ANNUAL REPORT
2019
OUR VISION
A Zambia and a region in which all people have access to quality healthcare and enjoy the best possible health, including a life free of AIDS.

OUR MISSION
To improve access to quality healthcare in Zambia through innovative capacity development, exceptional implementation science and research, and impactful and sustainable public health programmes.
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WHO WE ARE

The Centre for Infectious Disease Research in Zambia (CIDRZ) is an independent nonprofit Zambian organisation, that is committed to answering key research questions relevant to Zambia and the region. It supports local ownership of high quality, complementary and integrated healthcare research and services within the Zambian public health system, and facilitates clinical, research and professional development training.

Through close and on-going collaboration with the Government of the Republic of Zambia (GRZ), Ministry of Health (MOH), Ministry of Community Development and Social Wellfare (MCD) and the Ministry of Home Affairs (MHA), and by partnering with leading local and international universities, CIDRZ ensures that the latest research methodologies are used to answer locally relevant questions and improve healthcare delivery. CIDRZ runs several fellowship programmes aimed at building capacity of Zambian researchers to participate in finding solutions to health challenges.

Pioneering implementation science, qualitative research, capacity building projects, clinical trials and health systems strengthening, has enabled CIDRZ to generate accurate analysis to inform policy which in turn fortifies local and international healthcare.
## OUR FOCUS

- HIV/AIDS prevention, care and treatment
- Tuberculosis diagnosis, treatment and control
- Maternal, newborn, child, and adolescent health
- Strengthening primary care, health systems and immunization supply chains
- Water, sanitation and hygiene
- Enteric Disease
- Hepatitis
- Social and Behavioural Change

## OUR CORE VALUES

| ACCOUNTABILITY | Our staff members are expected to acknowledge and assume responsibility for their actions, products, decisions, and policies |
| EQUALITY | CIDRZ is committed to fairness and equality in the workplace |
| HONESTY | Our staff members are expected to be consistently truthful and straight-forward |
| PRODUCTIVITY | Efficient and effective engagement of staff members on all targets/outputs |
| RESPECT | For all staff members, partners, and stakeholders with whom we share common goals while recognising and respecting individual differences |
| TRANSPARENCY | Demonstrated through dialogue that enables discussion of issues in an open, constructive, honest, and problem-solving oriented manner |
EVENTS FOR THE YEAR 2019 IN PICTURES
I am glad to present to you the CIDRZ 2019 Annual Report, which highlights our achievements for the year under review.

Anchored on our mission “To improve access to quality health care in Zambia through innovative capacity development, exceptional implementation science and research and research, and impactful and sustainable public health programmes”, the report will highlight steps we have taken in this direction.

My organisation is appreciative of the Government of the Republic of Zambia through the Ministries of Health (MOH), Community Development and Social Services (MCD) and Home Affairs (MHA) for their continued support. CIDRZ remains indebted to its funders, partners, clients, employees and stakeholders for the unwavering continued support without which the organization would not have achieved the many successes highlighted in this report.

With support from the United States President’s Emergency Plan for AIDS Relief (PEPFAR) and the Centers for Disease Control and Prevention (CDC), CIDRZ worked in close collaboration with the Ministry of Health towards the attainment of the 95:95:95 HIV treatment targets to end the HIV epidemic. CIDRZ supported 296 public health facilities and their communities to intensify HIV case finding and scale-up HIV viral load testing for our clients on Anti-Retroviral Therapy. CIDRZ has
CIDRZ remains indebted to its funders, partners, clients, employees and Stakeholders for the unwavering continued support.

consolidated its client-centred approach to provide high quality HIV services to meet the diverse needs of our patients.

CIDRZ supports the health of our women folk through the provision of Cervical Cancer screening services. To this end, we worked towards and surpassed the target of screening 54,000 Women Living with HIV (WLHIV) between the ages of 25-49 years, in all PEPFAR supported sites.

As a testament to our partnership with the Government, in supporting the healthcare system, CIDRZ is now a sub-recipient to MOH through its Global Funds mechanism to implement adolescent health services, in line with the Zambia Adolescent Health Strategy 2018-2020, specifically the Social and Behavioural Change Communication (SBCC) and Comprehensive Sexuality Education (CSE).

Additionally, with support from the Bill & Melinda Gates Foundation (BMGF), CIDRZ trained 673 health care workers in patient centred care in eight (8) public health facilities in Lusaka Province. I am excited to announce the growing expertise within CIDRZ to support mental health needs in our country, to be implemented through two multi-year grants from the U.S. National Institutes of Health (NIH) to implement mental health programmes in partnership with Johns Hopkins University (JHU), University Teaching Hospital and MOH.

Lastly, I would like to thank the CIDRZ Board of Directors, the Executive Committee, Leadership Team, Management Forum, and members of staff for their relentless hard work towards achieving our strategic objectives as summarised by our vision: “A Zambia, and a region, in which all people have access to quality health and enjoy the best possible health, including a life free of AIDS.”
For almost two decades, Centre for Infectious Disease Research in Zambia (CIDRZ) has provided both direct services in healthcare delivery and research in infectious diseases in support of the Government of Zambia’s goal, to improve access to quality health care. CIDRZ has embarked on locally relevant research to provide solutions to the various health challenges faced not only in Zambia, but the region as well. This has resulted in CIDRZ building its research expertise in HIV, Tuberculous, Maternal and Child Health, Enteric Diseases, Water and Sanitation, and more recently in Non-Communicable Diseases.

CIDRZ has worked with various stakeholders to address health disparities particularly for children, adolescents and women, both in urban and rural areas. CIDRZ has again partnered with the Ministry of Home Affairs and the Zambia Correctional Services to provide health services to prisoners, with a focus on juveniles in correctional centers.

This report celebrates some of CIDRZ’s success stories for the year ending 30th September 2019. You will learn more about our organization, the people who have devoted their lives to the CIDRZ vision, the projects we have implemented with the support of our generous donors and communities, who have provided us with strategic input into execution of all our research and direct health service delivery across hundreds of public health facilities in Zambia.

You will also learn about how CIDRZ has supported the Ministry of Health, with funding from PEPFAR/CDC to achieve HIV epidemic control in Zambia, and increased access to quality HIV prevention, care, and treatment services. CIDRZ has continued to successfully collaborate with Provincial and District Health Offices to successfully integrate HIV services at all service points, including family planning, postnatal, under five clinic, nutritional corner, and outreach services.

Lastly, I hope this report will convey the character and vibrancy of the communities we serve, who are a true reflection of the people of Zambia: our mothers, fathers, children, and our cherished friends.

Thank you for your continued support of CIDRZ’s work and for sharing our commitment to continually work towards improving the health of the people of Zambia.
FOR A HEALTHY ZAMBIA
GOVERNANCE

The Board of Directors

The Board of Directors is the highest decision-making body in the hierarchy of the Governance Structure and makes policy decisions over the affairs of CIDRZ. It sets the strategic direction and provides oversight to the management of the organization by meeting quarterly. It carries out its mandate through four (4) Committees:

- Finance and Audit
- Human Resources and Operations
- Research and Programmatic
- Investment

The board encompasses skilled individuals with expertise in government, non-profit management, business, research, public health, and community programming. Our board is governed by a ratified charter, and is supported by a certified Secretary in accordance with the Company’s act of 2005. The board is headed by a Chairman and all Committees are headed by a board member who reports on the business of the Committee during quarterly meetings.
MANAGEMENT

Implements the Strategic Direction of the Organisation

CIDRZ Management comprises dedicated and experienced professionals with competencies in Medicine, Public Health, Finance, Operations, Biomedical Sciences, Human Resources, Information, Communication Technology, Internal Audit and Risk and Compliance.
CIDRZ has three strata of management which consist of the Executive Committee (EXCO), Leadership Team (LT) and Management Forum (MF).

**Executive Committee**

- **Dr. Izukanji Sikazwe**  
  Chief Executive Officer
- **Mr. Emmanuel Qua-Enoo**  
  Deputy Chief Executive Officer
- **Mr. Ackim Sinkala**  
  Chief Financial Officer
- **Mr. Ronald Sinkala**  
  Company Secretary
- **Mr. Anthony Musaluke**  
  Chief Operating Officer
- **Dr. Roma Chilengi**  
  Chief Scientific Officer
- **Dr. Carolyn Bolton-Moore**  
  Chief Medical Officer
- **Mrs. Roselyne Raely**  
  Director Human Resources
Leadership Team

The leadership team comprises Directors in various technical and operational departments within CIDRZ. All EXCO members are part of the leadership team.

Dr. Ranjit Warrier
Director Biomedical Research

Dr. Mwanza Wa Mwanza
Director Clinical Care

Dr. Mwangelwa Mubiana-Mbewe
Director Paediatric HIV Treatment & Prevention

Dr. Monde Muyoyeta
Director, TB Programmes

Dr. Theodora Savory
Director, Monitoring and Evaluation

Mr. David Ojok
Director Central Laboratory

Dr. Michael Herce
Director Implementation Science

Mr. Emmanuel Lumbwe
Director, Internal Audit

Mr. Chalachew Tiruneh Alemu
Chief of Party- ACHIEVE Programme
Management Forum

The Management Forum is responsible for internal communications within CIDRZ and plays a critical role in bridging the gap between senior management and staff. The forum assists the organization to find functional innovative solutions to strategic and short-term challenges CIDRZ encounters.

Members Include

1. Ms. Angela Mulaisho
2. Ms. Brenda Muletambo Kayumba
3. Dr. Bubala Mainza
4. Mrs. Bupe Sichalwe
5. Dr. Caroline Cleopatra Chisenga
6. Ms. Cheryl Ann Rudd
7. Dr. Chikumbi Chambwe
8. Mr. Clement Nchimunya Moonga
9. Dr. Daniel Tshimanga Mwamba
10. Mrs. Dora Mulwani
11. Mr. Gerald Hansungule Muche
12. Mr. Gordon Mwanza
13. Ms. Helene Smith
14. Ms. Hope Mwanyungwi
15. Dr. Ilunga Mashini
16. Mr. Imasiku Lubasi Luther
17. Mrs. Jane Matambo
18. Mrs. Jenala Chipungu
19. Ms. Jill Morse
20. Mr. John Daka
21. Ms. Joyce Chinyama Chilekwa
22. Mrs. Kaluba Musonda Kateule
23. Dr. Kamanda Kafuka
24. Mr. Kaunda Kaunda
25. Mr. Kelvin Mwewa
26. Mr. King Syacika
27. Mr. Kombatende Sikombe
28. Mr. Kudakwashe Mucheka
29. Mr. Lawrence Shabongwe Muuma
30. Ms. Lemisa Barbara
31. Dr. Lugano Victoria Nkhoma
32. Mr. Lyabola Lane - Lee
33. Ms. Makeche Elizabeth
34. Dr. Mary Kagujje
35. Dr. Maurice Musheke
36. Mrs. Mpande Mukumbwa Mwenechanya
37. Ms. Mukobe Chisunka
38. Mrs. Mulenga Helen
39. Mr. Mushashi Lumpa Mwansa
40. Mr. Mwaka Chilinya
41. Mrs. Mzumara Maureen
42. Dr. Natalie Mathetha Vlahakis
43. Dr. Patrick Kayumba
44. Mr. Phiri Mabvuto
45. Mr. Phiri Boniface
46. Mr. Physiwell Sikateyo
47. Mrs. Shabeenzu Inonge Simushi
48. Dr. Sharif Mohammad Badiozzaman
49. Mr. Sharma Shailendra
50. Mr. Simuyandi Michelo
51. Mr. Sinyangwe John
52. Mrs. Sisa Munkombwe
53. Mr. Stephen Makasa
54. Ms. Taniya Fanny Tembo
55. Ms. Witika Kunda Violet
1. Achieving HIV Epidemic Control in Zambia (ACHIEVE)

With support from the United States President’s Emergency Plan For AIDS Relief (PEPFAR) and the Centers for Disease Control and Prevention (CDC), CIDRZ works closely with the Ministry of Health towards the attainment of the 95:95:95 treatment targets set up by the UNAIDS to help end the AIDS epidemic. In the year under review we achieved the following:

Testing

- We supported 296 health facilities through placement of 521 Peer Educators who provided counselling and testing services. We identified 45,150 HIV positive out of 861,457 tested in Lusaka Province and 9,397 out of the 313,233 tested in Western Province.

