



Making Headway:

Year Three of the MEPI Grant Programs in
Zimbabwe

Prepared for NECTAR, CHRIS, IMHERZ Leadership

March 2014

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MEPI Programs in Zimbabwe – Year Three

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Abbreviations used in this report:

BRAD-G11	Biomedical/Bio behavioral Research Administration Development Program
BRTI	Biomedical Research and Training Institute
CCAC	Cross-cutting Academic Committee
CHRIS	Cerebrovascular, Heart Failure, Rheumatic Heart Disease Intervention Strategies
CTLC	College Teaching and Learning Centre (later the Medical Education and Learning Center)
DPhil	Doctor of Philosophy
FAIMER	Foundation for the Advancement of International Medical Education and Research
HEALZ	Health Education Advanced Leadership Program For Zimbabwe
HIV/AIDS	Human immunodeficiency virus/acquired immunodeficiency syndrome
HPE	Health Professions Education department
ICHE	Institute of Continuing Health Education
IMHERZ	Improving Mental Health Education and Research in Zimbabwe
IRB	Institutional Review Board
ICT	Information and Communication Technology
MBChB	Bachelor of Medicine and Bachelor of Surgery degree
MCSP	Mentored Clinical Scholar Program
MDPCZ	Medical and Dental Practitioners Council of Zimbabwe
MELC	Medical Education and Learning Center
MEPI	Medical Education Partnership Initiative
MMed	Masters degree program
MRSP	Mentored Research Scholar Program
NACCAP 11	Netherlands-African Partnership for Capacity Development and Clinical Interventions against Poverty-related Diseases
NECTAR	Novel Education Clinical Trainees and Researchers Program
NUST	National University of Science and Technology
PEPFAR	President's Emergency Plan for AIDS Relief
REDCap	Research Electronic Data Capture data management system
RSC	Research Support Centre
SACORE	Southern Africa Consortium for Research Excellence
TB	Tuberculosis
TBL	Team-based Learning
UCD	University of Colorado Denver
UCT	University of Cape Town
UZCHS	University of Zimbabwe College of Health Sciences

Executive Summary

In September 2010, the University of Zimbabwe College of Health Sciences (UZCHS) was awarded three grants funded by the Medical Education Partnership Initiative (MEPI) through the Fogarty International Center at the National Institutes of Health (NIH). The primary program is Novel Education Clinical Trainees and Researchers (NECTAR), and the two linked awards are Cerebrovascular, Heart Failure, Rheumatic Heart Disease Interventions Strategies (CHRIS) and Improving Mental Health Education and Research in Zimbabwe (IMHERZ). In June 2013, NIH also awarded UZCHS a supplemental one-year grant -- the Zimbabwe Initiative on Research and Innovation Management (ZIRIM).

The Evaluation Center at the University of Colorado Denver (UCD) was contracted 1) to provide external evaluation services for the MEPI programs and 2) to build evaluation capacity at UZCHS. This report summarizes evaluation results from the calendar year 2013, during which the programs made headway toward achieving identified goals.

1.0 MEPI Theme: Increase the number of health care workers trained

1.1 Enhance Faculty Skills

A total of eight NECTAR core faculty development workshops were conducted from 2011 - 2013, representing 63 hours of instruction. A total of 139 faculty members attended one or more workshops (74% of the faculty), although attendance was not consistent. Attendees rated the three workshops conducted in 2013 highly as in previous years; 100% of attendees reported they planned to use what they learned in the workshops. All 14 members of the first cohort of Health Education Advanced Leadership Program for Zimbabwe (HEALZ) Scholars completed their program in July 2013. HEALZ Cohort Two Scholars (n = 14) were selected and completed the first two weeks of instruction in 2013. Scholars represented 20 of the 23 departments within UZCHS (87%). Scholars reported satisfaction with the program and that they gained new knowledge and skills.

1.2 Update Technology

The Information and Communication Technology infrastructure continued to be improved in 2013, and technology-use continued to increase. Trainings were conducted for students and faculty to promote the use of e-learning options for medical education, although no e-learning courses were implemented during 2013. Concerns about Internet access persisted. An action plan was developed to continue the progress of technology improvement.

1.3 Improve Curricula

UZCHS faculty continued to implement the courses on priority health areas developed in 2011 and 2012 as templates for further curriculum development. In 2013, a UZCHS curriculum committee was convened to guide the development of a college-wide competency-based curriculum under the direction of the Dean and Deputy Dean. Their initial work included mapping the current undergraduate curriculum to the framework of the medical doctor competencies, thus identifying areas of overlap, gaps, and strengths. 70% of faculty survey respondents reported they have begun to review their curriculum, an increase from 53% in 2012. Visiting Professors and HEALZ Scholars

contributed to the development of new curricula. An action plan was developed to continue the progress of curricula improvement.

2.0 MEPI Key Theme: Retaining health care workers

2.1 Train Medical Educators

The Mentored Clinical Scholars Program (MCSP) planned and implemented six workshops in 2012 and 2013, a total of 42 hours of instruction. The workshops were open to all UZCHS MMeds who are considered to be future educators for UZCHS; about one-third of MMeds typically attend sessions. At all workshops in 2013, at least 85% of respondents indicated sessions were helpful, and at least 90% reported they planned to use what they learned.

2.2 Provide Teaching Support

In February 2013, the Vice Chancellor of the University of Zimbabwe established the department of Health Professions Education (HPE) at UZCHS. This represented major headway toward providing ongoing and sustainable support for teaching. Activities conducted under the auspices of the MEPI grants will now begin the gradual transition to the HPE department including the implementation of core faculty development, HEALZ workshops, MCSP trainings, and support for the development of e-learning opportunities. A department chairperson has been identified and an initial internal structure developed.

2.3 Improve Community Based Education

During 2013, a leader from a partner institution was identified to support the improvement of Community Based Education at UZCHS. Program leaders also sought to identify a UZCHS faculty member who would guide the process of improving CBE field experiences; by the end of the year, this responsibility had not been assigned. Some enhancements to the infrastructure occurred in 2013, sponsored by MEPI and other grant funds, including improvements to the housing facilities at the demonstration sites, Howard and Murehwa. An action plan was developed to guide the improvement process in 2014.

3.0 MEPI Key Theme: Invest in regionally relevant research

3.1 Mentor Students in Research

Three cohorts of Mentored Research Scholars (n = 28) were selected, paired with mentors, and supported through research seminars and administrative assistance since 2011. Scholars were at various stages in completing their research projects. Scholars from Cohorts Two indicated the program enabled them to engage in research and increased their interest in research careers.

3.2 Provide Research Support

The Research Support Center continued to provide faculty and postgraduate students with pre and post-grant award services; 88% of faculty using the Center reported they were satisfied with the services and support. Construction began on a new building for the Center in October 2013 supported by the Netherlands-African Partnership for Capacity Development and Clinical Interventions against Poverty-related Diseases. This will provide a permanent home and visible presence at UZCHS for research services.

3.3 Provide Research Training

In 2013, 23 Friday Lunchtime Research Methods courses were held from April to September; of 47 participants taking an exam on course content, 89% passed successfully. At least 91% of survey respondents agreed they would be able to apply what they learned from the lectures in Basic Biostatistics and Basic Epidemiology.

3.4 Develop Research Administration Capacity

Research administrators from the three universities participating in the ZiRIM grant (Africa University, National University of Science and Technology, and UZCHS) attended multiple trainings and attachments with partner institutions to develop the capacity to manage research grants. As of December 2013, the Africa University Institutional Board and the UZCHS College Board (pending editorial corrections) adopted comprehensive research policies. A training curriculum for research administrators was in development, and progress/priorities for further work were identified.

4.0 Develop Cardiology Research

Three cohorts of CHRIS Scholars (n = 39) were selected and mentored in cardiology since 2011. In 2013, the program was expanded to include training in endocrinology and pulmonary care. Scholars participated in training and field attachments at partner universities and were at various stages of completing research projects in 2013. CHRIS Visiting Professors and Scholars worked collaboratively to insert five pacemakers and completed four bronchoscopy procedures. CHRIS Scholars established a cardiovascular disease registry for children with rheumatic heart disease and a specialized cardiac care/stroke treatment unit at Parirenyatwa Hospital. During 2013, in collaboration with Visiting Professors, Scholars delivered half of the lectures in the undergraduate physiology lecture series.

5.0 Develop Mental Health Research

The Department of Psychiatry continued to increase the numbers of specially trained personnel to address the critical shortage of mental health care providers. Three cohorts of IMHERZ Fellows (n = 9) were selected and mentored in mental health treatment since 2011. Fellows were engaged in mental health research projects including a study of methods to reduce depression and improve adherence to antiretroviral therapy in Harare. Fellows were at various stages in the completion of their research projects and dissertations. IMHERZ planned and presented ten Master Classes from 2011 to 2013. On exit surveys from three classes, participants reported increased knowledge and skills and positive feedback on the training. During 2013, the undergraduate Behavioral Sciences curriculum continued to be implemented.

Visiting Professors

During 2013, a total of 25 faculty members from UCD, Stanford University, and Kings College London visited UZCHS as Visiting Professors. These individuals provided classroom instruction, bedside teaching, and hands on tutorials. On 2013 annual surveys, 84% of faculty reported positive opinions of the quality of instruction provided by Visiting Professors as compared to 50% in 2012.

Monitoring and Evaluation

This report summarizes the data collection and analyses conducted in 2013 by the internal and external evaluation teams. The Evaluation Center team also facilitated sessions to build the

evaluation capacity of HEALZ Scholars during workshops in March, July, and October 2013 and conducted workshops to build the evaluation capacity of program administrators. Both teams participated in professional development at the American Evaluation Association national conference.

Program Impact

Again in 2013, students reported the major impact of the MEPI programs was improvements to technology resources. Faculty survey respondents indicated the greatest impact of NECTAR to date was the development of their skills as educators, the same as in 2012. Undergraduate student enrollment in the medical school continued to be higher than before the NECTAR grant. While fewer new students were admitted in 2013 (n = 214) than in 2012 (n = 286), admission rates were more than double the new admissions in 2009 (n = 94). In January 2014, there were more MMeds (n=176) enrolled than in the two previous years. The medical school graduation rate increased from 66% in 2012 to 88% in 2013. 76% of faculty survey respondents reported they believed students were “prepared” or “very well prepared” to practice medicine at the completion of their undergraduate degree programs, an increase from 2012 when 71% reported students were prepared. On the 2013 survey, 68% of undergraduate students reported they planned to practice medicine in Zimbabwe, an increase from 53% in 2011 and 61% in 2012. In 2010, the baseline number of faculty at UZCHS was 128; as of December 2013, the roster showed 188 faculty members, an increase of 47%. The total number of registered medical practitioners in Zimbabwe increased by 321 individuals from 2011 to 2013 (a 16% increase).

Introduction

In September 2010, the University of Zimbabwe College of Health Sciences (UZCHS) was awarded three grants funded by the Medical Education Partnership Initiative (MEPI) through the Fogarty International Center at the National Institutes of Health (NIH).

The primary grant program is:

- Novel Education Clinical Trainees and Researchers (NECTAR)

The two linked award programs are:

- Cerebrovascular, Heart Failure, Rheumatic Heart Disease Interventions Strategies (CHRIS)
- Improving Mental Health Education and Research in Zimbabwe (IMHERZ)

The five-year grants are scheduled to conclude in August 2015. In June 2013, NIH also awarded UZCHS a supplemental one-year grant -- the Zimbabwe Initiative on Research and Innovation Management (ZIRIM).

As indicated in the NECTAR/CHRIS/IMHERZ mission statement, the programs' goals are to transform medical education in Zimbabwe. (Please see the complete mission statement in Appendix A.)

