo Kankasa MD
Chair, Research & Programmatic Performance Committee

Consultant Paediatrician; Director UNZA University Teaching Hospital HIV/AIDS Programme and Paediatric Centre of Excellence, Zambia



Dr Kevin Marsh MD
Member, Research & Programmatic Performance, and Business & Investment Development Committees

Professor of Tropical Medicine University of Oxford; Chair WHO Malaria Policy Advisory Committee



Charles Mpundu MBA
Chair, Business & Investment Development Member, HR & Operations Committees

Former Director General of Zambia National Pension Scheme Authority; Member of Institute of Directors Zambia; Associate of Chartered Institute of Arbitrators UK & Zambia



Christopher Mubemba MSc Engineering
Chair, HR & Operations Committee

Director Transmission Development ZESCO Ltd; Chartered Engineer of Institution of Engineering UK; Member of Engineering Institution of Zambia



Kabaye Mwale CA
Member, Finance & Audit Committee

Finance Director Energy Regulation Board; Chartered Arbitrator; Associate Certified Fraud Examiner



Dr Michael Saag MD
Member, Research & Programmatic Performance Committee

Associate Dean of Global Health, UAB School of Medicine; Professor of Medicine, Director of the William C. Gorgas Center for Geographic Medicine; Director of Center for AIDS Research at UAB



Kondwa Sakala-Chibiya LLB
Member, Business & Investment Development, and HR & Operations Committees

Lawyer, Messrs J.B. Sakala and Company; Member of the Institute of Directors Zambia



Patrick Wanjelani CA
Chair, Finance & Audit Committee

Technical Advisor to IFAC Ethics Committee; Director, Blue Light Risk Management Ltd and Kumil Investments; Fellow of Chartered and Certified Accountants

Board Committees

Finance & Audit – Chair, Patrick Wanjelani

Oversees financial reporting process, selection of independent auditor, and receipt of internal and external audit results. Director, of CIDRZ Internal Audit reports directly to this committee and CEO.

Research & Programmatic Performance – Chair, Dr Chipepo Kankasa

Provides high-level strategic oversight/scientific guidance to research and healthcare activities to ensure alignment with Ministry of Health (MoH) strategic direction. Includes representatives from MoH, Ministry of Community Development and Social Services (MCDSS) and Network of Zambians Living with HIV as non-executive directors.

Human Resources & Operations – Chair, Christopher Mubemba

Ensures organisational procedures are effective, appropriate, and robust, and that internal processes are legal and ethical.

Business & Investment Development – Chair, Charles Mpundu

Evaluates CIDRZ revenue projections, business opportunities and practices.

Nomination Committee – Chair, Bradford Machila

Recommends suitable individuals for appointment to Board, ensuring balance of skills, experience and independence, and considers CIDRZ senior level succession planning.

CIDRZ Board Member, Ambassador Dr Eric Goosby, Appointed United Nations Secretary General's Special Envoy for TB



CIDRZ Board member Ambassador Eric Goosby MD was appointed U.N. Special Envoy for Tuberculosis in 2015. He also serves as Distinguished Professor of Medicine at the University of California San Francisco and Director of the Institute for Global Health Delivery and Diplomacy. From 2009 to 2013 he was the U.S. Global AIDS Coordinator, leading all U.S. Government international HIV/AIDS efforts including PEPFAR and U.S. Government engagement with the Global Fund to Fight AIDS, Tuberculosis and Malaria.

CIDRZ benefits from Ambassador Goosby's wide-ranging insights into technical issues related to TB/HIV epidemic control as well as bigger picture issues related to organisational governance, effectiveness and integrity.



Leadership Team Members

The Leadership Team comprises senior management representatives from all programme areas and meets biweekly to drive CIDRZ accomplishments towards its mission.



Dr Carolyn Bolton-Moore
MBBCh, MSc
Chief Medical Officer



Dr Roma Chilengi
MBChB, MSc
Chief Scientific Officer



Dr Charles Holmes
MD, MPH
Director & CEO



Dr Sharon Kapambwe
MBChB, MPH
Director,
Women's Cancer Control



Emmanuel Lumbwe
MSc, CIA, CFE
Director, Internal Audit



Dr Mwangelwa Mubiana-Mbewe
MBChB, MBA
Director, Paediatric HIV Treatment &
Prevention Services



Anthony Musaluke
B.MEng
Chief Operating Officer



Roselyne Raelly
FCIS, MBA
Director, Human Resources



Dr Stewart Reid
MD, FRCP, MPH
Senior Technical Advisor



Dr Izukanji Sikazwe
MBChB, MPH
Deputy CEO



Inonge Wambulawae
FCCA, MBA, BAcc
Chief Financial Officer

for a healthy Zambia

Leadership Team Members (cont'd)

New Members in 2015



Richard Mutemwa MSc, MBA, PhD

Director, Primary Care & Health Systems Strengthening

Dr Mutemwa brings extensive experience as Lecturer and Research Fellow in health systems and international development, focusing on maternal child health and HIV/AIDS at The London School of Hygiene & Tropical Medicine and the University of Southampton, U.K. In Zambia he was Country Manager of the USAID/MOST programme providing technical support to the National Vitamin A supplementation programme; and Head of Nutrition Education Unit of the National Food and Nutrition Commission.



Obert Kachuwaire HBMLS, MPH

Director, CIDRZ Laboratory

Mr Kachuwaire was the Botswana National TB Reference Laboratory Quality Manager. He supported expansion of the TB External Quality Assurance programme in the TB Lab Network that resulted in successful ISO 15189 Accreditation. He has experience in laboratory capacity-building throughout Africa, is a trained laboratory technical assessor and is on the South African National Accreditation System (SANAS) Technical Expert roster.



Dr Monde Muyoyeta MBChB, PhD

Director, TB Programmes

Dr Muyoyeta has over 12 years experience conducting TB and HIV research in Zambia including implementing large community level field epidemiological studies for TB prevention and control, and TB laboratory strengthening. She has led studies evaluating computer-assisted diagnosis of TB using digital X-ray, and evaluation of Gene Xpert MTB/Rif in Zambia.



Dr Mwanza Wa Mwanza MBChB

Director ART Programme

Dr Mwanza has over 13 years experience providing technical support in HIV/AIDS and TB-related services to clinicians and nurses through mentorship, training, capacity-building and skills transfer. His interests focus on community-based strategies to strengthen provision of quality anti-retroviral treatment (ART) services, health systems strengthening, and policy development.



Ronald Sinkala MSc, LLB, ACIS, AZICA

Company Secretary/Compliance Officer

Mr Sinkala has over 15 years experience managing donor-funded local and international institutions. He manages the CIDRZ Company Secretarial function performing the duties of Board Secretary. He provides administrative support to the Board Chair and Chief Executive Officer; identifies and monitors risks and provides risk management with focus on legal, governance and donor compliance.



Dr Christopher Ng'andwe MSc, MMED

Director, Reproductive, Maternal, Newborn & Child Health

Dr Ng'andwe has over 20 years experience in clinical medicine and public health with expertise in planning, design and implementation of health systems strengthening programmes in Maternal, Newborn and Child Health, Reproductive Health and Family Planning.

Award Winning Leadership Team Members: Leading Lights in 2015

Dr Sharon Kapambwe: Building the Capacity of the National Cancer Programme in Zambia



In April, CIDRZ seconded Dr Kapambwe to the MoH as Director of Women’s Cancer Control to support sustainable national scale-up of services. *“Dr Kapambwe will be the centre of our efforts to continue expanding women’s cancer services throughout Zambia. We are most appreciative of the CIDRZ secondment of Dr Kapambwe to the MoH, with the support of PEPFAR and the CDC partnership and Pink Ribbon Red Ribbon. Her presence and CIDRZ’s ongoing support will enable us to transition to a truly sustainable national programme of lifesaving cervical and breast cancer screening and treatment for Zambian women,”*

Dr Elizabeth Chizema, MoH Director of Disease Surveillance, Control and Research

In December, the U.S. Embassy and CDC named Dr Kapambwe a **2015 PEPFAR Hero and Champion** for her tireless efforts to bring cervical cancer and breast cancer screening to Zambian women. She has been instrumental in the scale up of screening services for HIV infected, and uninfected, women throughout Zambia making the CIDRZ cervical cancer screening programme the largest one in sub-Saharan Africa. She was especially recognised for her drive to bring health messages to all sectors of community stakeholders including religious groups, the private sector and traditional marriage counsellors, and to speak with women at every opportunity about the need to care for their health and get screened for cancer, as well as for her commitment and success at breaking down HIV stigma and discrimination in the community and encouraging testing and access to treatment.

Dr Monde Muyoyeta: 2015 Zambia National Science and Technology Council Merit Award Winner



In November, CIDRZ Director of TB Programmes, Dr Monde Muyoyeta, was awarded the **2015 Zambian National Science and Technology Council Merit Award** for her exceptional and invaluable contribution to research and development in science and technology in Zambia.

Dr Muyoyeta leads a broad portfolio of TB-related programmes and research and is the CIDRZ Principal Investigator for the **GSK and Aeras-funded TB vaccine clinical trial**, and the **Global TB Alliance-funded Shortening Treatment by Advancing Novel Drugs (STAND) study** of novel combinations of drugs for TB treatment. Her vision is to use science to drive better programmes and to have a major impact on TB control in Zambia. She joined CIDRZ from Zambart where she served as Head of Diagnostic Studies including the ZAMSTAR study; a large two country randomised controlled trial of community-level interventions aimed at reducing the burden of TB and HIV.



Dr Muyoyeta explaining TB research to Zambian journalists at the Aeras-funded TB Vaccine Research Media Sensitisation Training

With Thanks to the Government of the Republic of Zambia

Enduring and effective improvements to health infrastructure, human resources for health, and health systems cannot take place without supportive political will



CIDRZ is able to be an effective partner because of our collaborative relationship with the Government of the Republic of Zambia. We align our programmes, technical support, and research activities with the Zambian National Health Strategic Plan and liaise at every step with representatives of the MoH, the MCDSS, the Ministry of Home Affairs (MoHA), and other key Ministries and supporting offices.

CIDRZ has been privileged to contribute positively as an implementing partner to healthcare service developments that have enabled Zambia to make comprehensive and sustainable improvements to the delivery of primary health care, including substantial gains over their HIV and TB epidemics.

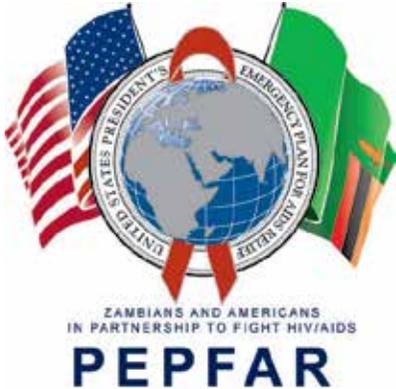
CIDRZ is thankful to the Zambian government for the opportunity to work together to find effective, acceptable, and sustainable health interventions to serve the Zambian people

OUR ZAMBIAN GOVERNMENT PARTNERS

Ministry of Health
Ministry of Community Development and Social Services
Ministry of Home Affairs
Ministry of General Education
Ministry of Local Government and Housing
Ministry of Chiefs and Traditional Affairs
The University of Zambia – School of Medicine
Zambia Correctional Service
University Teaching Hospital

Cancer Diseases Hospital
Coalition of Parliamentarians Against HIV/AIDS
Medical Stores Limited
National Tuberculosis and Leprosy Control Programme
Zambia Environmental Management Authority
Zambia Institute of Mass Communication
Zambia Medicines Regulatory Authority
Zambia National Blood Transfusion Service

Supporting Zambia's Response to Defeat AIDS: With Thanks to the United States of America



Achieving sustainable control over a challenging adversary like HIV requires a dedicated, coordinated national response and the unwavering support of strong partners.

The United States Government through funding from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), and the Centers for Disease Control and Prevention (CDC), Atlanta and Zambia Offices partnership, have proven to be such loyal partners.

CIDRZ has been privileged to be an implementing partner of the PEPFAR-funded HIV and TB interventions in Zambia since 2004. In 2011, CIDRZ became a local partner through the CDC Track 1.0 transition process and now conducts the HIV Integration into Local Ownership (HILO) programme through a direct cooperative agreement with the CDC.

CIDRZ is thankful for the generous support the organisation receives from the United States government, and the technical partnership and supportive guidance it has received from the CDC. Both have enabled CIDRZ to make lasting contributions to health improvements in Zambia.