- We offered index testing to 14,906 positive clients, of whom 11,961 positives revealed 26,870 sexual contacts. 2,836 positive contacts identified (224 children and 2612 adults were tested positive). Furthermore, we also improved psycho-social counselling skills for Health Care Workers (HCWs).

- We facilitated supply and distribution of HIV self-tests, (where clients can test themselves for HIV through a saliva test) in 38 health facilities in Western and 29 facilities in Lusaka Provinces. In the year under review, we distributed 41,053 HIV self-test kits and identified 1,025 clients as new positives.

Treatment Services

- We had 209,983 clients actively receiving treatment of which 8,642 were children below 15 years and 201,341 adults above 15 years. Of these 44,698 were newly initiated clients in Lusaka Province and 8,178 in Western Province.
Prevention of Mother to child (PMTCT)

Out of the 98% of the mothers who attended antenatal clinic who knew their status in all supported districts, 13% were tested positive.

We supported 118 facilities with outreach services and 90 facilities with integrated weekend testing.

We undertook several activities to equip Health Care Providers and treatment supporters with necessary skills to provide quality HIV services, including training and mentorship in PMTCT and national HIV guidelines. We also continued to support mentorship and trainings in DBS collection for the midwives and peer educators and in documentation in the registers.

We supported integration of family planning services into ART services in high volume facilities and integration of HIV services into family planning services. In order to increase demand for long term methods and roll out services, we trained 50 health care providers in the Long-term methods from 30 health facilities.

Priority populations

We reached 129,266 PP in Lusaka, Senanga and Kaoma. We developed and disseminated behavioural change messages, counselling and testing services mainly through outreach to churches, traditional ceremonies, bus stations, schools and other community-based settings.

Using the ‘one-stop shop’ model for adolescents we trained adolescent peers in psychosocial counselling, HIV rapid testing and adherence counselling. This provided comprehensive HIV prevention, treatment, and care services, including ART, at youth-friendly spaces in 26 health facilities in Lusaka Province. We oriented healthcare workers at 26 facilities on the ‘one-stop shop’ model.

We activated a total number of 30 youth friendly spaces, we also procured the needed supplies and IEC materials for pregnant and breastfeeding adolescent girls and young women (AGYW). We enabled skilled midwives for supported adolescent PMTCT to provide HIV testing services, family planning, Sexually Transmitted Infections (STI) screening, and other services in youth-friendly spaces. We continued to provide care and support to adolescents living with HIV through facility-based adolescent support groups.

We trained 60 healthcare workers from 12 health facilities in Lusaka Urban District and 22 healthcare workers from 6 health facilities in Western Province in drug and alcohol abuse to address this problem among adolescents. We also trained 22 adolescent support group leaders from 10 health facilities in Lusaka in positive-living, and the importance of treatment adherence for people living with HIV.
Voluntary Medical Male Circumcision for HIV Prevention (VMMC)

We supported male circumcision services in 33 Ministry of Health (MOH) facilities in Western and Lusaka Provinces.

We circumcised 60,855 males during the year under review as compared to 40,417 in the previous year.

We introduced the national HIV screening tool in which we screened 38,743 clients, the yield for positivity remained the same at less than 1%. A total of 66 clients tested positive and were linked to ART and initiated on treatment.

We conducted a total of 30 Male Circumcision Supervisory visits in Western and Lusaka Provinces.

We completed ShangRing active surveillance and was poised for national roll out. A total of 1,023 ShangRing were placed on HIV negative clients and the same number of ShangRing devices were removed.

Cervical Cancer screening (CXCA)

In collaboration with the Ministry of Health (MOH), we worked towards achieving targets for cervical cancer screening (54,000 Women Living with HIV (WLHIV) on ART between 25-49 years), for all PEPFAR supported facilities and we exceeded this target.
Quality improvement (QI) of TB/HIV services

Through our Clinical Mentors we provided mentorship to MOH/District Health Management Team (DHMT) staff on completeness of TB registers

- We recorded an improvement on data collection by data associates in the facilities
- The Data teams were now able to send reports for verification to clinical mentors before writing reports
- We conducted Quality Improvement Orientations in Chongwe and Rufunsa in 17 facilities.
- QI orientations were followed by Project implementations at Nyangwena RHC, Chinyunyu RHC, Mulamba RHC, Kankumba RHC, Rufunsa RHC, Luangwa Bridge HP and Chimusanya HP, Kasenga, Kapete, Palabana, Chansu, Kanakantapa, Kampekete, Chilyabale and Waterfalls.
- We conducted a community leader training in Lusaka to encourage the ownership of programs such as TB contact tracing.

Increasing TB case finding in people living with HIV

- We held a training workshop in basic TB/HIV management for peer volunteers in Senanga district.
- We distributed peer volunteer enablers (bags, gum boots, notebooks, pens and umbrellas) in all the CIDRZ supported districts.
- We distributed TB registers in all the supported facilities.
- We conducted TB Active Case Detection in Rufunsa and Chongwe districts; this helped in increasing the number of cases detected with the target for the Region being met.
- We continued with mentorship on intensified case finding and its relevance to HIV patients
- We provided gene expert support and technical assistance which included change of faulty modules at Chipata clinic and Chaisa clinic and calibration of the instrument at Chaisa clinic.
- We supplied laboratory commodities including Xpert cartridges, slides, paper towels, ethanol, Fluorescent
Microscopy (FM) stains and laboratory request forms for bacteriological examination of sputum

- We carried out TB contact tracing on bacteriologically confirmed patients. This helped us in detecting TB cases from the contacts.

- We implemented QI projects aimed at increasing the TB suspicion Index.

- We provided mentorship and hands on orientation on how to conduct sputum induction especially in pediatrics. This was done in both Lusaka and Western provinces.

World Tuberculosis (TB) Day

CIDRZ supported world TB day commemoration in all the supported districts. This included support for Active Case Finding activities and offering financial assistance to the districts to the same effect. We recorded more cases of TB in all the districts in the year under review.
TB Laboratory Services

- We supplied eight iLED microscopes and implemented Fluorescent Microscopy (FM) at eight facilities in Western Province.
- We conducted an FM training for 24 laboratory staff from 11 Districts in Western Province.
- We strengthened TB courier system through integration with the HIV courier system in rural centers. Additionally, the HVTB program participated in the national courier system guidelines development and was working in collaboration with MOH to facilitate implementation of the National courier system for sputum specimens.
- We provided calibration and technical assistance on gene Xpert instruments in Lusaka and Western Provinces including module replacements and computer upgrades.
- We procured and supplied 3500 Xpert cartridges and other back up laboratory supplies including measuring cylinders, wash bottles, paper towels and room temperature thermometers.
- We procured 6 water distillers and 6 electronic weigh balances to facilitate preparation of FM staining reagents. These would be placed at selected facilities in Western Province that face logistical challenges with access to staining reagents. Ultimately, this will prevent interruptions in TB diagnostic service delivery caused by lack of staining reagents.
- We installed nine (9) air conditioners in Lusaka (LP) and Western Provinces (WP) Gene Xpert testing facilities.
- We procured and installed six (6) power backup systems for WP and LP facilities to support uninterrupted xpert testing during power cuts.
- We supported MOH in implementation of the DataToCare connectivity system through installation, training, provision of routers and monthly data bundles at 26 facilities in WP and LP.
- We continued with mentorship on the use of Gene Xpert and Fluorescent Microscopy and DataToCare.
- We continued with troubleshooting and maintenance of Gene Xpert machines and DataToCare software.
- We supported five Laboratory staff from WP and LP to attend a TB laboratory commodity management training organized by PATH with the aim to minimize facility level stock outs of Xpert Cartridges and other TB laboratory commodities.
- We assisted National Tuberculosis Programme (NTP) in distribution of Xpert cartridges in LP and WP.
- We hosted a consultative meeting with NTP and laboratory in-charges from Gene xpert testing facilities in Lusaka. The scope of this meeting was to disseminate and discuss information regarding the national TB program and Gene Xpert testing activities as well as discuss strategies for quality improvement.
CIDRZ Lab Innovation for Excellence (LIFE)

With support from PEPFAR and CDC, the CIDRZ Lab Innovation for Excellence (LIFE) project aims at scaling up HIV Viral Load (VL) and Early Infant Diagnosis (EID) use for clinical care by strengthening the sample courier, results return, and hub laboratory systems in Eastern, Lusaka, Southern, and Western Provinces of Zambia in close collaboration with the respective provincial and district health offices and implementing partners.

CAPACITATE HUB LABORATORIES AND EQUIPMENT TO INCREASE VL AND EID THROUGHPUT

In the year under review, we worked closely with MOH and other Implementing Partners to ensure that all VL and EID hub labs achieved operational capacity in line with the 2018-2022 National Biomedical Laboratory Strategic Plan to carry out centrifugation of whole blood and storage of frozen plasma prior to transport to the Central Laboratories for testing. Following assessments of all the labs, we procured the necessary equipment to improve pre-analytical processes. We activated a total of 41 additional hubs in the four (4) Provinces: Eastern - 6, Lusaka -12, Southern - 20 and Western - 3.

We installed Air-conditioners (A/C) at most Hubs to ensure temperature control for optimum functioning of the equipment. Following the decentralization of testing facilities and increase in the testing numbers of Viral Load (VL)/Early Infant Diagnosis (EID) samples at three testing facilities in Southern Province: Livingstone General Hospital, Choma General PCR Laboratory and Mazabuka General PCR Laboratory, we purchased and installed containers to support the additional storage of laboratory reagents and consumables at these testing facilities.

We supplied biological spill kits, waste bins and eye washes in all laboratory hubs and supported the certification of PCR safety cabinets at Kaoma District Hospital and Mazabuka PCR laboratories. We also installed biometric doors to assist with authorized access control at Lewanika and Kaoma PCR laboratories.
Specimen cooler boxes were procured and distributed across the provinces for optimal temperature maintenance, biosafety and easy transportation of VL and EID specimens.

Additionally, in order to provide protection against health or safety risks in the hub labs, we supplied and distributed lab coats, fire extinguishers, and first aid kits. To ensure continuous power and avoid interruptions in processing and storage of samples, we worked with the Association of Public Health Laboratories (APHL) to support power backup in 12 facilities across the provinces. We further procured uninterrupted power supply (UPS) to support backup power source in 56 Hubs in Eastern and Lusaka provinces.