Specifically, the program is intended to address three priorities, which align with the goals of MEPI:

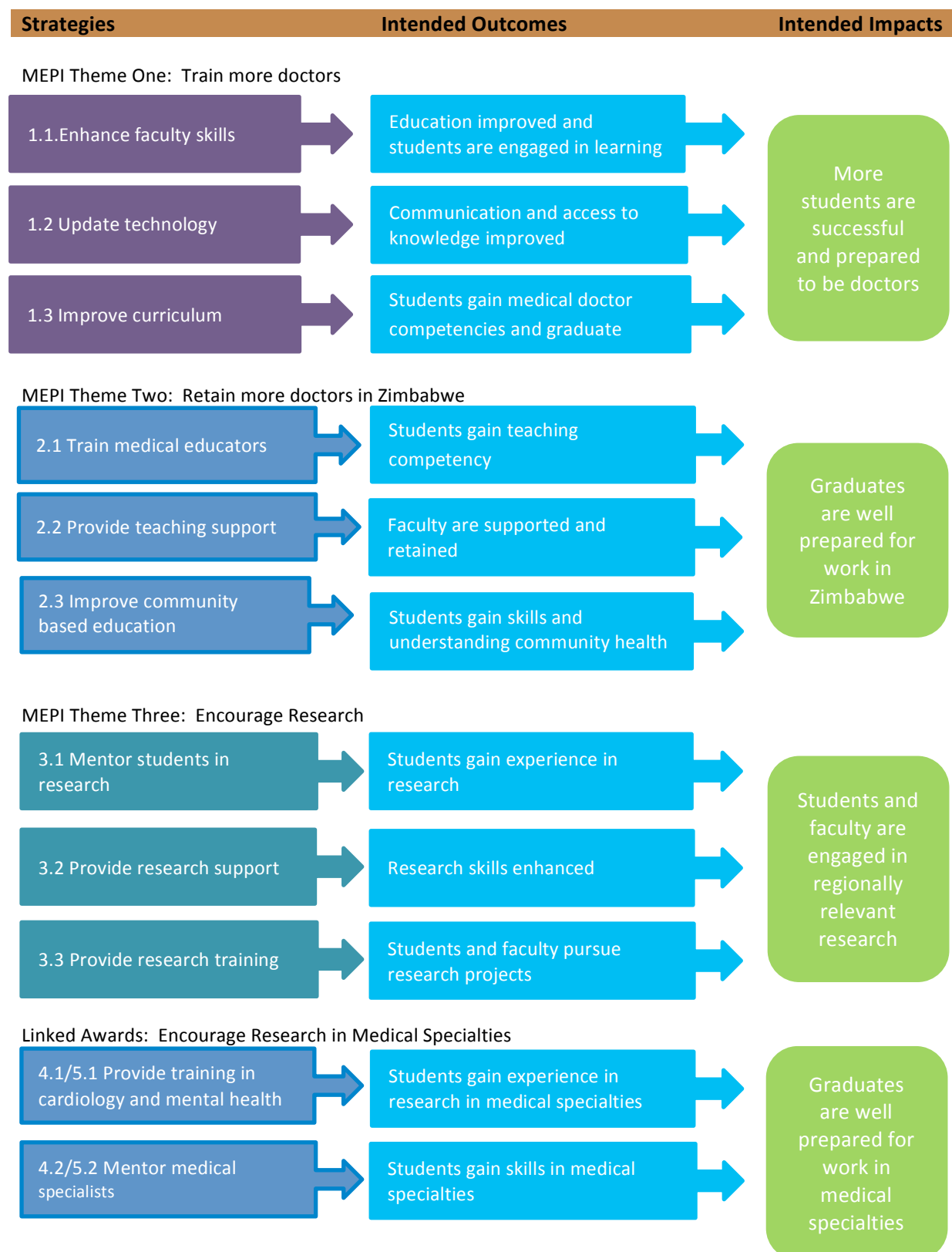
1. Increase the number of medical students completing training at the University of Zimbabwe College of Health Sciences (UZCHS) to become doctors with expertise in local healthcare priorities;
2. Support and empower both new graduates and current faculty of UZCHS so that they are well prepared to remain in Zimbabwe to practice, to conduct research, and to teach future generations of doctors; and
3. Develop researcher capacity to address the priority healthcare needs of the region.

Partner institutions are: University of Cape Town (UCT), University of Colorado Denver (UCD), University College London, King's College London, Bristol University, and Stanford University.

The Evaluation Center at UCD was contracted to provide external evaluation services. This report summarizes evaluation results from the calendar year January to December 2013. (Note: the grant year is September - August). Previous reports summarized evaluation results for 2011 and 2012. (Please see summaries of these reports in Appendices B and C.)

In May 2011, a comprehensive logic model was developed to reflect NECTAR/CHRIS/IMHERZ goals, activities, and measurable outcomes organized by MEPI goals. (Please see an overview of the logic model in Exhibit 1. The complete updated logic model as submitted to MEPI in May 2013 is presented in Appendix D.) The logic model refers to "medical doctor competencies" in the outcomes for Strategy 1.3. The NECTAR Cross Cutting Academic Committee developed these competencies tailored for UZCHS at the beginning of the grant award period. (Please see the medical doctor competencies in Appendix E.)

Exhibit 1: Logic Model Overview



Progress toward MEPI Indicators

Since the grant awards, NECTAR/CHRIS/IMHERZ programs have benefitted from the support received from MEPI including Coordinating Center visits and interaction with other MEPI grant recipient institutions through the technical working groups and at the annual symposiums:

- 2011- Johannesburg, South Africa
- 2012 – Addis Abba, Ethiopia
- 2013 – Kampala, Uganda

Each year a progress report is submitted to MEPI, which includes a summary of the data collected for the indicators of success described in logic model. In May 2013, progress was reported for the end of Year 3 of the grants as shown in Exhibits 2, 3, and 4. Because many of the target goals had been exceeded by year 3, targets were adjusted as summarized in Exhibit 6.

Exhibit 2: Progress toward MEPI Targets - Theme One

Strategy	Indicator	Year 3 (July 2013)		Year 5 Target (July 2015)	Year 3 Progress Summary	
		Target	Actual			
1.1 Enhance faculty skills	% Faculty participating in workshops	50%	73%	80%	Exceeded	↑
	# Faculty completing advanced faculty development	10	16	30	Exceeded	↑
	# UZCHS faculty facilitating workshops	3	4	6	Exceeded	↑
	% Faculty reporting satisfaction with training	90%	92%	90%	Exceeded	↑
1.2 Employ modern technologies	Upgrades to IT infrastructure	Observational data			On track	●
	% Faculty and students reporting satisfaction with IT improvements	60%	93% of faculty & 65% of students*	80%	Mixed results	▬
1.3 Improve curriculum	# New curricula and assessments	3	2	5	Below	↓
	Average rating of students and faculty of quality of medical preparation	Students 3.5 Faculty 3.0	Students 3.86 Faculty 3.88	Students 3.8 Faculty 3.8	Exceeded	↑
1.0 Train more doctors	# Medical school students enrolled	750	865	875	Exceeded	↑
	# Graduate students (MMeds) enrolled	70	154	160	Exceeded	↑
	# Graduates	160	159	180	On track	●

* Reflects those reporting IT has improved since NECTAR; however, 52% of faculty and 38% of students reported they were satisfied with university IT.

Exhibit 3: Progress toward MEPI Targets - Theme Two









Strategy	Indicator	Year 3 (July 2013)		Year 5 Target (July 2015)	Year 3 Progress Summary	
		Target	Actual			
2.1. Train medical educators (MCSP)	% MMeds participating in MCSP training	55%	49%	60%	Below	
	% MCSP participants reporting usefulness of training	90%	99%	90%	Exceeded	
2.2. Support faculty in teaching	% Faculty accessing Medical Education and Learning Centre resources	30%	30%	50%	On track	
	% Faculty reporting improved self-efficacy in teaching	10%	13%	30%	Exceeded	
2.3. Improve rural attachment programs	# Rural attachment personnel attending workshops	10	7	20	Below	
	% Students reporting rural attachment experiences important to medical preparation	70%	66%	90%	Below	
2.0 Retain more doctors in Zimbabwe	% Medical school and MMeds reporting intent to remain in Zimbabwe	55%	68% medical students; 86% MMeds	75%	Exceeded	
	% Graduates remaining in Zimbabwe in healthcare	50%	NA	70%	Unknown	
	% Faculty (Note: re-defined indicator from initial logic model)	150	155 (21% increase)	170 (33% increase)	Exceeded	

Exhibit 4: Progress toward MEPI Targets - Theme Three






Strategy	Indicator	Year 3 (July 2013)		Year 5 Target (July 2015)	Year 3 Progress Summary	
		Target	Actual			
3.1 Mentor students in research	# MRSP scholars completing research projects	12 projects	15 MRSP Scholars with research in progress	32 projects	On track	
	# Resulting research publications, conference presentations, and grant awards	1 publication 1 conference presentation	No publications or presentations	32 projects 6 publications 5 conference presentations 6 grant awards	Below	
3.2 Provide research support	% Faculty accessing Research Centre resources	30%	70%	50%	Exceeded	
	% Faculty reporting improved self-efficacy in research	10%	4%	30%	Below	
3.3 Provide research training	% Faculty participating in research workshops	40%	56%	60%	Exceeded	

Exhibit 5: Progress toward MEPI Targets - Linked Awards

Strategy	Indicator	Year 3 (July 2013)		Year 5 Target (July 2015)	Year 3 Progress Summary	
		Target	Actual			
4.1 Provide training in cardiology	# Lectures prepared in cardiology related content	5	40	50	Exceeded	↑
	% Students participating in lectures reporting knowledge increases	80%	94%	90%	Exceeded	↑
4.2 Provide mentorship in cardiology research	# CHRIS Scholars completing research projects with cardiovascular themes	3	4 CHRIS Scholars with research in progress	7	On track	●
5.1 Provide training in mental health	# Psychiatry Master Classes conducted	4	3	8	Below	↓
	% Participants in Master Classes reporting knowledge increases	80%	Mean confidence scores increased	80%	On track	●
5.2 Provide mentorship in mental health research	# IMHERZ Scholars completing research projects with mental health themes	2	5 IMHERZ Scholars with research in progress	6	On track	●

Exhibit 6: MEPI Five-Year Target Adjustments

Adjustment	Indicator	Change to Five Year Target
Target goal increased because target goal exceeded	1.0 # of medical students enrolled	Increased from 800 to 875
	1.0 # of MMeds enrolled	Increased from 100 to 180
	1.1 % of faculty participating in workshops	Increased from 70% to 80%
	1.1 # UZCHS faculty facilitating workshops	Increased from 4 to 6
	1.3 Average rating of students and faculty on graduate preparedness to practice general medicine	Increased from an average of 3.2 for faculty rating to 3.8 (on a 5 point scale)
	4.1 # of lectures prepared in cardiology related content	Increased from 10 to 50
	4.1 % of students reporting increases in knowledge in cardiology	Increased from 80% to 90%
Target goal re-defined	2.0 % of faculty retained and # of new faculty hired	Re-defined as # of faculty members and set target of a 33% increase from baseline # of faculty (128 to 170)
Target goal decreased because lower than expected	2.1 % of MMeds participating in MCSP	Decreased from 75% to 60%
Target indicator deleted	1.1 % of students passing exams in revised courses	Exam scores for revised courses not available and therefore indicator deleted

Methods

Evaluators worked collaboratively with NECTAR/CHRIS/IMHERZ leadership, administrators, committees, and UZCHS staff and faculty to collect evidence of the programs' progress during 2013. Specifically, evaluation data were collected using these methods:

1. Annual Surveys

In 2012, surveys were developed and administered to assess outcomes identified in the logic model for three populations: UZCHS faculty, post-graduate students (MMeds), and undergraduate medical students. In 2013, the number of survey items was decreased to reduce the time needed for completion based on feedback from the first year. New items were added to the faculty and student surveys to collect additional information related to program impact on instructional practices. In May- June 2013, surveys were administered for a second year. Faculty and MMed surveys were conducted both online and on paper; students were administered surveys on paper. Responses were received from 55 of 185 faculty members (30%), 16 of 171 MMeds (9%), and 506 of 584 students in Years 2 - 5 (87%). (Please see survey instruments and complete results in Appendix F, G, and H respectively; results for specific items are discussed when relevant throughout this report.)