Shining example of what is possible through PEPFAR support: (L to R) CIDRZ CEO Dr Charles Holmes, MoH Provincial Clinical Care Specialist Dr Wajirovya Chilambo, & CDC Zambia Country Director Dr Jim McAuley at Chawama First Level Hospital Refurbished Laboratory Official Opening



Dr Chilambo greeting a traditional Vimbuza dancer prior to cutting the ribbon to the refurbished Chawama First Level Hospital Laboratory

Taking Control of HIV/AIDS in Zambia: PEPFAR/CDC HIV Integration into Local Ownership (HILO)

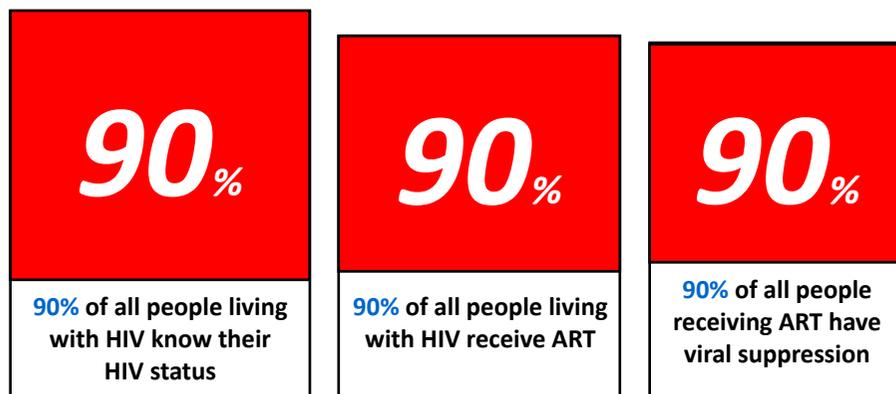
CIDRZ is a prime grant recipient and key Zambian implementer of the HILO grant in Zambia's Lusaka, Western, Southern and Eastern provinces

With generous PEPFAR funding and working with successful implementers like CIDRZ, the Zambian Ministry of Health has achieved national scale-up of HIV prevention, care and ART treatment services, reducing AIDS-related deaths by half and bringing HIV prevalence down to one in eight Zambians (13.3%). But there is still much to be done to achieve the ambitious UNAIDS Declaration of 90:90:90 targets.



CIDRZ uses data & innovative care delivery programmes to drive an effective & targeted attack on the HIV/AIDS epidemic

UNAIDS 2030 TREATMENT TARGETS



We simultaneously approach health problems from different angles in order to strengthen health systems using evidence-based and locally appropriate and sustainable implementation strategies. We facilitate improvements in infrastructure, and procurement and supply chain management, increase human resource skills, and mentor and monitor so that there are quality healthcare services offered throughout the HIV care continuum.

We promote local ownership of Zambia's HIV programme by strengthening health systems and capacity-building government staff through trainings, ongoing mentorship and supportive technical area expert visits, and providing monitoring and evaluation to drive excellence in healthcare delivery and data quality.

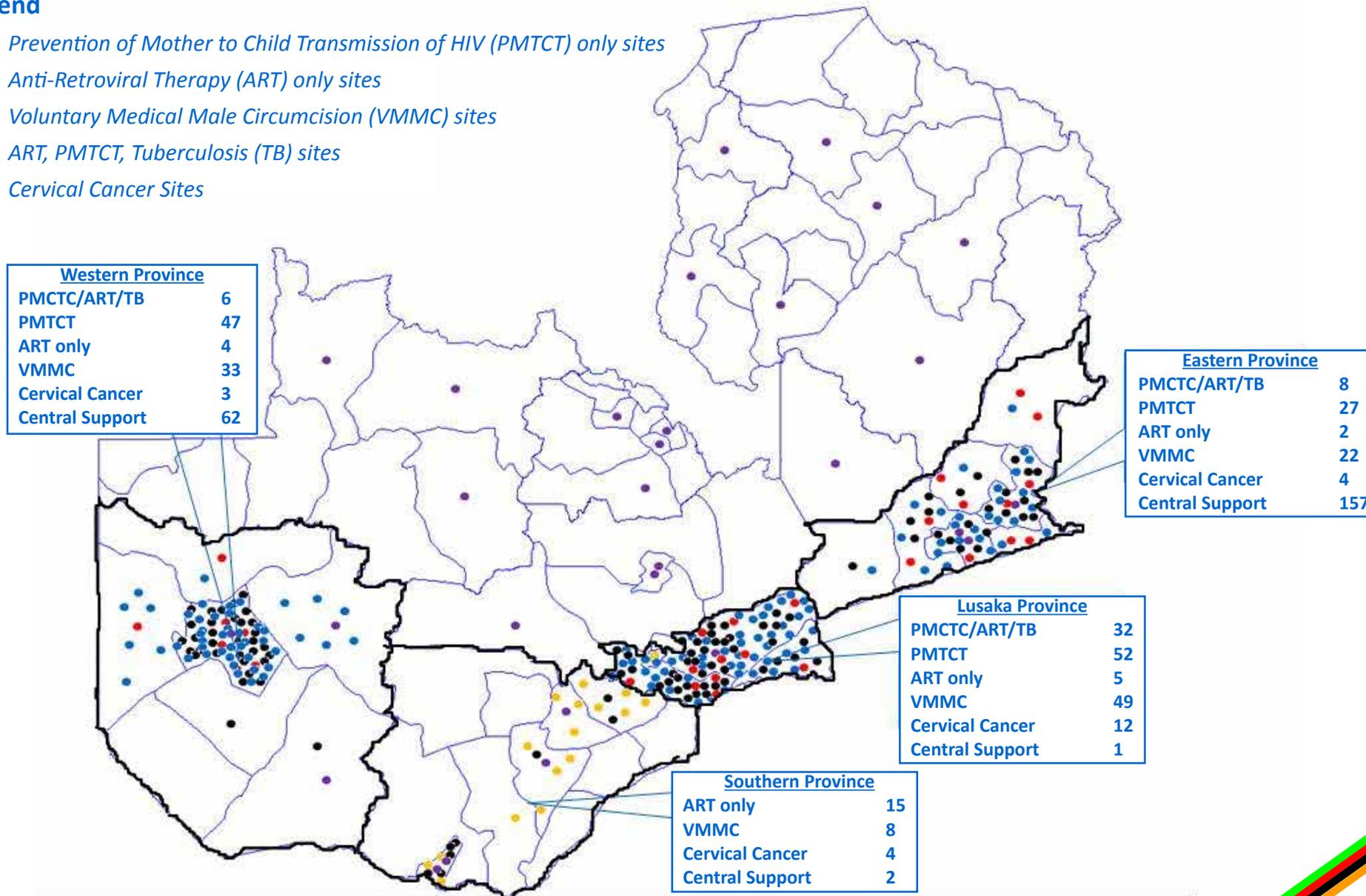
We focus our HILO interventions in geographic areas of greatest need in our 4 supported provinces to achieve the most impact

These interventions include expansion of quality healthcare service delivery in HIV care and treatment for children and adults with improved linkages to and retention in care; Prevention of Mother to Child Transmission of HIV (PMTCT) services and expansion of the Option B+ strategy for pregnant and breastfeeding mothers; Voluntary Medical Male Circumcision (VMMC) to reduce men's acquisition of HIV; integration of Tuberculosis (TB) screening and treatment in HIV services; expansion of HIV-related reproductive cancer screening programmes; and laboratory support.

PEPFAR/CDC Supported CIDRZ HILO Sites

Legend

- Prevention of Mother to Child Transmission of HIV (PMTCT) only sites
- Anti-Retroviral Therapy (ART) only sites
- Voluntary Medical Male Circumcision (VMMC) sites
- ART, PMTCT, Tuberculosis (TB) sites
- Cervical Cancer Sites



for a healthy Zambia

CIDRZ HILO Highlights in 2015

Key Results

Adult ART Care & Treatment

Supported **77 facilities**
identified **50,700** HIV- infected adults
enrolled **88%** into care
retained **82%** on ART
340,000 cumulative adults on ART

Womens Cancer Screening

Initiated breast cancer screening;
since inception more than
220,000 women screened
for cervical cancer

Paediatric ART Care & Treatment

3500 HIV-infected children identified
81% enrolled on ART
halved median enrollment from **7 to 3 years**,
adolescent support groups in **35 facilities**
reached **9,658 youth**

Integrated TB & HIV Care Services

81% ART uptake among
people infected with TB & HIV in CIDRZ-
supported clinics **compared to
national average of 73%**

Voluntary Medical Male Circumcision

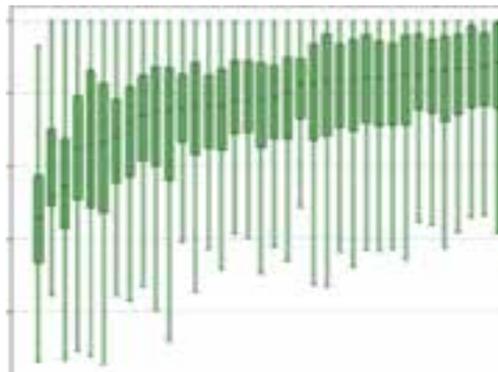
More than **25,000 procedures**
Only **0.2%** adverse events

PMTCT

Supported MoH-led PMTCT scale-up in
336 facilities
2.6% under 2 month infant transmission
compared to national average
of **5%**

Data Use and Continuous Quality Improvement Drive Programme Excellence

Performance measurement and evaluation are the lifeblood of CIDRZ programmes



Rigorous monitoring and evaluation is central to CIDRZ work. Programme and data analysis teams work closely with our monitoring and evaluation (M&E) experts to ensure that **all CIDRZ data are of the highest quality and integrity, and can be confidently reported and used for evidence-based programme management.**

CIDRZ incorporates regular Quality Assurance/Quality Control, and internal and external monitoring activities into all of our programme, research and laboratory work. Monitoring review results are shared with the team, root cause analysis is performed, and interventions for immediate and preventive corrections are put in place, and then further monitored for effectiveness.

Establishing a multi-level and integrated approach to Continuous Quality Improvement

(CQI) we support and mentor District Medical Offices and front-line health care workers on quality improvement activities. By sharing results of Site Improvement Monitoring Systems (SIMS) quality reviews with the local teams they gain appreciation of the impact of their efforts to provide quality healthcare and are further motivated to improve service delivery by incorporating CQI in their daily activities. Capacitating District Offices through mentoring, enables them to lead ongoing process improvement so that achieved results are sustainable past the life of the grant.

At the beginning of our **PEPFAR and CDC partnership** supported HIV Integration into Local Ownership (HILO) grant in 2011 we had separate M&E components for each programmatic area (PMTCT, ART, TB, VMMC, Cervical Cancer, Pharmacy and Laboratory). Over the course of the grant we strengthened this activity by creating a self-standing M&E unit serving all areas. We enlarged our team of data and M&E officers, improved our data collection tools, added more quality performance indicators, improved our data analysis and tracking of trends, and streamlined our reporting procedures.

Bwalya Sakala:

Monitoring and Evaluation Officer

“The CIDRZ Monitoring & Evaluation team tracks key elements of the HILO programme work plan and regularly submits reports to PEPFAR/CDC. We follow a detailed monthly facility level patient care indicator collection plan, and working with the CIDRZ data and analysis teams we ensure that the data is complete and consistent. Trends are immediately reviewed with the facility staff and on-site mentoring is provided. We are very confident of the data that CIDRZ submits to the CDC.”



As a direct result of these activities in 2015 the CIDRZ HILO team was formally recognised by the CDC Zambia for their diligent and effective data collection, analysis and use of data for decision making and were asked to share our methods with other partners at the M&E Technical Working Group.

for a healthy Zambia

Using Implementation Research to Improve HIV Care Delivery

Although ART is available throughout Zambia, gaining sustainable control of the epidemic requires patients to be adherent to life-long treatment and care. Busy clinics must now offer chronic care services, increasing congestion and long wait times. The lost-to-follow up rate (LTFU) of patients registered in care, but *not* coming for care, can be as high as 40%.



BILL & MELINDA
GATES foundation

The **Bill & Melinda Gates Foundation**-funded CIDRZ **Better Information for Health in Zambia study** aims to gain a better understanding of LTFU patients and their possible outcomes of death, self-transfer to another clinic, disengagement from care and the reasons why. More accurate estimates of these outcomes will assist the Zambian government to make informed decisions about service provision so that programmes and facilities better meet the needs of their HIV-infected patients and return them to health. Better Info is being conducted in 30 representative health facilities across 4 provinces employing a mixed-methods approach of surveys, interviews, focus-group discussions, facility audits and direct observations. The study team receives expert guidance by input from an Advisory Committee of local and international public health scientists and government representatives. Results are expected in 2016.

As more people are living with HIV, it is important to tackle clinic burden and reduce patient barriers to care through alternate ways to provide quality ART services to stable patients to ensure high adherence. The **Bill & Melinda Gates Foundation**-funded CIDRZ **Community ART for Retention in Zambia study** is examining patient, provider and policymaker preferences for care delivery and studying 4 models of “differentiated” healthcare delivery - rural Community Adherence

Groups (CAGs), Urban Adherence Groups (UAGs), Fast-Track Pharmacy pick-ups, and/or Streamlined ART Initiation (START) - to see if they can improve the effectiveness and the efficiency of HIV care delivery from both the patient and the health system perspective.

The study is led by CIDRZ and includes investigators from the University of Zambia; University of Alabama at Birmingham; University of California, Berkeley; University of California, San Francisco; Johns Hopkins University; James Cook University and the American Institutes for Research.

