

FINAL REPORT ON THE AFRICAN TRAINING PROGRAM IN AIDS & TB RESEARCH (2005-2015)

A PROJECT FUNDED THROUGH THE FOGARTY INTERNATIONAL CENTER BY THE NATIONAL INSTITUTES OF HEALTH

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This report has been prepared by the Principal Investigator, Professor Peter R Mason on behalf of the Biomedical Research & Training Institute

Background

Improvements in health care have significant impact on society at both individual and national levels, particularly in settings where resources are limited. Health and well-being provide opportunities for individuals to raise families, improve education and engage in activities that benefit themselves and their communities. At a national scale there is a well-established relationship between health and economic development, with healthy communities contributing to meeting national goals and aspirations.

To achieve healthy communities, the health policies and plans of national governments must be based on programs that have evidence to show they are effective. Research is therefore an integral part of an evidence-based approach. Research directed towards solving health problems has a particular effect in economically disadvantaged communities and countries, helping to target scarce resources towards programs that are effective and efficient. Ideally research activities should be designed, conducted and disseminated by scientists with local knowledge of the environment, customs and situations. Unfortunately scientists with specific skills for these kinds of investigation often are not found in settings of greatest need. Improving the capacity of young scientists to design, implement and disseminate the results of health research is seen an essential step in health and economic development. In order to support this concept, especially in the context of the growing epidemic of HIV infection and its impact on national growth, the National Institutes of Health introduced the International Clinical, Operational and Health Research Training Award (ICOHRTA) in AIDS and TB to promote the development of research capacity in resource limited settings.

The Biomedical Research & Training Institute (BRTI) with its US based partner, Stanford University Medical Center (SUMC) and in collaboration with the College of Health Sciences

(CHS) of the University of Zimbabwe successfully competed for an ICOHRTA grant in 2005, and for a renewal of this grant in 2010. This report covers the 10 year period of these awards.

The BRTI is an independent institution registered as a non-profit making company in Zimbabwe in 1995. Its purpose is to foster research in health, whether clinical, biomedical, epidemiological or health systems research, that contributes to the well-being of the peoples of Zimbabwe and the southern Africa region. As an independent institution, the BRTI sets its own policies and agenda, with a focus on internationally-funded research that builds local capacities at individual, institutional and national levels. Training of young scientists in research is an essential component of BRTI activities, and short training courses in specific topics (serological techniques, quality control, data management and research ethics) were provided from the very beginning of the Institute.

The ICOHRTA grant enabled the BRTI to develop these courses into a cohesive training program on essential skills needed by a researcher to be able to contribute to science at an international level.

The training program was directed at a variety of targets, with a focus on postgraduate students, but including also faculty at academic institutions, researchers at national and non-governmental research institutes and those in health administration at national and local levels. Post-graduate support was limited to students registered at universities in Zimbabwe, rather than those studying outside the country in order to address issues of preventing “brain drain” and contribute to institutional and national development at a time of severe hardship. Support was given to enable students to complete their theses and gain a higher degree that would set them on a career path in research and academia. This financial support was supplemented by academic support through the short course program and through support for supervision and mentorship. Opening the short course program to a wider audience was a particular feature of the ICOHRTA that encouraged development of research skills at institutional, national and regional levels and facilitated networking among young researchers. This would be expected to continue to have impact long after the program was completed. The third main activity of the BRTI ICOHRTA program was short term support for students and their supervisors to work for at other institutions in the US or in the region. The aim was to enable access to equipment not available locally, to learn new techniques and to interact with collaborators as part of professional development and networking.

Context

The ICOHRTA program gave support to postgraduates during a very difficult time in Zimbabwe (see box below). When the program started, effectively in 2006, the economic situation in the country had already started to decline significantly. Rapidly increasing hyperinflation, with continual printing of new banknotes to reflect this situation characterised the next 3-4 years.

Associated with this calamitous economic environment, inflation leapt from 15% in 1996, to 57% in 1999, to 200% by 2002, to 1,300% by 2006 and to an estimated 80,000,000,000% over the following two years. Prices of goods in shops, the few that were still open and able to

operate such challenging conditions, increased constantly to match the hyperinflation with prices often changing twice per day.

Life was extremely difficult in these circumstances, especially for those receiving a Zimbabwe dollar salary – as was the case for all employed by Government including health workers and academics. Large numbers of government workers, including doctors, nurses, lecturers and teachers left the country in order to be able to earn a foreign currency salary that could be exchanged at the black market rate so that they could support their families at home. Clinical teaching was affected very badly because people could simply not afford to go to hospital – with the result that many of the wards in teaching hospitals were empty. By 2008 it was estimated that ward occupancy rates were <15% in major hospitals, and about 70% of government health posts were vacant. Teaching of doctors, nurses, pharmacists, laboratory

Zimbabwe inflation: *At independence in 1980, the Zimbabwe \$ had an exchange value of about Z\$1 = US\$1.50. This value fell rapidly over the next 10-15 years, and by 2005 when the ICOHRTA award was made, the value was Z\$100 = US\$1.50. In 2006, the “new Z\$”, was introduced, valued at 1,000 old Z\$ to 1 new Z\$. This new Z\$ was devalued to new Z\$250 to US\$1 (i.e. 250,000 old Z\$ to US\$1). By 2010 the value of the new Z\$ had again fallen drastically, with an official exchange rate of new Z\$30,000 (old Z\$ 30 million) to US\$1. It was, however, impossible to get US\$ at the bank and the “black market rate”, estimated at new Z\$600,000 (old Z\$ 600 billion) to US\$1 was used to determine prices of imported goods, especially fuel. Cash payments required the use of large denomination notes, and even then a small transaction might require a large bag to carry the notes. In 2008, another new currency was introduced, the “redenominated Z\$”, now valued at “red” Z\$10 billion to new Z\$1. By this stage, many shops refused to accept Z\$, and insisted on payment in US\$. Hyperinflation continually pushed the need to print larger and larger denominations of notes, with the Z\$100 trillion note being the highest. Prices of goods in the shops changed at least twice daily, such was the speed of inflation. In early 2009, yet another 12 zeroes were taken off the currency with yet more new banknotes being issued to reflect this. It was clear though that the Zimbabwe dollar was completely without value. Effectively from 2009, the US\$ has been the unit of exchange in the country, and is used for all transactions including those of government.*

scientists and other health workers became more and more difficult, with more and more pressure being placed on those who had decided to stay in Zimbabwe.

It was against this background – an extremely difficult socio-economic environment, with consequent staff shortages in universities and hospitals, empty shops and supermarkets and queues often more than a kilometre long at fuel stations when they had fuel, low morale among health care workers and academics that the ICOHRTA program has been introduced.

The economic situation of Zimbabwe improved dramatically with the introduction of a government of national unity and adoption of the US\$ in 2009. However, the improvement was only short-lived. While living conditions improved – inflation ceased, availability of fuel and food increased, and there was a new optimism that life would get better, the economy has

declined again. The “fast track land redistributions” that started in 2002 was followed by dramatic decline in agricultural production both for local consumption and for the income-generating export market. Much of the manufacturing industry was agro-based, and there was a decline in manufacturing output and closure of factories. Zimbabwe was perceived as a country where investments were unprotected, with loss of foreign investment development. It is now estimated that less than 5% of adults are in formal employment and many large companies continue to cease operations, close down and dismiss employees. The perceived lack of respect for law and order led to rapid decline in tourist visitors, another very important source of revenue for the country. Government no longer has funds to maintain institutions – such as universities, hospitals and research institutes – and so there has been another decline in research support.