**PROVIDING TRAINING, TECHNICAL SUPPORT AND MENTORSHIP TO HUB LABORATORY STAFF**

In the year under review, as hub assessments were conducted, technical support to the hub staff was also provided. We ensured mentorship in timely and quality completion of the registers. In order to address the shortage of trained staff to process VL samples from facilities, particularly in PCR Labs, we engaged 15 laboratory assistants to build capacity and strengthen the process flow and records monitoring in the PCR Labs across the 4 provinces. Additionally, Kaoma, Levy Mwanawasa and Mazabuka laboratories were supported with PCR lab technicians.

**SUPPORT SAMPLE REFERRAL AND RESULT RETURN SYSTEMS**

Through partnership with MOH and implementing partners, we continued working towards improved sample referral and result return systems by digitizing data at clinic and hub levels using the eLabs and DISA-link systems.

We worked with Wits Health Consortium (WHC) to implement eLABS in 3 districts in Eastern Province (Nyimba, Petauke and Chipata) and 5 districts in Western Province (Lukulu, Kaoma, Mongu, Senanga and Kalabo). Implementation timelines were developed to ensure that all the 250 facilities within the districts were covered in the reporting period. eLABs implementation in Mongu and Chipata districts were ongoing.

Working with APHL, we facilitated the installation of Laboratory Information Systems to improve pre-analytic process (sample registration) and post-analytic activities (results-return) in 30 hubs.

**COORDINATING VL AND EID COURIER SYSTEMS**

Through partnership with the MOH and implementing partners, we continued working towards improved sample pickup collection. Our approach involved working with Provincial Health Offices (PHOs) and District Health Offices (DHOs) and implementing partners to understand the existing courier systems, which were primarily ad-hoc based on availability of vehicles/motorbikes, fuel and drivers/riders from other projects. Additionally, monitoring of pickups and data on pickups was non-existent or scanty. We encouraged the use of dedicated vehicles/motorbikes and drivers/riders in published schedules for transport to VL hubs from PCR labs as well as from VL hubs to facilities (spokes). We developed a weekly reporting system on sample pickup and conducted mentorship on documentation and data quality.

We supported the PHOs, DHOs and other implementing partners to develop at minimum biweekly intra courier pickup schedules for VL/EID samples from facilities to the Hub Labs in all the 4 provinces with daily pickup schedules in Lusaka Urban area and Livingstone. Each facility, hub and PCR lab were provided with their schedule and the phone number of the dedicated rider or driver for communication of additional or fewer pickups on a scheduled day. Where no other partner or government could provide dedicated transport, we deployed vehicles to cover the gaps and provided additional support to DHOs and PHOs to assist when they had gaps in funding the courier network.

Once the dedicated motorbikes and riders were in place, we provided fuel, maintained the bikes to ensure there were no interruptions in the courier systems.
provided riding and safety gear, biosafety training, and supported licensing of those who did not have a rider’s license. Running contracts at various service stations in the provinces to ensure easy access of fuel were set up, at each service station accountability logs were installed to ensure adequate monitoring of fuel usage. During the rainy seasons, we continued to support areas that were flooded and used the available local transport (e.g. boats) and ensured the riders reached the health facilities.

We mapped the health facilities to hubs to central PCR labs in Lusaka Province for intra-district route optimization.
MONITORING AND EVALUATION (M&E)

We defined and developed the M&E plan to track monthly pickup rates/ result returns & Turnaround Time (TAT). To improve data quality, strengthen data systems and reporting at facility and hub levels, electronic tools have been developed and rolled out to all hub labs for weekly reporting. Technical support was provided to hub lab staff which included use of reporting electronic tools, correction of errors in documentation, with a focus on complete and accurate data entry in facility registers and sample and results referral forms. A CIDRZ inhouse data repository compiling all provincial and CIDRZ data was also developed.

To further enhance sample courier monitoring, we developed a dashboard for monitoring sample pickup using GPS coordinates from the fleet management systems. The system dashboard is used for logistics monitoring and data management systems that would track sample collection. The system was implemented in the year under review onwards and will provide remote real-time data collection and enabled prompt decision making. The web portal not only strengthened tracking of vehicles and motorbike, but also strengthened accountability of fuel provided. This system was also piloted in Mongu and Lusaka urban districts and will be rolled-out to other provinces to complement the existing monitoring system.
CIDRZ, through MOH, was awarded funding from the Global Fund to implement community-based adolescent services for a two-year period running from 2019 to 2020. This award focuses specifically on adolescent sexual and reproductive health rights. Through this award, CIDRZ is implementing comprehensive sexuality education to both in-school and out-of-school adolescents in Mongu, Limulunga and Sesheke districts of Western Province.

IN THE GRANT, CIDRZ IS EXPECTED TO IMPLEMENT THE FOLLOWING:

- Train and mentor peer educators in the delivery of CSE, HIV and Sexual Reproductive Health (SRH) services in collaboration with respective District Health Offices in the three (3) districts of Western Province.

- Carry out active referral/linkages to health facilities for medical HIV and SRH services among other key relevant stakeholders.

- Support the peer educators to conduct community and school outreach with sensitisation messages on HIV prevention and SRH services.

- Promote condom use and distribution among sexually active adolescents and young people in the community.

- Participate in the District Adolescent Health Technical working group meetings.

- Implement a Monitoring and Evaluation framework targeting their coverage areas as guided by MOH.
Providing technical assistance and innovative approaches to improve performance and create efficiencies
The Department of Primary Care and Health Systems Strengthening provides technical assistance and innovative approaches to improve performance and create efficiencies in public health programming. Currently, the department is working on a new initiative bringing together a consortium of technical experts and partners, working collectively with the Expanded Programme on Immunisations (EPI), towards the same goal—to have more accurate and improved, equitable vaccine coverage rates. The initiative, known as EPI-OPT, or EPI-Optimisation, aims to improve health care worker knowledge and skills on vaccine management, supply chain/logistics and data quality, to create efficiencies in the immunisation supply chain, to improve EPI data, visibility and use for continuous improvement, and to increase demand for immunisations in Southern Province.

EPI-OPT incorporates the system design work CIDRZ has led, along with initiatives to address other challenges the country faces such as unknown coverage rates, inaccurate and untimely data, poor vaccine management practices and inequities in vaccine administration, with a focus at the lowest levels. CIDRZ has been awarded $1.3 million to implement the supply chain and health care worker knowledge components of the initiative, with Government, along with UNICEF, PATH and CHAZ who will implement the other components over 18 months.

During the year under review, the department was successful in meeting all grant milestones in its first grant with Gavi providing technical assistance to EPI. One of the major achievements for the year was its support for the human papillomavirus (HPV) vaccine introduction. Zambia has the second-highest incidence of cervical cancer in the world, and cervical cancer is the most common cancer in women in Zambia. The principal causative agent of cervical cancer is HPV, a sexually transmitted virus, which can be prevented by a vaccine. The HPV vaccine was introduced nationwide in the year under review and is now part of Zambia’s routine EPI, vaccinating 14 years olds for dose one in the month of June in each year, followed by a second dose a year later. CIDRZ was a key partner to support the Zambian Government in the introduction of the HPV vaccine, participating on all sub committees to prepare for its introduction, seconding a staff to MOH, gathering district data for planning and aiding in the development of tools, communication and training materials.

Additional activities under the Gavi grant included support for the National Immunisation Technical Advisory Group, secondment of a Logistician to EPI, resource mobilisation for EPI-OPT and investigation and analysis of data from 22 underperforming districts to assist in improving performance. The department was awarded a follow-up grant from Gavi for $560 000, expanding our technical assistance support to Government from the national level down to sub-national levels.
5. Implementation Science

Implementation science flourishes at the interface of high-quality research and health service delivery, two areas where CIDRZ has positioned itself as a leader in sub-Saharan Africa. Leveraging existing robust CIDRZ programs, collaborations, and technical expertise, the Implementation Science Unit coordinates a CIDRZ-wide implementation science agenda to better translate evidence-based interventions into programmatic impact and respond to real-world health service delivery challenges with rigorous implementation science frameworks, study designs, and analyses.

**Community Impact to Reach Key and Undeserved Individuals for Testing and Support (CIRKUITS)**

In collaboration with MOH and CDC/PEPFAR support, we supported facilities in Eastern, Lusaka and Western provinces through the CIRKUITS project. A total of 16,647 clients (males-11,485, females-5,162) were counselled and tested for HIV. Of the total clients tested for HIV, 2,285 (Males-1,500, Females-785) were found to be HIV positive resulting in an annual positivity yield of 13.7% (2,285/16,647). Of the total positive clients, 1,977 were successfully linked into Anti – Retroviral Therapy (ART) care, resulting in an annual true linkage rate of 86.5% (1,977/2,285) and a proxy annual linkage of 93.0% (2,125/2,285). Disaggregated by sex, 1,468 males, and 657 females were linked into care. In terms of index testing services, a total of 1,812 clients were offered index testing services. Of the total clients offered index testing services, 1,478 clients accepted to take part in index testing services. A total of 2,104 contacts were elicited (1:1.4) from the index cases who accepted to take part in the services and, 48.3% (1,016/2,104) consented to be tested for HIV. A total of 253 clients tested HIV positive from index services resulting in a positivity yield of 24.9% (253/1,016). Of the total contacts found HIV-positive through index testing, 77.5% (196/253) were successfully linked into care.

**The following were some of our highlightss:**

- We set up project facilities in four correctional facilities: Lusaka Central Correctional Facility (LCCF) and Kamwala Remand Centre in Lusaka (KRCL); Mongu Central Correctional Facility (MCCF) in Mongu, Western Province; and Namseche Correctional Facility (NCF) in Chipata, Eastern Province.

- We established referral systems for linkage to
ART and care for correctional facilities at the nearest Ministry of Health (MOH) facilities to ensure inmates testing positives were linked into care and HIV-related medical supplies are available in correctional facilities.

- We facilitated linkage for inmates with imminent transfer dates to other correctional facilities in Zambia.

- In collaboration with University of Maryland (UoM), we trained ten (10) Clinical Health Workers (CHW) and project staff in Mongu and Chipata in provision of index testing services during the period under review and supported the correctional facilities in following up sexual contacts elicited from inmates.

- We conducted sensitisation of inmates in all supported facilities through mass and cell-by-cell sensitisations throughout the year to improve messaging around the importance of testing, ART initiation, adherence and partner disclosure.

- We conducted testing of correctional staff at KRCL and LCCF in conjunction with Tackle Africa activities.

- We conducted a sensitisation and health treatment services day for the Zambia Correctional Services staff in Mongu.

In addition we:

- Set up four (4) adolescent youth friendly spaces at Chelstone, Chilenje, Kamwala and Kanyama Clinics in Lusaka district.

- Recruited 31 adolescent friendly peer educators to run and support the spaces, community-based and index testing, as well as providing counselling and linkage services. Of the 31 adolescent friendly peer educators, 16 were recruited in Lusaka, 5 in Chipata and 10 in Mongu district, respectively.

- Trained the 31 adolescent friendly peer educators in Psychosocial Counselling.