Reducing New HIV Infections through the Test and Treat Strategy

The **Population ART (HPTN 071) study** conducted in Zambia and South Africa is testing the feasibility of the **Test and Treat strategy** at a population-level scale. Study community HIV care providers do home-based testing and link uninfected individuals to enhanced combined prevention, and those found positive to ART care at local clinics. By immediately initiating treatment and thus lowering virus levels it is hypothesised that new HIV infections can be reduced providing future epidemic control. CIDRZ’s expertise as an implementer is an important part in the success of this study that is being conducted by our partners, Zambart and the London School of Hygiene and Tropical Medicine.



Bernadette Nyemba:

CIDRZ PopART Implementing Coordinator

Bernadette joined CIDRZ in 2001 as a research nurse on HIVNET 024, the first NIH network HIV prevention trial that CIDRZ ever conducted.

“I have been involved in many research studies over my years at CIDRZ. I know that I am contributing to the CIDRZ mission through the services I offer to individual patients and to the community.”



CIDRZ Central Laboratory: Facilitating High Quality Laboratory Results for Zambians

A world-class medical diagnostic facility providing high-quality clinical laboratory & cutting-edge research services

With a full array of assays and high-throughput instruments ours is one of the largest diagnostic clinical labs in sub-Saharan Africa providing essential testing and technical support to the government ART programme, results for U.S. National Institutes of Health network and other research trials, and commercial testing services to the general public (www.cidrz.org/laboratory/). The sophisticated, fully automated lab uses an electronic **Laboratory Information Management System** to transmit results to the **MoH SmartCare electronic medical record system**, or through a secure web interface to approved sites.

CIDRZ Lab is unique in Zambia for its rigorous & regular internal quality assurance reviews, successful external accreditation programmes reviews, Good Clinical Laboratory Practice standards, & receipt of U.S. NIH Division of AIDS certification for research trials

We are in the process of accreditation with the SANAS and were recently assessed for the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) by international auditors from the Africa Society for Laboratory Medicine (ASLM). We are poised to obtain International Organisation for Standardization (ISO) 15189 Certification in early 2016 becoming one of the few clinical labs in the region with this status.

Michelo Simuyandi: PhD Student, London School of Hygiene & Tropical Medicine, Research Fellow



"The support I receive from the CIDRZ Analysis Unit, the mentorship from senior researchers, the laboratory capacity and the continuous professional training opportunities makes CIDRZ the best place for a researcher in a resource-limited country to hone their skills and advance their careers."

Michelo is studying the impact of point-of-use household drinking water treatment technologies on diarrhoea incidence in people living with HIV/AIDS in peri-urban settings of Lusaka; and identifying factors associated with poor oral rotavirus vaccine efficacy in developing countries.

He aims to develop CIDRZ lab capacity in molecular and cell biology, molecular epidemiology, and microbiology. He receives mentorship from CIDRZ faculty and investigators, and in turn mentors UNZA students providing guidance on proposal development, field and lab work, and manuscript preparation.

Mabvuto Phiri: Lab Operations Manager

"If you have worked for CIDRZ Central Lab, you can work anywhere because of the strict quality management systems we have in place and the frequent monitoring by international bodies. I gain satisfaction knowing that by providing reliable diagnostic results to clinicians we help them make better-informed decisions and contribute to better patient management in Zambia".



for a healthy Zambia

CIDRZ Central Lab: Facilities

Tuberculosis

We perform acid-fast sputum smear microscopy and culture for routine diagnosis of pulmonary TB, and also concentrated smear microscopy, liquid and solid culture for a wide range of specimen types. We use molecular and antigen tests on positive cultures to confirm Mycobacterium tuberculosis complex as well as 40 other species of mycobacterium. For rapid identification of TB and simultaneous testing for Rifampin susceptibility as a screening indicator for multi-drug resistant infection, we use Gene Xpert MTB/Rif technology. Molecular drug susceptibility testing is also done for Rifampicin and Isoniazid, while use of MGIT technology offers phenotypic screening for four of the first-line drugs in standard TB treatment.

Microbiology

We also perform culture and identification, drug susceptibility testing and typing of organisms for research purposes and will soon be offering this service for routine clinical services.

Virology

Our virology lab provides HIV viral load and resistance testing, and early HIV infant diagnosis for those born of HIV positive mothers to support the government's ART programme. We have also expanded our platform to perform Hepatitis B viral load and resistance testing, Rotavirus immunology and genotyping.

Kalo Musukuma: MSc Student, The University of Zambia, HealthCorps Fellow



Kalo with Dr Vinikoor

"I am passionate about excellent laboratory services and research. Improvements in lab capacity lead to improved healthcare, while research contributes to policy development which improves healthcare even more."

Kalo joined our lab in 2012 to gain research skills in molecular biology of HIV and viral hepatitis and their mutations under Dr Mike Vinikoor, an infectious disease specialist based at CIDRZ. Awarded an HIV Research Trust scholarship she received further mentorship under virologist Dr Samuel Zuercher at Bern University,

Switzerland. Returning to CIDRZ, Kalo introduced hepatitis viral load and resistance genotyping assays that previously had to be sent out of the country. In early 2015 the WHO released Hep B Virus (HBV) treatment guidelines for sub-Saharan Africa making viral load a key test, so validating this test at CIDRZ lab enables us to support the MoH when HBV treatment is taken to scale.



Ref: Vinikoor, MJ; Zurcher, S; Musukuma, K et al. [Hepatitis B viral load in dried blood spots: A validation study in Zambia](#). Journal of Clinical Virology 72(2015) 20-24.

Building Sustainable Quality Laboratory Testing Capacity in Government Facilities

Building from our expertise, the CIDRZ Lab team provided comprehensive technical assistance, on-site monitoring and mentoring to Government Labs building their capacity to provide quality testing closer to Zambian communities

Through generous funding from **PEPFAR and the CDC partnership HILO Laboratory programme**, the CIDRZ Lab team enhanced testing capacity and improved patient care at multiple CIDRZ-supported government labs in Lusaka, Southern and Eastern Province during 2015 including:

- Refurbishing infrastructure to provide safe and adequate lab workspace
- Procuring equipment and machines in collaboration with MoH Lab Services Unit
- Planning with Medical Stores Ltd so that reagents and supplies will always be available
- Recommending staffing levels to service projected testing volumes
- Facilitating Good Clinical Lab Practices and Biohazard Safety trainings
- Introducing a broad Quality Management System of workflow organisation, equipment maintenance, instrument validation, quality control testing, specimen rejection criteria, alternative testing, critical results reporting, liaising with clinicians, source documentation, and waste management

*“Most of our laboratories didn’t have the capacity to process ART programme specimens, but through the technical, administrative and financial support provided by the CIDRZ Central Lab staff and through the **PEPFAR and the CDC partnership**, the capacity in our health facilities has greatly improved. This a milestone achievement in the health sector in Zambia.” - Dr Matimba Chiko, Lusaka District Clinical Care Specialist*

The CIDRZ Lab Team:

Provides Ongoing Support

At fully transitioned sites, the CIDRZ Lab team continues to perform regular Technical Supervisory Supportive (TSS) visits to address implementation gaps and provide on-site mentorship to boost consistency in performance and local ownership.

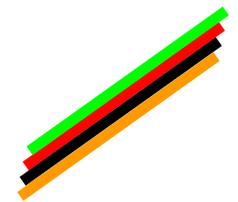
Monitors Specimen Quality

Quality control is universal in CIDRZ laboratory activities. We review each specimen to ensure that temperature and time-to-test requirements have been followed rigorously. Improperly handled specimens must be rejected to protect against erroneous results, but redraws are inconvenient for the patient. In support of government labs taking over ART testing we conducted a retrospective review of pre-test errors found in samples arriving at the lab. Preliminary results indicated mismatched demographic information, and old, and clotted specimens as top reasons for rejection. Policy recommendations were made to MoH for further lab tech training.

Assists Provincial Hospital Labs Achieve International Quality Accreditation

This year the CIDRZ HILO Lab team assisted Livingstone Central in Southern Province, Lewanika Central in Western Province, and Chipata General in Eastern Province move closer to achieving External Quality Assurance accreditation through mentoring, monitoring quality programme development, and guiding writing of standard operating procedures.

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A Life Saving Partnership Between MoH, CDC and CIDRZ: Refurbishing Chawama Lab

**This government clinical lab is now one of the largest in the District and provides on-site ART testing so
Zambians receive results in just a few hours and get care much sooner**

Through funding from **PEPFAR and the CDC partnership under the HILO programme**, CIDRZ coordinated refurbishment of the old clinic labour ward into a modern laboratory testing facility able to serve the large population of Chawama in the capital Lusaka. With a new CD4-T cell count machine joining the haematology and chemistry analysers previously provided by the MoH, trained lab technicians can now do all the necessary testing for the ART programme on-site rather than sending them to the CIDRZ Lab. This means much faster result turnaround times enabling clinicians to provide more efficient healthcare services to Chawama patients.

“Chawama can now process specimens and give test results to patients within hours. This would take 2-3 weeks in the past. We are also now able to provide lab services to four other surrounding clinics.” - Jesper Sakala, Head Chawama Laboratory



Ms Sakala greeting CDC Zambia Director, Dr Jim McAuley as CIDRZ CEO, Dr Charles Holmes looks on at the official opening

“When a patient agrees to a blood test they do so with trust; they trust that their specimen will be treated carefully and that the laboratory specialist will quickly perform the correct test so that an accurate and trustworthy result is provided to the clinician. The result of a single blood test can change a life and it is of utmost importance that the result is one that can be trusted, and is provided in as fast a time as possible. CIDRZ is proud to play a part in the scale up and transition of quality laboratory services to the public.”

- CIDRZ CEO Dr Charles Holmes



Before: Original Chawama lab



After: Newly refurbished Chawama lab



Chawama Lab Technicians

Community is the Heart of Zambian Culture

A strong community outreach component is integral to the success of CIDRZ programmes



In response to the overwhelming HIV epidemic in 2004, **we developed ART clinic-based HIV support groups** to minimize stigma and discrimination and provide a safe place where members could share feelings, learn about healthy living with HIV, and receive encouragement to adhere to treatment. With training, some chose to become Peer Educators and support others in the community by providing **Prevention with Positives home visits**. Today CIDRZ supports a cadre of over 400 committed community volunteers skilled in psychosocial counselling and testing who assist PMTCT and ART clinic patients and staff by performing non-clinical duties, escorting patients within clinics to link them to care, and bringing ART closer to home for stable patients through a service-to-doorstep approach being piloted by **Community ART Groups**.

Drawing from our wealth of experienced programme staff and this strong cadre of trained volunteers, CIDRZ is able to adapt to the changing environment of the Zambian HIV epidemic and promote innovative approaches to ensure targeted service delivery for underserved or hard-to-reach groups.

HIV Prevention Led by the Community: Community COMPACT

Through funding from **PEPFAR and the CDC partnership**, this programme increases the number of people who know their HIV status and receive services to help avert new infections in Lusaka's peri-urban Kanyama compound and rural Kalabo District. It is truly a community-led HIV prevention effort: each site identifies their drivers of infection and takes locally appropriate action to mitigate them. COMPACT volunteers are local people living with HIV, Neighbourhood Health Committee members, church leaders, vendors, traditional healers and others, that means that health education messages are shared by known and trusted sources. Activities include door-to-door, facility-based and national VCT campaigns, distribution of condoms, and health information about ART, PMTCT, VMMC, cervical cancer screening, family planning, TB and the importance of seeking health services at the local health facilities.

In 2015: COMPACT distributed 115,267 flyers; 851,909 condoms; and tested 79,816 people - 136% of our target. We found 3,446 with HIV; and tested 6,684 people as part of a couple

COMPACT's strength is **Couples Counselling and Testing** provided by couples themselves who are able to defuse conflict about positive or discordant results and demonstrate role models of couples living well with HIV that provide hope and support to others. Those found positive are linked to care, encouraged to start and adhere to ART regardless of CD4 cell count, and receive healthy living messages. Men found negative are encouraged to go for VMMC, and to support their partners to attend ante-natal care.



PEPFAR/CDC/CIDRZ COMPACT continued: Reaching Key Populations

Counseled and tested 104 commercial sex workers and 110 people who inject drugs



Pillows for patients at Kalabo Hospital being ferried across the Zambezi river

Because trained COMPACT lay counsellors come from within the community they are **able to approach hard-to-reach individuals at especially high-risk for HIV**. In 2016, COMPACT will expand to new high-yield compounds in Lusaka and Livingstone providing door-to-door counselling and HIV testing, and targeting commercial sex workers and truck drivers.

An exciting component of COMPACT is the implementation of health-related incentives for communities that meet their targets. This year both the Kalabo and Kanyama COMPACT volunteers directed their incentive to the purchase of patient mattresses and bed linens to benefit patients at their local health care facilities.



Blankets and bed linens presented to sister-in-charge of Kanyama Hospital

Aliyense: Eliminating Infant HIV and Saving Mother's Lives



This one-year **M•A•C AIDS** - funded project was modeled on the successful Community COMPACT programme and was conducted at the Chainda South Clinic adjacent to the underserved Kalikiliki peri-urban community of Lusaka. The aim was to improve uptake of PMTCT and lifelong ART for infected pregnant women, increase the number of HIV-exposed infants receiving testing, and achieve high levels of retention and adherence to ART care.