The ICOHRTA program has been implemented throughout these most challenging times, and has been regarded by many as a beacon of hope for health research in the country. The program has given the opportunity for researchers to develop their careers and their skills, so that they can feel confident that the research they do meets the challenges of essential, ethical and effective research for Zimbabwe.

THE AFRICAN TRAINING PROGRAM IN AIDS & TB RESEARCH

The BRTI program introduced a three-pronged approach to capacity development:

- Direct financial support in US\$ for post graduate students completing projects in AIDS, TB and OI as well as support for supervision of research projects;
- Short course training in research skills;
- Opportunities for short periods of training in specific areas in the US and other countries where this was an essential part of the research program.

The program was conducted in collaboration with many local and international agencies and programs, and it must be recognised that they made an essential contribution to the project’s activities and achievements. Within the University of Zimbabwe we received immense support from the office of the Dean, College of Health Sciences (Prof. Midion Chidzonga) and his staff. Much of the day to day contact was with the Institute for Continuing Health Education directed by Mr. Christopher Samkange. Research activities within the College over the years of ICOHRTA became increasingly under the guidance of the Research Support Centre (Director. Prof Exnevia Gomo), and the assistance given by the Wellcome-Trust funded Southern Africa Centres of Research Excellence. The ICOHRTA training program worked closely with SACORE to develop an appropriate skills package. Much of the HIV-related research activity in the College came through the University of Zimbabwe – University of California, San Francisco research group (Prof. Mike Chirenje). The MEPI award (from NIH) made to the College (Prof. James Hakim) enabled many of the course developments made by ICOHRTA to be directed to staff and students in the College.

The ICOHRTA program was, however, not directed only at the College. Support in training and supervision was given by staff at the Manicaland AIDS Prevention Project (funded by

Wellcome Trust, and administered through Prof. Simon Gregson, Imperial College, UK). The research activities of Prof. Rashida Ferrand (London School of Hygiene & Tropical Medicine, UK) also provided opportunities for mentorship and supervision of research in HIV in children and adolescents.

Programs of the BRTI also contributed to ICOHRTA – enabling students to take advantage of BRTI research projects, particularly in TB, to gain experience and benefit from facilities and expertise. The EDCTP-funded Trials of Excellence in Southern Africa program of BRTI also collaborated closely with course development and implementation.

Finally, I have to thank the support from Government – particularly the Ministry of Health and Child Care – for their continual interest. We also recognise the inputs made by Zimbabwe National Institute for Health Research (Dr. Susan Mutambu) and by the Medical Research Council of Zimbabwe (Dr. Paul Ndebele).

Without all of these partners the ICOHRTA would not have achieved as much as it did.

POSTGRADUATE SUPPORT PROGRAM

The program provided a realistic level of financial support, in US\$, to students completing research as part of their postgraduate degree studies through stipends, payment of university fees and a contribution to internet charges. University teachers and researchers also received opportunities for payments for teaching in courses, and for supervision of students. The prompt payment of fees and other charges on behalf of students was of great benefit to academic institutions at a time when financial support from government was low. The ICOHRTA could also provide direct salary payments to the Institute of Continuing Health Education (ICHE) at CHS, the department in the College that is responsible for management of postgraduate students, to allow employment of an administrator in ICHE to monitor the enrolment, progress and graduation of M.Phil (degree by research), MSc (degree by combination of coursework and research), M.Med (degree by combination of clinical work, course work and research) and D.Phil (degree by research) students. Indirect contributions were also given to improve the efficiency of the degree process – for example the progress report that was designed for ICOHRTA students is now the standard format for progress reports from students in the College.

An ICOHRTA Committee was established under the chairmanship of Prof. James Hakim (Department of Medicine, CHS), with representation from BRTI, ICHE and clinical and community medicine departments. The Committee met at least twice a year to consider applications and review progress of the students. The Committee shortlisted candidates, and following interviews, recommended those most suitable to receive fellowships under the program.

Recommendations have been made through ICOHRTA to speed up the process of registration and submission in the CHS; they have had some influence. For example, postgraduate students are now **required to publish** their findings in peer-reviewed journals prior to submission of a

thesis. Previously publication was frowned upon, as the thesis was then regarded as not being the original work of the student, because most papers have multiple authors.

Degree process: *The process of registration at UZ is somewhat complicated – a prospective student must first approach a Department in the College to obtain their support and to appoint a Supervisor. The Department then approaches the Higher Degrees Committee with a summary of the proposal, and the names of supervisors. The HDR, if it accepts the proposal, allows the student to prepare a final detailed protocol which must be presented within 6 months. If this detailed proposal is approved, the Dean recommends registration, The student then has a minimum of 2 years (M.Phil or MSc) or 3 years (D Phil) or longer (some M.Med programs are 4-5 years) to complete their thesis. When the thesis is submitted it is subjected to both internal and external review. The examiners’ comments are considered at a CHS Examiners Meeting which may recommend revision and resubmission, or may call the student for oral examination. After the oral examination, Examiners recommend pass or fail and the student is notified. Usually the decision is a pass subject to corrections being made as required, and this must be done to the satisfaction of the Departmental Chair, before the recommendation of pass is sent to Academic Committee. Graduation can then take place at the next graduation ceremony. It typically takes 12 months or more from submission of a thesis to graduation, the main delay being waiting for reports from external examiners.*

Arguments against this view were aired many times in meetings of the Higher Degrees Committee and the Faculty Board. Eventually the advantages of having a thesis that had already been, at least in part, peer-reviewed were recognised. A number of amendments to the guidelines for thesis preparation and presentation have also been adopted, and the ICOHRTA team has been instrumental in editing the guidelines booklet in line with these amendments. Further meetings on the guidelines and examination process will be held this year, and we hope to be able to further streamline the process. These improvements will benefit all future graduate students at the CHS.

Academic Achievements

Over the 10 years of the ICOHRTA program, support was given to **54 postgraduate students** (30 female, 24 male) of whom **48 had completed** their thesis and graduated by December 2015 (Tables 1-4).

Table 1: *ICOHRTA Fellows: Masters by research (M.Phil) students: Support was given for two years, the minimum time for completion of a thesis.*

	Name		Thesis topic	Support period	Degree
1	Emanuel Chigutsa	M	Genetic polymorphisms and ARV use	2006-8	Awarded

2	Joyce Jumira	F	Cytokine changes during ARV therapy	2006-8	Awarded
3	Justen Manasa	M	ARV resistance detection	2006-8	Awarded
4	Tsitsi-Grace Monera	F	ARV and traditional herb interactions	2006-8	Awarded
5	Rebecca Tadokera	F	Chemokines in HIV infection	2006-8	Awarded
6	Simbarashe Zvada	M	Pharmacoinformatic tools in HIV	2006-8	Awarded
7	Tinashe Mudzviti	M	Adverse drug reactions in HAART	2009-11	Awarded
8	Sekai Mativenga	F	Sexual teaching in HIV prevention	2009-11	Awarded
9	Rutendo Birri	F	Cardiovascular disease in ART-naïve patients	2011-13	Awarded
10	Tichaona Sagonda	M	Detection of XDR-TB in MDR-TB isolates	2011-13	Awarded
11	Monalisa Manhanzva	F	Using OLA to detect lamivudine resistance in HIV	2011-13	Awaiting approval
12	Alltalents Murahwa	M	Cutaneous HPV in HIV positive patients	2012-14	Awarded
13	Doreen Duri	F	Adenine deaminase for TB detection	2012-14	Awarded
14	Tinei Shamu	M	Nephropathy in HIV patients	2013-15	Thesis in preparation
15	Beauty Makamure	F	Diagnostic tools to detect TB in HIV positive patients	2014-16	Ongoing – preparing manuscripts

Students can enrol for postgraduate degrees at different times during the year, and progress is sometimes slower than expected, as discussed previously. Currently there are three M. Phil students who are still either finishing their theses, or awaiting the examination outcome (*Shamu, Makamure, Manhanzva*) but they are expected to graduate during 2016.