2. Surveys of Specific Events/Programs

Additional surveys were developed and conducted to assess specific grant-sponsored events or programs. Data from existing surveys administered by UZCHS faculty and program administrators were also analyzed. During 2013, these included:

- Daily exit surveys at faculty development workshops in March, July, and October;
- Workshop exit surveys at Mentored Clinical Scholars Program (MCSP) workshops in March, July, and October;
- Workshop exit surveys for Cohort One Health Education Advanced Leadership Program for Zimbabwe (HEALZ) Scholars in March and for Cohort Two in July and October;
- Surveys of Mentored Research Scholars Program cohort two participants and mentors;
- Surveys of participants in lectures and workshops conducted by Visiting Professors including the Sexually Transmitted Infection workshops held in Mutare and Bulawayo in April;
- Analysis of surveys administered at the Information Retrieval and Online Research Trainings facilitated by the UZCHS librarian; and
- Analyses of daily exit surveys for IMHERZ Master Classes on child psychiatry (February, 2012), forensic psychiatry (May, 2013), and qualitative research (July, 2013).

3. Key Stakeholder Interviews

During October 2013, interviews were conducted with 34 key stakeholders concerning the programs' accomplishments and goals. External evaluators and program administrators collaboratively identified and interviewed stakeholders including:

- MEPI leaders at UZCHS and partner institutions;
- UZCHS faculty (including those not attending NECTAR faculty development) and staff;
- Program participants including MRSP, CHRIS, IMHERZ and HEALZ Scholars; and
- Visiting Professors.

The interview protocols were also developed collaboratively tailoring questions to the interviewee's involvement in programs. (Please see a generic interview protocol in Appendix I.) Interviews were conducted in person and by phone. Evaluator/administrator teams jointly facilitated the interviews conducted at UZCHS. Interviews were recorded, summarized and/or transcribed, and reviewed for themes and key findings related to program accomplishments and goals.

4. Photo Journals

For CHRIS Scholars participating in field experiences to Colorado, evaluators facilitated their preparation of photo journals to provide opportunities for reflection and sharing of what was learned. Key themes were summarized.

5. Institutional Data Summary

UZCHS institutional data were collected to examine the impact of programs on student and faculty recruitment and retention. Data on student enrollment and graduation were collected in collaboration with the UZCHS Deputy Registrar. NECTAR administrators obtained numbers of faculty members. The number of individuals registered to practice in Zimbabwe in 2013 was collected from the Medical and Dental Practitioners Council of Zimbabwe (MDPCZ) and compared to data for 2011 and 2012.

6. Visiting Professor Reports

Since 2011, Visiting Professors were asked to submit a follow-up report on their experiences. In 2013, evaluators began using an online format to increase the ease of reporting. Reports were intended to 1) document the various activities they participated in while at UZCHS and 2) provide any information and/or recommendations to improve the program or better prepare future Visiting Professors. (Please see the revised Visiting Professor Report Form in Appendix J.)

7. Observations and Document Review

In 2013, external evaluators conducted site visits to Zimbabwe in March, July, October, and December. During these visits, grant-sponsored workshops and committee/planning meetings were observed and relevant documents reviewed.

8. Participant Observation

External evaluators also served as participant observers on committees and at the Strategic Planning Retreat to provide an evaluator perspective. They also served as trainers on evaluation-related topics as part of faculty development and HEALZ and conducted workshops for program administrators to build evaluation capacity.

Limitations

While evaluators have attempted to tell the comprehensive story of the unfolding of the NECTAR/CHRIS/IMHERZ programs in this report, it is likely not the full story. In a project as large and complex as this, it is difficult to assure that all activities have been reviewed and all perspectives fully represented. As one strategy to address this limitation, the annual report has been reviewed and edited by program administrators for accuracy and completeness.

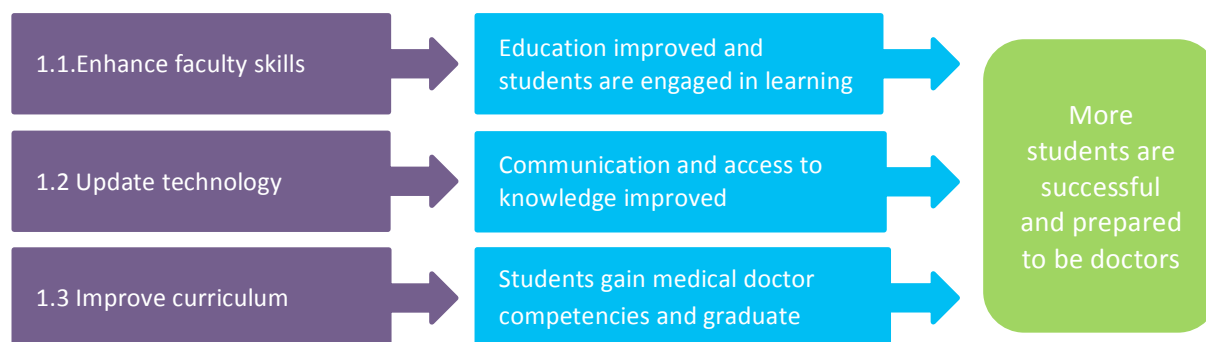
Overview of Report

In this report, a summary of evidence compiled from all data collection methods is presented to describe program accomplishments during 2013. Results are organized by MEPI key themes and program strategies as described in the logic model. In addition, challenges and the next steps in program implementation are described. Additional program components (i.e., Visiting Professors and evaluation) are also discussed. The report concludes with a description of preliminary impact of the programs, as well as stakeholders' recommendations for enhancing sustainability and continuing program improvement.

1.0 MEPI Theme: Increase the number of health care workers trained

To address MEPI theme 1, NECTAR/CHRIS/IMHERZ programs focus on improving the quality of medical education at UZCHS so that students are more likely to be successful and to graduate on time with the necessary competencies, thus increasing the number and quality of health care workers trained. The programs employ three strategies to improve medical education at UZCHS:

Exhibit 7: Strategies and Intended Outcomes for MEPI Theme One



Results for 2013 related to each of these strategies are presented below.

1.1 Enhance Faculty Skills

Core Faculty Development

Accomplishments

A total of eight NECTAR faculty development workshops open to all UZCHS faculty members have been conducted during 2011 - 2013. This represents a total of 63 hours of instruction. Workshops are planned and implemented by the Faculty Development Committee, consisting of UZCHS and partner institution faculty and program administrators. The workshops held in 2013 were intended to build upon the knowledge and skills content of prior workshops. (Please see a summary of prior content in the evaluation reports from 2011 and 2012.) Topics for 2013 are summarized in Exhibit 8.

Exhibit 8: Faculty Development Content 2013, by Workshop

Workshop	Session Content
March	Team based learning
	Writing objectives and MCQs
	Preparing modules
July	Advanced MCQ development
	Competency based curriculum reform
October	Using simulation and standardized patients for teaching and assessment

Five UZCHS faculty members (Drs. Borok, Mangezi, Nathoo, Ndhlovu, and Samkange) have facilitated sessions of the workshops in collaboration with representatives from partner institutions.

As was the case in 2011 and 2012, faculty development workshops continued to be well attended in 2013, as shown in Exhibit 9. The high level of participation and interest in faculty development sessions was viewed as an important success. A total of 139 faculty members have attended one or more workshops, representing 74% of the faculty based on a full-time faculty count of 188. These results are consistent with annual survey responses, which showed 82% of faculty reported attending workshops.

Exhibit 9: Attendance by Workshop

Workshop	# UZCHS Faculty Attendees
July 2011	69
November 2011	31
March 2012	82
August 2012	55
December 2012	65
March 2013	71
July 2013	56
October 2013	51



Despite the high total number of attendees, many faculty members have not attended consistently, as evident in the following numbers. Half of the faculty members were present at one or no sessions.

Exhibit 10: Frequency of Attendance at Core Faculty Development Workshops

Number of faculty who have attended ...	
Eight workshops	8 (4%)
Seven	13 (7%)
Six	11 (6%)
Five	13 (7%)
Four	17 (9%)
Three	13 (7%)
Two	20 (11%)
One	46 (24%)
Zero	49 (26%)

During interviews, faculty members unable to attend workshops consistently indicated their participation was limited by time constraints and multiple responsibilities. While they reported positive impressions of sessions they were able to attend, some questioned the relevance to their work. Several interviewees shared the perspective that faculty development was intended for clinicians, not basic scientists.

Feedback on Core Faculty Development

For all sessions at all workshops, at least 90% of respondents indicated sessions were “helpful,” “relevant,” and they planned to implement what they learned. (Please see a summary of survey results for March, July, and October in Appendices K, L, and M respectively.)

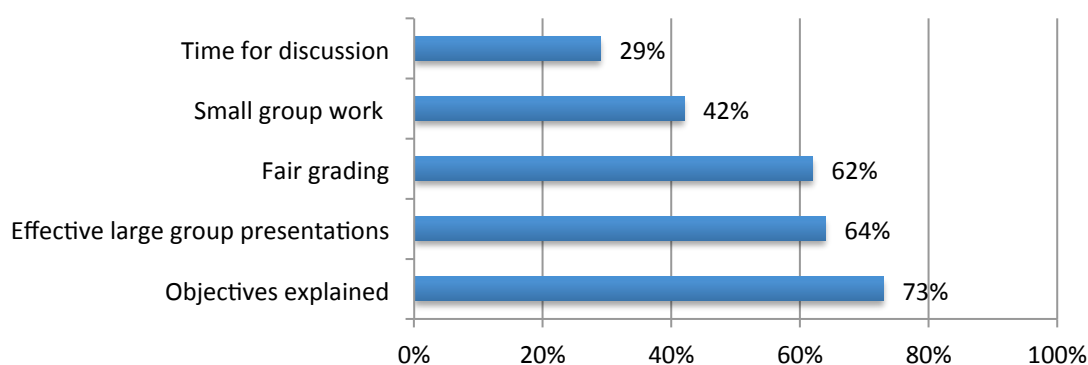
On the 2013 annual survey, 98% of faculty respondents (n = 55) reported core faculty development topics would be useful in improving education at UZCHS; 100% reported they planned to use what they learned. In addition, 67% of respondents rated themselves as “advanced” or “expert” in high quality teaching practices; this was an increase from 50% in 2012. Faculty also showed improvement in their knowledge and skill of effective student assessment; 69% rated themselves as “advanced” or “expert” in 2013, as compared to 53% in 2012.

As an additional way to examine the impact of faculty development on instructional practices, annual survey responses from medical students (n = 506) were reviewed for evidence that faculty were implementing the content of faculty development. Results showed:

- More than three-fourths of students (77%) indicated they understood what they were expected to learn in their courses/clinical experiences;
- 48% of students reported they had enough opportunity to practice skills; and
- Only 21% of students reported receiving regular feedback on performance from faculty (besides exam grades).

Additional student feedback on instructional practices related to the content of faculty development showed a range of implementation as shown in Exhibit 11.

Exhibit 11: Medical Students indicating Practices Occur “More than half the time” or “Always”



Challenges

While core faculty development has been well received, challenges persisted in scheduling to optimize attendance. A long-term plan for ongoing core faculty development focused on building skills and knowledge of key principles has yet to be outlined.

Next Steps

Core faculty development will be transferred to the HPE department, and UZCHS faculty members will assume the responsibility for planning and facilitating the workshops as soon as April 2014.

Advanced Faculty Development

Accomplishments

In 2012, the Faculty Development Committee initiated a program to further enhance faculty member's skills as medical educators, called the Health Education Advanced Leadership Program for Zimbabwe (HEALZ). The program's stated goals, refined in 2013, are to provide participants with the knowledge, attitudes, and skills necessary to successfully:

1. Describe common education theories and principles;
2. Develop and implement a competency-based curriculum or program;
3. Develop and implement reliable & valid learner assessment tools;
4. Rigorously evaluate a curriculum or program; and
5. Turn educational work into scholarly activity.



The long-term goal of HEALZ, as described in the program proposal, is to “develop a community of educators that will lead educational change” at UZCHS. Specifically, the program was developed to enhance educational capacity by developing skills in curriculum development, program evaluation, and educational leadership for faculty interested in pursuing advanced training in medical education. In addition, program leaders sought to build a cohesive community of successful health professions educators. To achieve these goals, HEALZ faculty and curriculum committee members designed a one-year program of rigorous course work delivered face-to-face in three intensive one-week sessions to a select group of faculty leaders. Between sessions, HEALZ Scholars were expected to engage with mentors to conduct a needs assessment and develop, implement, and evaluate a competency-based curriculum.