- Continued with the provision of index testing services and providing capacity building in the form of training and on-site mentorship to the peers and MOH facility level staff throughout the year. Soon after the training in Psychosocial Counselling and provision of index testing services, one of the program’s peer educator at Chilenje Level one (1) Hospital managed to elicit 15 male sexual contacts from a 21-year-old woman.

- Recruited adolescent friendly peer educators who were also trained in index HIV testing and partner notification services (PNS).

- In order to motivate peers, we incentivised high performance through an “Index Champions Program,” which was measured for individual peers by high positivity and high elicitation of index contacts, testing rate of at least 75% and a minimum linkage of 90%.

- Recruited eight (8) Community Liaison Officers (CLOs) to support direct service delivery and provide supervision to adolescent friendly peer educators in both Lusaka and Mongu-based facilities.
• In order to support CLOs and ensure that Adolescent Girls and Young Women (AGYW) who tested HIV positive were successfully linked to ART, care and other services, we recruited an implementation Nurse to specifically support adolescent friendly spaces in Lusaka.

• We conducted Community-based HIV testing services to reach high-risk AGYW 15-24 years of age using the three main targeted testing strategies i.e. index testing services, use of HIV risk screening tool, and hotspot mapping.

• We participated in a pilot of the Social Network Strategy (SNS) in conjunction with KP ACHIEVE and Key Population Investment Fund programs to target high-risk AGYWs and young female sex-workers in Kanyama, Lusaka.

• We employed girls’ football as a mobilisation strategy for at risk Adolescent Girls and Young Women (AGYW).

• Based on lessons learnt from the SNS pilot, we trained all community health workers in the implementation of the adolescent-specific SNS strategy which was to be implemented in collaboration with Tackle Africa using a football-based approach.

• We developed a Gender Based Violence screening tool and integrated it within HIV testing services. We referred all girls who were identified to be at risk, to the University Teaching Hospital (UTH) paediatric Centre of Excellence and their neighbouring DREAMS centre.

• We conducted on-site granular site management and supervision activities aiming at building the capacity of peer educators during the period under review.

• Supported adolescent friendly spaces in collaboration with DREAMS centres in providing HIV testing and counselling services during the period under review.

We also:

• Set up the Mongu field office in Western Province which supported staff who were providing services in the province.

• Supported Ministry of Health calendar days such as the National HIV Testing, Counselling and Treatment Day held in Lusaka; we also held events at Mwembeshi Maximum Correctional Facility.
With support from the MAC AIDS Fund, the CIDRZ MAC project aims at providing comprehensive adolescent health services in Zambia. The project supports facilities in Lusaka and Chongwe districts of Lusaka Province since August 2015, and most recently the project also extended its services to Senanga and Kaoma districts of Western Province.

The services include training teen-to-teen sexual and reproductive health services through Youth-Friendly Rooms (YFRs) run by trained adolescent Peer Educators in government health facilities in 16 communities across Lusaka and Western provinces.

We trained peer educators in counseling and service provision on HIV/AIDS basics, psychosocial counseling, rapid HIV testing, family planning and adherence counseling, and preparing youth friendly spaces to offer one stop-shops for adolescents to access comprehensive health services.
In the year under review, the following were achieved:

1. We conducted two (2) skills development activities in George community and Chainda South where adolescents in support groups were taken to a community-based organization where they were taught various entrepreneurship skills such as tailoring, baking, plumbing, designing and arts. A total of 432 adolescents (243 girls, 189 boys) participated in these activities.

2. We conducted outreach activities in tertiary institutions. A total of five (5) University/College outreach activities were conducted in the year under review at the University of Zambia, Evelyn Hone College, Eden University, Natural Resources Development College (NRDC) and Lusaka Business Technical College where a total of 1,793 young people were tested for HIV (923 females, 870 males) out of which 16 were found positive and 14 initiated on treatment (12 females, 4 males). Over 3000 university and college students were provided with Sexual Reproductive Health (SRH) services and information.

3. We developed short videos in form of interviews/discussions on various adolescent issues and posted them on our social media platforms. The first video was on understanding youth friendly spaces and services available to adolescents. The video was uploaded on our Facebook page and it had 1,136 views by Adolescents in the ages of 18 - 24 years.

4. In order to improve adherence to treatment among HIV positive adolescents, we reactivated some of the inactive facilities by supporting seven (7) HIV positive Adolescent Support in health facilities. The overall total membership by the end of the year under review stood at 233 (148 females, 87 males).

5. We strengthened Defaulter tracing activities in five (5) MAC facilities (Chainda, Chawama, George, Kamwala and Kanyama) for adolescents who dropped out of HIV care. The tracing was conducted via phone calls and physical follow ups. A total of 240 (98 males, 142 females) were traced with 67 (24 males, 43 females) adolescents being linked back into care. The remaining adolescents were not successfully linked back in care for various reasons e.g. transferred out, died, transitioned to adult care, or did not return as promised.

6. We launched three (3) additional Youth Friendly Spaces (YFS) in Western Province; two (2) in Kaoma District and one (1) in Senanga District. One (1) more YFS was launched in Lusaka at Olympic Youth Development Centre (OYDC). A total of eight (8) adolescent peers were recruited to provide services in these facilities (2 at each site). New furniture (chairs and tables) was placed in all the new facilities and procured schoolbooks for the YFS library. By the end of the period under review, CIDRZ was in the process of installing bookshelves and air-conditioning in the newly established facilities. Further, CIDRZ renovated a YFS at Chelstone Hospital and built a new YFS at Chawama Hospital where there was limited space for youth friendly services.

7. In order to promote gender equality by providing adolescent girls with various skills in advocacy and lobbying of different issues affecting adolescent girls and their community, CIDRZ partnered with the United Nations Foundation to form Girl Up Clubs among adolescent girls aged 12-22 years old. A total of 4 Girl Up clubs were formed in CIDRZ supported communities (119 girls in total) to advocate on sexual reproductive health rights such as teenage pregnancy and menstrual hygiene.
The CIDRZ/CDC Detect study is the first-ever evaluation of a novel POC EID Community Model using the mPIMA platform (formerly known as Alere™ q HIV-1/2 Detect) in 6 high-volume primary health facilities in Lusaka, Zambia. Using this approach, the study aims to identify HIV-Exposed Infants (HEIs) who otherwise would not have returned to the facility for testing and missed the opportunity to start life-saving ART.

The mPIMA POC assay for early infant HIV diagnosis may potentially offer several advantages over the current standard available in most SSA countries—off-site qualitative PCR testing—by increasing uptake of EID testing, shortening the turn-around time for EID results, which with the mPIMA platform takes just 52 minutes, and facilitating HIV-infected IYC enrollment in the ART program, all without the delays typically associated with off-site HIV PCR testing.

The study has been working in close collaboration with the MOH and government staff working in the identified 6 health facilities (Kalingalinga, N’gombe, Matero Ref, George, Makeni, and Kamwala clinics). Through this study, 20 government ART nurses were trained in the use of the mPIMA platform, including patient identification and testing using the mPIMA platform. Since its inception, the study has identified and tested 805 HEI, 18 of which were HIV-infected thus have been initiated on ARVs.
The Centre for Infectious Disease Research in Zambia (CIDRZ) provides comprehensive community-based combination prevention, HIV testing and linkage to care (LTC) and outreach activities to key and priority populations through a sub-award with the University of Maryland primed and CDC/PEPFAR-funded program called Zambia Community HIV Epidemic Control for Key Populations (ZCHECK). Under the ZCHECK subaward, CIDRZ works collaboratively with the UMB team to establish and strengthen adolescent and prison health services. CIDRZ provides technical support and implementation of prison health services in Mazabuka, Monze, Choma, Kalomo and Livingstone, while for adolescents CIDRZ provides technical support and implementation of adolescent friendly services in 2 ZCHECK supported districts i.e. Mazabuka and Livingstone. For prisons activities, CIDRZ conducts full activity implementation with the following as key areas of focus:

- Increased number of Adolescents tested by conducting PP Prev activities
- Improve linkage to care
- Prison services to identify HIV positives and linking them to treatment care and support
- Index testing of clients elicited from all positives

During the year under review, ZCHECK did not provide HIV, TB and STI prevention/curative services but provided operational logistics for Corrections Health Committees (CrHCs) in all Southern Province based correctional facilities. This support included but not limited to:

- Procurement and fitting of drug cabinets in all the cells in supported correctional facilities for adherence support
- Procured tents to provide working space for CrHCs
- Procurement and fitting Wall Fans in all cells in correctional facilities to improve air circulation as part of infection control.
9. Patient Centred Care

Training of healthcare workers

With support from Bill & Melinda Gates Foundation (BMGF), we trained 673 health care workers in Patient Centred Care (PCC) from eight (8) Ministry of Health, CIDRZ supported facilities across Lusaka Province. This was a four-module curriculum that covered Stress Management, Introduction to PCC principles, Communication Skills and CIDRZ’s commitment to implementing the Leveraging Person-Centred Public Health to improve HIV outcomes in Zambia study (PCPH).

A follow up to the trainings included mentorship on incorporating PCC principles into routine care, data sharing meetings on patient experiences, results and synthesis workshops. These presented opportunities to; enhance healthcare workers’ (HCW) understanding on PCC principles, use patient experience data for targeted mentorship, understand how to connect PCC principles into practice and identify gaps for future mentoring. The study seeks to improve patient experience thereby improving retention in care and ultimately, clinical and care outcomes.

The trained HCW were also supported to incorporate patient-centred practices, such as welcome patients who had disengaged from care, provide care that suits the patient i.e. shared decision making in scheduling appointments and facilitate change in laboratory practices for viral load monitoring to ensure reduction in rejected samples.

Our mentors visited the facilities at least once per week to interact with HCW in groups and as individuals. They worked with them to plan and implement care coordination and improvement efforts to support patient-centred care as well as listened and supported HCW to make connections across the facility.
Addressing a critical barrier to scaling up mental health treatment in Zambia
As infectious diseases have become better-controlled in Zambia, the country has seen the emergence of so-called non-communicable diseases, including mental health issues. Mental health issues, which include a broad range of conditions including trauma, anxiety, depression, and alcohol and drug abuse, contribute to substantial mortality and morbidity in the country in both direct (suicide, intoxication, and accidents) and indirect ways, since mental health issues and use of substances can increase the spread of infections like HIV and tuberculosis. Recognizing this growing challenge and the need to support Ministry of Health in its efforts to tackle mental health, CIDRZ developed a new avenue of research.

In the year under review, CIDRZ formally established itself in the field of mental health, fueled by two multi-year grants from the U.S. National Institutes of Health, and through partnerships with mental health experts at Johns Hopkins University (JHU) and in collaboration with Psychologists at University Teaching Hospital and Policymakers at MOH.

This Mental Health CBT project is aimed at addressing a critical barrier to scaling up mental health treatment in Zambia – the lack of local experts to train the existing workforce. In partnership with JHU and education experts at Education Development Center (EDC), we developed a technology application that may more quickly allow MOH to ramp up the number of counsellors trained in evidence-based mental health treatments. Over a period of five (5) years, CIDRZ would develop an innovative technology and thereafter would evaluate its effect in a randomized controlled trial. In the trail around 100 counsellors would be trained and over 500 individuals living with mental health or substance abuse issues would be treated.
With support from the Elton John AIDS Foundation (EJAF), Elton John Juvenile Offenders Health (EJJOH) is a 30 months project designed to provide a comprehensive package of interventions, tailored towards the needs of incarcerated juveniles in 11 of the 87 correctional facilities and two (2) approved schools for juveniles across the country.