Many of the M.Phil graduates went on to register for doctoral programs (*Chigutsa, Manasa, Monera, Zvada, Birri*) either in local or regional universities. Others have joined research institutions and programs in Zimbabwe (*Mudzviti, Sagonda*) or continue in academia (*Murahwa, Duri*) and we expect these also to register for doctoral degrees.

Table 2: Masters by coursework and research students (MSc, MPH): Coursework degrees are two-year programs, and support is given only during the year of research work.

	Name		Dissertation topic	Degree	Support
1	Janet Dzangare	F	New sexual partners and HIV transmission	MSc (Biostats)	2007

2	Elliot Chikaka	M	Roll-out of PMTCT in urban centres	MSc (Biostats)	2007
3	Max Chirewha	M	Survival patterns in HIV	MSc (Biostats)	2007
4	Felicia Takavarasha	F	PMTCT and child mortality	MSc (Biostats)	2009
5	Lameck Munangaidza	M	Survival patterns of patients taking ARV	MSc (Biostats)	2009
6	Munyaradzi Gwazane	M	Sustainability of HIV prevention programs	MSc (Biostats)	2009
7	Godfrey Makware	M	Models of VCT	MSc (Biostats)	2009
8	Sitholebuhle Magutshwa	F	Barriers to HIV disclosure	MPH	Abandoned See below
9	Tinashe Nyazika	M	Genetics of <i>Cryptococcus</i> in HIV	MSc (Med Micro)	2013-14

On the recommendation of the ICOHRTA Committee specific support was given to students completing their coursework in the newly established Masters in Biostatistics program at the CHS in 2007 and again in 2009. This support was given only during the one year period they were completing the research needed for their dissertation. Because coursework degrees all have a specific deadline for submission of the dissertation, it had to be completed within this period. So all of the MSc Biostats students have graduated, are went on to employment in research projects, programs of the Ministry of Health and Child Care or in research institutions. We subsequently offered support to two other MSc students, with mixed outcomes (discussed more extensively below).

Table 3: Masters in clinical subjects (M. Med): M.Med programs vary in duration according to speciality. Support was given during the two years where a research project must be completed. All Fellows have now graduated.

	Name		Research topic	Speciality	Support period
1	Louise Chikara	F	Diarrhoea in HIV positive children	Paediatrics	2006-8
2	Sarah Manyame	F	Group B Streptococcus in HIV positive patients	OBGYN	2006-8
3	Leolin Katsidzira	M	Acute hepatitis in ARV	Medicine	2006-8
4	Webster Kadzatsa	M	Management of non-Hodgkin's lymphoma in HIV	Radiotherapy	2007-9
5	Patience Mativeki	F	Haematological features in HIV positive children on cotrimoxazole	Paediatrics	2007-9
6	Nomsa Tsikai	F	Cervical cancer in HIV	Radiotherapy	2009-11

7	Golden Fana	M	Renal dysfunction in HIV	Medicine	2009-11
8	Junica Dari	F	Ocular pathology in cryptococcal meningitis	Ophthalmology	2009-11
9	Raphael Makota	M	Male circumcision in HIV	Surgery	2011-13
10	Pamela Gorejena	F	Peripheral neuropathy in ARV	Medicine	2011-13
11	Suitshengiso Matshalaga	F	TB transmission in pregnancy	Pathology	2011-13
12	Tatenda Chingozho	F	Breast cancer in HIV	Medicine	2011-13
13	Lethile Madzodzo	F	HIV positive adolescents	Paediatrics	2011-13
14	Godfrey Mungwazi	M	Pregnancy outcome in KS	Surgery	2012-14
15	Takudzwa Chiwanga	F	HIV and cervical cancer	OBGYN	2012-14
16	Tendai Moyo	F	B12 deficiency in HIV	Medicine	2013-15
17	Tatenda Nyagura	F	COPD post TB infection	Medicine	2013-15

C. Samkange (Director, ICHE): "The period of 2005 to 2010 was a critical time at UZ. With the decline in clinical services caused by the economic situation for the country, and with a massive exodus of clinical teaching staff, and the resultant low morale of students, the M. Med program at CHS was in jeopardy. The ICOHRTA program injected hope to both students and staff, supporting them through the most difficult years. It is not too far-fetched to say that ICOHRTA saved the M. Med program."

As with coursework programs, the Masters in Medicine speciality program requires both examination and submission of a dissertation. In addition, students are marked on clinical skills as well. The duration of different programs varies from 3 to 5 years depending on the specialty. All of the graduates continue in clinical medicine, some have now also joined as members of clinical research programs.

Table 4: Doctoral students (D. Phil): Support was given for three years, the minimum time for completion of a thesis.

	Name		Thesis topic	Support period	Status
1	Claver Bhunu	M	Transmission dynamics of TB	2006-9	Awarded
2	Kerina Duri	F	Genetic diversity of vertically transmitted HIV	2006-9	Awarded
3	Rutendo Gutsire	F	HIV and schistosomiasis	2006-9	Awarded
4	Fadzai Mukowenoshoro	F	ARV and securing livelihood	2007-10	Awarded
5	Marshall Munjoma	M	ARV and genital shedding of HSV	2007-10	Awarded
6	Abbas Zezai	M	Case finding for TB	2007-10	Awarded

7	Mquondiso Tshabalala	M	HLA polymorphism in HIV	2011-13	Abandoned See below
8	Tsitsi-Grace Monera	F	<i>Moringa olifera</i> in HIV	2011-13	Awarded
9	Junior Mutsvangwa	F	OLA to detect nevirapine-R in HIV	2011-13	Thesis in preparation
10	Cuthbert Musararirwa	M	Diagnosis of TB in HIV	2013-15	Thesis in preparation
11	Tariro Chawana	F	Treatment failure in adolescent HIV	2013-15	Ongoing – slow recruitment
12	Farayi Kaseke	F	Care programs in OI clinics	2013-15	Ongoing 161/168 enrolled
13	Sungai Mazando	M	Resistance mechanisms in TB	2014-16	ongoing

The University of Zimbabwe has now made it a requirement that lecturing staff have a minimum qualification at doctoral level. Achieving the D. Phil is therefore a priority for faculty in the College (*Duri, Monera, Musarirwa, Chawana, Kaseke, Mazando*) and these will continue to be involved in research. Specific employment in research projects or institutions (*Munjoma, Mutsvangwa, Gutsire, Zezai*) also ensures continued use of the research skills acquired through ICOHRTA.