After holding a community stakeholders meeting, we recruited 32 Kalikiliki volunteers and 10 peer educators interested in providing public and door-to-door HIV prevention outreach who were trained in HIV and AIDS Basics, PMTCT and Option B+, and finger-stick rapid HIV testing.

Overall, Aliyense served **611 new antenatal clients, of which 17% tested HIV-positive** and initiated lifelong ART, and 86 mothers brought their HIV-exposed infants for testing surpassing our estimated target. Further funding is sought to continue the programme.

Mbuya Daisey: Helping Adults Talk to Children About HIV

It is difficult for a parent or caregiver to inform a child that he or she has HIV. It is a hard message to disclose and may bring feelings of shame, fear of stigma and blame, and concern about how the child will accept their status. But it is necessary for a child to know about their positive status if they are to become an active partner in their own ART adherence and healthcare management.

Mbuya Daisey - [Developmentally Appropriate Information Support and Empowerment for Youth](#) - is a course facilitated by trained counsellors to give parents and caregivers the knowledge and skills they need to comfortably and sensitively disclose a positive HIV status to a child. As disclosure is a process and the information and language level used depends on the age and developmental stage of the child, Mbuya Daisey trainers use tools, discussions, coaching and counselling to assist parents and caregivers gain the necessary information, skill and confidence. Post disclosure there are follow-up sessions with caregiver and child to support the child to accept their status and live positively. When ready and age appropriate, the child may shift to the Tisamala Programme.

Funded by the **Elizabeth Glaser Pediatric AIDS Foundation** and the **PEPFAR and the CDC partnership HILO grant**, CIDRZ is implementing Mbuya Daisey in three sites in Lusaka Province with plans to scale up to all four HILO-supported provinces.

Tisamala: Taking Care of Positive Teens

Going through the physical, emotional and social changes of adolescence is challenging at best, but being an HIV positive teen makes it even more complicated, especially in Zambia where they risk stigma and isolation that may cause them to deny their status and not be adherent to ART. Through funding from **PEPFAR and the CDC partnership**, the Tisamala Teen Mentor Programme, administered through the Elizabeth Glaser Pediatric AIDS Foundation, builds on the success of the ART clinic support groups for people living with HIV and provides a safe place where infected teens can be part of a group led by trained HIV-positive peers that offer health information, dance, sports, debate and chess clubs. Tisamala means **'We Take Care'** in the local language Nyanja, and exemplifies the type of mentorship and support that Tisamala teens receive.

Started as a pilot in 2012 in four clinics in Lusaka, the success of Tisamala was soon recognised and expanded to a further ten clinics, with plans underway to introduce it at sites in Eastern and Southern Provinces. Tisamala teens confidently speak in public about HIV, including their status. Volunteers are invited to become teen mentors themselves, thus widening the reach and impact of this important adolescent-to-adolescent programme.

Ephraim Banda: Peer Educator Supervisor



Ephraim with some Tisamala teen mentors

Ephraim joined CIDRZ in 2005 to work at the Lusaka Kalingalinga ART clinic when it was *“considered a sin to have HIV.”*

Eager to engage adolescents in health activities, he was instrumental in creation of the Kalingalinga Youth Community Resource Centre to combat high illiteracy, substance abuse, sexually transmitted infections, unwanted pregnancies, and early marriages that were driving up new HIV infections and poor

adherence to ART in the urban shanty compound. Ephraim has also been key in Tisamala and Comprehensive PMTCT in developing Youth Friendly Corners in 4 Lusaka clinics.

Comprehensive PMTCT for At-Risk Teens



In 2004, the **M•A•C AIDS Fund** (MAF) launched an effort to make a difference by supporting innovative organisations that provide vital services and community outreach for people living with or affected by HIV/AIDS. Initiated “when the AIDS pandemic dramatically affected the fashion makeup communities” MAF declared that all proceeds received through the sale of VIVA Glam lip products would be dedicated to programmes that deal directly with the most marginalised, stigmatised and under-heard victims.”

CIDRZ is incredibly proud to be recognised by MAF and to partner with this visionary organisation as a recipient for its Aliyense and Comprehensive PMTCT for At-Risk Teens programmes

M•A•C AIDS and CIDRZ partnered to offer **Youth Friendly Services to at-risk 15-18 year olds to protect them against HIV infection and unintended pregnancies**. The 2013-14 Zambia Demographic Health Survey indicates that half of all teens become sexually active before 18, and condom use is low. Youth that seek reproductive health services risk being stigmatised by health centre staff and adults, so it is important that teens have a private, safe and welcoming space where they can receive this critical health information to protect themselves.

Comprehensive PMTCT builds from our Tisamala programme experience and is developing a group of youth lay counsellors skilled in VCT and reproductive health knowledge that have the confidence to provide at-risk youth with the information, skills, and supplies they need to protect their health. By engaging teens through the fun of soccer, dance, and drama, Comprehensive PMTCT provides opportunities for trained teen counsellors to share important and accurate health messaging with other adolescents. One volunteer says, *“I remember when I was that age, you don’t know where you can get the correct information.*

Of course, you act like you know everything but the truth is there is so much that you do not know. Then you end up getting the wrong information from your friends because they also do not know. Youths need a safe and open place where they can talk and share experiences, have fun, but still get the right information to keep them from getting sick.”



Finger-stick rapid HIV Testing

Bringing HIV Knowledge and Testing to Youth through Sport: CIDRZ and Grassroot Soccer



CIDRZ is also partnering with Grassroot Soccer (GRS), a nonprofit organisation that delivers essential HIV/AIDS education to vulnerable youth by engaging them through a fun and interactive sport-based curriculum, Skillz, taught by trained community-based peer educators. Our programme provides technical expertise and free HIV counselling and testing to youth and spectators at GRS-sponsored soccer tournaments, and at GRS Skillz graduation ceremonies.

Those under 16 must have a signed consent for VCT from their parent or caregiver, and any child found positive is linked to a peer educator at the local ART clinic who meets with the parent to disclose the status and ensure that the child is linked to care and follow up.

HIV Prevention for Men: Voluntary Medical Male Circumcision (VMMC)

WHO recommends medical male circumcision for HIV prevention in countries like Zambia with high HIV prevalence and low rates of male circumcision

Since 2013, CIDRZ has been supported through funding from **PEPFAR and the CDC partnership** to promote, train providers, and perform adult medical male circumcision at 20 static sites and multiple mobile/outreach sites in Western, Southern, Lusaka and Eastern provinces. As only a few tribes in Zambia practice male circumcision, the CIDRZ VMMC team has come up against resistance to the practice but has overcome this through collaboration with traditional chiefs and other key community stakeholders who help to assert that HIV affects people regardless of tribe or religion. VMMC Community Supervisor Bright Jere explains, *“We work within the established social structures to involve traditional, religious and other community leaders to help us overcome barriers, correct myths and misconceptions, and sensitise about the health benefits of medical circumcision for men, and their female sexual partners.”*

CIDRZ has circumcised more than 58,000 men to date

In 2015, we circumcised 27,222 men; 107% of our target

We use every opportunity to sensitise the public about the benefits of VMMC for both men, and



Cervical Cancer Team joins VMMC at the Zambia Revenue Authority sensitisation in Lusaka

women, being that the human papilloma virus (HPV) - a sexually transmitted virus and a cause of cervical cancer can be found under the male foreskin. Often the VMMC and Cervical Cancer Prevention Community Outreach Teams attend public sensitisation events together to reinforce messages about HIV prevention, circumcision, cancer awareness and screening.

Success of our VMMC team is based on a very active outreach strategy that effectively reaches youth and men at schools, clubs, workplaces, bars, markets, cultural and sporting events and through megaphone community mobilisation. Flyers, posters, and banners are disseminated in the community and posted at clinics.

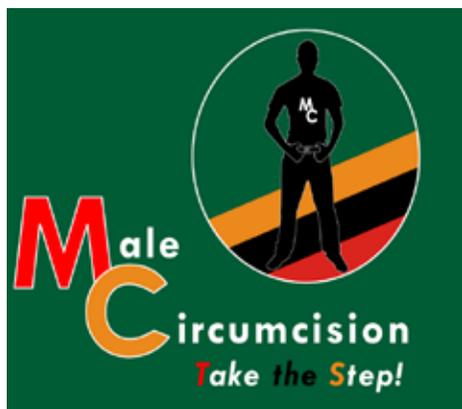
The team also never turns down an opportunity to appear on community radio or television to get the message out. Clearly this approach is affective as annual CIDRZ VMMC targets are always met, or exceeded. HIV testing is routinely offered by trained counsellors prior to the procedure and those found positive are linked to HIV care and treatment services.



CIDRZ MC Team also supports the National VMMC Campaigns that occur across the country thereby contributing to circumcision numbers

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Active Partner in National Campaigns and Introducing Innovations



In addition to providing VMMC and being an active partner in National VMMC campaigns, CIDRZ also helps to introduce circumcision innovations to make the procedure more acceptable and easier to scale up. Currently, adult male circumcision is being performed using the dorsal slit method, but the **CDC** has requested the CIDRZ VMMC team to do a **Shang Ring device active surveillance study** of 1,000 clients to ascertain if this device method should be implemented countrywide as one of the methods available for circumcision. Results will be available in 2016.



Shang Ring Device

Bright Jere: **CIDRZ VMMC Coordinator**



Bright Jere, who has a Bachelors degree in Adult Education, joined the CIDRZ VMMC programme in 2013 to strengthen sensitisation activities and create demand for the procedure. He supervises community implementation and outreach officers in the four provinces serviced by the CIDRZ programme.

“Working with the community is my life. I love talking to people, and helping them learn more about how to stay healthy gives me joy and satisfaction. I know about the benefits of VMMC having had the procedure myself so I can speak from the heart.”

Bright during the N’cwala Traditional Ceremony of the Ngoni speaking people in Eastern province



CIDRZ’s VMMC team on Chipata TV in Eastern province promoting the government-led VMMC campaign

Taking Women's Cancer Control to the Nation

The burden of cancer of the cervix in Zambia is one of the highest in sub-Saharan Africa, with the HIV epidemic driving up cases. Dr Sharon Kapambwe, Director of the CIDRZ Women's Cancer Control Programme, recalls, *"in the past, the majority of patients in the gynaecology ward of the University Teaching Hospital in Lusaka were young women dying of cervical cancer."* But this is no longer the case.

In 2006, generous funding from **PEPFAR and the CDC partnership, Pink Ribbon Red Ribbon, Susan J. Komen** and others, enabled CIDRZ to respond to this cervical cancer epidemic by initiating a **"Screen and Treat" visual inspection with acetic acid (VIA) digital cervicography cancer screening programme** using a low-cost, nurse-led technique that enables pre-cancerous cervical lesions to be visualised and stopped with cryotherapy (frozen with gas) in a single visit. Women found with advanced conditions are referred for Loop Electrosurgical Excision (LEEP) or surgical consultation.

Over 220,000 women have been screened to date, including more than 44,000 in 2015

Our Cervical Cancer Screening Programme of Zambia (CCPPZ) community outreach team is dedicated to educating women about cervical cancer screening at every possible opportunity. They have provided sensitisation and screening in all ten provinces of Zambia, gaining the support of local traditional leadership and counsellors and holding education events at multiple venues.

Susan Banda:

2015 Women's Health Care Provider Champion

"As a cervical cancer screening provider and trainer, I have been overjoyed to be able to offer my services to women in the most rural parts of Zambia as well as in other African countries knowing that I am helping to save lives."



2015 Patients Choice Women's Healthcare Provider Champion. Susan is the first nurse to become a "physician extender" providing screening services alongside clinicians at the tertiary hospital in Lusaka.

Our CCPPZ screening nurses are also truly exceptional! They have intensively focused on training other providers so that more static sites can open, and mobile clinics can be offered in remote areas. We are very thankful for the support and collaboration that we receive from the CDC, MoH, Ministry of Chiefs and Traditional Affairs, University Teaching Hospital, Cancer Diseases Hospital, and other Zambian institutions and partners that enable us to provide this important service to Zambian women.

CIDRZ has been instrumental in opening 41 screen and treat and 23 LEEP clinics to date

In 2015, we opened 7 screening clinics, and plan to open 8 screening and 13 LEEP clinics in 2016. Cervical cancer screening is now available in almost one-third of Zambian districts, but there is still much work to be done. CIDRZ is honoured to second Dr Kapambwe to the MoH where she will head the national scale up of cervical cancer screening services so that they will eventually reach every woman in Zambia.



Taking the Fight to Breast Cancer

Recognising the threat of breast cancer to Zambian women, CIDRZ has recently initiated a breast cancer sensitisation and screening programme built on the pre-existing cervical cancer prevention platform. Breast cancer messaging has been incorporated in all cervical cancer outreach capitalising on the experience, energy, and scope of the CCPZ sensitisation teams.

In 2015, over 3600 women have received clinical breast examinations with 7% requiring referral for further investigation

Two breast screening clinics have been established at the George and Chawama health centres in Lusaka and plans are underway to incorporate breast services in all the CCPZ- supported Lusaka clinics. In addition, two surgeon-staffed diagnostic clinics have been established: one at Kabwe General Hospital in Central Province, and the other at the University Teaching Hospital in Lusaka.