In the year under review we completed renovations and furnishing of nine (9) out of the 11 planned Youth Friendly Spaces (YFS). These YFS were furnished with collapsible tables and foldable chairs, filing cabinets, 49” plasma screens with decoders and schoolbooks for grades one (1) to 12. Nakambala approved school in Mazabuka district of Southern Province opted for a pool table having had a similar TV set already. Other items supplied included games such as chess boards, snakes and ladders and scrabble. Katombora Reformatory School in Livingstone district of the Southern Province was supported with two (2) sets of football jerseys.

We also disseminated our baseline results in the year under review.
With support from the Stop TB partnership, the TB REACH Wave 5 is an implementation research project that was conducted between July 2017 and December 2018. By the end of the year under review, the results of the project were still being awaited. Though over a period of 18 months, the project reached over 30,000 people with TB messages and screened over 18,000 people for TB.

**TB REACH wave 7**

In September 2019, CIDRZ was awarded a grant by the Stop TB Partnership/TB REACH. The project dubbed “Closing the gap on childhood TB in Zambia through use of targeted and innovative active case finding strategies amongst children” is aimed at increasing TB case detection in children. The project would integrate Childhood TB screening in all health facility service areas- OPD, IPD, MCH, ART clinics and Nutrition clinics.
This CIDRZ project called “Continuum” was approved by the Government of Zambia through the Ministry of Health in 2016 with the aim of understanding how mental health, alcohol and drug use, and other issues affect HIV care for inmates after release to the community so that we could develop programs in future to keep former inmates in care. To do this, CIDRZ aims at assessing clinical outcomes for HIV–infected prisoners six (6) months after release; explore factors from health behavior theory that are associated with post release retention in care, with a special focus on Alcohol Use Disorders (AUDs); and conduct formative research to determine release and stakeholder knowledge, attitudes, and preferences surrounding transitional care interventions. We commenced this project in 2017.

As of the year under review;

OUR RECRUITED FACILITIES WERE;

- Lusaka Central Correctional Facility – District Health Management Team Clinic
- Mwembeshi Correctional Facility
- Kamwala Remand Centre
- Chainama Correctional Facility
- Kabwe Correctional Facility

NUMBER OF PARTICIPANTS RECRUITED IN THE STUDY;

Proposed

- 552 HIV-infected inmates scheduled for imminent release (< 30 days from enrolment) from the above named correctional facilities;
- Eight (8) leaders from the Zambian government and prominent implementing partner organizations for in-depth interviews
- 20 frontline prison officers, health workers and representatives of leading civil society organizations in Zambia (4 focus group discussions)

Screened

- 398 HIV-infected inmates scheduled for release, 302 actual inmates.
IeDEA is an international research consortium established in 2006 by the National Institute of Allergy and Infectious Diseases to provide a rich resource for globally diverse HIV/AIDS data. CIDRZ is a member of the IeDEA Cohort Consortium and below are IeDEA projects we are currently running:

**DTG SWITCH STUDY**

The purpose of the DTG-Switch study is to recruit and characterize the short and longer-term outcomes of first-line switch to DTG-based ART in Africa in representative populations. The study is aimed at assessing the incidence of virologic failure and the contribution of drug resistance to virologic failure after switch. The National Institute of Health (NIH) through the University of Bern would fund this study which would be conducted at Matero Level 1 hospital, Kanyama Level 1 hospital and Kalingalinga Clinic. 1,410, HIV positive adults who were on first line ART for over six months in the year under review, switched to DTG-based triple first-line ART regimen as per MOH guidelines, would be enrolled in the study and followed up for about 2.5 months to 2.75 months.

**SRN STUDY**

The IeDEA Sentinel Research Network (SRN) is a multi-regional collaboration across several Low-middle income countries including India, Brazil, Rwanda, Kenya, Cote d'Ivoire and Zambia. CIDRZ would through this network, seek to implement studies focused on cardiovascular risk factors, mental health and substance use, as well as liver disease among people living with HIV (PLHIV) accessing HIV care in LMICs. The SRN would support the creation of

**FINAL ANALYSIS OF A TRIAL OF M72/AS01E VACCINE TO PREVENT TUBERCULOSIS**

**HVTN 120 completes enrolment and follow up**

HVTN 120, "A phase 1/2a clinical trial to evaluate the safety and immunogenicity of ALVAC-HIV (vCP2438) and of MF59®- or AS01B-adjuvanted clade C Env protein, in healthy, HIV-uninfected adult participants".

This study was conducted between 2018 and 2019, it completed enrolment, achieved 100% retention on the study. By the end of the year under review the results of the study were being awaited.

**NIH Clinical Trials Unit**

**IeDEA Network Trials**
a prospective cohort study of 1,375 patients aged over 40 and who have been on ART for more than 6 months, and longitudinally collect and analyze NCD data that would be collected for about two years. The study site for this study is Kalingalinga Clinic and it was being funded by the National Institute of Health (NIH) through the University of Bern.

NCD STUDY

The IeDEA Noncommunicable disease (NCD) study is a regional collaboration set up to understanding the burden of NCDs and their risk factors among adults in Southern Africa. With support from the National Institute of Health (NIH) through the University of Bern, CIDRZ would recruit 600 treatment naïve HIV-infected adults and 450 HIV-uninfected adults across Zambia and Zimbabwe. This prospective cohort would longitudinally collect comprehensive clinical, socio-demographic, behavioral and lifestyle data for the next 5 years, to understand the associated risk factors of NCDs in adults 30 years and older. Recruitments in Zimbabwe commenced in the year under review, where ~150 participants were enrolled. The Zambian study was expected to run for two years and would be conducted at Kalingalinga Clinic.

HEPATITIS

The objectives of IeDEA Hepatitis Cohort (cumulative enrollment of N=897), one of the longest running hepatitis studies in Africa, have shifted over the years as described below:

2013 - 2016
- Identifying the causes of liver disease among persons with HIV
- Validating non-invasive tools and blood and urine biomarkers to diagnose liver disease and its causes
- Describing hepatitis B and C coinfection virology and epidemiology

2016 - 2021
- Determining the viral outcomes of HBV-active ARVs for persons with HIV-HBV coinfection
- Understanding the contribution of alcohol abuse to outcomes in HIV-HBV coinfection
- Evaluating the rates and predictors of hepatitis B functional cure, evaluating the medium and long-term liver outcomes of HIV-HBV coinfection including cirrhosis and hepatocellular carcinoma
- Assessing long-term metabolic liver and renal health in HIV-HBV coinfection
- Validating approaches to screen for liver cancer in HIV-HBV coinfection

As of the year under review, at CIDRZ we were conducting long-term follow-up among ~200 HIV-HBV coinfected patients and the study was being conducted at Kanyama Level 1 Hospital.
**Tuberculosis**

**TB-018- RESULTS**

CIDRZ was one of the study facilities for the phase 2b place to double blinded randomised TB vaccine study. The study was conducted in 3 countries, Zambia, Kenya and South Africa. The study was aimed at evaluating the efficacy (protective effect against active TB), safety and immunogenicity of GSK’s candidate vaccine M72/AS01E. The study was conducted between 2015 and 2018. A total of 3,573 HIV negative adults latently infected with TB but with no evidence of TB disease, aged between 18 – 50, were included in this study and were followed up for 3 years.

The vaccine was found to reduce the risk of developing TB by 50% and was also determined to be safe and well tolerated.

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**Reproductive, Maternal, Neonatal and Child Health**

**IMPROVE CERVICAL CANCER SCREENING – A DIAGNOSTIC TEST ACCURACY STUDY**

This 24 months CIDRZ Gynocular project is being funded by the ESTHER Foundation, Swiss Cancer League and the National Institute of Allergy and Infectious Diseases of the National Institutes of Health. Our study site is Kanyama level one (1) Hospital in Lusaka and our collaborators include the Institute of Social and Preventive Medicine (ISPM) at the University of Bern and the Cervical Cancer Prevention Program in Zambia (CCPPZ).

Our study aims at determining the diagnostic test accuracy of the Gynocular™, a portable hand-held colposcope, and validate the Swede score in a population of women living with HIV. This new technology and improved diagnostic tool allow for optical magnification of the cervix, which has better diagnostic test accuracy compared with traditional visual inspection with acetic acid (VIA). Additionally, we test the accuracy of an already established Artificial intelligence (AI) deep learning tool retrospectively using coded images obtained through the Gynocular™ colposcope and smartphone.

Prior to commencing enrolment, the study established an additional colposcopy room at Kanyama 1st Level Hospital which includes full VIA and colposcopy facilities, and a GeneXpert machine to provide point-of-care human papillomavirus (HPV) and STI testing for all women undergoing cervical cancer screening. We also trained 11 nurses and 3 doctors in mobile colposcopy and telemedicine.

Since its inception in the year under review to date, the study has enrolled 346 women out of the targeted 450. These women have undergone the standard of care VIA screening, screening using the Gynocular™ colposcope with Swede score assessment, cervical biopsy, HPV and STI (Trichomoniasis) testing, and blood collection for CD4 and viral load testing. Women found to be VIA Positive were either treated the same day at the study site or referred to a nearby hospital for further treatment. Histology results for 300 women have been reviewed by the consultant gynaecologist and women with high grade cervical lesions have been referred for further treatment.
Did you know that there are >500,000 individuals in Zambia living with Hepatitis B, which is a chronic viral infection that can trigger cancer of the liver?

Unfortunately, most are not aware of their status. CIDRZ has been working on hepatitis since 2013.

High impact publication – Data from a CIDRZ cohort of persons living with HIV and Hepatitis B virus (called ‘coinfection’) were published in a leading medical journal, Journal of Infectious Diseases. The data demonstrated that ARVs may help speed up the clearance of Hepatitis B. https://academic.oup.com/jid/advance-article-abstract/doi/10.1093/infdis/jiz450/5581876

Protecting Zambian Health Workers Against Hepatitis B – We initiated a program in Kalulushi District, Copperbelt, that would offer screening and prevention services (including free immunization) to health workers who are at risk of Hepatitis B, which can be spread by needle stick injuries and exposure to blood or body fluids.

Hepatitis B Functional Cure Mechanisms in HIV – a new 5-year project was funded by the National Institutes of Health. In the field of Hepatitis B, patients must take lifelong medications to control the infection and prevent liver cancer; however, in some, a strong immune response kicks in to clear the infection without medication. Our project, which is a collaboration with Liver specialists at University Teaching Hospital / University of Zambia, will investigate how ARVs alter immune function in Hepatitis B patients who are HIV-positive and HIV-negative. The results would be used to develop new finite treatments for patients.