Publication and achievement record

While the main focus of evaluation of student achievement is the award of an academic degree, the ICOHRTA program was concerned also with improving the quality of research conducted by the students. Assessing quality is much more difficult, but one way is to examine the publication record. Of the 54 students supported by ICOHRTA, **33 (61%) had published at least one paper** by the time the program ended, with 158 papers recorded in PubMed in total (bearing in mind, though, that more than one student may have contributed to some of these papers). Of the 158 papers, the ICOHRTA student was first author in 50 (32%) instances. These papers can be viewed at the ICOHRTA

Prof. H. McIleron, University of Cape Town: “Both Emmanuel Chigutsa and Simbarashe Zvada have done us proud. They both arrived with good grounding in maths, statistics and biological sciences including pharmacy necessary for PKPD modelling using nonlinear methods. Emmanuel, in particular, made some really important contributions including description of a novel pharmacogenetic association, the development of a novel semi-mechanistic time-to-event model describing the decline in viable *Mtb* over time in patients with DS-TB which provided a powerful marker for evaluation of drug effects, and a novel approach to evaluating the effects of drugs in combination on ‘sterilizing activity’. Able to translate challenges into solutions using novel methodological approaches, he was a leader and enjoyed mentoring other students; generously sharing his ideas and time. My best PhD student ever, he held a 6 month postdoc with us before moving into industry.”

publications list appended to this document and will be updated on the BRTI website (url: www.brti.co.zw).

We also take note of the opinions of employers, supervisors and mentors of past ICOHRTA fellows, and some of the stories of past Fellows are given below. Most of the graduates continue to work in Zimbabwe, either in academia, in research institutes or in hospitals in the country. While some have left, most of those have gone to pursue further education enrolling as PhD students in universities in the region. We have received high praise for these students from their supervisors. Some have returned to Zimbabwe to be facilitators in the short course program.

Specific examples of ICOHRTA Fellows

The success of the ICOHRTA program can be illustrated also at a personal level, using four specific examples of how the program contributed to career development. The first concerns Claver Bhunu who completed his PhD, took up a post-doctoral fellowship abroad and then returned to academia in Zimbabwe. The second is Junior Mutsvangwa, who started as a laboratory technician but who had the drive and expertise to move into a research career – supported and encouraged by the ICOHRTA program. The third is Farirai Mutenherwa, who we were able to encourage, even though not an ICOHRTA fellow. His interest in research ethics has been beneficial to his institution and the country. Finally, Justen Manasa was a Masters fellow who used opportunities made available through ICOHRTA workshops on bioinformatics to develop a PhD program at UKZN.



Claver Bhunu After graduating Claver Bhunu completed his MSc in Mathematics at UZ. He became an ICOHRTA Fellow while registered for his PhD at the National University of Science and Technology in Bulawayo, using mathematical models to better understand the epidemiology of TB in Zimbabwe. In addition to the financial support from ICOHRTA, Claver took part in many of the research skills courses. After completing his PhD in 2010, he received postdoctoral fellowship support at Clare College, Cambridge University, UK. Claver returned to Zimbabwe, first as a lecturer at NUST, and then moved to UZ as an Associate Professor in Mathematics. He is now full professor and head of Mathematics at the UZ, where he has successfully established a research group using modelling techniques to study many other diseases, both communicable and non-communicable. This group has published more than 30 papers and continues to be active.



Farirai Mutenherwa: Capacity building includes institutional capacity building, and BRTI staff have also benefited from the ICOHRTA program, even when not receiving a fellowship. Mr. Farirai Mutenherwa joined the BRTI as a young psychology graduate, with an MSc in Population Studies. Farirai was assigned to ethics administration, with particular responsibility for building the newly established Ethics Research Unit. He registered for an MSc in Social Science in Health Research Ethics, at University of Kwa-Zulu Natal, and was voted best student of the year in 2010. He completed his degree Cum Laude in 2012 with a dissertation on voluntariness in health research in Africa. During this period he was given additional responsibilities for arranging and organising the short courses being conducted by ICOHRTA. His attendance at these courses further stimulated an interest in completing his PhD, and he was successful in obtaining a fellowship at UKZN. He is completing his research on ethical issues in genetic research, spending part of the year at UKZN and part in Zimbabwe.

Junior Mutsvangwa: Mrs. Junior Mutsvangwa trained as a Medical Laboratory Technician under the old system in Zimbabwe, working in laboratories during the day, and attending courses in the evenings. After gaining the basic Diploma in MLT she wanted to advance and went on to complete specialist training. Junior joined the BRTI as Head of Laboratories, She continued to seek career advancement, and so was encouraged to register for an M. Phil which she completed, graduating in 2009. Again she wanted to do more and obtained an ICOHRTA fellowship to support a PhD at the UZ with a study of oligonucleotide ligation assays for detecting HIV resistance to antiretrovirals. Junior's talents were such that she was appointed a Senior Research Officer at BRTI, leading the team conducting the National TB Prevalence Survey and playing a senior role in the design and conduct of the Zimbabwe Infection Control Project. She has since been appointed to the Steering Committee of the Global Fund, giving advice on programs in HIV, TB and malaria to the Ministry of Health & Child Care in Zimbabwe





Justen Manasa: Justen completed his first degree in Medical Laboratory Sciences, and subsequently joined a local research institute to work on flow cytometry. His interest in molecular diagnostics led him to enrol on a M. Phil in 2006, and he became an ICOHRTA fellow. Justen obtained his degree in 2010, and led a team to develop, evaluate and validate molecular assays in HIV and TB in Zimbabwe. After attending the bioinformatics workshop in Harare, Justen joined a team at the University of Kwa-Zulu Natal, to develop bioinformatics approaches to monitoring HIV drug resistance. He subsequently completed his PhD at UKZN in the field of bioinformatics, and continued monitoring trends in resistance in South Africa. He is now working as a postdoctoral fellow at Stanford, but will be returning to Zimbabwe as part of the Zimbabwe Informatics Program, funded by NIH.

And a very few examples of disappointment

In a long project with many participants such as ICOHRTA, there are bound to be a few students who do not achieve what may have been expected. There were **two students** who were supported but failed to complete their degrees, despite efforts to encourage them. There were others who took much longer to complete their studies than expected and needed continued and additional support and encouragement. The major problem experienced by students was the lack of mentorship and lack of competent supervision.

Mr. Mqondisi Tshabalala had a somewhat difficult postgraduate student experience. There were many problems with his supervisors not giving the support he had expected, with subsequent delays in the progress of his research. He had previously received fellowship support in other programs, but was nevertheless awarded a fellowship to give him every opportunity to complete his doctoral degree. Unfortunately the difficulties with his supervisor continued, and Mr Tshabalala eventually left the country, taking up a doctoral opportunity in South Africa where he could find better supervision. We understand that he is making good progress – but do have to consider that with greater support we could have helped him to complete his degree locally and so we have to regard him as a student that we had failed.

On the other hand, not all of the student's problems were insurmountable. **Ms. Monalisa Manhanzva** had three different supervisors during her M. Phil studies – leading to long delays in completion of her thesis. Supervisors either left the country, or were not able to provide time for her because of being “busy with other UZ duties”. Eventually the ICHE requested that I take over as her supervisor. Her thesis has now been completed, submitted and examined and she passed the oral exam set by the College Board of Examiners. She should graduate in 2016 and is currently preparing for a PhD at UCT.