The goal of CIDRZ's Breast Cancer Prevention Programme of Zambia is to improve women's survival by increasing breast cancer knowledge, providing breast exam screening services and expanding access to early diagnosis and treatment for all women

"The disease burden for cervical and breast cancer remains very high in Zambia, and CIDRZ embraces the opportunity to partner with the MoH, global partners and the local community to work together to increase awareness and services in this fight for the health of women."

- Dr Chris Ng'andwe CIDRZ Director Reproductive, Maternal, Newborn & Child Health



CIDRZ women's Cancer team regularly conducts sensitisation and community mobilisation meetings to encourage women to go for screening



Shoprite Grocery Store staff at workplace sensitisation event in Lusaka



Susan Namuswa conducting sensitisation meeting at a rural health clinic

Controlling the Tuberculosis and HIV Co-Epidemics

TB is now the leading cause of infectious death worldwide

The WHO estimates that 9.6 million people fell ill and 1.4 million died of TB in 2014. There were also 1.2 million HIV deaths, one-third attributed to TB co-infection. TB is an early opportunistic infection in HIV infection and reveals itself as HIV progressively weakens the immune system. The HIV and TB epidemic epicentres overlap in sub-Saharan Africa, which accounts for 79% of the global HIV-associated TB burden.

70% of Zambian TB patients are also co-infected with HIV; Early diagnosis and initiation of ART and TB treatment in these patients is critical

Zambia has one of the top 30 highest TB prevalence rates in the world at 455 cases/100,000 people. **Each year more than 37,000 children and adults become ill with TB; yet only 59% of cases are diagnosed.** The currently available TB diagnostic tools are inadequate, resulting in a large proportion of individuals with active TB remaining undiagnosed. The result is deteriorating health and potential death for those left untreated, and continuing spread within the community.

CIDRZ tackles the Zambian TB and HIV disease burden in multiple ways. We:

- **Support the MoH National TB Programme**
- **Evaluate new, more sustainable and sensitive diagnostics that can be used at the patient's point-of-care**
- **Test new TB drugs to potentially shorten the treatment course**
- **Test new vaccines to prevent awakening dormant TB infection**

We also strengthen health systems to improve TB and HIV care, and address infections in key populations, such as inmates in correctional facilities.

Implementing WHO 3 'I's: Scaling-Up TB Prevention, Screening, Diagnosis & Care in Zambia

To address TB control gaps in countries like Zambia the WHO advocated the 3 'I's model of **Intensified case finding, Improved infection control, and scale-up of Isoniazid Preventive Therapy in individuals infected with HIV.** With funding from the **CDC** and leadership from the MoH National TB Programme, CIDRZ was a key partner in implementing WHO 3 'I's at 29 health facilities and 8 prisons in Zambia. The model included introduction of a new TB diagnostic tool - the Xpert MTB/Rif - which can provide a TB diagnosis within two hours with higher sensitivity than sputum smear microscopy, the traditional method used at health centres. Implementation of the 3 'I's programme strengthened District TB labs, provided mentoring and supervision of health care workers, and improved linkages between HIV and TB care services. The programme has now been transitioned to the government.

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Research to Evaluate Xpert MTB/Rif Diagnostics in Zambia



Cepheid Xpert MTB/Rif technology

Lack of adequate TB diagnostic tools is a key challenge in Zambia. Sputum smear microscopy is standard of care, but has poor sensitivity especially in patients with HIV. The gold standard is growing the TB bacterium in a sample of the patient's sputum, however TB culture is expensive, technically complicated and takes weeks. The Cepheid Xpert MTB/Rif (Sunnyvale, CA, USA) is a new near point-of-care diagnostic tool that identifies TB DNA in sputum in two hours so treatment can start much earlier. However, Xpert requires stable power supply, temperature-controlled cartridge storage, and special operation and maintenance training.

In 2010 CIDRZ conducted the **CDC-funded Optimizing Clinical Outcomes in HIV-Infected Adults & Children Using Xpert MTB/Rif study** in two Zambian peri-urban district hospitals to compare the standard diagnostic approach to Xpert MTB/Rif to see if it increased diagnosis using TB culture as the reference standard, as well as the feasibility and cost effectiveness of implementing Xpert in this setting. We also evaluated use of the new TB urine test using



Alere Lam technology

LAM technology to learn if it could improve the diagnosis rate in patients with advanced HIV. Data is under analysis.

Surprising recent data from Southern Africa indicated that Xpert did not increase the number of patients accessing TB treatment. In 2016 we will conduct the **Effect of Xpert MTB/Rif on Patient Health Outcomes and Empirical TB Treatment Among Persons Living With HIV/AIDS study**. Funded by the **Fogarty International Center**, we will evaluate the effect of Xpert implementation on patient outcomes under real-world conditions in high-volume, public ART clinics in Lusaka to determine if these findings are applicable to busy primary care clinics in Lusaka.

Investigating New Drugs to Shorten Treatment and Promote Adherence

Current first-line TB treatment relies on the same drugs used 40 years ago. Six-month treatment coupled with side effects can cause poor adherence, and thus TB drug resistance is increasing with emergence of virtually untreatable strains. Shorter, better-tolerated regimens are needed. CIDRZ is part of a **Global Alliance for TB Drug Development** - funded multi-centre clinical trial testing a promising new anti-TB drug, Pretomanid. The **Shortening Treatment by Advancing Novel Drugs - STAND study** will assess the efficacy, safety and tolerability of novel combinations of Moxifloxacin, Pretomanid and Pyrazinamide to discover a safe and well-tolerated treatment regimen that will be effective at eradicating TB when given for four, or possibly even two months. STAND will start in 2016.

Testing a Preventive TB Vaccine



An effective vaccine would be preferable to treatment for public health reasons as well as provide considerable individual health benefits. CIDRZ has just completed enrollment for the **GlaxoSmithKline and Aeras - sponsored Efficacy of GSK Biologicals candidate tuberculosis vaccine GSK 692342 against TB disease, in healthy adults living in a TB endemic region study**, evaluating the protective efficacy of a vaccine against pulmonary TB disease in adults. Participants are being followed for approximately 3 years.

Strengthening TB and HIV Health Systems in Zambian Correctional Facilities

In 2010, WHO-sponsored studies showed that prison-related TB rates were 5x, and HIV rates 2x, higher than the general community and that prisons were 'incubators' of TB disease that may facilitate spread to the general community. Thus, inmates are a key population that must be addressed to control both TB and HIV epidemics. For the last 6 years, CIDRZ has worked with the Zambian Correctional Services (ZCS) to tackle prison-related burden of disease and address the health system challenges to mitigate spread.

The EU-funded **Zambian Prisons Health Systems Strengthening (ZaPHSS) Project** is building capacity for sustained oversight and coordination of health systems and services within Zambian prisons and has recorded a series of impressive achievements:

- **Facilitating development and approval of the new Zambian Prisons Health System Strengthening Framework**
- **Collaborating with the MoHA and MoH to sign a new MoU to improve prison health**
- **Supporting ZCS appointment and training of the first 11 facility-level Prison Health Committees comprising both officers and inmates**
- **Overseeing ground-breaking research examining factors that drive health and service access in male and female prisons in collaboration with the Coalition of Parliamentarians Against HIV/AIDS (CAPAH) Zambian Chapter**



MoHA PS Dr Chileshe Mulenga

Research in Zambian Correctional Facilities



Data suggest that concentration of HIV-infected individuals and high-risk behaviours contribute to prison-related HIV transmission. Treatment as Prevention (TasP) is an effective HIV prevention strategy that involves immediately initiating infected individuals on ART, reducing HIV transmission to almost zero.

In collaboration with the AURUM Institute in South Africa, CIDRZ is funded by **DFID** to conduct, **Treatment as Prevention in Correctional Facilities in Zambia and South Africa study** to test the impact and operational feasibility of TasP in Lusaka Central Prison.

Ensuring strong, sustainable linkages to TB and HIV care for inmates released to the community is critical for public health. To determine where prisoners drop out of the HIV and TB services cascade and the

clinical, demographic, psychosocial, and structural factors associated with this we will also conduct the **NIH-funded Longitudinal Clinical Outcomes and Post-Release Retention in Care Among HIV Infected Inmates in Lusaka, Zambia study**.

Ref: Harris, JB; Siyambango, M; Levitan, EB; Maggard, KR; Hatwiinda, S; Foster, EM; Chamot, E; Kaunda, K; Chileshe, C; Henostroza, G; Reid, SE. **Derivation of a tuberculosis screening rule for sub-Saharan African prisons**, Int J Tuberc Lung Dis, 1(7):774-780, 2014

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ZaPHSS Framework Official Launch



MoHA PS Dr Chileshe Mulenga receives the ZaPHSS Framework as ZCS Commissioner General Percy Chato looks on

In May 2015, we celebrated a landmark occasion when the ZaPHSS Framework was officially launched and operationalised by the signing of a MoU between the Zambian Government, the European Union (EU), and CIDRZ to formally cement an agreement to continue to strengthen Zambian prisons health systems.

The EU generously provided support for the years of collaborative work between CIDRZ, ZCS, the SHARe II project, and the UNODC that resulted in production of the ZaPHSS Framework - a milestone in the ongoing commitment to continue this important public health work in Zambian correctional facilities.

The Framework is meant to be a guide to assist government to develop and capacitate a Prison

Health Directorate that will plan, manage and implement improved HIV and TB health services in prisons through strengthened decision-making and management structure, and sustainable facility-based Prison Health Committees.

To date ZaPHSS activities have taken place in 11 of Zambia's 86 prisons, and investment is required to ensure that the work to improve health in Zambian prisons continues. This is critical because health in the prisons clearly affects public health in the surrounding communities.



Front row: CIDRZ CEO Dr Charles Holmes, EU Head of Delegation Mr Gilles Hervio, MoHA PS Dr Chileshe Mulenga, Zambia Correctional Services Commissioner General Percy Chato, UN Office of Drugs and Crime representative Ms Sharon Nyambe with CIDRZ and other ZCS officials

Clement Moonga: ZaPHSS Manager



Clement (L) and MoHA PS Dr Mulenga

Clement joined CIDRZ because he *“wanted the opportunity to serve vulnerable prisoners.”* He manages all components of ZaPHSS which takes a holistic approach to improving prison health by combining implementation science health system strengthening activities from the national to facility level, with research that provides insight on factors that influence provision of health services.

“I get so motivated when I see the output of my work changing people’s lives. The CIDRZ ZaPHSS project has not only enabled me to positively impact prisoners’ and prison officers’ lives, but I have also grown professionally and spiritually through interacting with these groups.”

Strengthening Primary Care & Health Systems Are Critical to Improve Health

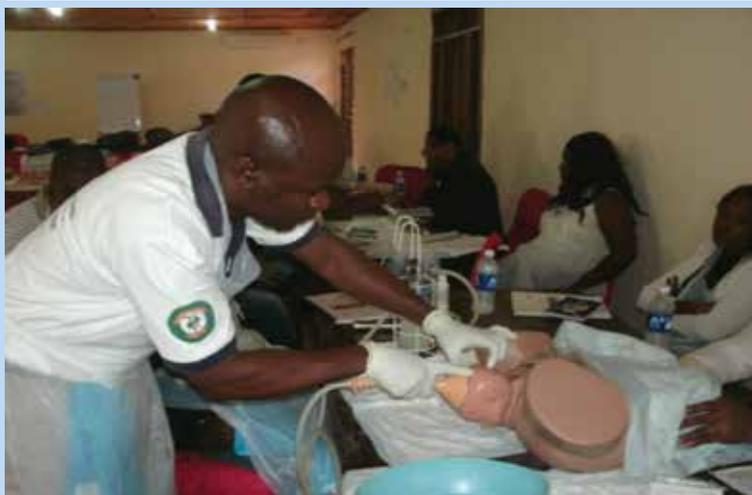
Most Zambians receive care at health posts or clinics where service is hampered because of few personnel, inadequate and inconsistent procurement and supply chains, and outdated facilities, communication and transport infrastructure. Yet to improve health outcomes and prevent epidemic spread of HIV, TB and emerging infectious disease like Ebola, high quality healthcare must be provided closer to home.

Fortifying Zambian primary care services and health systems is a focus of our operational research & health programmes

We improve infrastructure, supply chains and management systems, up-skill healthcare workers and lay cadres, and institute robust quality control and data management systems. To accelerate progress and facilitate ownership and sustainability at District and Provincial Health levels, we include these gateway stakeholders during programme planning, implementation, and guided progressive transition. It is through our longstanding programmatic and research commitment to strengthen the Zambian health system and improve effectiveness of primary care, coupled with our close partnership with the Government that CIDRZ is able to deliver more effective ways to control major public health problems. Using this approach, we support the healthcare system to become more comprehensive and capable so it is better able to protect against emerging diseases.

A capacitated workforce is a key foundation to a strong health system, thus all our programmes include training and mentoring to ensure local caregivers have the necessary skills for programme ownership. Once systems are established and new tools introduced, CIDRZ technical experts provide ongoing mentoring, monitoring and technical supportive visits to sustain improved change.