Exhibit 12 presents HEALZ participation in 2012 and 2013. To date, Scholars represent 20 of the 23 departments within UZCHS (87%); the program's first cohort included five department chairpersons. In Cohort Two, one Scholar is a faculty member at the National University of Science and Technology (NUST) in Bulawayo, Zimbabwe.

Exhibit 12: HEALZ Participation, 2012-2013

Cohort	# Applications	# Scholars selected	# Mentors	# Graduates
One	21	14*	11	14 (100%)
Two	20	14	42	NA – in progress

* In addition, two Faculty Development Committee members audited the pilot program, one a department chairperson.

HEALZ Cohort One Scholars completed the final, face-to-face workshop in March 2013 and presented posters highlighting their curriculum project at a graduation ceremony in October 2013.

The yearlong HEALZ curriculum was refined and improved for Cohort Two as outlined in Exhibit 13.

Exhibit 13: HEALZ Workshop Content – Cohort Two, by Session

Workshop	Date	Session Titles
Module One	July 2013	Orientation & Goal Setting
		Panel: Tips for Success from previous HEALZ Scholars
		Being an Effective Mentee
		Introduction to Learning Theory and Pedagogy
		Principles of Competency-Based Curriculum Development and Evaluation
		Performing a Curricular Needs Assessment
		Survey Development
		Introduction to Qualitative Methods: Data Collection
		Expectations & Working as a Team
Module Two	October 2013	Analyzing Quantitative Data
		Analyzing Qualitative Data
		Learning Theory - Introduction to Learning and Pedagogy
		Writing Goals and Objectives
		Selecting Teaching Strategies
		Learner Assessment Strategies
		Developing an Evaluation Plan
Module Three	February 2014	Meyers-Briggs Personality Type, Leadership and Teamwork
		Conflict Negotiation
		Planning to Evaluate Curriculum
		Strategies for Managing Change
		Expectations for Project Completion and Final Poster Presentation
Graduation	July 2014	Giving Effective Feedback; Critique of a Colleague's Abstract
		Poster Session and Graduation

Graduates of the HEALZ program were increasingly seen as leaders in departmental efforts to develop curriculum, as noted during interviews. One interviewee summarized the high expectations for HEALZ Scholars stating, “We can now ensure that each department is equipped with resource persons with skills and knowledge for curriculum design, innovation, evaluation, teaching methods, and teaching assessment methods.”

In addition to HEALZ, the Faculty Development Committee members continued to support the four UZCHS faculty members participating in advanced training fellowships through the Foundation for the Advancement of International Medical Education and Research (FAIMER). Two FAIMER Fellows completed their projects in 2013 and two in 2012.

Feedback on Advanced Faculty Development

On 2013 workshop exit surveys, HEALZ Scholars from both Cohorts One and Two indicated a high level of satisfaction with the program. (Please see complete results of the March, July, and October 2013 exit surveys in Appendices N, O, and P, respectively.)

All respondents reported they were “satisfied” or “extremely satisfied” with the professional development after each training week in 2012 and 2013. For Cohort One, satisfaction increased over time with 87% of respondents reporting they were “extremely satisfied” following the third week.

Respondents as a group also believed they increased in knowledge and skills. This result is based on analyses of exit surveys, which asked Scholars to self-assess their knowledge and skills using a 5-point scale (1 = “No knowledge,” 2 = “Novice,” 3 = “Some knowledge,” 4 = “Knowledgeable,” 5 = “Expert”). Participants rated their competence both retrospectively (“before this workshop”) and post-workshop (“now”). Differences in the ratings were analyzed using Wilcoxon signed-ranks tests and effect sizes calculated, using results for Cohorts One and Two for the first two weeks and for only Cohort One for week three. The analysis showed statistically significant differences between the pre- and post-scores in all HEALZ content areas, as shown in Exhibit 14.

Exhibit 14: Summary of Pre/Post Changes in HEALZ Content

Module	Key content	N	Number of Survey Respondents Reporting			Z	P	Effect size <i>r</i>
			Positive Change	Negative Change	No Change			
One	Principles of curriculum development	25	21	0	4	4.17	<.000	.83
	Conducting a curriculum needs assessment	25	25	0		4.45	<.000	.89
	Preparing quality surveys	25	24	0	1	4.46	<.000	.89
	Conducting quality interviews	26	23	0	3	4.41	<.000	.87
Two	Analyzing quantitative data	24	18	0	6	3.95	<.000	.81
	Analyzing qualitative data	23	19	0	4	3.94	<.000	.80
	Writing goals and objectives	24	15	0	9	3.54	<.000	.72
	Choosing educational methods	24	21	0	3	4.20	<.000	.80
	Assessing learners	24	14	0	10	3.64	<.000	.74
	Developing plan for curriculum and evaluation	23	19	0	4	3.93	<.000	.82
Three (Cohort One only)	Making meaning from data	16	10	0	6	2.97	.003	.74
	Using data to plan curricula	16	12	0	4	3.13	.002	.78
	Evaluating a curriculum project	16	14	0	2	3.37	.001	.84
	Preparing a publication	16	10	0	6	2.97	.003	.74

Survey respondents also reported gaining competence in leadership and interpersonal skills, such as enhanced communication and improved interactions with colleagues in other disciplines.

Participants' Use of New Knowledge and Skills

HEALZ Scholars provided evidence of their ability to apply new knowledge and skills through posters displayed at their graduation, which summarized their curriculum development work to date. Three observers rated each poster using a 5-point rubric (1 = “beginning,” 3 = “developing,” 5 = “proficient”). Average ratings are presented in Exhibit 15. There was considerable variability in project depth, as evident by range of total scores from 9 to 30 out of a possible 30 points. As a group, Scholars displayed higher levels of application in identifying stakeholders and lower levels in the areas of employing an appropriate program evaluation and thoughtfully and cohesively executing their curriculum. Scores for literature review were also low, potentially due to space limitations. Revisions were made to the poster rubric for Cohort Two.

Exhibit 15: Summary of Averaged Poster Ratings by Category, Cohort One

Rubric Category	Average (1-5)
Thorough Review of Literature	3.27
Identified Local Stakeholders	3.76
Employed Appropriate Methods of Curriculum Development	3.70
Based on Appropriate Goals & Objectives	3.61
Employed Appropriate Program Evaluation Strategies	3.18
Thoughtfully and Cohesively Executed	3.36

Please see the list of curriculum topics in development for Cohort One and Two HEALZ Scholars and an update on progress toward implementation in Section 1.3.

Challenges

Cohort One Scholars experienced challenges in developing and implementing their curricula. Some Scholars specifically requested protected time to engage in coursework and develop their curriculum projects. They also requested funding for project expenses and guidance in obtaining human subjects approval.

Efforts were made to address these issues for Cohort Two. Some financial support was added to the program to enable scholars to employ a research assistant. In addition, the committee reviewing human subjects proposals was briefed on the nature of HEALZ projects, which may facilitate the approval process. Additional infrastructure was also provided including more training on working with mentors, assigning Scholars a Cohort One HEALZ scholar as a near peer mentor, and establishing an elected group leader who has been organizing interim group meetings. The issue of protected time for scholars has not yet been addressed.

Next Steps

The second cohort of HEALZ Scholars will present their posters and graduate in July 2014. A third cohort of Scholars will be recruited and begin coursework also in July.

Because the college-wide competency-based curriculum development is still in process at UZCHS, it is not clear how HEALZ graduates will contribute. However, when the Dean established a college-wide curriculum review committee, HEALZ Scholars were identified as important contributors.

During 2013, 14 HEALZ Scholars served on this committee (of 24 members), which has clear potential to shape the curriculum revision efforts.

As with core faculty development, the responsibility to continue the HEALZ program at UZCHS will be transferred to the HPE department. Selected HEALZS graduates are expected to assume the role of trainer for future HEALZ cohorts.

1.2 Update Technology

In 2011 and 2012, an Information Communication Technology (ICT) infrastructure was established. During the first years of the grants activities included:

- Hiring two ICT specialists;
- Providing all students, MMedS, and faculty with Internet access and implementing safety and security standards;
- Setting up an e-learning server and e-resources;
- Establishing a multi-site wireless network; and
- Increasing bandwidth.



Accomplishments

ICT Infrastructure

In 2013, the infrastructure was further expanded through installation of power back up for the core network devices, work on virtual private network (VPN) connections, and the addition of more access points.

As a result of improvements to the ICT infrastructure, system data collected to monitor user activity (e.g., log-in and download information) continued to show increases in 2013. On the annual survey of UZCHS faculty, 87% of respondents (n = 53) reported they believed technology access had improved since the start of the NECTAR grant.

E-Learning Resources

In 2013, progress was made to promote the use of e-learning options for medical education, representing headway toward the goal to “employ modern educational methods and technologies ... into the existing curriculum” (NECTAR grant application). To increase faculty awareness of e-learning resources and training opportunities, ICT specialists have prepared brochures, posters, notices, and a website. The e-resources available include:

- eGranary – digital library
- REDCap – research capture database
- Claroline – learning management system
- SMILE – Stanford Mobile-based Inquiry Learning Environment
- Mayo Clinic Videos – cardiovascular disease lectures
- Stanford Course materials – selected courses
- Khan Academy materials – basic science courses
- UpToDate – bedside clinical consultation

ICT Trainings on E-Resources

ICT specialists conducted trainings for faculty, students, and staff on Claroline; for students on REDCap and SMILE; and for Scholars on REDCap and Google Drive. Over 70 lecturers attended the Claroline trainings, and five completed advanced learning management system training.

UZCHS library staff also continued to conduct trainings on Information Retrieval and Online Research and Health Information Literacy. (Please see the 2013 exit survey results from 40 participants in this course in Appendix Q.) The UZCHS Librarian participated in a field attachment at Stanford University to further build capacity in e-learning.

Challenges

ICT Specialists reported no e-learning courses had been implemented, as of yet, although some course content had been uploaded to the learning management system. They speculate this may be due to the multiple demands on faculty time and the considerable expertise necessary to implement e-learning effectively. E-learning has not been integrated into the curriculum, and leadership has not emerged to guide this integration. There were concerns about the use of unreliable Internet reference materials and under-utilization of the local area network (LAN) resources.

In addition, there continued to be frustrations among faculty and students concerning technology availability. Areas of specific concern were the inability to access e-resources in wards and limited access for students. On annual surveys, the percentage of both students and faculty who were satisfied with technology access declined from 2012 to 2013; faculty satisfaction dropped from 56% to 51%, and medical student satisfaction with technology changed from 47% to 39%. ICT Specialists acknowledged these concerns and point out that bandwidth is finite while demand is high.

Leaders also expressed concerns about the sustainability of technology resources since grant funds are currently the primary source of support.

Next Steps

At the December Strategic Planning retreat, an action plan was developed for ICT to address many of the identified challenges, as shown in Exhibit 16.

Exhibit 16: ICT Action Plan for 2014

Need	Action
Engage faculty	<ul style="list-style-type: none"> • Identify one course for demonstration of Learning Management System • Engage student representatives/Computer Science postgraduate students to create courses online • Develop a training schedule • Conduct a training on e-resource usage • Establish a core ICT working group • Develop an e-learning strategy
Improve use of e-resources	<ul style="list-style-type: none"> • Conduct a training on reputable e-resource selection • Identify local trainees to work with partner institution representatives • Synchronize REDCap and data analysis training • Enable remote access to e-resources • Promote use of LAN e-resources
Plan for sustainability	<ul style="list-style-type: none"> • Integrate existing networks • Negotiate for affordable academic bandwidth
Improve access	<ul style="list-style-type: none"> • Expand access to the wards • Identify support for hospital connectivity • Distribute tablets through Eco-schools program
Measure progress	<ul style="list-style-type: none"> • Develop monitoring and evaluation instruments and indicators • Implement monitoring and evaluation systems

1.3 Improve Curricula***Accomplishments******New Curricula***

In 2011 and 2012, new curricula were developed and implemented at UZCHS in PEPFAR priority areas including the HIV/AIDS lecture series for MMeds, the HIV/AIDS-TB course for 5th year medical students, and the Malaria curriculum (including cases and assessments) for post-graduate students. These curricula were intended as templates for further competency-based curriculum improvement. In 2013, Drs. Golden Fana and Jake Gray submitted an article for publication describing the pilot implementation of the HIV/AIDS-TB course at UZCHS focusing on their use of team-based learning strategies. (Please see the evaluation reports from Years One and Two for more details on this course.)