A number of different approaches to the problem of supervision have been tried. Payment of supervisors was the route adopted in the first part of ICOHRTA, but was not found to be effective. Challenges were met in trying to approve claims for some supervisors when no meetings with students had taken place, or when students recorded that supervision was poor. A typical progress report would be “progress is satisfactory” – with no comment on

actual progress made or on the challenges a student was facing. Eventually direct payment was stopped. During the second phase of ICOHRTA specific training was given, in collaboration with ICHE, with five short courses for potential supervisors and mentors to improve supervisory skills. These were attended by over 130 faculty and other potential supervisors, and some students have now reported improved relationships with their supervisors.

There is still, however, little time allocated to student supervision and many students continue to find the lack of supervisory support to be a major hurdle in completing their research and writing their thesis on time. Staff shortages mean that time is not available for duties outside of didactic teaching and university service. The lack of incentives for supervision means that most academics give their post-graduate students low priority in time allocation. Perhaps results-based financial incentives – for example paying a bonus for successful submission of a thesis by a student they have supervised – could improve the situation. There continues to be very limited financial support for educational institutions in Zimbabwe and staff shortages continue as many graduates leave the country to find jobs elsewhere in the region. Given this situation incentives are unlikely to be possible unless they can be funded from external sources.

Regrettably there have been a few student failures along the way for which there is no clear explanation – but the collapse of the Zimbabwe economy is probably the most important factor. **Ms. Sitholobuhle Magutshwa** was an MPH student enrolled at Africa University, and she was found to be a weak student who needed additional care and support. She failed to enrol for the final semester of the program and her whereabouts could not be determined. A member of her family said she had left the country to seek employment in South Africa, though we have not been able to confirm this.

These failures are however a very small minority, with over 95% ICOHRTA students either actively pursuing a career in academia, clinical medicine or research after successfully completing their higher degrees.

SHORT COURSE PROGRAM

In order to equip students with the skills to do research that meets international standards of quality, the BRTI ICOHRTA program set up a series of short (3-5 day) training courses. These were attended by ICOHRTA fellows as well as other students and junior faculty from UZ and other academic institutions. As part of the outreach commitment of BRTI, the courses were also made available to research institutions, research projects and hospitals throughout Zimbabwe. As part of regional outreach, funds were also used to allow students and faculty from other institutions in southern Africa to attend the courses. For every course that was advertised, there were more applications than could be accommodated and a small committee (chaired by Dr. Shungu Munyati, BRTI Director of Training) had to select the most suitable candidates. Priority was, of course, given to ICOHRTA fellows.

Each course was organised by a Chief Facilitator who was responsible for the course design and identification of other facilitators who could help. Payment at moderate rates was given

for facilitation – and since most facilitators were from CHS this was a means by which we could support financially those faculty who had remained in Zimbabwe during the difficult time of hyperinflation. From the outset, BRTI courses were intended to be interactive, allowing time for question and discussion, the use of case studies, role play exercises, video presentations, practical laboratory work and presentations by participants themselves. In addition to training courses, the ICOHRTA also provided opportunities for presentations on specific topics of a broad local interest and relevance – such as the use of bioinformatics technology in health care, the contribution of breastfeeding to HIV transmission and the development of point of care diagnostics for HIV, TB and OI. These forums combined a mixture of research data, presentations by experts in the field and practical exhibitions of products and techniques.

Refurbishment of BRTI premises was carried out to provide desks, chairs, projection and recording equipment needed to present courses. When the BRTI moved to its new premises in Avondale, the Board of Management agreed to the construction of a specific training room, with sufficient space for up to 30 participants (see below). The room was equipped with more desks and chairs, and a “SmartBoard” was installed to improve active teaching. Subsequently we obtained the “Cintiq” system that provided a simpler way of interacting with projected slides during the course of a talk. We also improved bandwidth so that direct connections could be made to internet-based teaching – for example showing participants how to get the most out of PubMed, how to use web-based citation tools and the advantages of cloud-based data storage systems. In addition we received a private donation to erect a gazebo to use for small discussion groups, and tables and benches were acquired for the garden where students could sit and discuss their research, or discuss issues raised in training sessions. These facilities are in constant use.

Achievements

The main ICOHRTA short course program was organised around three main areas of what were regarded as **essential research skills – research design, research conduct and research dissemination**. ICOHRTA fellows were expected to attend each of these during the course of their fellowship. These core courses have since been adopted by other capacity building programs such as “Sacore” and “Nectar” at the University of Zimbabwe. For each course, a small dedicated handbook was provided, and all of the presentation slides were put onto a CD for the participant to take back “home” and use and share with colleagues. Trainees were expected to participate actively in the courses, sharing experiences with colleagues – the experiences from regional participants were often quite different from local experiences and it was quite enlightening to hear of different approaches to common situations.

During ICOHRTA, the BRTI organised **50 training courses** for what were considered “essential core skills” with almost **1200 participants** including 42 from the region. A further **16 training**

courses were held in other skills, attended by over **320 participants**, (though bearing in mind that some participants attended several of these courses).

The BRTI Training Room



Originally it was intended that courses would follow a set program, with each course being available every 2 or 3 years. But because courses were frequently oversubscribed (20 participants were normally allowed per course – with more than this it would be difficult to maintain the

interactive environment), we sometimes held the same course more often - for example the ethics and paper writing courses.

Research design program: The research design courses (Table 5) comprised three essential skills (writing proposals, writing thesis proposals and research methodology).

Because these were essential skills we tried to hold these courses every second year so that all Fellows could attend. In addition we conducted courses in specific areas of design – social science, systematic revue and operational research methods (the latter funded through a supplementary grant).

Table 5: Research design courses (“core skills” shown in grey boxes)

Course	Held	Local participants	Regional participants
Grant proposal writing	2006, 2009, 2011, 2012, 2014	126	5
Thesis proposal writing	2007, 2008, 2011, 2014	84	4
Research methodology	2007, 2008, 2011, 2012, 2015	132	4
Designing social science research in HIV	2007, 2013	34	2
Designing systematic reviews in health	2007, 2010, 2012	54	1
Operational research methods in HIV, TB and OI*	2015	24	2

*Funded by supplementary grant

There were 20 research design courses, with a total of 472 participants who attended, 18 of whom were from Zambia, Botswana, Malawi, South Africa or Tanzania.

Research conduct program: There were four “core” research conduct courses, in data management, statistical techniques (at basic and advanced levels), quality control in research and the ethical conduct of research (Table 6). Additional courses were held in molecular techniques in diagnosis and characterisation and in research integrity.

Table 6: Research conduct courses (“core skills” shown in grey boxes)

Course	Held	Local participants	Regional participants
Data management	2006, 2007, 2011, 2014	59	1
Statistical treatment of data (basic and advanced)	2006, 2007, 2008, 2009, 2011, 2013	145	2
Quality control in HIV, TB, OI studies	2006, 2008, 2010, 2013	72	9
Ethical conduct of research	2006, 2008, 2009, 2011, 2014, 2015	106	9
Molecular diagnostics in HIV, TB & OI	2006, 2007, 2012, 2013	78	2
Research Integrity	2012, 2013, 2014, 2015	66	0

There were 28 courses held in this field, with 549 participants including 23 from Tanzania, Malawi, Zambia, South Africa, Lesotho or Mauritius. In addition there were participants from Nigeria, Kenya and Cameroon, who were sponsored from outside the ICOHRTA program.