The 1st National Policy for Hepatitis in Zambia – In the year under review, the Ministry of Health launched the first-ever policy document for national hepatitis control. This policy was developed by the Hepatitis Task Force, which featured several CIDRZ investigators

Local data from CIDRZ research was fed directly into policy creation.
In the year under review, through the EDVRU, CIDRZ peer reviewed and published the following manuscripts:


In the year under review CIDRZ set up a rotavirus cell-culture platform, validated local capacity for basic ELISA assays, cholera vibriocidal and LPS assays, micronutrient assessments, PBMC isolation plant and storage plus the Luminex® based multiplex PCR capacity together. Using the vibriocidal platform, CIDRZ is now uniquely positioned as a regional training site for cholera vibriocidal assays and by the end of the period under review, two (2) research fellows from Cameroon were trained. Furthermore, CIDRZ submitted six abstracts to the 12th African Rotavirus Symposium. Two of which were selected for oral presentations and four for poster presentation. Below are the abstract titles and names for the first authors:

- Koyuncu Aybuke-Nutritional Status and Prevalence of Rotavirus Diarrhea Among Children in Zambia
- Roma Chilengi-Validation of a live attenuated rotavirus vaccine as a human infection challenge model in Zambia.
- Nsofwa Sunkwa - Incidence and clinical presentation of Congenital Syphilis, in a rotavirus vaccine cohort study in Lusaka: a case series report
- Roma Chilengi- Early linear growth retardation: results of a prospective rotavirus vaccine cohort of Zambian infants
- Michelo Simuyandi- Shigella and Salmonella infections are associated with markers of environmental enteropathy among children under five in Zambia
- Yvonne Kumbwimba-Reasons for refusal and or withdrawal of consent to participate in a clinical research study in Zambia.

CIDRZ provided finances and support for the registration of eight (8) PhDs and six (6) MScs students.
Non -replicating rotavirus vaccines (NRRV)

A PHASE 3 DOUBLE-BLIND, RANDOMIZED, ACTIVE COMPARATOR-CONTROLLED, GROUP-SEQUENTIAL, MULTINATIONAL TRIAL TO ASSESS THE SAFETY, IMMUNOGENICITY AND EFFICACY OF A TRIVALENT ROTAVIRUS P2-VP8 SUBUNIT VACCINE IN PREVENTION OF SEVERE ROTAVIRUS GASTROENTERITIS IN HEALTHY INFANTS

Live oral rotavirus vaccines have not performed as well in resource limited populations as it has in developed countries. The discrepancy in performance is not a unique feature of rotavirus vaccines; it has also been observed with other oral, live attenuated enteric vaccines, such as those targeted against cholera and poliomyelitis, for which efficacy is diminished in resource poor countries. Strategies targeting the development of inactivated rotavirus vaccines have recently been proposed and are supported by the successful use of parenteral vaccines to control disease caused by several orally transmitted pathogens including poliovirus, *Vibrio cholera* and *Salmonella typhi*.

Several direct and indirect observations support the possibility that parenterally administered, non-replicating rotavirus vaccines (NRRV) will likely be successful.

Provisionally, CIDRZ under the EDVRU is funded by PATH to conduct the NRRV in Zambia and Matero and George Clinical Research Facilities. The NRRV trial is multinational (Ghana, Malawi & Zambia) whose enrollment would be performed in two stages and in Zambia enrolments started in the year under review. It was expected that within 10 months enrolments would reach a total of 1100 infants aged between ≥6 to <8 weeks.

The ultimate goal of the P2-VP8 subunit rotavirus vaccine clinical development plan is to demonstrate the safety and efficacy of this vaccine approach in a series of studies to gain sufficient information to achieve licensure on the basis of phase 3 testing and subsequent prequalification by WHO to support product acquisition by GAVI, UNICEF or others for distribution, in general, to low income countries.
A randomized controlled trial of two versus three doses of Rotarix™ vaccine for boosting and longevity of vaccine immune responses in Zambia (ROVAS-2)

The proposed clinical trial is a phase IV or post licensure trial which started in April 2018. It has two arms and is an open-label randomized controlled trial of two versus three doses of live, attenuated, oral Rotarix™ administered at 6 & 10 weeks (the standard of care arm) and at 6 & 10 weeks plus 9 months infants age (the experimental arm). The intervention in the experimental arm is an added third dose of Rotarix™ vaccine given at 9 months infant age to assess an alternate schedule for administration to boost immune responses. Furthermore, this trial would address the safety of the vaccine when administered at 9 months of age.

The study would be conducted at George Clinic in Lusaka where the government maternal child health (MCH) and antiretroviral therapy (ART) clinics as well as the CIDRZ research unit were co-located. CIDRZ has a good research facility already existing at this clinic.

By the end of the year under review, a total of 212 infants had been recruited and biological specimens collected, and the study was in its follow-up stage.
An Open label, Randomized, Controlled, Single Centre, Phase IIb Study to Assess the Immunogenicity, Reactogenicity and Safety of Three Live Oral Rotavirus Vaccines, ROTAVAC®, ROTAVAC 5CM and Rotarix® in Healthy Zambian Infants

The ROTAVAC study was a phase IIb clinical trial. It had three arms and was an open label randomized controlled trial of ROTAVAC, ROTAVAC 5CM and Rotarix™ vaccine. Rotarix™ vaccine was currently being administered for protection against rotavirus diarrhoea as a two-dose schedule at 6- and 10-weeks infant age in Zambia’s immunization schedule. ROTAVAC a vaccine which was currently being used in India and was looking to increase safety and immunogenicity data in other populations. ROTAVAC and ROTAVAC 5CM is thought to be a cheaper alternative to Rotarix and this is crucial for low- and middle-income countries that are no longer GAVI eligible. The aim of the study was to enhance the knowledge on vaccine efficacy in Africa using methods that are scientifically rigorous, valid, and in accordance with Good Clinical Practice (GCP) guidelines.

In the year under review, ROTAVAC enrolled a total of 450 (150 per arm) infants aged 6 to 12 weeks for follow up one-month post dose 3 of ROTAVAC vaccine and was conducted at George Clinic in Lusaka. The study closed at the end of the year under review and interim data analysis showed that results for Rotavac observed in the study was similar to those published for studies conducted in India.
Using Qualitative Research Methods including various types of observations, interviews, discussions, and survey formats to document what people do and why.
SBSU is housed within the Research and Implementation Science Departments of CIDRZ. The unit uses qualitative research methods including various types of observations, interviews, discussions, and survey formats to document what people do and why. These methods help us understand the psychological (e.g., emotions), cognitive (e.g., reasoning), and social (family to society) processes that influence people’s lifestyle and impact their health. This information helps to predict illnesses as well as to prevent and manage them at individual and population levels through behavior and social change.

The year under review was an exciting one for CIDRZ through the SBSU, due to a surging demand to hear from the most affected people by priority health issues in Zambia. This increasing demand was both within CIDRZ and from new international partners. Through these opportunities, the unit grew in number in terms of members of staff spanning research and program departments within the organization. The data we generate as CIDRZ leads to the most effective interventions for the health of Zambians.

In the year under review, the unit published 12 studies in peer-reviewed journals. Three members presented their research at international conferences for the first time. One (1) junior scientist won her first grant to assess progress to implementation of the Multi-sectoral Cholera Elimination Plan in Zambia.
Using the probability-based Lot Quality Assurance Sampling (LQAS) to evaluate progress to MDGs, we showed that capacity building and quality improvement by tertiary hospitals reduced deaths within 24 hours of hospitalization among children on the Copperbelt Province. Also, on-site chlorine production in 55 targeted health facilities significantly improved chlorine distribution and infection control. Further improvements in opt-out pregnancy screening and emergency services are needed to reduce maternal deaths in Zambia.

The Optimizing momentum toward sustainable epidemic control in Zambia (OpCon) study confirmed the acceptability of HIV self-testing among young women living in Lusaka. Community-based distribution of HIV self-testing kits increased first-time testing. Early social support, trust in health systems, and adolescent-specific counseling that addresses shame and concerns about the future, facilitated early linkage to care.

The HIV self-testing using digital vending machine technology to improve HIV-testing (HIVST-VM) study revealed that young men in Lusaka were disillusioned with standard counseling procedures and interested in the possibility of accessing HIV self-testing kits through modern technology in their preferred locations.
Public engagement activities on Human Infection Studies (HIS) has increased stakeholder deliberation on the legal and ethical frameworks to implement HIS in the country. HIS involve infection with challenge agents in highly controlled conditions for vaccine development. Stakeholders included students in tertiary education institutions in Lusaka and scientists, ethicists, and regulators in the country. They agreed on the importance of HIS in developing vaccines relevant to Zambians and of ensuring risk minimization, safety measures, comfort, and fair compensation for HIS volunteers.

The Targeted action to prevent cholera (TAP-C) project has culminated in an exciting, fresh and contemporary evidence-based cholera prevention package that activates adolescents and their families to correctly wash hands, treat water, and reheat food. This intervention package has attracted the World Health Organization, the Zambian Ministry of Health, the Department for International Development, and select non-governmental organizations involved in implementing the multi-sectoral cholera elimination plan in Zambia.

The Sanitation and Hygiene Research (SHARE) programme demonstrated improved sanitation and hygiene practices among users of shared toilets. Landlords improved infrastructure and reported better rental returns. Users took responsibility to maintain a cleaning Rota and handwashing with soap in the household.
The qualitative study nested within the Linkage to care and treatment in the era of test and start (LINC) study showed that standard counseling did not address patients’ anxiety about provider-initiated testing, taking ART, and disengagement from care. These insights have led to integration of HIV self-testing, improved take-home materials and trained super-peers to help patients navigate their journey from diagnosis to linkage and re-engagement in care at their preferred clinic.

Zambia Common Elements Treatment Approach Pilot (ZCAP)

The ZCAP project under the Behavioral and Social Science Unit at CIDRZ, focuses on the treatment of unhealthy alcohol use among persons living with HIV in Zambia. According to MOH, persons living with HIV who drink heavy amounts of alcohol are 25% less likely to navigate the HIV care cascade and achieve viral suppression with ARVs. Therefore, identifying and reducing unhealthy alcohol use within the HIV program would help to achieve the ‘last mile’ in HIV epidemic control. Unfortunately, most front-line health workers have not been trained or given the tools to adequately address these issues, outside of certain specialized centers like Chainama Hills Hospital in Lusaka.

In the year under review, CIDRZ trained 15 lay counsellors at Matero and Kanyama Level 1 Hospitals in the Common Elements Treatment Approach (CETA), a treatment developed by JHU and that was previously shown to be effective in Zambia and several other countries. The training involved 2 weeks in the classroom followed by 3 months of supervision in the facility. CETA is intensive, requiring multiple counselling sessions over several months. Therefore, CIDRZ also developed and trained counsellors in a Brief Intervention (BI), which takes just ~30 minutes to deliver. Both CETA and the BI were now being pilot tested in a small clinical trial with 162 participants living with HIV.

The response to these new counselling approaches from patients and the staff were strongly positive. As at the end of the year under review, 91% of the patients referred to CETA had completed it, which was a major accomplishment.
In the year under review, the World Health Organization (WHO) Alliance for Health Policy and Systems Research (AHPSR) awarded CIDRZ a 2-years research grant titled "Raising the bar: Translating global guidelines to achieve local policy (RAISE-Cholera)." The RAISE-Cholera research project is aimed at evaluating the application of WHO guidelines to the Zambian Multi-sectoral Cholera Elimination Plan (MCEP) and make recommendations on needed health system capacity to adapt and implement strategies. Co-implemented with the Zambia National Public Health Institute (ZNPHI), the qualitative case study on the MCEP would be conducted from the year under review to August 2021 in Lusaka and Mpulungu Districts, which are cholera hotspots. The resulting cholera policy brief would contribute information and direction needed to achieve the MCEP goal to end cholera in Zambia by 2025.
Our quality systems

In the year under review, the laboratory remained central to the provision of quality laboratory services to internal and external customers. Our commitment to maintaining accreditation to ISO 15189: 2012 standard specific to medical laboratories – Requirements for quality and competence was resolute. Our scope of accreditation included and continues to include Hematology, Serology, TB, Flow cytometry, clinical chemistry, and Virology.