Improving Maternal Care



Emergency Obstetric and Neonatal Care Training

Through funding from **PEPFAR** and the **CDC** partnership **Saving Mothers Giving Life Accelerating Maternal care Access Initiative (AMAI)** project tackled high maternal and neonatal death in Eastern province by increasing knowledge of the community and skills of providers.

Over 68 local staff had **Emergency Obstetric and Neonatal Care training** and 3 physicians were mentored in anaesthesiology and surgical skills at referral hospitals while facilities received clinical equipment and supplies, and 120 **Safe Motherhood Action Group (SMAG)** community members and local traditional and key community stakeholders were sensitised on pregnancy danger signs. To enhance sustainability 20 providers attended a 5-day Mentor Training of Trainers course.

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Leveraging Community Involvement to Improve Maternal Health



Luangwa motorised ambulance

Better Health Outcomes through Mentoring and Assessment (BHOMA 2) project is a **Comic Relief**-funded initiative to improve maternal health in 3 rural areas of Lusaka province. Through sensitisation by trained community lay health workers using standardised tools, the community learned about pregnancy danger signs and the need for early care seeking, the importance of attending ante- and post-natal care and having a health facility-based delivery as well as the benefit of long-acting contraceptives.

60 'Community Conversations' were conducted in 20 sites to better understand each community's challenges in regards to good maternal health. After agreement on the priority issue to tackle for each site, an achievable intervention - with a community responsibility component - was determined. Some sites opted for building maternal shelters closer to the health facility where pregnant women could stay as they waited for labour to start.

Others chose income generating activities such as raising broiler chickens with the proceeds used to purchase baby delivery pack supplies for women who couldn't afford them. Because the Luangwa site experienced long distances and difficult travel to the health centre they opted for the purchase of 2 motorised ambulances, with the community responsible to provide a trained driver and fuel.

Engaging men to support maternal care is critical

Some women participants felt that if their men didn't value maternal health-seeking then it wasn't important, while other women wanted to attend early care services and have their husband's support to do so. Men meanwhile indicated that there was nothing for them to do at the health centre except wait, be asked to pay for things, or undergo HIV testing, and so they didn't see an advantage to accompanying their pregnant partner.

To improve men's involvement, 5 sites built concrete slabs where a donated gazebo tent was mounted so men and other community members now had a comfortable venue to sit, talk, and most importantly receive sensitisation on maternal and sexual reproductive health from community health workers.



Inside the Gazebo tent

Menstrual Hygiene Management (MHM) in Zambia: Helping Girls Stay in School

Zambian girls may miss 3-5 days of school every month because schools lack a private toilet, a safe place to dispose of used menstrual products, and clean water to wash hands with soap. As menstrual blood is taboo in Zambia most girls remain at home during their menses to avoid stigma and being shamed by male peers. As a result they fall behind and may eventually drop out reducing their chance of education and the opportunity to contribute to national economic growth. Zambia is among 14 countries supported by the **UNICEF**-funded **WASH in Schools for Girls MHM project**. In 2015, we conducted formative research data collection through focus group discussions, key informant, and in-depth interviews with students, teachers, parents, village Headmen and school board secretaries in rural Rufunsa and Mumbwa districts to gain a better understanding of the factors affecting MHM practices among pupils. The aim is to **contribute to development of National MHM Guidelines for school infrastructure requirements, and a MHM training toolkit.**

Improving Cold Chain Infrastructure to Harness the Power of Vaccines to Save Lives

To ensure life-saving vaccines are available to children in all corners of Zambia, the MoH has strengthened the national Expanded Programme on Immunisation by introducing new vaccines, including rotavirus against childhood diarrhoea, and boosting vaccine cold chain infrastructure. CIDRZ was a key implementing partner in this initiative funded by **WHO, UNICEF, JICA, and Elma Vaccines & Immunization Foundation.**

By working closely with the MoH Child Health Unit and other key stakeholders, CIDRZ was able to contribute to vast improvements in Zambia's vaccine cold chain scale-up strategy in 2015. Major contributions were:

- Refurbishment of two 40 meter² temperature-controlled vaccine cold storage rooms at Medical Stores Limited in Lusaka
- Establishment of 349 vaccine fridges in rural health centres of which 181 are solar powered
- Distribution of vaccine cold boxes and assorted cold chain carriers and supplies
- Donation of two 15-ton flatbed trucks
- Training of cold chain technicians



Increasing Zambia's vaccine capacity from a mere 144 to 212,000 litres!



Mr Simmy Chapula, Acting PS for MCDSS cuts the ribbon during the official handover of the vaccine cold storage rooms with CIDRZ CEO Dr Charles Holmes and Chief Scientific Officer Dr Roma Chilengi



Vaccine Refrigerators



Rachael of Misisi Compound in Lusaka, giving a vote of thanks to the funders



CIDRZ CEO Dr Charles Holmes speaking during the event

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Effective Water, Sanitation and Hygiene (WASH) Prevents Infection

Successful infection prevention and control requires adequate and equitable hand washing and sanitation facilities in schools, health facilities, and homes. This **UNICEF** supported project, facilitated by CIDRZ and the government, implemented **Community-Led Total Sanitation (CLTS)** and **School-Led Total Sanitation (SLTS)** WASH initiatives in 4 rural districts in Lusaka Province. The aim was for households to build their own latrines and “tippy-tap” hand washing stations so that entire villages could **reach Open Defecation Free (ODF) status**, and that 24 schools would build ventilated pit latrines and mass hand washing bays. Through successful collaboration with village Headman and village WASH Champions, **776 villages earned ODF status in 2015 benefitting 150,865 Zambians**. Working through District Councils and project management committees at each of the 24 schools, 95 ventilated pit latrines were built and each school has trained hygiene resource persons, a school health and nutrition group, and a WASH club.

Boosting Infection Prevention and Control in Vulnerable Health Facilities

Biohazardous waste needs correct and complete destruction to prevent transmitting disease. However, many health facilities don't have guidelines in place to train and monitor staff, and don't have functioning incinerators or the necessary wood or diesel to fuel them. Waste is thrown into pits and buried, but frequently used needles and syringes, dirty bandages and other items contaminated with body fluids become scattered on health centre grounds where patients, including children, walk and wait. Toilets and sinks may be too few or no longer functioning and there may not be sufficient water and disinfectants to adequately clean clinic premises.



Incinerator Building at Kanyama Clinic



New incinerator for biohazard waste destruction

This **EU-funded, UNICEF** administrated, **Millennium Development Goals initiative (MDGi)** contributed towards Zambia's attainment of the MDGs through development and implementation of **simplified Infection Prevention and Control guidelines for health facilities with a focus on Water, Sanitation and Hygiene**. Conducted in 4 vulnerable facilities in Lusaka and Copperbelt Provinces, we developed and validated simplified guidelines through a collaborative process with Government and expert stakeholders. Infrastructure improvements were made at each facility to achieve infection prevention control and WASH requirements including installation of bleach production units and incinerator buildings and incinerators.

District and health facility staff were trained on guideline implementation and equipment maintenance, and training tools and Standard Operating Procedures were developed to aid execution, monitoring, and ensure sustainability. **Cleaning supplies and personal protective equipment** were provided, and **Infection Prevention and Control committees** were established at each health facility.

Institutional Linkages: The Importance of University Partners to the CIDRZ Mission

CIDRZ is able to bring improved healthcare to the people of Zambia through collaborations with experts and leading scientists from multiple universities and organisations. Partnering with key thinkers, who understand and appreciate our specific research and training missions, enables CIDRZ to fill methodological and training gaps, mentor staff on state-of-the-art techniques and practices, and further our research so the science moves forward.

Why I work with CIDRZ Dr Elvin Geng MD, MPH

Dr Elvin Geng is an Associate Professor of Medicine at the University of California, San Francisco. He is also a Co-Principal Investigator on the CIDRZ Bill & Melinda Gates Foundation-funded Better Information for Health in Zambia study, a project aimed at identifying programmatic gaps and novel strategies to improve adherence and retention in ART programmes in resource-limited settings such as Zambia. *"I started working with CIDRZ in 2014 through the development of the BetterInfo grant with CEO, Charles Holmes. Our collaboration has since blossomed and we have many projects underway. What I love about working with CIDRZ is the organisation's focus on solving important problems through research closely linked to programmes. **The research staff and environment for conducting implementation science are world class and the Government of the Republic of Zambia is part of all major research projects, which is critical for ensuring our work is policy relevant.** I look forward to years of fruitful collaboration with CIDRZ and the enjoyment of mentoring the next generation of local scientists."*



OUR INTERNATIONAL UNIVERSITY PARTNERS

Columbia University (USA)
Emory University (USA)
Instituto de Medicina Tropical Alexander Von Humboldt
Universidad Peruana Cayetano Heredia (Peru)
Johns Hopkins University (USA)
London School of Economics (UK)
London School of Hygiene and Tropical Medicine (UK)
McGill University (Canada)
Prince Leopold Tropical Medicine Institute (Belgium)
University of Alabama at Birmingham (USA)
University of British Columbia (Canada)
University of California, Berkeley (USA)
University of California, San Francisco (USA)
University of Cape Town Lung Institute (South Africa)
Vanderbilt University (USA)



University of California,
San Francisco



University of Alabama at
Birmingham



University of California, Berkeley



Johns Hopkins University



London School of Hygiene and
Tropical Medicine

CIDRZ Research Infrastructure

Hope Mwanyungwi: **Head, Research Operations**

"Being in research is highly rewarding, knowing that I could play a key part in improving the lives of thousands of people. I want to be part of the growth of our healthcare system and one way of doing that is by facilitating the conduct of world-class research at CIDRZ."

Hope was born in Zambia, but spent 12 years in Australia where she earned her MSc in Biomedical Science with a focus on infectious disease, started her career as a lab scientist, and then shifted to research regulatory management. *"I came back to Zambia because I felt that there was so much more I could contribute if I was back home. I believe that if we are all committed, we can uplift the not-so-privileged and create a Zambia where no child, mother, or family goes without access to quality healthcare."*



CIDRZ has a longstanding and well-developed research infrastructure with dedicated **Research and Regulatory Affairs, Data Management and Analysis, Quality Control and Assurance, research Pharmacy and Laboratory Departments** with specially trained staff. Every study receives **Zambian National Health Research Authority approval** as well as other local and international ethical and regulatory approvals prior to initiation and undergoes continuing ethical review and reporting at least annually.

Research staff is trained in **Good Clinical Practices, Human Subjects Protections (Research Ethics)** and UNAIDS/AVAC community **Good Participatory Practices**. Studies undergo regular internal quality control monitoring with regulatory monitoring and a minimum 10% random chart review quarterly. Trials that are part of international networks also receive quarterly External Quality Assurance monitoring.

CIDRZ Community Advisory Board

In 2015, CIDRZ reconstituted a larger and much broader skilled and experienced Community Advisory Board (CAB) that performs a CIDRZ-wide research consultation function advising investigators and research teams on potential research topics of need identified by the community, acceptable recruitment and retention strategies, and appropriateness of language used in informed consent forms and community sensitisation materials.



CAB members and CIDRZ Research Staff during CAB training



CAB Executive with CIDRZ Senior Community Advisor Mr Fresher Maphiri (back left) and Investigator Dr Margaret Kasaro (front, 2nd from left)

High Calibre Research to Address Critical Public Health Needs for Zambia

The future of public health in Zambia, and the region, lies in increasing the pool of well-trained and motivated critical thinkers who have learned from the best and are determined to find solutions to local problems. CIDRZ is engaged in developing future research leaders by providing an excellent research-training platform for young Zambian researchers through exposure to practical field, clinical, and laboratory research as well as interaction with global thought experts on key public health research.

We address critical research questions by conducting high-quality clinical trials and implementation science, survey and evaluation methodologies, and laboratory science.

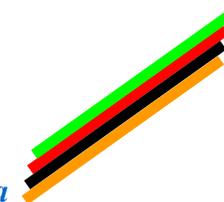
Our research aims to raise local healthcare provision to new standards through identifying locally relevant, culturally acceptable, resource appropriate, evidence-based health interventions that influence policy and have the greatest benefit and positive impact for Zambians.

Bringing research evidence to policy requires experience and excellent ideas, use of strong methodologies and rigorous conduct, peer-review, and dissemination. CIDRZ investigators present concepts, progress and findings at open-invitation CIDRZ Research Meetings, and formally to the MoH Directorate of Disease Surveillance, Control and Research at quarterly **research to policy meetings**. Our research is conducted with the approval of Zambian government authorities, the collaboration of health infrastructure leaders, and the involvement of broad representation of local experts and stakeholders as advisors. Our conference presentations and manuscripts for publication include Zambian authorship and receive prior approval by the National Health Research Authority.

Knowledge generated through healthcare service delivery informs research questions, and the results of research studies directly inform healthcare programmes.