Research dissemination program: There were three core subjects in this field – writing papers for publication, writing theses, and presentation skills. Thesis writing courses were held when many of the students had finished their research work and were in the process of starting their thesis. In addition courses were held in communicating research findings to stakeholders and translating research into policy (supported by a supplementary grant).

Table 7: Research dissemination courses (“core skills” shown in grey boxes)

Course	Held	Local participants	Regional participants
Writing articles for publication	2007, 2008, 2011, 2013, 2015	134	4
Writing theses	2008, 2010, 2015	61	3
Presentation skills	2009, 2014, 2015	68	0
Communicating research to stakeholders	2008	21	1
Translating research into policy*	2015	28	2

*funded by supplementary grant

These were all extremely popular courses, with both students and faculty attending. One of the writing for publication courses was held at Africa University, to help develop capacity among junior faculty there.

There were 322 participants in these 13 courses, with 10 participants from Tanzania, Malawi, South Africa or Zambia.

As noted above, the ICOHRTA program was concerned that poor supervision was one of the major reasons for students either being delayed in completing their thesis or in failure of students to complete their programs. In order to address this situation, there were **5 Mentorship and Supervision** courses held in 2010, in 2011 (two courses) and again in, 2012 and 2013, with a total of **139 participants**, mostly junior faculty from University of Zimbabwe.

Specific technical workshops and training courses

Technical workshops: In addition to the research skills courses the ICOHRTA program also hosted **9 workshops on specific technical topics**, as outlined in Table 8, attended by **270 participants**.

Table 8: Workshop program

Workshop	Year	Number attending
Monitoring and evaluation of HIV programs	2006	27
Health service delivery in the HIV era	2007	15
Breastfeeding & HIV transmission	2007	34
Bioinformatics for ARV and TB monitoring	2008	44
Open MRS for roll out of ART	2008	27
Point of care diagnostics in HIV & TB	2011	33
Paediatric HIV management	2011	23
Good Clinical Practice	2012	35
Point of care diagnostics in HIV, TB and OI*	2015	40

*funded by supplementary grant



These workshops fostered networking between students and researchers in Zimbabwe and international experts – a number of experts from US-based and regionally-based were invited to present. This networking led to collaborative studies being developed in Zimbabwe – for example an NIH-funded study on mastitis and HIV transmission resulted from the breastfeeding workshop, with collaboration between BRTI, UZ and University of Seattle. Outcomes emanating

from the bioinformatics workshop are attached as Appendix 1. This workshop led to projects to improve e-capacity at BRTI and UZ, with ICOHRTA funds being used to support interns completing their degree courses.

Critical appraisal: The BRTI is acutely aware that developing the skills of critical appraisal are very difficult in an African environment – “*you do not criticise your elders or teachers*”. In science, however, critical appraisal – both giving and receiving – is essential for progress to be made. Particular attention was given in a number of courses to developing appraisal skills, and showing young scientists how critical appraisal improves all aspects of research – from writing a grant or thesis proposal through to publishing a paper or presenting a poster at a conference. The writing papers course included a session on the ways to conduct a peer-review when asked to do so by a journal.

Interaction with international research: The training was extended to allow international visitors to Zimbabwe to also engage with local researchers and students to help to foster networks and develop the potential to international collaboration in research activity. Over the years of ICOHRTA, visiting scientists from Europe (Vrij Universiteit, University of Utrecht, University of Oslo, Imperial College, London School of Hygiene and Tropical Medicine), from Africa (University of Cape Town, University of Kwa-Zulu Natal, Malawi College of Medicine) and from USA (Stanford University, University of California San Francisco, Northwestern University) have hosted seminars and discussion meetings using the facilities established at BRTI with support from the ICOHRTA program.



Postgraduate students from NorthWestern University host seminar on new diagnostic developments in HIV and TB

Management: Training opportunities were also made available to project management teams, with courses in **Financial management** (held in 2009, 2012 and 2014, with 28 participants) and in **Project management** (held in 2013 and again in 2015 with 32 participants).

Combining all of these courses and workshops, the ICOHRTA supported participation by **>1,800 participants in 80 training courses or workshops.**

Challenges experienced with the short course program

The only problem really encountered was with the time required for designing and delivering courses – especially when so many of the courses were over-subscribed. This meant that programs frequently had to be amended during the course of a year.

Most of the facilitators were university staff who already had busy teaching schedules and so it was sometimes difficult to recruit teachers – though of course being paid a reasonable fee in US\$ was a great incentive in the times of severe economic distress.

Problems were also experienced in ensuring that the facilitators could deliver courses using active, participatory techniques. As noted elsewhere the majority of facilitators were university lecturers, who had a major obligation to complete often heavy lecture loads for their universities (exacerbated by staff shortages). Teachers also had little experience of active teaching methods, and so tended to give didactic lecture type presentations - for many lecturers this was the first time they had been introduced to active, participatory techniques and while some reacted positively, others experienced great difficulty and did not want to participate. For each course there was a detailed assessment questionnaire that we used to continually improve the design and delivery of courses, and to identify which facilitators were effective and which were not.

Student visits

As noted previously, part of the ICOHRTA budget was allocated to providing students with opportunities for improving research skills at institutions outside Zimbabwe. At first these opportunities were limited to ICOHRTA fellows, but during the second phase of ICOHRTA a decision was taken to make opportunities available to other students registered at universities in Zimbabwe. During ICOHRTA, **17 students** benefitted from this part of the program.

Student	Year	Visit to	Purpose
Zezai	2007	Germany	Flow cytometry techniques
Tadokera	2007	Stanford	Light cycle PCR
Duri	2008	Norway	HIV immunology
Manasa	2009	Stanford	Molecular diagnostics
Zvada	2009	UCT	Pharmacokinetics methods
Mutsvangwa	2010	Seattle	Oligonucleotide preparation
Monera	2010	Buffalo NY	Drug-herb interactions
Tshabalala	2010	Buffalo NY	Drug resistance mutations
Chagonda	2011	UCT	TB genotyping
Mupfumi	2011	UC Berkeley	Epidemiological techniques
Chimukangara	2012	SUMC	HIV drug resistance detection
Dhoro	2012	SUMC	Molecular diagnostics
Mutsvangwa	2013	Seattle	OLA techniques

Gwanzura	2013	Seattle	STI resistance testing
Musarurwa	2013	Amsterdam	Vitamin D detection systems
Makamure	2014	Stellenbosch	TB molecular diagnostics
Mazando	2015	UKZN	TB in animal models

In addition to these students visits, support was given to students attending and presenting papers at the meetings of the International AIDS Society, Conference on Retrovirus and Opportunistic Infections, International Union on TB and Lung Diseases and International Conference on AIDS and STD in Africa.