National Equipment and Method Verification

Based on our experience and expertise to validate or verify performance of test methods and equipment, the CIDRZ Central Laboratory (CCL) in collaboration with MOH verified performance of several test methods and equipment for suitability of use nationally. We made several verifications and presented reports to the national laboratory Technical Working Group (TWG) for adoption for national use. Methods which were verified included: ALERE Q, WANTAI HIV 1 and 2 Rapid Test Kit, the Aptima Hologic PANTHER, HIV-1 viral load (VL) and qualitative human papilloma virus (HPV), HIV-1 Roche COBAS 4800 VL and qualitative HPV, First response HIV-1/2 test kit (Qualitative) and Cepheid GeneXpert HIV-1 Viral load test kit (Quantitative method).

Pioneering National HPV Testing

In the year under review, CCL was/is currently the only laboratory performing molecular HPV testing through the cervical cancer program. The molecular testing detects HPV, one of the leading causes of cervical cancer among women in developing countries. Following approval by the laboratory TWG to use the Hologic PANTHER and the Gene Xpert for HPV screening, MOH granted approval to CCL to pioneer national HPV testing. Through our robust operation, QMS and available equipment, we can produce HPV test results within seven days.

The Fleming Fund to fight Antimicrobial Resistance (AMR) – the Zambia Country Grant

The discovery of antibiotics 90 years ago has revolutionized the treatment of communicable bacterial diseases and facilitated significant developments in areas of medicine such as surgery, obstetrics and oncology among many others. AMR is a mechanism by which microorganisms such as bacteria become resistant to antimicrobial medicines. AMR increasingly threatens our ability to treat infections and to undertake life-saving treatments. The dangers emerging from this alarming development of increasingly resistant microorganisms have previously been mitigated by the discovery of novel classes of antibiotics. However, for the last half of the century this has not been the case, with very few novel antibiotics discovered. To date, rising rates of AMR are already responsible for a significant health and economic burden, which, without swift action, is projected to dramatically increase, causing millions of extra deaths and costing trillions of dollars by mid-21st century.

In the year under review, the Fleming Fund awarded CIDRZ consortium the Zambia Country Grant. The Fleming Fund was established in 2015 to support countries to generate data need to inform policies and practices that would optimize the use of antimicrobial medicines. It funds a range of initiatives in low- and middle-income countries (LMIC) with the aim of increasing the quantity and quality of data available to better understand the scale and scope of AMR and how to combat it. The grant would address critical gaps in surveillance of antibiotic resistant bacteria in Zambia.

The first phase of the grant award is 2.7 million British Pound. The second phase of the grant upon good reviews of implementation of the first phase is 2.3 million British Pound. This grant will support implementation of multi-sectoral national action plan (NAP) on antimicrobial
resistance (AMR) surveillance with focus on selected AMR surveillance facilities.

**Professional Knowledge Transfer.**

On behalf of MOH, CCL worked in collaboration with Clinton Health Access Initiative (CHAI) to support Hologic mentorship for government (MOH) laboratory staff. CHAI is supporting MOH in coordination of site supervision and mentorship activities at 6 public-sector testing laboratories in Zambia. These laboratories all received new testing platform called the Hologic Panther to support the scale-up of HIV viral load (VL) testing in Zambia. The CCL was the first to use this technology in country and have developed personnel skills to start training of other scientists.

In the year under review, we conducted mentorship program for the Hologic PANTHER application and maintenance in four (4) facilities namely, UTH-HAP, Lewanika General Hospital, Mansa General Hospital, and Solwezi General Hospital. The program was facilitated by a qualified and experienced mentor who provided theoretical and practical training that covered 5 days at each facility. The program was a success based on the feedback from the apprentices from all the four facilities. In total, 19 laboratory scientists were mentored. The mentor also covered technical requirements of ISO 15189-2018 standard. CHAI additionally requested for support of two (2) laboratories under their scope of work. The facilities that would be covered are in Kasama district in Northern Province and in Kabwe district of the Central Province.

**Award of Excellence**

The CCL continued to be recognized by external partners as a Centre of excellence. In this regard, Ministry of Health awarded the Central laboratory in recognition of the laboratory as a Centre of excellence in HIV viral load testing at the recently concluded national HIV / AIDS technical conference at Mulungushi International Conference Centre in Lusaka.
In line with the CIDRZ mission which is “to improve access to quality healthcare in Zambia through capacity development, exceptional implementation science and research, and impactful sustainable public health programmes”, the Training Unit implements different training programs to ensure the achievement of this mission.
CIDRZ PHD FELLOWSHIP

The purpose of the PhD fellowship program is to create a formal and legally acceptable mechanism to identify and maintain exceptional fellows who embark on PhD academic training through the Health Corps fellowship. A key strategy is to find ways of keeping links with these fellows who are becoming highly specialised, and to the extent possible, offer a fellowship stipend for their sustenance during the training.

These fellows are mentored by CIDRZ Principal Investigators to develop their own research questions and are admitted into formal University for academic training. The academic research is based on bonafide ongoing or proposed CIDRZ projects. Currently, we have 11 PhD candidates progressing very well in their research and a quite a number in the application process.

CIDRZ Training Program

**Project Title:** Characterization of systemic memory B and T-cell responses to an oral inactivated vaccine against enterotoxigenic E.Coli (Etvax®) in Zambian children aged 6-23 Months.

**Institution:** Stellenbosch University

Cynthia Phiri Mubanga
BSc, MSc

**Project Title:** Molecular detection and characterization of Bartonella in small mammals from Southern Africa

**Institution:** University of Pretoria Hatfield, South Africa

Luiza Miyanda Hatyoka
BSc, BSc. Hons, MSc

**Project Title:** Data Science - Reconstructing rate and duration of seroconversion, and early growth retardation among vaccinated infants in Zambia.

**Institution:** Centre of Excellence in Data Science, University of Rwanda

Obvious Nchimunya Chilyabanyama
BSc, MSc
**Project Title:** Molecular Profiling of Epstein Barr virus among patients with neurological symptoms at The University Teaching Hospital.

**Institution:** University of Zambia

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**Project Title:** Preemptive and reactive strategies for cholera: an analysis of costs of illness, oral cholera vaccination campaigns and improved water quality, sanitation and hygiene in Zambia

**Institution:** University of Lusaka

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**Project Title:** Epidemiology of Noncommunicable Disease Risks factors among HIV-infected and uninfected adults in Southern Africa

**Institution:** University of Bern-Switzerland

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**Project Title:** Profiling innate and adaptive immune responses to rotavirus vaccination in Zambian infants.

**Institution:** London School of Hygiene and Tropical Medicine

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**Project Title:** Breastmilk components and their contribution to rotavirus vaccine seroconversion in Zambian Infants

**Institution:** University of Zambia

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**Project Title:** Oral cholera vaccine immunogenicity and effect of generated neutralisation antibodies on Vibrio Cholerae serotypes circulating in Zambia.

**Institution:** University of Zambia

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**Project Title:** Molecular epidemiology of enterotoxigenic escherichia coli in children under 5 years in Lusaka, Zambia

**Institution:** University of Zambia

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**Project Title:** Molecular Epidemiology of Selected Arbovirus Circulating in Congo DR & Zambia

**Institution:** University of Zambia
CIDRZ-HEALTH CORPS FELLOWSHIP

The CIDRZ-Health Corps Fellowship program is a prestigious and highly competitive program which enrolls candidates from various fields of study with a master’s qualification from both local and international universities for a period of 11 – 12 months. The selected fellows work in different projects at CIDRZ while the fellowship program helps them identify their research and career interests. A cherished goal of the CIDRZ-Health Corps fellowship is to expose graduates and soon to graduate fellows to real-life research/implementation science and offer hands-on experience which allows them to sharpen their career trajectory. The fellowship period is also dedicated to help fellows nurture their career development ideas, with special attention given to PhD training. The program enrolls a cohort of 8 – 10 fellows each year.

Dr. Njekwa Katanekwa is a Medical Doctor with a Bachelors in Human Biology (Bs HB) and Bachelors in Medicine and Surgery from The University of Zambia. He is currently with the Clinical Trials Group under the Enteric Diseases and Vaccines Department.

Dr. Ethel Mukelenga Kamuti holds a Degree of Medicine from the University of Saad Dahleb of Blida in Algeria and an MBA in Marketing and Management of Health from the International Institute of Commercial Sciences and Management in Algiers, Algeria. She served as Senior Resident Medical Officer at Chilenje Level One Hospital in Lusaka before joining Enteric Diseases and Vaccines Research Unit.

Dr. Masiliso Munyinda is a Medical Doctor with a BSc in Microbiology and Biochemistry, BSc in Human Biology and MBChB from the University of Zambia. She has worked as a Junior Medical Officer at Livingstone Central Hospital as well as a Senior Resident Medical Officer at Kanyama Level One Hospital. She joins the Enteric Diseases and Vaccines Research Unit.

Charlie Chaluma Luchen holds a BSc Microbiology and Biochemistry, MSc-Medical Microbiology from the University of Namibia. Hosted in the Enteric Diseases and Vaccines Research Unit, he will be tasked with conceptualization of priority research ideas, development of assay protocols and supervision of laboratory work among others.

Charlie Chaluma Luchen

Dr. Fiona Mureithi holds a Bachelor of Medicine and Surgery (MBChb) from Sumy State Medical University in Ukraine and is currently pursuing a Masters degree in Public Health at the University of Lusaka. She worked as a junior resident medical officer at the University Teaching Hospital for two years thereafter worked at Victoria Hospital as a senior resident medical officer for a year. She is currently working under Enteric Diseases and Vaccines Research Unit.

Dr. Fiona Mureithi

Dr. Guy Kayeye Muula holds a Bachelor of Medicine and Surgery (MBChB) from the University of Lubumbashi in Congo DR and Masters of Public Health from the University of Lusaka. He worked as a Senior Resident Medical Officer at the Manono General Hospital in Congo DR and as Medical Director at Victoria Hospital Mazabuka in Zambia. He is currently working under the International Epidemiologic Database for Evaluation of AIDS (IeDEA) program dealing with HIV co-morbidities as a Clinical researcher.

Dr. Guy Kayeye Muula

Masiliso Munyinda is a Medical Doctor with a BSc in Microbiology and Biochemistry, BSc in Human Biology and MBChB from the University of Zambia. She has worked as a Junior Medical Officer at Livingstone Central Hospital as well as a Senior Resident Medical Officer at Kanyama Level One Hospital. She joins the Enteric Diseases and Vaccines Research Unit.

Dr. Masiliso Munyinda
Kalongo Hamusonde holds a Bachelor of Science degree in Statistics from Mulungushi University (Zambia) and a Master of Science in Data Science and Business Analytics from Asia Pacific University (Malaysia). He is with the HIV Coinfections Comorbidities and Complications to undertake data quality control, data analysis and dissemination of study results.