Through CIDRZ research activities life-saving interventions have been introduced in Zambia including:

- Rotavirus vaccination against diarrhoea has been provided to over 800,000 infants as part as a national scale-up programme
- Immunisation against human papilloma virus (HPV), a cause of cervical cancer, for over 30,000 girls
- Nurse-led “Screen & Treat” VIA cervical cancer screening for over 220,000 women, with a national scale-up underway



Select Current Research

Exploring novel methods to systematically track patient outcomes to gain accurate estimates and understanding of ART care retention

Better Information for Health in Zambia - Bill & Melinda Gates Foundation funded

Investigating decentralised and streamlined models for delivering ART care

Community ART for Retention in Zambia - Bill & Melinda Gates Foundation funded

Testing a new preventive vaccine for TB

TB 018: Efficacy of GSK Biologicals' candidate vaccine GSK 692342 against TB disease, in adults living in a TB endemic region - GSK/AERAS funded

Assessing feasibility and scalability of Xpert MTB/Rif TB testing technology in HIV-infected individuals in peri-urban areas to assist MoH to make informed policy decisions regarding future implementation

OP-X: Optimizing Clinical Outcomes in HIV-Infected Adults & Children Using Xpert MTB/Rif in Zambia - CDC funded

Piloting the WHO strategy of Intensified Case Finding, provision of Isoniazid Preventative Therapy, and TB Infection Control in HIV settings and roll-out of Xpert MTB/Rif TB diagnostic tool in over eleven districts

Scaling Up TB Prevention, Screening, Diagnosis and Care in Zambia: Implementing the WHO 3'I's in Zambia 2012-2015 - CDC funded

Investigating new methods to diagnose and treat HIV

Investigating the feasibility of Oral HIV self-testing in Zambia: An inquiry into preferences, acceptability and demand - 3iE funded

Unearthing comorbidity in HIV infected people for comprehensive treatment

Liver fibrosis in Zambian HIV/Hepatitis B Virus co-infected patients: a long-term prospective cohort study - NIH Fogarty/leDEA funded

Supporting implementation of interventions to reduce perinatal morbidity and mortality among preterm infants

PREEMI: Preterm Resources, Education, and Effective Management for Infants - The ELMA Foundation

Reducing health facility acquired infections through strengthened infection transmission barriers and Water, Sanitation and Hygiene (WASH)

MDGi: Assessing the feasibility and impact of implementing simplified infection prevention and control guidelines in Health Facilities in Lusaka and Copperbelt Provinces - EU through UNICEF funded

Expanding HIV prevention, care and treatment to adolescent girls

Comprehensive Prevention of Mother to Child Transmission for at risk teens Programme - M•A•C AIDS Fund funded

Select Research Pipeline

Generate evidence to establish the feasibility of Treatment as Prevention/Universal Test and Treat within correctional facilities in Southern Africa

Treatment as Prevention (TasP) in Correctional Facilities in Zambia and South Africa - DFID/EHPSA funded

Unveiling immunological and non-immunological components of breast milk that interfere with child immunizations

Understanding the effect of breast milk component lactoferrin - Zambia National Science and Technology Council funded

CIDRZ Clinical Trials Unit with UAB

In 2015, the CIDRZ Clinical Trials Unit (CTU) strengthened our affiliation with the University of Alabama at Birmingham (UAB), Alabama CTU (A-CTU) that has been at the forefront of U.S.-based HIV therapeutic and prevention studies for over 25 years. Sponsored by the **U.S. National Institutes of Health**, the A-CTU has acclaimed expertise in conducting high-impact HIV-related studies and contributed the first descriptions of use of the HIV viral load test in clinical practice, and the rapid dynamics of viral replication, as well as the 'first-in-patient' studies of 7 of the current ART drugs available in the United States.

The CIDRZ CTU is currently conducting research trials sponsored by the International Maternal Pediatric Adolescent AIDS Clinical Trials Network (IMPAACT) and the HIV Vaccine Trials Network (HVTN) multi-centre international research networks.

"The A-CTU is pleased to partner with the CIDRZ CTU under the able leadership of Chief Medical Officer, Dr Carolyn Bolton. UAB and CIDRZ will embrace the challenge of tackling outstanding global health issues in paediatric, tuberculosis, and vaccine research. Together we hope to contribute to improving healthcare for Zambians through sound research evidence."



Dr Mike Saag, A-CTU Director, UAB



Current CTU Research

Promoting Maternal – Infant Survival Everywhere through provision of ante-natal combination maternal regimens - IMPAACT 1077 BF: PROMISE

A cross-sectional survey to determine eligibility and willingness to participate in HIV Vaccine Network Studies in Zambia - HVTN Screening Protocol

Pipeline CTU Research

Very early intensive treatment of HIV-infected infants to achieve HIV remission: a phase I/II proof of concept study - IMPAACT P1115

Phase I/II, multi-center, open-label, non-comparative intensive pharmacokinetic and safety study of dolutegravir (GSK1349572) in combination regimens in HIV-1 infected infants, children and adolescents - IMPAACT P1093

A Phase 1 clinical trial to evaluate the safety and immunogenicity of HIV clade C DNA and MF59-adjuvanted clade C Env protein in healthy HIV uninfected adult participants - HVTN 111

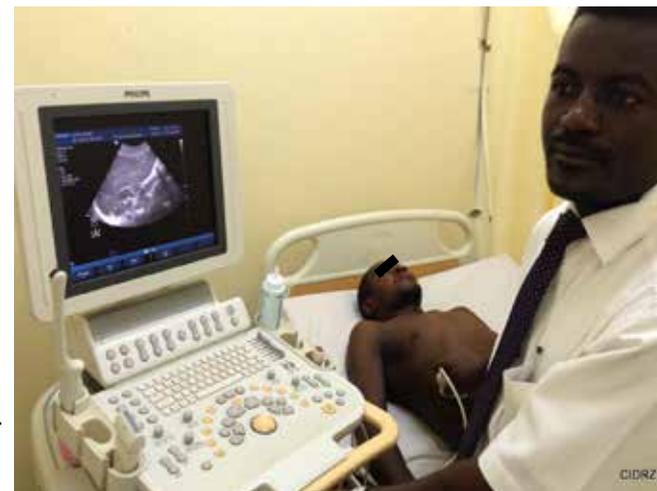
A Phase 1/2a clinical trial to evaluate the safety and immunogenicity of HIV clade C DNA, ALVAC-HIV (vCP2438), and MF59®- or AS01B-adjuvanted clade C Env protein, in various combinations, in healthy, HIV-uninfected adult participants - HVTN 113

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Hepatitis Research

Hepatitis B Virus (HBV) is endemic in Africa. Individuals infected with both HIV and HBV are at risk of accelerated liver damage, liver cancer, and all-cause mortality; therefore, knowledge of HBV status can guide optimal ART therapy. Further, the outcomes of HIV/HBV co-infection have not been described in Zambia. Because of the importance of hepatitis to HIV patient outcomes and because of the wider HBV epidemic in settings like Zambia, CIDRZ has been conducting leading-edge research in this area since 2013.

- With funding from **Roche, NIH, and HIV Research Trust**, CIDRZ performed HBV viral load testing in the CIDRZ Lab and conducted a **validation study to demonstrate the feasibility of measuring HBV viral loads in dried blood spots (DBS)** using the Roche viral load platform. Our results suggest that in rural clinics in Zambia, blood can be collected on paper DBS cards as part of HBV care. We hope that the Zambian MoH adopts this recommendation when national viral hepatitis guidelines are published to increase access to HBV testing.
- Conducted the **first ever review of HBV and HIV co-infection in Zambian children** to determine prevalence and short-term treatment outcomes. In 2005, the MoH introduced routine HBV vaccine for babies at 6, 10, and 14 weeks of age through the Extended Programme on Immunisations. Our data suggested that additional data on HBV in children is warranted in Zambia as we detected a number of children living with HBV among those born in years since the HBV vaccine became available.
- Continuation of the **NIH-funded International Epidemiologic Databases to Evaluate AIDS (IeDEA) Hepatitis study**, an 800-person cohort investigating the causes of liver problems in sub-Saharan Africa focusing on the **relationship of HBV and alcohol use**. Preliminary analysis presented at the MoH Annual ART Update Meeting indicated that Atripla, the most commonly prescribed ART drug regimen, effectively reduced HBV viral load and liver fibrosis among HIV/HBV co-infected adults in Lusaka, supporting national policy.
- Conducting a **NIH-funded liver fibrosis study** in a 400-person cohort of patients with HIV/HBV co-infection. Over 4 years' of follow-up we will evaluate virologic, serologic, co-infection, and liver end points. Working with the UTH Radiology Department and mentoring radiologists, this study is performing liver cancer screening using Fibroscan ultrasound. This is recommended for HBV patients, but has not been done in Zambia or the region before.
- **Initiated Fibroscan testing at the University Teaching Hospital Gastroenterology and Liver Clinic (Department of Medicine)** through mentorship of doctors, clinical officers and nurses.



Liver Ultrasound



Fibroscan

Ref: Vinikoor MJ, Musukuma K, Munamunungu V et al. **Implementation of routine screening for chronic hepatitis B virus co-infection by HIV clinics in Lusaka, Zambia.** J Viral Hepat. 2015 Oct;22(10):858-60.

CIDRZ Training: Building a Strong, Cohesive and Sustained Zambian Epidemic Response



Dr Lottie Hachaambwa (c), Infectious Disease Consultant University Teaching Hospital, Zambia Ebola Preparedness & Control Committee member

Training is central to our healthcare programmes and research activities. We build capacity of government laboratory, pharmacy, and clinical and nursing personnel through training. We decompress busy government clinics by task shifting non-clinical duties to trained lay caregivers, and we improve uptake of voluntary counselling and testing, and ART and TB programme adherence and retention through training of community counsellors. **In response to the Ebola virus outbreak in West Africa, we provided training on precautions and diagnosis to staff and District health employees to support Zambia's national preparedness.**



Contributing to Development of a New Cadre of Zambian Clinicians, Researchers and Public Health Professionals is a Core Component of Our Mission

Meet Jenala Chipungu: Qualitative Research Fellow



"My skills, knowledge and experience in research have been enhanced tremendously through my work with CIDRZ. I have been able to represent my work and CIDRZ at local and international fora with great confidence and pride."

Jenala joined CIDRZ to work on the behavioural change component of the Programme for the Awareness and Elimination of Diarrhoea, a comprehensive intervention to reduce under-5 mortality in Lusaka Province. Under the mentorship of Dr Roma Chilengi and with training enhanced through partnerships with local organisations and The London School of Hygiene & Tropical Medicine and Emory University, she has co-led qualitative and survey research on Water, Sanitation and Hygiene, menstrual hygiene management for school-going girls, and the feasibility of HIV oral self-testing for the Ministries of Education and Health. She is currently a distance Masters of Public Health student at the University of Liverpool, UK.

Building our staff's research and programme management capacity contributes strength to our overall epidemic response and enables us to perform and deliver. We have developed a **strong mentorship framework that permeates the organisation**: our faculty members mentor CIDRZ-based Masters and PhD students as well as those at the University of Zambia. Our programme experts also mentor subordinates to increase their technical capacity and career growth. This approach makes CIDRZ a vibrant organisation effective at developing people, grooming promising talent, and actively undertaking succession planning for long-term sustainability.

Annual Pharmacy Research Conference

This year's "**Strengthening the Role of Pharmacy in Improving Quality Health Services Through Research**" conference was convened by MoH, WHO and CIDRZ with Honourable Minister of Health Dr Joseph Kasonde as guest of honour. Over 80 pharmacists attended and 17 research papers were presented including a key paper on **Antibiotic Prescribing Patterns Among Physicians at University Teaching Hospital Lusaka, Zambia**, by Jimmy M. Hangoma of UTH.

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CIDRZ Training: HealthCorps Fellowship

CIDRZ also provides meaningful opportunities for practical public health experience for Zambian and international scholars and exposure to research practice and operations in an international setting. In 2015, we supported 6 postgraduate internships, Masters and PhD degree scholars and numerous formal graduate trainees with on-the-job training and work experience across the organisation. We also offered numerous short-term internship opportunities for local and international students.

CIDRZ HEALTHCorps Fellowship

The CIDRZ HealthCorps Fellowship is a one year training programme that integrates fellows into existing programmes and research projects, with mentorship provided by CIDRZ faculty and staff. After review of **244 competitive applications**, ten qualified individuals joined CIDRZ for a fruitful year.

2015/16 HealthCorps Fellows

Katayi Kazimbaya, MSc - Rovas Study
Kelsi Mowreader, BSc - BetterInfo Study
Emilie Efronson, MPH - Community ART Study
Lisa Chileshe, BA - BHOMA Project
Chishimba Katema, MSc - Rovas Study
Njinga Kankinza, MSc - Community ART Study
Natasha Laban, BSc - HILO Project
Benjamin Usadi, MPH - Analysis Unit
Kalo Musukuma, MSc - BetterInfo Study
Helene Smith, MPH - TB Unit



Some of the HealthCorps 2015 - 16 Fellows with Dr Roma Chilengi

Njinga Kankinza: Copperbelt University Lecturer & HealthCorps Fellow

Njinga holds a MSc in Neuropsychology and is a consulting Psychologist at Ndola Central Hospital Psychiatry Department, and Behavioural Sciences Lecturer at Copperbelt University-School of Medicine where she teaches the ethics, social science and communications components of a course titled 'Society & Medicine.' She is also responsible to conduct research, however psychologists and psychiatrists are few in Zambia and it is difficult to find research mentors and colleagues to collaborate with. Njinga applied to the CIDRZ HealthCorps so she would learn more about how health systems are structured, how to work in a multidisciplinary setting, and build capacity and network for future research, including her PhD. When chosen she was given a sabbatical so that she could join the Bill & Melinda Gates Foundation-funded Community ART for retention study.