OTHER RESEARCH SUPPORT ACTIVITY

Local conference support

The presentation of research findings is an integral part of becoming a member of the research community. The ICOHRTA budget therefore included support for conferences that could be attended by Fellows and others from Zimbabwe. Each year we provided registration fees for **20 students to attend the CHS Annual Medical Research Day**. By paying registration for these students the ICOHRTA was supporting both the students, who could present their ongoing work, and the AMRD which used the funds to arrange the conference.

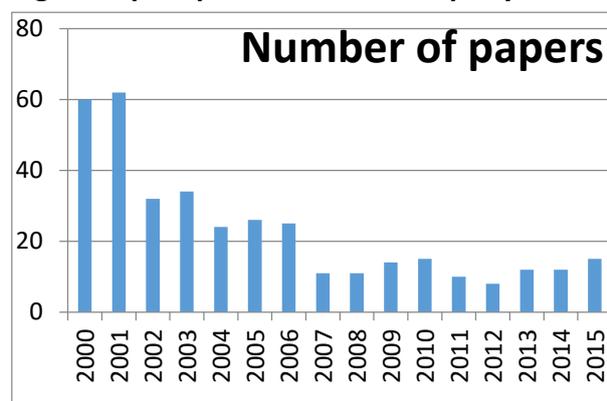
The ICOHRTA jointly sponsored, arranged and administered **five large scientific conferences**. The *“Toronto in Harare”* conference in 2006 gave presenters at the International AIDS Society meeting in Canada an opportunity to present their talks and posters and receive critical appraisal before travelling to Toronto. Support was given to 9 students to attend and present papers at the *International African Conference on Immunology* meeting in Victoria Falls in 2007. ICOHRTA also supported the *BRTI Tuberculosis Research Meeting*, held in 2009, giving an opportunity for ICOHRTA students in TB research to present their research and obtain comment from international speakers at that meeting. During 2014, the Wellcome Trust funded a research meeting in Harare under the auspices of the *London School of Hygiene & Tropical Medicine & BRTI Joint Meeting* and ICOHRTA funded the costs of printing research posters for this meeting and contributed to the venue costs. During 2015, following the attacks in Tunisia, the *International Conference on AIDS and STD in Africa (ICASA)* was moved to Harare. This provided a forum for ICOHRTA students to come together and share their research progress – especially for those students who were now studying outside Zimbabwe. The ICOHRTA arranged for a special ICOHRTA session to be held at ICASA, providing a forum for both current and past ICOHRTA to present their work. The student presentations made at this session have been collated and can be seen on the BRTI website.

Publication support

The Central African Journal of Medicine (CAJM) was established in 1954 by Prof. Michael Gelfand and is now the responsibility of the UZ College of Health Sciences. For decades this journal was the main vehicle for publication of research in Zimbabwe. Many members of staff, myself included, learned the skills of writing for publication through the CAJM and as such it was considered to be an important vehicle for developing research capacity for students in Zimbabwe as well as other countries in central Africa. The Journal, however, faced many difficulties, especially during the period of hyperinflation (2002-2009). The expected publication dates could not be maintained, not because of a reduction in submission of articles, but because of the ever escalating costs involved and the scarce availability of foreign currency that was needed. The number of issues per year was reduced in 2002 from 6 to 4 times per year and reduced further in 2007 to just 2 issues per year – and even maintaining this proved very difficult.

The CAJM essentially ceased publication from 2007 to 2013, with at most 15 papers being published each year (see Fig. 1) despite many articles being recommended by reviewers. Even those that were published only appeared in print years after the official publication date. Authors were also now required to pay for the publication of their papers in order to generate some income for the journal. As a result of these delays and the costs, many authors withdrew their submissions and published their research elsewhere.

Fig. 1. Papers published in CAJM per year



The ICOHRTA program agreed that it could pay publication charges for papers published by Fellows in CAJM. This would assist students to get papers published and give financial support to what was a very important journal for local researchers. With the advent on on-line journals, however, researchers were given much greater choice in the journals to which they could submit papers. The delays in publication and the very

low impact factor of the CAJM mean that students and others were more likely to choose to submit to on-line journals, and this area of support was not widely utilised. The funds that had been set aside for this activity were therefore directed to other capacity building projects – particularly developing internet-accessible training.

At present the future of the CAJM remains uncertain – reduced allocation of funds to universities in Zimbabwe will undoubtedly impact as well on its survival. With the increasing popularity of electronic only journals, it would seem more reasonable for the journal to follow this route.

Internet-based training

The IT Manager at BRTI, Mr Simon Chigeza, was sent to SUMC for 3 weeks to learn about different platforms to use for e-learning, and Mr. Chigeza subsequently enrolled into an on-line Masters course in e-learning at London University. One of the major challenges for e-learning in Zimbabwe is the very high cost of internet connectivity, particularly when fast low download speeds are needed by large numbers of students and staff. The BRTI opted for installation of fibre-optic cable to provide a reasonable service to staff and ICOHRTA Fellows, who can all access the BRTI network for free. Attempts to provide a similar service at the College of Health Sciences have run into difficulties, mainly because of the high costs involved but also because of IT policies within the university-wide complex. The BRTI has also embraced the use of portable cloud servers by hosting and providing localised virtual internet connectivity. The **PortableCloud** is an integrated software and services platform that packages digital content and services in a ready to use form on low cost micro-computers configured as local networks. This provides access to on-line materials available to a wide audience without the need for expensive bandwidth.

Each ICOHRTA fellow was allowed \$100 per month towards the costs of internet connection, but we wanted to increase access to the training courses available to a much wider audience. Internet-based e-learning tools was considered to be a way of transforming the training courses developed through ICOHRTA into a sustainable resource that future students could access and benefit from. The first step in this process was to transform all of the slides used by different facilitators in a course to a standard format, and designing a platform through which students could access and use the information available. Work started on this in 2012, using the courses on Writing Papers and Research Ethics as models. In addition, in collaboration with the Audi-Visual Unit of CHS, a special audio-visual version of the Presentations course has been taped, ready for access via the BRTI and CHS websites.

Other programs at the University of Zimbabwe (such as the *MEPI-Nectar* project) tried to improve internet access to students – though this has not proved to be a sustainable solution. The BRTI improved bandwidth at its site, so that ICOHRTA students could access internet-based material by visiting the offices – and the garden was equipped with furniture to allow students space to work while accessing the internet. Completion of access to core course materials through the BRTI website is now a goal of a specific grant for improving e-learning capacity at BRTI and CHS.

Ethical conduct of research

The BRTI has had an established policy that all research conducted at the Institute must have received ethical approval. This includes all research conducted by students supported through the BRTI, and so it has been a requirement that all students submit their research proposals for ethical review. To assist researchers the BRTI established its own Institutional Research Board in 1997, following training undertaken by myself at Harvard University. The BRTI-IRB is registered with the Office for Human Research Protection, and works closely with the national regulatory authority, the Medical Research Council of Zimbabwe.

In order to assist students and researchers the BRTI has given training courses in ethical conduct of research, and established an Ethics Research Unit to provide this training, maintain the activities of the BRTI-IRB and provide a forum for research in ethical issues relevant to Africa. Since 2008, the ICOHRTA has been a major sponsor of these ethics training courses – and all ICOHRTA fellows are required attend this course. The course is designed very much as an interactive training experience, with use of **case studies and scenarios** that illustrate different aspects of ethics from an African perspective. Participants are required to study the cases, discuss them and to identify the main ethical issues – and to suggest how these issues can best be addressed. The cases illustrate responsibilities of researchers in different settings, and also the responsibilities of review committees to be fair to the researchers.