College-wide Curriculum Review

In 2012, the work of competency-based curriculum development became the responsibility of UZCHS faculty under the direction of the Dean and Deputy Dean. In 2013, a curriculum committee was convened inviting representatives from all 23 UZCHS departments to guide this process; the committee held monthly sessions beginning in July. Their initial work included mapping the current undergraduate curriculum to the framework of the medical doctor competencies (please see the competencies in Appendix E), thus identifying areas of overlap, gaps, and strengths.

The college-wide focus on curriculum development was evident in the annual faculty survey results. In 2013, 70% of faculty respondents reported they have begun to review their curriculum, an

increase from 53% in 2012. More faculty respondents (39%) also indicated their skills in curriculum development were “advanced” or “expert,” an increase from 28% in 2012. As discussed in section 1.1 of this report, NECTAR-sponsored faculty development and HEALZ training may be contributing to the enhanced proficiency of faculty to engage in curriculum review.

Visiting Professors and Curriculum Development

In addition to this college-wide curriculum review process, Visiting Professors continued to contribute updated content, goals and objectives, lecture formats, and assessments and to serve as role models in the delivery of courses and in clinical teaching. In addition to a wide range of clinical instruction and bedside teaching, the following curriculum content areas were included in the Visiting Professors’ lectures at the undergraduate and graduate levels in 2013:

- Tuberculosis
- Critical and respiratory care
- Sexually transmitted infections
- Adult psychiatry
- Orthopedic trauma
- Physiology (ear, gastrointestinal, endocrine)

HEALZ Scholars and Curriculum Development

As part of the completion of the HEALZ program, Scholars are expected to prepare a curriculum based on an assessment of needs at UZCHS. Exhibit X shows the content areas for curriculum for Cohorts One and Two.

Exhibit 17: HEALZ Scholars’ Curriculum Topics

Cohort One	Cohort Two
Forensic psychiatry	Biostatistics
Genetics	Cardiac life support
Minimal access surgery	Child and adolescent mental health
Neonatology	Communication skills
Occupational safety and health	Community occupational therapy
Physiology	Community preventive dentistry
Point of care tests	Ethical professionalism
Primary caregivers of stroke patients	Gastroenterology
Professionalism and ethics	Hypertensive disorders of pregnancy
Reproductive health/disease	Infection prevention and control
Rural field experiences for MMeds	Neonatology
	Neuroscience
	Ophthalmology

As of February 2014, five of the eleven curriculum projects developed by HEALZ Cohort One Scholars were fully or partially implemented. Four Scholars reported they intended to implement their curricula within a year. To increase support for implementation of new curricula, specific modifications were made to the HEALZ program for Cohort Two. (Please see a description of these changes in Section 1.1.)

Challenges

Although progress has been made, the capacity of UZCHS to complete a large-scale curriculum revision remains unclear. Faculty members are developing skills; however, 61% of faculty survey respondents indicated their ability in curriculum development was “basic.” Continued faculty development to increase understanding of a competency-based curriculum may be warranted to build this capacity. While not all faculty members need to become curriculum experts, it is essential to have a core group of faculty, representative of all departments, who will take ownership of curriculum review and oversee that the “paper” curriculum becomes the “experienced” curriculum.

According to interviewees, not all UZCHS departments were participating fully in the college-wide curriculum committee, and a defined procedure for curriculum approval had yet to be developed. It is also unclear how the contributions of Visiting Professors and HEALZ Scholars will be integrated into the college-wide curriculum review.

Additional challenges and needs identified at the December Strategic Planning retreat included seeking feedback on existing curricula from key stakeholders (e.g., students, alumni), completing the process of mapping the current undergraduate curriculum, identifying how curricular gaps will be remediated and changes implemented, and communicating the progress of curriculum revision to stakeholders.

Next Steps

Courses developed as model curricula will be continued. In 2014, Visiting Professors will continue to contribute content and pedagogy for competency-based curriculum development, and HEALZ Scholars will work to implement their curriculum projects.

At the December Strategic Planning retreat, the next steps for the college-wide curriculum review were outlined to respond to the stated needs as shown in Exhibit 18.

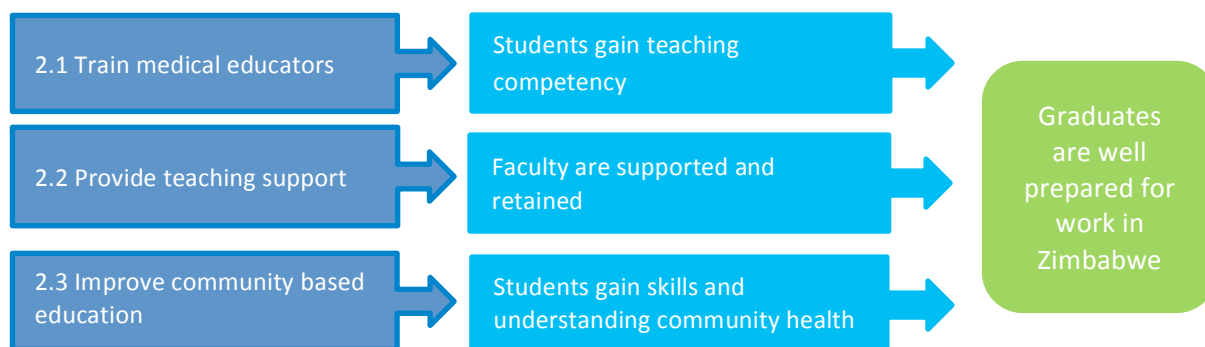
Exhibit 18: Action Plan for Competency-Based Curriculum Review for 2014

Need	Action
Collect feedback from students and alumni on their level of preparedness in the medical doctor competencies	<ul style="list-style-type: none">• Develop the survey instrument• Administer surveys to students (as part of the NECTAR annual survey) and to junior doctors• Analyze survey results and use to inform the curriculum revision process
Develop a draft competency-based curriculum	<ul style="list-style-type: none">• Match documents from departments to competencies• Identify curriculum gaps, overlaps, and strengths• Identify how new content will be added to the curriculum to address gaps and modify the curriculum accordingly
Share the draft competency-based curriculum and get feedback	<ul style="list-style-type: none">• Identify key stakeholder groups• Communicate with stakeholders• Conduct curriculum review meetings to collect feedback from stakeholders
Finalize the UZCHS curriculum document	<ul style="list-style-type: none">• Engage all departments in the curriculum development and review process• Integrate all stakeholder input and gap analyses results into a final document

2.0 MEPI Key Theme: Retaining health care workers

To address MEPI theme 2, NECTAR/CHRIS/IMHERZ programs focus on improving medical education at UZCHS so that graduates are well prepared to address local health care priorities and, therefore, are retained in Zimbabwe as clinicians and medical educators. The programs employ three strategies to achieve these outcomes:

Exhibit 19: Strategies and Intended Outcomes for MEPI Theme 2



Results related to each of these strategies are presented below.

2.1 Train Medical Educators

Accomplishments

The Mentored Clinical Scholars Program (MCSP) was established to train post-graduate students (MMeds) in clinical knowledge and skills; particularly skills needed in their roles as medical educators.

The MCSP Committee, consisting of UZCHS and partner institution faculty and program administrators, planned and implemented three workshops in 2013, building on the three workshops conducted in 2012. Each four-day workshop included 1.75 hours of instruction per day, a total of 42 hours of instruction during the first two years of the program. The workshops were open to all UZCHS MMeds. In 2013, four UZCHS faculty members, five partner institution faculty members, and one member of the local community facilitated MCSP workshops.



According to MCSP leaders, the content of the six workshops already implemented will form a two-year curriculum for the program. Topics included in these six workshops are presented in Exhibit 20.

Exhibit 20: MCSP Workshop Content 2012-2013

Workshop	Session Titles
Session 1 March 2012	Learning styles
	Professional ethics
	Team management
	Assessment and feedback
Session 2 August 2012	Stress management and life skills
	Self-directed learning
	Formal presentations
Session 3 December 2012	Standardization and principles of teaching procedures
	End of life care, death and dying
	Evidence-based medical decision making
Session 4 March 2013	Physician/Surgeon self-care
	Understanding and communicating prognosis
	Understanding caregiver needs, grief, and bereavement
Session 5 July 2013	Evidence-based practice
	Library search skills
	Critical appraisal
	Myers-Briggs and personality types
Session 6 October 2013	Professional standards and medico-legal system in Zimbabwe
	Informed consent
	Patient safety: Errors in medical-surgical care

Typically, about one-third of all MMedS enrolled at UZCHS attended each session of MCSP. Session 6 (October 2013) was the best-attended workshop thus far: 49 individuals attended including 44 MMedS (31.4% of all MMedS) and five students from other programs (e.g., nursing, clinical pharmacology, and Doctor of Philosophy). Attendance at past MCSP workshops was similar. Exhibit 21 summarizes attendance at the 2013 MCSP workshops.

Exhibit 21: MCSP Workshop Attendance 2013

Session	Attendees	Average number of days attended*
Session 4, March 2013	45	2.81
Session 5, July 2013	30	3.53
Session 6, October 2013	49	3.37

*Among all participants (MMeds and non-MMeds) who attended at least one day

The Department of Medicine has been most represented at MCSP workshops, with 96% of MMeds in Medicine attending Session 5, and 100% attending Session 6. Attendance by department is shown in Exhibit 22. However, there was increased participation among MMeds from other departments at Session 6, with at least one MMed from ten of eleven departments in attendance. This increased involvement may have resulted from efforts by program administrators to recruit participants from departments not involved in previous workshops. One interviewee noted that increased involvement by all departments seemed to be valued by leaders at UZCHS, but wondered whether MMeds from all departments found the training valuable

Exhibit 22: Department representation at MCSP Workshops in July 2013 and October 2013

Program	Total MMed enrollment (As of May 2013)	Number attending and % of MMeds enrolled in the department	
		Session 5 July 2013	Session 6 Oct 2013
M. Med. (Medicine, MDMD)	25	24 (96.0%)	25 (100.0%)
M. Med (Anaesthetics, MAD)	19	0	5 (26.3%)
M. Med (Obstetrics and Gynaecology, MOG)	34	1 (2.9%)	3 (8.8%)
M. Med (Surgery, MSG)	22	0	3 (13.6%)
M. Med (Histopathology, MDHP)	4	0	2 (50.0%)
M. Med (Paediatrics, MPD)	7	0	2 (28.6%)
M. Med (Psychiatry, MPZ)	5	0	1 (20.0%)
M Med (Ophthalmology, MOP)	5	0	1 (20.0%)
M. Med (Neurosurgery, MNSG)	7	0	1 (14.3%)
M. Med (Urology, MUG)	5	0	1 (20.0%)
M. Med (Radiotherapy & Oncology, MRO)	7	0	0
Other UZCHS programs		5	5
Total	140	30	49

Feedback on MCSP

Exit survey data from MCSP participants has been consistently positive. At all workshops in 2013, at least 85% of respondents indicated sessions were helpful, and at least 90% reported they planned to use what they learned. Respondents for all three sessions reported they had “some” or “moderate confidence” in the skills presented by the end of the session. (Please see complete exit survey results for Sessions 4, 5, and 6 in Appendices R, S, and T, respectively.)

In interviews, faculty were positive about the MCSP program. One interviewee said MMeds were happy with MCSP and another said that s/he had observed MMeds were now seeking information

independently, rather than relying on faculty for information, as had occurred in the past. This was attributed to MMeds' involvement in MCSP.

In a focus group, two MMeds said the content presented in MCSP was new to them and indicated the content related to end of life care (Session 3) had been particularly valuable. These same two MMeds also felt they improved their communication with students because of MCSP and other NECTAR-related programs.

Point of Care Training

Additional training was provided to MMeds in Medicine on point of care testing which included procedures for performing and interpreting tests and safe laboratory practices. A total of 22 hours of instruction was provided between September 2012 and August 2013.