"I believe the HealthCorps fellowship will provide me with the platform that can help me build the necessary capacity required to become a better lecturer for Zambia's future doctors and a better researcher that can contribute to the field."

Building Staff Leadership and Management Skills

This year we provided a 3-month long series of **Organisational Behaviour** trainings to our management staff on topics and skills associated with building strong teams, supervision and delegation, managing conflict, critical thinking, using data to inform decisions, effective communication, accountability and organisational and personal financial planning as well as fraud awareness. This course will be offered again in 2016.

University of Washington Department of Global Health Leadership and Management in Health:

In addition, twenty-six of our managers spent extracurricular time to take part in a 4-month long facilitated on-line course to enhance their leadership and programme management skills from the University of Washington Department of Global Health. Graduating with renewed confidence and energy, they are inspired to accomplish more in their positions and further contribute to the development of CIDRZ as a leading independent public health organisation.

Good Clinical Practices and Human Subjects Protections:

Research-specific staff receive detailed training in protocol-specific skills, and also must hold successful certification in Good Clinical Practices and Human Subject (Ethical) Protections training. This is available on-line, but we have also begun to provide in-house training.

Research Literacy and Research and Health Advocacy Training:

Our research investigators and teams hold research literacy trainings for media practitioners and community advocates. This year the GSK Aeras-funded TB Vaccine trial team provided TB vaccine training for both cadres.



Some CIDRZ participants in the 2015 University of Washington Global Health Leadership & Management in Health Course

Sharing Scientific Knowledge

We regularly hold **Journal clubs** and **Think Tank meetings** to discuss peer-reviewed literature and identify future research questions led by our Chief Scientific Officer Dr Roma Chilengi and **Data Analysis meetings** led by our Head of Analysis Samuel Bosomprah PhD. In 2015 we also facilitated short courses for staff in epidemiology, statistics, research operations, and scientific writing.

We host local and international scientists at our weekly **Research meeting** who share their work and insights and discuss collaboration on future activities. Some of the 2015 presentations were:

Dr Richard Chaisson MD

Can Tuberculosis be eliminated?

Professor of Medicine, Epidemiology & International Health, Johns Hopkins University School of Medicine

Roberta Ziparo PhD

Maternal mortality risk and male involvement

IPAS and The Paris School of Economics

Dr Chris Hoffman MD MPH

The HIV care continuum with a focus on initial entry into care

Assistant Professor of Medicine, Johns Hopkins University School of Medicine

Dr Akwi Asombang MD

Descriptive analysis and trends of pancreatic and colorectal cancer at Cancer Diseases Hospital in Zambia

Assistant Professor of Clinical Medicine, Division of Gastroenterology/Hepatology, University of Missouri Columbia School of Medicine

Baoming Jiang DVM, PhD

Rotavirus vaccines: Success, Challenges and Opportunities

Lead research microbiologist, Division of Viral Diseases Centers for Disease Control and Prevention-Atlanta

Fred Cassels PhD

Support, development and testing of enteric and hepatic interventions for global health

Branch Chief of Enteric & Hepatitis Diseases of Division of Microbiology & Infectious Disease National Institutes of Health *for a healthy Zambia*

Internal Audit Reduces Risk and Strengthens Programme Implementation



Internal Audit is an integral part of our CIDRZ programme management cycle that has the expanded role to provide risk assessment and management as well as monitoring compliance to donor regulations and conditions.

Our Internal Audit Department comprises five experienced members that draw their mandate from the CIDRZ Audit Charter and have control over internal audit, compliance, governance and other associated systems. The Internal Audit Director reports directly to the Board of Directors Audit Committee.

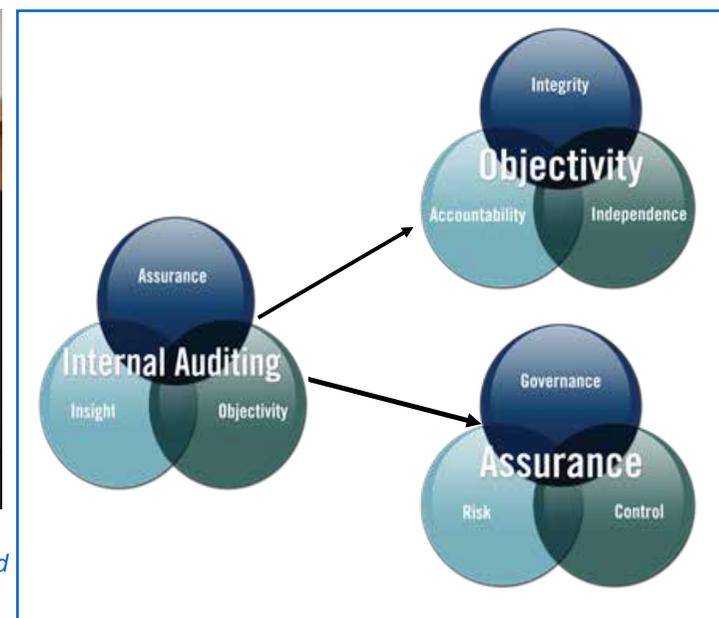
CIDRZ also has a Risk Management Committee that is tasked with staff capacity-building: this year the Chief Financial Officer, Ms Inonge Wambulawae, gave presentations on personal financial awareness, while the Director Internal Audit, Mr Emmanuel Lumbwe, presented on fraud awareness.

The CIDRZ Internal Audit team also holds membership in the Institute of Internal Auditors Zambia, a national body that provides training and guidance on best practices. In 2015, they attended a conference focused on **Governance, Risk and Control – Adapting to Change**. During the event, Ms Wambulawae - who was **2014** **Zambian Accountant of the Year** - was a key speaker and presented a talk titled **Auditing Third Party Risk – The Board’s Perspective**.

“Our CIDRZ Internal Audit function is not just checking petty cash; we review all programme aspects to achieve better results and ensure value for money as we report against our donor’s grants. We conduct annual programme risk assessments and rank risks in hierarchical order. Then we engage with the programme staff to avert or minimise risk likelihood and impact. Much of our recent funding has been because of the confidence donors have in our improved and strengthened Audit systems” - Internal Audit Director Emmanuel Lumbwe



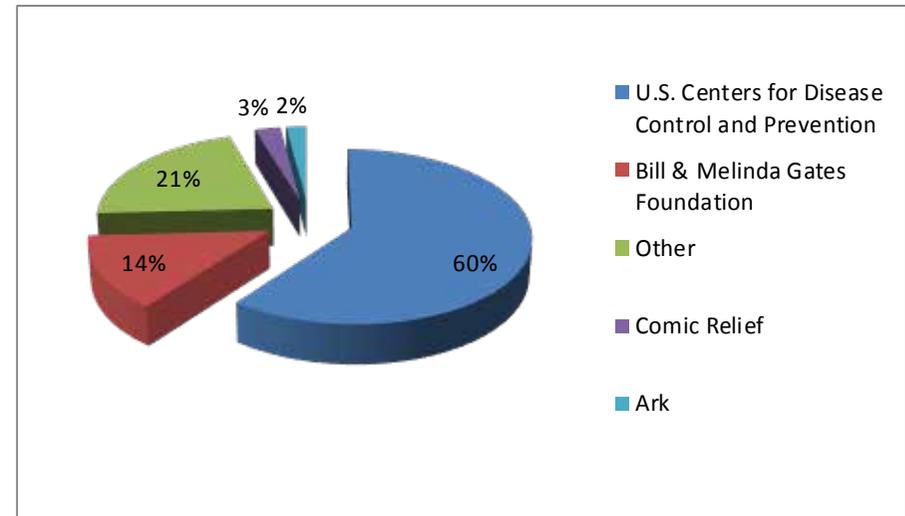
(L to R) Director Internal Audit Emmanuel Lumbwe, Emmanuel Chisongo, Nedson Theu, Elizabeth Makeche, Chief Financial Officer and 2014 Accountant of the Year Inonge Wambulawae & Danny Sulwe



CIDRZ Receives Equivalency Determination Status Making it Equivalent to a U.S. Charity

In 2015, we underwent rigorous evaluation by NGOsource that concluded by granting CIDRZ an “Equivalency Determination” status. This means that we are now equivalent to a U.S. 501(c)(3) charity based on the strength of our financial practices, governance and management. Earning this status makes it much easier for important potential donors to confidently consider CIDRZ as a grantee, and enables CIDRZ to operate more efficiently with these donors.

Programme Income



Funding Agency	Income
U.S. Centers for Disease Control and Prevention	18,435,614.11
Bill & Melinda Gates Foundation	4,194,615.00
Other	6,454,179.79
Comic Relief	798,454.26
Ark	629,888.00
Total	30,512,751.16

Thank You to Our 2015 Donors and Partners

ABBVIE Pharmaceuticals
Accordia Global Health Foundation
Aeras
Alere
American Institutes for Research - AIR
Ark
Aurum Institute (South Africa)
Bill & Melinda Gates Foundation
Bush Institute
Canadian International Development Agency - CIDA
Churches Health Association of Zambia - CHAZ
Clinton Health Access Initiative - CHAI
Comic Relief
Delft
Department for International Development (UK) - DfID
Doris Duke Charitable Foundation - DDCF
Evidence for HIV Prevention in Southern Africa - EHPSA
Elizabeth Glaser Pediatric AIDS Foundation - EGPAF
European & Developing Countries Clinical Trials Partnership - EDCTP
European Union - EU
FHI360
Fogarty Global Health Fellowship
GAVI Alliance
GlaxoSmithKline
Global Health Corps
HIV Research Trust
HIV Vaccine Trials Network - HVTN
International Epidemiologic Databases to Evaluate AIDS - IeDEA
International Initiative for Impact Evaluation - 3ie
International Maternal, Pediatric Adolescent AIDS Clinical Trials - IMPAACT
Japan International Cooperation Agency - JICA
M•A•C AIDS Fund
Mary Fisher
Medical Imaging Research Unit (South Africa)
PATH
Pharmaceutical Society of Zambia
Pink Ribbon Red Ribbon
Roche Molecular Systems
Sanitation and Hygiene Applied Research for Equity (SHARE) Consortium
Susan G. Komen
TB Alliance - Global Alliance for TB Drug Development
The ELMA Foundation
The ELMA Vaccines & Immunization Foundation
United Nations Children's Fund - UNICEF
United States Agency for International Development - USAID
United States President's Emergency Plan for AIDS Relief - PEPFAR
U.S. Centers for Disease Control and Prevention - CDC
U.S. National Cancer Institute - NCI
U.S. National Institute of Allergy and Infectious Disease - NIAID
U.S. National Institute of Child Health and Human Development - NICHD
U.S. National Institutes of Health - NIH
WaterAid Zambia
World Health Organization - WHO
Zambian AIDS Related Tuberculosis Project - ZAMBART
Zambian Center for Applied Health Research and Development - ZCHARD
Zambia Emory HIV Research Project - ZEHRP

... and our Government of the Republic of Zambia partners listed on page 9

Abbreviations and Acronyms

AIDS	Acquired Immuno-Deficiency Syndrome	MoH	Ministry of Health
ART	Anti-Retroviral Therapy (Treatment)	MoHA	Ministry of Home Affairs
CDC	U.S. Centers for Disease Control and Prevention	MOU	Memorandum of Understanding
CLTS	Community-Led Total Sanitation	ODF	Open Defecation Free
CSW	Commercial Sex Worker	PEPFAR	U.S. President's Emergency Plan for AIDS Relief
ERP	Enterprise Resource Planning	PMTCT	Prevention of Mother to Child Transmission (of HIV)
HBV	Hepatitis B Virus	QA/QC	Quality Assurance/ Quality Control
HCV	Hepatitis C Virus	SIMS	Site Improvement Monitoring System
HILO	HIV Integration into Local Ownership	SLTS	School-Led Total Sanitation
HPV	Human Papilloma Virus	TB	Tuberculosis
HSP	Human Subjects Protections	UNODC	United Nations Office on Drugs and Crime
HVTN	HIV Vaccine Trials Network	UNZA	The University of Zambia
IMPAACT	International Maternal Pediatric Adolescent AIDS Clinical Trials Network	UTH	University Teaching Hospital
LAM	Lipoarabinomannan	VCT	Voluntary Counselling and Testing
LEEP	Loop Electrosurgical Excision Procedure	VIA	Visual Inspection with Acetic Acid
LTFU	Lost to Follow Up	VMMC	Voluntary Medical Male Circumcision
MCDSS	Ministry of Community Development and Social Services	WASH	Water, Sanitation and Hygiene
MDGi	Millennium Development Goals initiative	WHO	World Health Organization
M&E	Monitoring and Evaluation	ZCS	Zambian Corrections Service
		ZaPHSS	Zambian Prisons Health Systems Strengthening

Central Laboratory

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Tel: +260 211 253 130 **Lab User Manual:** <http://www.cidrz.org/laboratory/>

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