Chilambwe holds a Bachelor’s degree in Biomedical Sciences and an MSc in Epidemiology with specific areas of expertise in establishing and maintaining laboratory quality management systems. She hopes to grow her skills in monitoring and evaluation and data management/analysis for continual quality/program improvement. She is currently with the Implementation Science and Strategic information departments.

Peter holds a Doctor of Veterinary Medicine (DVM) degree from the University of Ibadan, Nigeria and Master’s degrees in Veterinary Public Health and Epidemiology/Medical Statistics from the same University. He is working with the Analysis Unit.

Dr Sarah Nyangu holds a Bachelor’s degree Human Biology and a Bachelor's degree in Medicine and Surgery from the University of Zambia. She worked as TB/ HIV Coordinator at Kanyama First Level hospital. She is currently with the TB Department working on profiles of ART clients who develop TB while on TPT and the TB Cascade study.

Mwelwa Chibuye is a commonwealth scholar with a Master’s degree in Epidemiology and Biostatistics from the University of Leeds as well as a Master’s degree in Genetics from the Kazan State University in Russia. She is attached to the Analysis Unit.

Mwiza has a Bachelor of Arts in Psychology from University of Zambia and a Master’s Degree in Research Methods in Psychology from Anglia Ruskin University, United Kingdom. She is attached to the social qualitative researcher team.
MSC BY RESEARCH STUDENTSHIP

This research unit focuses on basic and translational research aimed at vaccines, and enteric diseases prevention and control. In addition, we also aim to generate information for policy makers and contribute to the wider scientific population. To harness this agenda, CIDRZ offers an opportunity to students willing to horn their research capacity by enrolling for a master’s program by research currently only with the University of Zambia while working with the CIDRZ implemented research project. Students are supported by dedicated CIDRZ mentors and institutional supervisors. The course of study is supported by CIDRZ and a student receives a stipend. Currently, we have 4 students under this stream.

INTERNSHIP

CIDRZ offers training opportunities aimed at providing practical work experiences to enhance theory and help early career professionals transition into a job area. In line with our role as a training organization, an attempt must be made to tailor experiences to the individuals’ requirements while providing genuine opportunities for students and early career professionals to learn about their desired career path. CIDRZ offers voluntary internships to both local and international students. For graduates, internships provide valuable entry routes into their career trajectories and contribute to the development of 'on the job' professional skills. The Interns are matched with CIDRZ mentors within the projects hosting them.

Research Title: Molecular Characterisation of Moraxella catarrhalis Isolates Obtained from Children Aged Between 0-59 months with Community-Acquired Pneumonia in Lusaka, Zambia
Status: Enrolled and supported by NRRV Project. Expected completion date November, 2020.

Research Title: Characterisation of T-cell responses to Hepatitis B Vaccination among Health Care Workers in Kalulushi District, Zambia.
Status: Enrolled and nested within the Hepatitis B project. Expected completion date November, 2020

Research Title: Long-Term Immune responses to Oral Cholera Vaccine in Lukanga Swamps, Zambia
Status: Research nested within the CHOVAXIM- Cholera based research project. Expected completion date June 2021

Research Title: Influence of maternal and infant histo-blood group antigens (HBGA) on oral rotavirus vaccine (Rotarix® immunogenicity)
Status: Research nested within the ROVAS2. Expected date of completion, November 2020
PARTNERS AND DONORS IN 2019
PARTNERS AND DONORS IN 2019

- Aeras
- American Institutes for Research (AIR)
- Barclays Bank Zambia
- Bill & Melinda Gates Foundation
- Beckman Coulter- India
- Centre for the AIDS Programme of Research in South Africa (CAPRISA)
- Chiesi Foundation
- Columbia University
- Department for International Development UK (DFID)
- Elton John AIDS Foundation (EJAF)
- Elizabeth Glaser Paediatric AIDS Foundation (EGPAF)
- European & Developing Countries Clinical Trials Partnership (EDCTP)
- European Union (EU)
- Foundation for Innovative New Diagnostic (FIND)
- Fred Hutchinson Cancer Research Center
- Fogarty Global Health Fellowship
- Global Alliance for Vaccines and Immunisation (GAVI)
- Global Health Corps
- HIV Research Trust
- HIV Vaccine Trials Network (HVTN)
- Imperial College of Science, Technology & Medicine
- International Epidemiologic Databases to Evaluate AIDS (IeDEA)
- International Maternal, Paediatric, Adolescent AIDS Clinical Trials (IMPAACT)
- Johns Hopkins University
- London School of Hygiene and Tropical Medicine (LSHTM)
- M•A•C AIDS Fund
- Ministry of Health, Government of the Republic of Zambia
- UK Medical Research Council (MRC)
- Mott MacDonald Foundation
- Partners in Health
- Program for Appropriate Technology in Health (PATH)
- Roche Molecular Systems
- Sanitation and Hygiene Applied Research for Equity (SHARE) Consortium
- Scandinavian Biopharma
- Swiss Cancer League
- TB Alliance – Global Alliance for TB Drug Development
- Tides Foundation
- 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)
- U.S. President’s Emergency Plan for AIDS Relief (PEPFAR)
- United Nations Children’s Fund (UNICEF)
- University of Alabama (UAB)
- University of Bern
- University of Birmingham
- University of Maryland, Baltimore (UMB)
- University of Oxford
- University of Rochester
- University of California, San Francisco
- University of North Carolina
- VillageReach
- Wellcome Trust
- World Health Organisation

COLLABORATORS

- Broadreach
- Churches Health Association of Zambia (CHAZ)
- Pharmaceutical Society of Zambia
- The University Teaching Hospital (UTH).
- Zambia AIDS Related Tuberculosis Project (ZAMBART)
- Zambian Center for Applied Health Research and Development (ZCHARD)
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<tr>
<td></td>
<td>2019 Kwacha</td>
<td>2018 Kwacha</td>
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<tr>
<td>Programme income</td>
<td>493,384,370</td>
<td>339,389,959</td>
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<td>Programme expenses</td>
<td>462,251,073</td>
<td>345,876,325</td>
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<td>Operating surplus/(deficit)</td>
<td>31,133,297</td>
<td>6,486,366</td>
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<tr>
<td>Other income</td>
<td>69,438,139</td>
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<td>Administrative expenses</td>
<td>93,094,246</td>
<td>51,923,988</td>
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<td>Results from operating activities</td>
<td>7,477,190</td>
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<td>Finance income</td>
<td>11,840,313</td>
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<td>Surplus for the year</td>
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<td>Tax credit</td>
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<td>119,473</td>
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<td>Surplus for the year after tax</td>
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<td>10,654,052</td>
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<td>Items that will not be reclassified to surplus</td>
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<td></td>
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<td>Transfer of excess depreciation</td>
<td>198,286</td>
<td>198,286</td>
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<td><strong>Total comprehensive surplus for the period</strong></td>
<td><strong>19,635,262</strong></td>
<td><strong>10,852,338</strong></td>
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<td>ASSETS</td>
<td>2019 Kwacha</td>
<td>2018 Kwacha</td>
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<td>----------------------</td>
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<td>Non-current assets</td>
<td>58,784,929</td>
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<td>Current assets</td>
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<td>134,716,417</td>
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<td><strong>258,803,255</strong></td>
<td><strong>158,809,520</strong></td>
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<td>Reserves and grants</td>
<td>120,405,458</td>
<td>72,937,682</td>
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<td>Current liabilities</td>
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<td><strong>TOTAL EQUITY AND LIABILITIES</strong></td>
<td><strong>258,803,255</strong></td>
<td><strong>158,809,520</strong></td>
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## CASH FLOW

### ASSETS

### CASH FLOWS FROM OPERATING ACTIVITIES

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<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
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<tr>
<td>Surplus of income over expenditure for the period</td>
<td>19,436,976</td>
<td>10,654,052</td>
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**Adjustments for:**

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<td>Adjustments Assets</td>
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<td>Depreciation charge</td>
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<td>Interest income</td>
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<td>Exchange gains</td>
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**Operating cashflows before movement**

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<th>Description</th>
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<td>19,588,808</td>
<td>7,354,685</td>
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### Changes in working capital

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<th>Description</th>
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<tr>
<td>Decrease in inventories</td>
<td>287,227</td>
<td>4,638,426</td>
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<td>Increase in trade and other receivables</td>
<td>-24,387,904</td>
<td>-5,817,455</td>
</tr>
<tr>
<td>Decrease in long term payables</td>
<td>-880,000</td>
<td>-845,000</td>
</tr>
<tr>
<td>Increase trade and other payables</td>
<td>53,336,415</td>
<td>26,589,671</td>
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</tbody>
</table>

**Net cash generated in operating activities**

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28,355,738</td>
<td>24,565,642</td>
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### CASH FLOWS FROM INVESTING ACTIVITIES

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest received</td>
<td>5,289,004</td>
<td>1,448,012</td>
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<tr>
<td>Project Grant</td>
<td>28,030,800</td>
<td>-</td>
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<tr>
<td>Purchase of financial instruments</td>
<td>-33,032,647</td>
<td>-904,935</td>
</tr>
<tr>
<td>Disposal of Property and equipment</td>
<td>42,929</td>
<td>-</td>
</tr>
<tr>
<td>Purchase of property and equipment</td>
<td>-46,537,884</td>
<td>-11,706,600</td>
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</tbody>
</table>

**Net cash used in investing activities**

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-46,207,798</td>
<td>-11,163,523</td>
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</tbody>
</table>

**Net increase in cash and cash equivalents**

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,736,748</td>
<td>20,756,804</td>
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<table>
<thead>
<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents at 1 October 2018</td>
<td>95,158,215</td>
<td>62,537,186</td>
</tr>
<tr>
<td>Exchange gains</td>
<td>6,551,310</td>
<td>11,864,225</td>
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**Cash and cash equivalents at 30 September 2019**

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 Kwacha</th>
<th>2018 Kwacha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>103,446,273</td>
<td>95,158,215</td>
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<tr>
<td></td>
<td>2019 Kwacha</td>
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<tr>
<td>----------------------</td>
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<tr>
<td>ACHIEVE</td>
<td>360,714,800</td>
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<tr>
<td>LIFE</td>
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<tr>
<td>GATES PCC</td>
<td>14,718,385</td>
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<td>ROTAVAC TRIAL</td>
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<tr>
<td>HVTN</td>
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<tr>
<td>CIRCUITS</td>
<td>7,623,386</td>
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<td>ELTON JOHN</td>
<td>6,101,556</td>
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<td>Mental Health</td>
<td>5,499,367</td>
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<tr>
<td>NRRV</td>
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<td>TB REACH</td>
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<td>MAC PMTCT</td>
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<td>WHO HIV</td>
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<td>NIH - CTU</td>
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<td>CHOLERA CONTROL AWARD</td>
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<td>OPCON</td>
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<td>GAVI</td>
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<td>HEPATITIS - B</td>
<td>998,301</td>
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<tr>
<td>MOH GLOBAL FUND</td>
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<td>HIC - VAC</td>
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<td>Z CHECK</td>
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<td>AERAS</td>
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<td>STAND</td>
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<tr>
<td>OTHER PROJECTS</td>
<td>3,613,987</td>
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<tr>
<td></td>
<td><strong>493,384,370</strong></td>
<td></td>
</tr>
</tbody>
</table>
ACCESSIBLE QUALITY HEALTH SERVICES

CONTACT US

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info@cidrz.org
www.cidrz.org

CIDRZ
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