Challenges

While attendance at MCSP workshops is voluntary, program leaders reported they viewed the low attendance as the primary challenge of MCSP. Another challenge has been involving UZCHS faculty members in facilitating MCSP sessions and eventually becoming leaders in the program. Despite the many competing demands on faculty time, four UZCHS faculty members facilitated sessions during 2013.

Next Steps

The existing two-year MCSP curriculum will be refined and improved as it is implemented for a second time. MCSP leaders also plan to prepare a publication about the curriculum.

MCSP committee members have discussed the option of training a selected cohort of MCSP Scholars in a more intensive way through field attachments at partner institutions, although it has not yet been determined whether this will occur during the current five-year grant.

The MCSP program will be transferred to the HPE department gradually, and UZCHS faculty members will assume further responsibility for planning and facilitating the workshops.

2.2 Provide Teaching Support

Accomplishments

In February 2013, the Vice Chancellor of the University of Zimbabwe established the department of Health Professions Education (HPE) at UZCHS. This represented major headway toward providing ongoing and sustainable support for teaching. The department's mission is to promote professionalism and excellence in health professions education. Dr. Farai Madzimbamuto was selected as the department chairperson. Office space was allocated and additional hiring for academic and clerical staff was in progress. The long-term goals for the HPE department include providing postgraduate training in health professions education leading to the award of Masters and doctorate (DPhil) degrees.

Interviewees credited the success of NECTAR faculty development as a catalyst to the establishment of the HPE department. From 2011 - 2013, the Medical Education Learning Center (MELC) coordinator has served a vital role in the implementation of core faculty development, HEALZ workshops, MCSP trainings, and the Training of Trainer workshop. This role included participating on the programs' committees, publicizing and communicating about the programs, managing the logistical arrangements, implementing evaluation activities, and preparing reports. In addition, the coordinator has supported training through the UZCHS library on the use of e-learning resources and networked to expand faculty development to other medical training institutions in Sub-Saharan Africa. These activities have been conducted under the auspices of the MEPI grant programs, but they will now begin the gradual transition of these responsibilities to the HPE department.

Challenges

The roadmap for the transition from the grant-supported MELC to the department of HPE is still unclear and will likely continue to be refined during the remaining grant period. It can be anticipated that challenges will arise during this transition period specifically as communication patterns change, goals and roles shift, and as new practices and policies are established.

Next steps

At the Training of Trainer workshop conducted in February 2014, participants outlined a preliminary structure for the HPE department as follows:

- Department Chairperson
- Executive Board (comprised of all participants in the Training of Trainer workshop)
- Work groups:
 1. Faculty Development (including core Faculty Development and MCSP)
 2. Advanced Faculty Development (HEALZ)
 3. Mentoring/Career Development
 4. Peer Review and Evaluation

Plans were made to convene the Executive Board as soon as possible. (Note: While the Training of Trainer workshop did not occur during the report year of 2013, it is included here to contribute to the understanding of the next steps needed in supporting teaching faculty at UZCHS.)

2.3 Improve Community Based Education

Accomplishments

During 2013, a leader from a partner institution (UCD) was identified to support the improvement of Community Based Education (CBE) at UZCHS. Dr. Steve Johnson began work in May by visiting the two hospitals selected as demonstration sites, Howard and Murehwa, to identify the needs of the medical staff and see the facilities. Dr. Johnson also visited established CBE programs in Durban, South Africa, another MEPI grant site. Program leaders also sought to identify a UZCHS faculty member who would guide the process of improving CBE field experiences; by the end of the year, this responsibility had not been assigned.

Some enhancements to the CBE infrastructure occurred in 2013, sponsored by MEPI and other grant funds, including improvements to the student/faculty housing facilities at the demonstration sites.

UZCHS students continued to participate in CBE as part of their educational program. On the 2013 annual survey, 68% of medical student respondents reported rural attachment experiences supported their classroom learning; 64% reported they understood rural attachment expectations. On a survey of 18 third year students following their return from a field experience, 100% said the attachment was “somewhat” or “very important” to their preparation as doctors. (Please see complete survey results in Appendix U.)

Challenges

In addition to identifying a UZCHS faculty member to lead the CBE improvements, specific needs were identified at the December Strategic Planning retreat including:

- Updating the CBE undergraduate curriculum to be competency-based with measurable objectives and assessments;
- Improving mentoring and supervision skills for CBE supervisors (both district medical officers and faculty);
- Evaluating student outcomes and program implementation; and
- Establishing an Internet infrastructure at the attachment sites.

I think they should have a plan on what should be done in the three weeks and set clear objectives because without, it's more of a holiday than a learning experience.

--Third Year Student returning from field attachment
October 2013

Truthfully speaking, it all goes back to the number of doctors found at district hospitals. Medical students need people who guide them in hospitals, but most of the time they are left to run the hospital at third year level. If only there were more qualified doctors who would guide us and demonstrate to us.

--Third Year Student returning from field attachment
October 2013

Next Steps

At the December Strategic Planning retreat, the next steps for CBE improvements were outlined to respond to the stated needs as shown in Exhibit 23.

Exhibit 23: Action Plan for Community Based Education for 2014

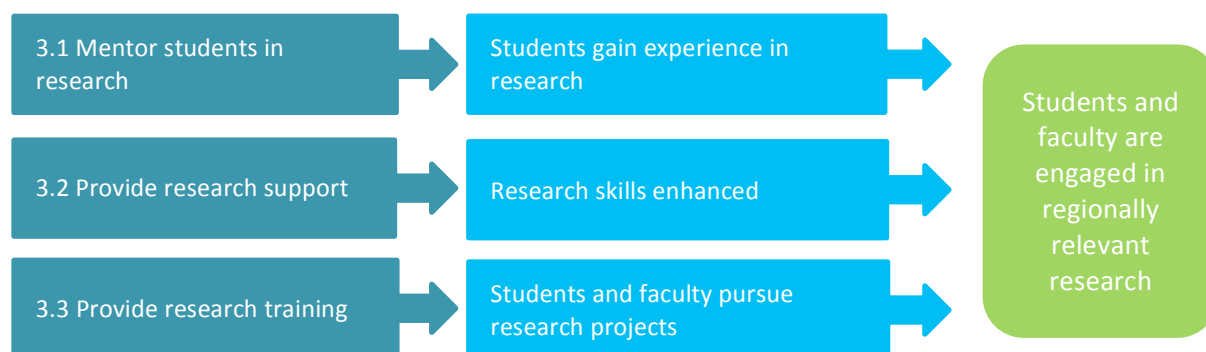
Need	Action
CBE Faculty leader	<ul style="list-style-type: none"> • Appoint a UZCHS faculty member to lead improvements • Establish a CBE Committee
CBE curriculum revision	<ul style="list-style-type: none"> • Review curriculum, develop measurable objectives and student assessments
Quality mentoring and supervision of students while at CBE sites	<ul style="list-style-type: none"> • Organize training for district medical officers and faculty on mentoring and supervision best practices
Data on student outcomes and quality of program implementation	<ul style="list-style-type: none"> • Develop evaluation and monitoring indicators and systems for data collection
Internet infrastructure	<ul style="list-style-type: none"> • Install computers and secure tablets • Establish Internet connections

Other next steps discussed at the December retreat included the development of telehealth capabilities at the CBE sites and the inauguration of field experiences for MMeds.

3.0 MEPI Key Theme: Invest in regionally relevant research

To address MEPI theme 3, NECTAR/CHRIS/IMHERZ programs focus on improving the research environment at UZCHS by employing three strategies; mentoring students in research, providing research support, and providing research training, as shown in Exhibit 24.

Exhibit 24: Strategies and Intended Outcomes for MEPI Theme 3



These strategies are intended to engage students and faculty in research to address regionally relevant health care concerns. It is hoped that a byproduct of this effort will be increased faculty retention as they secure funding to support their research. Results for 2013 related to each of these strategies are presented below. (Please see sections 4.0 and 5.0 for research strategies implemented by the CHRIS and IMHERZ programs.) Section 3.4 summarizes progress related to the ZIRIM supplemental grant.

3.1 Mentor Students in Research

Accomplishments

The Mentored Research Scholars Program (MRSP) was established to provide postgraduate students with research skills through multi-partner mentoring and research funds to support research projects in an area of interest. To date, three cohorts of MRSP Scholars have been selected, paired with mentors, and supported through research seminars and administrative assistance. One MRSP leader described this effort saying, “The success has been to identify talented MMed students who have the potential to develop into future researchers and academic fellows.”

Cohort Three Scholar Progress

The third cohort of 13 MRSP Scholars was selected in September 2013 and matched with internal mentors. One program leader indicated the program had 19 applicants, an increase from previous years. As of December 2013, two new Scholars completed their projects; this was possible because data collection was in process when they were recruited for MRSP. Four new Scholars were collecting data, and seven were seeking departmental approval. One had submitted an abstract to the UZCHS internal committee for review prior to submission to the 2014 International AIDS Conference.

Cohort Two Scholar Progress

The second cohort of seven Scholars was selected in November 2012 and paired with internal mentors; one was also paired with an external mentor. By December 2013, Dr. Akutu Munyika completed his project, which he presented at the College of Surgeons of East, Central and Southern Africa (COSECSA) scientific meeting held from 4-6 December 2013, in Harare. Three Scholars were collecting data, one was analyzing data, one received IRB approval, and one received departmental approval.

Cohort One Scholar Progress

The first cohort of eight Scholars was selected in January 2012 and matched with both internal and external mentors. As of December 2013, four had completed their projects, two were collecting data, two were analyzing data, and none had published; Drs. Sitshengiso Matshalaga and Emmersom Mutetwa presented abstracts of their projects at the University of Zimbabwe College of Health Sciences (UZCHS) Annual Medical Research Day on 19 October 2013. Exhibit 25 summarizes the project completion for the three cohorts of MRSP Scholars.

Exhibit 25: Summary of MRSP Scholar Progress, by Cohort

Cohort	Date Selected	Number of Scholars	Number with completed projects
One	Jan 2012	8	4
Two	Nov 2012	7	1
Three	Sept 2013	13	2

In 2013, the MRSP program hosted three seminars for Scholars on 11 June, 18 July, and 27 August.

MRSP Scholar Feedback

On surveys, Scholars from Cohort Two indicated the MRSP program enabled them to engage in research and increased their interest in research careers; results were consistent with surveys of Cohort One. In October 2013, six of the seven Cohort Two Scholar respondents agreed or strongly agreed they had “engaged in real research” because of their involvement with the program; all seven agreed or strongly agreed they were “more likely to pursue academic research in [their] careers” because of MRSP. (Please see complete results of the Cohort Two Scholar Survey in Appendix V.)

Challenges

The original plan for MRSP in the grant application was to create “mentoring triangles” matching Scholars with both an internal research mentor at UZCHS and an external mentor at a partner institution. However, external mentors assigned to the first cohort were not effectively utilized. Therefore, program leaders agreed it was no longer mandatory to pair Scholars with external mentors in subsequent cohorts. However, Scholars are assigned an external mentor when possible, and efforts are being made to strengthen existing triangles, according to program leaders.

Next Steps

The Scholars will continue to make progress on their research projects. MRSP leaders are encouraging Scholars to prepare completed projects for conference presentations followed by research journal publications. The fourth and final cohort of MRSP Scholars will be selected in March 2014, which will allow time for these Scholars to make progress on the projects before the conclusion of the current grant period.

3.2 Provide Research Support

The Research Support Centre (RSC) is the primary infrastructure providing research assistance to UZCHS faculty, MMeds, and students. The RSC is a joint initiative through NECTAR, the Southern African Consortium for Research Excellence (SACORE), Netherlands-African Partnership for Capacity Development and Clinical Interventions against Poverty-related Diseases (NACCAP 11), and Biomedical Research Administration Capacity Development (BRAD G11).



Construction progress Feb 2014

Accomplishments

Infrastructure

Construction began on a new building for the RSC in October 2013; funding for the building was provided through the NACCAP grant.

Support for Grant Applications

In 2013, the RSC continued to provide support to faculty and postgraduate students in the grant application process. Exhibit 26 presents the outcomes of grant applications from 2012.