The Ethics training courses have proved very popular internationally, with the courses having been adapted for training in Namibia, Rwanda, Vietnam and Laos.

As part of its commitment to ethical conduct of research, the ICOHRTA sponsored production of a **locally-produced video** that highlights some of the African approaches to informed consent in different settings – a clinic, a rural community, with children and in a hospital setting. The video can be downloaded from the BRTI website.

Since 2012, the ICOHRTA has also been used to give training in different aspects of research integrity. For this we have used both local materials and resources, and the excellent interactive video produced by North-Western University.

INSTITUTIONAL CAPACITY BUILDING – FINANCE & ADMINISTRATION

The ICOHRTA program has provided opportunities not only for students and university faculty but also for the BRTI as an institution. As the PI for the program, I have made annual visits to Stanford University to meet with partners and discuss progress and future plans. Usually these visits have been combined with attendance at international conferences to maximise the benefits from funds spent on air travel. In 2007, Mrs Shungu Munyati was appointed Training Director at BRTI with responsibility for management of training programs and liaison with CHS. She had the opportunity to attend several of the ICOHRTA Network Meetings (Aug 2006; Aug 2009: and FIC Meetings (Nov 2013, Nov 2014) held at NIH and other collaborating partner institutions in the USA. In June 2012 she also visited Stanford University and attended the International AIDS Conference using funds from ICOHRTA to present some of her work on social science aspects of HIV.

Though not an ICOHRTA Fellow, and so not receiving financial support, Shungu attended many of the short training courses, and was encouraged to complete her doctoral thesis, on smoking behaviour and HIV epidemiology. Her thesis had been long delayed – because of the problems with finance, with social disruption, with inadequate supervision that are common to all postgraduates in Zimbabwe. But with the guidance, support and most importantly the encouragement provided by ICOHRTA courses, Dr Munyati completed her thesis, and she graduated in 2015.

In November 2012, Herculena Ramjee the Finance Officer responsible for looking after the ICOHRTA grant attended the FIC Administrators meeting at NIH. This visit was extremely important in developing capacity for the rather complex nature of NIH financial reporting. The experiences gained have proved to be extremely important in developing procedures that contributed to successful achievement of ISO certification in 2014. The BRTI financial procedures manual and the SOPs that were developed for ICOHRTA have been applied to the administration of many other grants from international agencies, and we now regularly receive interns from other research institutions to train under the guidance of our financial management team. Audits are carried out regularly each year as part of the BRTI statutory requirements, and audits are in addition conducted as and when required by specific granting agencies. These audits have always been positive.

Administrative challenges

The administration of the ICOHRTA grant has not been without difficulty – mainly arising from the limited resources available to BRTI for developing and maintaining the human resource infrastructure required. As a “foreign” site, the F & A costs are limited to 8% of the eligible parts of the budget, while the infrastructure to support administration of the grant efficiently is costly – both monetarily and in terms of time. Combining duties and sharing of resources between projects is the only way that this can be overcome, even though it is not ideal.

The introduction, during the course of ICOHRTA, of the System for Award Management (SAM) was also quite challenging. Although having completed all of the registrations for enrolment in eRA Commons, Grants.gov and other requirements it proved very difficult to “migrate” data across to SAM. The whole process took perhaps 12 months – with frequent calls for assistance from our colleagues in USA. Renewal of the registration in the first year also proved extremely challenging, though renewals since then have been easy and fast.

Challenges faced with Financial Reporting

One of the biggest challenges that we faced with financial reporting was a decision about which exchange rate to use before the adoption of the US\$ as the currency for all exchanges in Zimbabwe. As noted in the beginning of this report, during the early years of ICOHRTA there were several different exchange rates that could be used. The “official” government rate of exchange was clearly untenable – it was a totally artificially maintained rate, not available in banks, and according to this exchange rate a cup of coffee would be priced at a million US\$ or more. The “bank rate” although better, was still totally artificial – but was the official rate used for the sale of US\$ (it was not possible in those times to buy them at a bank). A cup of coffee might cost “only” \$1,000 at that rate. The UN rate was used by many international agencies, but had to be registered as a “Non-Governmental Organisation” to obtain this rate – and a cup of coffee would be \$10. The “Old Mutual Rate” used the fact that shares in Old Mutual were fungible – that is registered on the Zimbabwe and the UK stock exchanges, and were

transferrable. So shares could be bought for Zimbabwe \$ in Harare, transferred to London and sold for US\$ - so this gave the exchange rate where a cup of coffee was \$5. This was the most common rate used by companies, as it was legal rate. Finally there was the “black market” rate – the one used by the majority of people and based solely on what people were prepared to pay – so a cup of coffee would cost \$1. This rate changed constantly.

But, of course, when it comes to accounting – which rate to use would make all the difference between a reasonable use of funds and gross over-expenditure. The BRTI Board decided that the best approach was to make US\$ available for the import of medical and medical laboratory supplies, at the rate that was determined by the market. This would provide the best return on funds, and at the same time allow for diagnosis and treatment of disease. It still raised the problem, however, that between one exchange and the next, the exchange rate might double or more – making financial reporting very difficult, especially using a system where constancy in the value of currency in the norm.

We have faced many challenges in using the Commons-based FFR system for reporting of funds usage – with many discrepancies appearing between reported funds spent – and intended to be spent, that are subsequently rejected in FFR. We established that in the FFR, expenses were understated due to the inclusion of estimates for the committed period. The reports were done to the end of April with estimated expenditures for May and June. Frequently these estimates were below what was actually used – mainly because additional training courses were conducted that had not originally been planned – but the system did not seem to allow changes to be made to already-approved reports.

Our financial management team are working with colleagues in the US to try and regularise all of the discrepancies that seem to have arisen.

Despite these challenges the BRTI is up to date on the audit of its finances including the finances for projects. The audit firm Grant-Thornton (which is registered for conduct of OMB A-133 audits) is now completing the BRTI audit (including audit of ICOHRTA) for 2015.

Final comments

The ten-year ICOHRTA program in Zimbabwe has made an enormous contribution to the development of research capacity, during a critical time in Zimbabwe’s history. We are very grateful to the National Institutes of Health of USA for giving us this opportunity to nurture the ability of young African researchers to conduct health research that is essential to needs, that meets international standards for ethical conduct and that can be effective in introducing policies and practices that improve the health and well-being of people. The comment of the ICHE Director, Chris Samkange that “ICOHRTA saved the M. Med programme in the College” is a comment that can be applied to many other areas as well. The BRTI is especially grateful for having been given the opportunity to introduce and maintain this program – we shall certainly be applying the skills that our staff have developed to other programs in the future.

On a personal note I have much to thank the Project Officer, Jeanne McDermott for support during often difficult times. Without her advice and encouragement we would not have been able to achieve what we have.

I am now retiring from an active role in BRTI – and am very happy to know that I can hand over to the past ICOHRTA Director of Training, Dr. Shungu Munyati – who has developed exceptional research and management capacity through her role in ICOHRTA. The ICOHRTA has played a very prominent part in my career in the past years – with a decreasing role in research activity and increasing role in mentoring and supervision of young researchers in Zimbabwe. I thank the NIH for the opportunities it has given me.