Exhibit 26: Outcomes for Grant Applications Supported by the RSC in 2012

GRANT TITLE	FUNDING SOURCE	BUDGET	OUTCOME
Limited Competition: Planning Grant for Fogarty HIV Research Training Program for Low- and Middle-Income Country Institutions (D71) PAR-12-070	FIC NIMH	\$28,000 direct costs per year	Awarded to Africa University
Program for Enhanced Engagement in Research (PEER) – Health	NIH USAID	\$150,000 per year	Not awarded
Human Heredity and Health in Africa (H3Africa): H3Africa Research Grants (U01) RFA-RM-12-007	NHGRI/NIH	\$350,000 total costs per year	Not awarded

In 2013, the RSC supported faculty in submitting applications for three grants and one fellowship, as described in Exhibit 27.

Exhibit 27: Grant and Fellowship Applications Supported by the RSC in 2013

GRANT TITLE	FUNDING SOURCE	BUDGET	OUTCOME
NIH eCapacity (PRICE)	NIH	\$300,000.00	Not awarded (June 2013); to be resubmitted in May 2014
Innovative Libraries in Developing Countries Program	Elsevier Foundation	\$100,000.00	Not awarded (June 2013)
NCI Cancer prevention fellowship program	NCI		Fellowship awarded to a UZCHS faculty member (May 2013)
NIH-Center for AIDS Research	NIH supplementary grant through University of Rochester	\$100,000.00	Awarded to UZCHS a faculty member

In 2013, the RSC also helped preparing two grant applications to be submitted in early 2014, as shown in Exhibit 28.

Exhibit 28: Grants Submissions 2014

GRANT TITLE	FUNDING SOURCE	BUDGET	OUTCOME
PAR-11-274 Advancing the Impact of Effective HIV/AIDS Prevention and Treatment Interventions (R34) – Africa University	NIH	\$450,000.00	Submitted 16 February 2014; Pending
RFA-RM-13-005 Human Heredity and Health in Africa (H3Africa): Ethical, Legal, and Societal Issues (ELSI) Research Program (U01)	NIH	\$150,000.00	To be submitted March 19, 2014

Association of Research Managers of Zimbabwe

The Association of Research Managers of Zimbabwe (ARMZ) was formed in July 2012, held its first planning meeting on 29 April 2013, and will be officially launched on 25 March 2014. The UZCHS RSC Director serves as chairperson for the interim steering committee, which consists of five members. The association goals are to develop the profession of research managers to positively impact the overall research infrastructure in Zimbabwe.

Research Center Needs Assessment

The RSC carried out a needs assessment in August 2013 to gather evidence to direct the development of research support services for faculty; 88 faculty members (56%) completed surveys. (Please see complete survey results in Appendix W.) A program leader said results showed the RSC has a role to play in pre-award and post-award support service provision. Results also highlighted barriers to cultivating a research culture within the college and the need to refine UZCHS research policy. The needs assessment was submitted and accepted for poster presentation at the International Network of Research Management Societies (INORMS) conference to be held from 10-13 April 2014.

Feedback on RSC Services

On annual surveys, 88% of faculty respondents reported using one or more RSC services in 2013; this was an increase for faculty from 54% in 2012. In addition, 88% of faculty using the RSC reported they

were “satisfied” or “very satisfied” with the services and support provided (the same percent as in 2012), and 73% of faculty said they had gained “somewhat” or “a great deal” of additional research skills from accessing the services or trainings provided by the RSC.

Challenges

As the NECTAR grant ends in 2015, some of the current funding sources for the RSC will also end. Efforts are being made to ensure sustainability, such as allying the RSC with other funding sources and constructing a permanent building.

Next Steps

The RSC will continue to provide research support in 2014. The RSC plans to move into the completed building in April 2014, giving the center a more permanent home and presence on the UZCHS campus.

3.3 Provide Research Training

Accomplishments

The NECTAR grant’s primary contribution to research training has been to fund the Friday Lunchtime Research Methods sessions. In 2013, 23 Friday Lunchtime Research Methods courses were held from April to September, as shown in Exhibit 29. For the first time, leaders assessed the learning of MMeds participating in the sessions through an examination held on 27 September 2013, following the last course. Among the 47 MMeds who took the test, 42 passed (89.4%).

Exhibit 29: RSC Friday Research Methodology Schedule 2013

DATE	COURSE	FACILITATOR
19/04/2013	Identifying and prioritizing problems for research National and personal research priorities	Prof Rusakaniko
26/04/2013	Introduction to Biostatistics – Scales of measurements	Prof Rusakaniko
3/05/2013	Health Indicators 1 Define populations, prevalence, incidence Case fatalities: Infant mortality rate, perinatal mortality rate	Prof Nathoo
10/05/2013	Methods of summarizing data: Measures of central tendency and dispersion	Mr V Chikwasha
17/05/2013	Health Indicators 2 Crude and standardized mortality rates Epidemic/pandemic	Prof Matenga
24/05/2013	Principles of normal distributions and its application	Mr G Mandozana
31/05/2013	Research question and hypothesis Formulating research questions and hypothesis	Prof Matenga Prof Rusakaniko
7/06/2013	Research objectives Setting specific and general objectives SMART objectives	Prof Rusakaniko
14/06/2013	Sampling Techniques in Research	Mr V Chikwasha
21/06/2013	Study Variables Defining exposure and risk factor	Prof Nathoo

	Outcome factor	
28/06/2013	Cross sectional survey STROBE	Prof Nathoo
5/07/2013	Sampling distributions and confidence intervals	Mr G Mandozana
12/07/2013	Basic Research Designs Cohort/longitudinal study Case control studies	Dr Mujuru
19/07/2013	Hypothesis testing: One sample test	Prof Rusakaniko
26/07/2013	Hypothesis testing: Two sample tests	Prof Rusakaniko
2/08/2013	Critical literature review 1 Reading scientific journals	Dr C.E Ndhlovu
9/08/2013	Confidence Intervals and their application Single mean and proportion Two population means and proportions Paired data	Prof Rusakaniko Mr V Chikwasha
16/08/2013	Critical literature review 2 Critical appraisal	Dr C.E Ndhlovu
23/08/2013	Analysis of categorical data Chi-square Fisher's exact test	Mr G Mandozana
30/08/2013	Evidence-based clinical practice Definitions of evidence-based medicine Source and grading of evidence	Dr N Ndlovu
06/09/2013	Simple Regression analysis & Correlation	Mr V Chikwasha
13/09/2013	Research Ethics Online ethics course	Prof Rusakaniko Prof Hakim
20/09/2013	Sample size determination	Prof Rusakaniko

The MRSP, CHRIS, and IMHERZ programs also provided research training to Scholars (please see sections 3.1, 4.0, and 5.0, respectively). Additional training was provided in collaboration with partners such as SACORE, BRTI, and the UZCHS library. These trainings included the library's Information Retrieval and Online Research Trainings (please see Section 2.2 and Appendix Q). The RSC collaborated with ICHE and BRTI to host a workshop called "Supervision and mentorship for post-graduate students" on 25-26 March, attended by 30 participants.

Feedback on RSC Training

On exit surveys for Friday Lunchtime Research Methodology sessions, at least 91% of respondents "agreed" or "strongly agreed" they would be able to apply what they learned in the lectures, which were grouped into two topic areas (Basic Biostatistics and Basic Epidemiology), as shown in Exhibit 30. (Please see Appendix W for full survey results).

Exhibit 30: Friday Lunchtime Research Methodology Feedback

<i>"I will be able to apply the knowledge learned"</i>		
Scale	Basic Biostatistics	Basic Epidemiology
Strongly Agree	138 (36.5%)	162 (41.8%)
Agree	205 (54.2%)	197 (50.0%)
Neutral	29 (7.6%)	19 (4.9%)
Disagree	4 (1%)	8 (2%)
Strongly Disagree	2 (.5%)	1 (.25%)
Overall	378	387

On the 2013 annual survey, 84% of faculty respondents said they were "satisfied" or "very satisfied" with the training provided by the RSC, a slight decrease from 2012 when 88% reported satisfaction. A lower percentage of faculty respondents (73%) reported their research skills were enhanced "somewhat" or "a great deal" than in 2012 when 87% reported enhanced skills.

Next Steps

The RSC will continue to hold Friday Lunchtime Research Methodology sessions, workshops, and trainings.

3.4 Develop Research Administration Capacity (ZiRIM)

In June 2012, MEPI awarded UZCHS a supplemental grant, the Zimbabwe Initiative on Research and Innovation Management (ZiRIM), in collaboration with Stanford University and UCD. The purpose of the grant is to strengthen research administration within three Zimbabwean universities: UZCHS, Africa University (AU), and National University of Science and Technology (NUST). The ZiRIM theory of change is shown in Exhibit 31.

Exhibit 31: ZiRIM Theory of Change

Planned Work	Intended Results	
Activities	Short-term Outcomes	Long-term Outcomes
<ul style="list-style-type: none"> • Development of policies and standard operating procedures for: <ul style="list-style-type: none"> ○ Grant submission ○ Grant oversight and compliance monitoring • Development of job descriptions and hiring of grant administration personnel • Training for designated personnel on skills including: <ul style="list-style-type: none"> ○ Identification and dissemination of research grant opportunities ○ Building collaborative research teams ○ Supporting research proposal development ○ Contract negotiation ○ Financial management of grants • Identification and acquisition of software to support grant management and training on implementation 	<p>Policies and procedures are in place to facilitate grant submission and management.</p> <p>Personnel are designated and well-trained to support faculty in grant submission and management.</p> <p>Effective grant monitoring is facilitated by use of the appropriate technology.</p>	<p>Faculty members are competitive in the submission of research grant proposals.</p> <p>Grants are effectively managed to optimize resources for research.</p> <p>Funders view the universities as centers of research integrity.</p>

Accomplishments

Research Management Training and Attachments

Research managers attended workshops and conferences to build research administration capacity during 2013 including:

- The Southern Africa Research and Innovation Management Association (SARIMA) workshop on Internet Protocol management (6-8 March)
- The SARIMA conference (7-10 Oct) in Cape Town;
- An NIH regional seminar (27-28 June);
- The Society for Research Administrators International Conference (26-31 Oct) in New Orleans; and
- A grants management workshop in Rwanda (4 -6 December) 2013.

Four early stage investigators were competitively selected to attend a grant proposal writing workshop called “Successful Grant Proposals,” organized by SARIMA and held in Polokwane, South

Africa from 24-26 April 2013. The workshop provided training on writing competitive grants and an appreciation of the role of research administrators.

In June 2013, one research manager from each of the three institutions traveled to Stanford University for one week to learn about research administration through presentations, site visits, meetings, and practical sessions. In July, a group of research managers and administrators travelled to UCD for another weeklong learning trip.

Five finance officers from the three institutions attended a workshop in Gweru from 20-21 May organized by SARIMA and Midlands State University (MSU). Participants learned about financial and contractual aspects of grant management. As of December 2013, the NUST Bursar was in the process of updating the university's Financial Guidelines Manual based on knowledge acquired during the visit to UCD.

Research Policy Drafted

As of December 2013, comprehensive research policies were adopted by two of the three ZiRIM universities; the UZCHS College Board has approved a policy pending "editorial corrections" and the AU Institutional Board has approved the Research Policy. These research policies were a result of a series of sessions facilitated by the RSC beginning with two workshops for internal managers held 14-15 January 2013 (Bulawayo) and 21-22 February 2013 (Harare), which were attended by 14 research administration managers. The team developed a draft research policy modeled on policies in place at the University of Malawi College of Medicine. Further consultative workshops were held to discuss and finalize a draft research policy at each of the three universities: NUST (May and December), AU (April, October, and November), and UZCHS (October).

Research Administration Curriculum

Workshops were held on 4-5 April 2013 and 12 - 15 November to develop a curriculum outline for a training module to prepare research administrators. The curriculum is being used to develop the module.

ZiRIM Meetings

Additional meetings organized through the ZiRIM grant included the RSC Strategic planning workshop (6-7 Jan), the Introduction to Research Administration and Management Workshop (13-14 March), and the ZiRIM Annual Review Meeting (8 November).

Publication Pending

An article describing ZiRIM was submitted to the *Journal of Academic Medicine* and has been accepted for publication pending revisions.

Progress Check

Evaluators administered a survey to ZiRIM grant leaders during November 2013-February 2014 to assess priorities moving forward. While results indicated some variation among the universities, respondents (n = 8) reported current capacity was highest in "managing finances after receiving funding" and the area most in need of further work was "managing research grant administration using specialized software." A summary of institutional capacity is shown in Exhibit 32. (Please see complete survey results in Appendix Y.)

Exhibit 32: Leader Rating of Research Administration Capacity, Sorted high to low

Area	Mean (Scale 1 = poor, 5 = excellent)
Managing finances after receiving funding	3.75
Preparing reports to funders	3.38
Securing human research approval	3.00
Developing a grant budget	2.88
Identifying and disseminating research grant opportunities	2.88
Submitting grant applications online	2.75
Building collaborative research teams	2.75
Writing the text for a grant application	2.75
Developing a research design	2.63
Preparing a grant for submission (e.g., completing forms, preparing biographies)	2.63
Negotiating contracts	2.25
Managing research grant administration using specialized software	2.13

Challenges

The major challenge for the ZiRIM program is the need to ensure sustainability of the work begun since grant funding was only for one year and is scheduled to conclude in June 2014.

Next Steps

A Grants Management workshop for UZ, UZCHS, AU and NUST is scheduled for May 2014. The team working on the Research Administration module hopes to have completed it by the workshop so they can conduct pre-testing then.

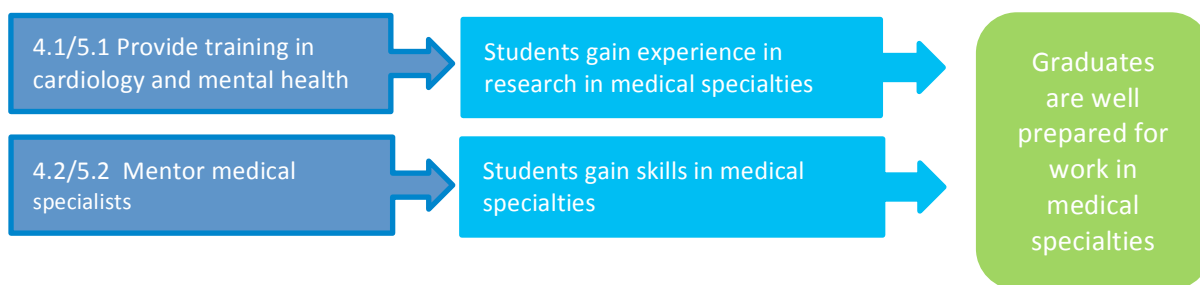
UZCHS and NUST will continue with the process of adopting the new research policies within their institutions. AU will focus on disseminating and implementing their policy, as well as developing additional documents and policies related to research.

ZiRIM funds will be used to furnish offices in the new RSC building being constructed through NACCAP funding. It is anticipated the offices will be in use by April 2014.

Linked Awards - Build Research Capacity and Training in Specialty Areas

To support the MEPI goals, the two Linked Award programs – CHRIS and IMHERZ – focus on improving the research environment at UZCHS and developing skills in medical specialty areas, specifically, cardiology and mental health.

Exhibit 33: Strategies and Intended Outcomes for Linked Awards



In this section, accomplishments, challenges, and next steps are summarized for the NECTAR linked awards.

4.0 CHRIS

Accomplishments

An important shift occurred in 2013 for the CHRIS program to include training and mentoring of Scholars in areas related to cardiology -- diabetes (endocrinology) and pulmonary critical care medicine. This change expanded the pool of those interested in participating as CHRIS Scholars and the selection of the 2013 Scholars.

In 2013, CHRIS Visiting Professors and Scholars worked collaboratively to insert five pacemakers and completed four bronchoscopy procedures. One Visiting Professor noted the improved organization and systems in place at UZCHS to support this work.

A key accomplishment in 2013 was the development and data collection for a cardiovascular disease registry for children with rheumatic heart disease in Harare and Murehwa schools.

CHRIS Scholars also established a specialized cardiac care/stroke treatment unit within the Parirenyatwa Hospital. The unit and training of nurses has allowed patients to receive specific post-stroke care to prevent pneumonia and other complications. The first patient in the unit was admitted 12 November 2013.

CHRIS Scholars Update

In August 2011, the first cohort of 10 CHRIS Scholars was selected, which included MMeds, sonographers, and intercalated students. Seven Scholars participated in a field attachment to UCT and three to UCD in 2012; one Scholar participated in an attachment at the Norfolk and Norwich Hospital (Norwich, England) in 2013. Scholars were in the process of preparing their research theses.

In August 2012, a second cohort of 15 Scholars was selected. Eight Scholars participated in a UCT field attachment, and four Scholars visited UCD in 2013. All Scholars have chosen areas for their research studies.

In August 2013, the third and final cohort of 14 Scholars was selected including four MMeds (two with specialties in Pulmonary Medicine and two in Diabetology), three sonographers; and seven intercalated scholars (five in physiology and two in anatomy).

Scholar Training and Research Mentoring

CHRIS Visiting Professors continued to serve as mentors and role models for the selected Scholars. As of December 2013, 14 Visiting Professors had participated in 21 attachment visits by over three years of the CHRIS program. During these trips, Visiting Professors presented lectures and training in the following areas:

- Echocardiography and electrocardiography;
- Pacemakers and electrophysiology;
- REDcap and development of medical registries;
- Clinical neurology;
- Neonatal resuscitation;
- Cardiovascular physiology, stroke, and rehabilitation;
- Holter indications; and
- Respiratory medicine and bronchoscopy.

CHRIS Scholars are engaged in important cardiovascular research supported by their mentors. One Scholar continued research in peripartum cardiac myopathy and has collected data on multiple patients with this condition more common in Africa than in the United States, making the work of important interest to the field. The Scholar has a clinic established to follow and treat patients with heart failure. Another Scholar presented research findings to the UZCHS Graduate School in December 2013.

Physiology Lecture Series

In 2013, the responsibility for delivering cardiovascular physiology lectures was in the process of shifting to CHRIS Scholars. In 2012, Visiting Professors and one Scholar conducted a series of 16 lectures for preclinical students and 10 lectures for students in year 5. In 2013, lectures have been standardized and slides prepared to support Scholars in their teaching and Scholars have delivered approximately half of the lectures.

Impact on Scholars

In focus groups with CHRIS Scholars (n = 6) in October 2013, participants reported the CHRIS program had increased their awareness of options for their careers. They indicated their experiences had enhanced their understanding of working with peers and other professionals and of new standards of care.

In interviews, one program leader reported CHRIS Scholars who participated in field attachments gained knowledge and attitudes they would likely not have acquired in other ways. Specifically, echo interpretation skills were enhanced through work at UCT and advanced cardiology techniques

at UCD. More importantly, Scholars gained an appreciation for their skills and training when they compared themselves to colleagues in other settings and a willingness to question standard operating procedures.

The CHRIS Scholars participating in the field experience at UCD in 2013 shared key themes from their learning in photo journals at the conclusion of their trip. They reported they learned:

- The importance of infection control procedures;
- The convenience and accuracy of electronic medical records and other technology;
- Diagnostic procedure priorities;
- The importance of engaging in medical research; and
- Interprofessional collaboration, courtesy, and teamwork.



Challenges

Interviewees noted Scholars must present all research work within the university before they are able to publish, which sometimes created time constraints.

CHRIS Scholars expressed concerns about the sustainability of programs and having sufficient personnel to continue the successes initiated within the program once grant funding is concluded.

Next Steps

CHRIS Scholars will continue to be supported in their research and training in 2014, including the expanded training in diabetes and pulmonary medicine. Program leaders plan to support greater self-sufficiency of Scholars in their procedural work, i.e., pacemaker insertion. Scholars are expected to assume full responsibility for the cardiovascular physiology lecture series in 2014.

5.0 IMHERZ

Accomplishments

The Department of Psychiatry continued to increase the number of specially trained personnel to address the critical shortage of mental health care providers. In 2013, the department had two graduates, two students writing for final credentials, three in training, and four in the diploma program. According to one program leader, “We have doubled the number in five years.”

IMHERZ Fellows Update

During 2011-12, six IMHERZ Fellows were selected and in November 2013, three additional Fellows were chosen. The Fellows were matched with local and international mentors. Five Fellows completed field attachments in South Africa, and three have dissertations in progress. Fellows began using a logbook system to record meetings with their mentors and supervisors and to prepare monthly reports.

Fellows were engaged in mental health research projects including a study of methods to reduce depression and improve adherence to antiretroviral therapy in Harare. Another project will involve clinical trials and is set to begin in January 2014. A REDCap case registry is also planned.



Master Classes

IMHERZ has planned and presented ten Master Classes from 2011 to 2013. Visiting Professors provided follow-up training for some workshops.

Exhibit 34: IMHERZ Master Classes 2011-2013

Date	Workshop
Oct 2011	Psychotherapy
Feb 2012	Child Psychiatry
June 2012	Mental Health Epidemiology research methods
Aug 2012	Cognitive Behavioral Therapy
Dec 2012	Self-harm (TBL workshop)
Jan 2013	Griffiths Child Development Scales Training

May 2013	Forensic Psychiatry
July 2013	Qualitative Methods for Health Research
Aug 2013	Randomized Control Trials Research
Oct 2013	HIV Adherence

Master Classes were well attended and received positive feedback from participants. Surveys administered before and after the Child Psychiatry Master Class indicated improvement in participants' confidence in the identified skills. (Please see results of the pre and post-tests in Appendix Z.) Participants were implementing what they learned in the Master Class as evident by the establishment of a clinic where two psychiatrists were seeing children and six individuals registered to use the Griffiths Child Development Scales.

A one-day training for magistrates and prosecutors preceded the Forensic Psychiatry Master Class; the 60 participants helped to identify the priorities for forensic psychiatry in Zimbabwe. The Master Class consisted of a three-day session and was attended by 70 participants. On exit surveys, 89% of respondents rated the Master Class as "good" or "excellent." (Please see a summary of the survey results in Appendix AA.)

At least 95% of survey respondents attending the Qualitative Methods classes "agreed" or "strongly agreed" the sessions were helpful each day of the four-day workshop and reported they planned to use what was learned. (Please see complete survey results in Appendix BB.)

IMHERZ Curriculum

During 2013, the undergraduate Behavioral Sciences curriculum continued to be implemented. The Psychiatry Department participated in the college-wide curriculum review process; HEALZ Scholars continued the development of additional new modules and curricula related to mental health including a module on forensic psychiatry.

Challenges

Interviewees reported challenges persist in delivering mental health services including a large ratio of patients to health care workers and low referral levels to existing services.

Next Steps

Plans for IMHERZ include the preparation of Master Classes in Community Mental Health, Occupational Therapy, and Neuropsychiatry. Program leaders are planning for other ways to address community mental health needs (especially substance abuse) with key stakeholders. Services for children with autism were planned.

Continuing the review and development of the undergraduate curriculum in mental health including updated assessments is scheduled. Post-graduate curriculum will also be developed in other focus areas, i.e., child, community, HIV and substance abuse following the forensic psychiatry model.

IMHERZ leaders also plan to publications related to what has already been achieved

Visiting Professors

Accomplishments

During 2013, a total of 25 faculty members from the University of Colorado Denver, Stanford University, and Kings College London visited UZCHS as Visiting Professors. These individuals provided classroom instruction, bedside teaching, and hands on tutorials. This was fewer than in 2012 when 34 individuals traveled to UZCHS. Other partner institution faculty and staff traveled to UZCHS to help deliver core faculty development, HEALZ, and MCSP programming and to participate in evaluation activities and the December Strategic Planning retreat. (Please see a list all NECTAR/CHRIS/IMHERZ visitors in Appendix CC.)

75 individuals from partner institutions made a total of 128 trips to UZCHS from Jan 2011 to November 2013)

Instruction Provided

Seventeen NECTAR Visiting Professors, residents, and fellows completed post-trip reports. In these reports, 41% of respondents indicated they delivered lectures in existing UZCHS courses, while 71% indicated they engaged in bedside teaching, conducted clinical instruction, and/or hands on tutorials. The total number of hours in each type of instruction reported by respondents is shown in Exhibit 35.

Exhibit 35: Hours of Instruction by NECTAR Visiting Professors

Instruction Type	Total Hours of Instruction Provided
Lectures in existing courses	255
Bedside Teaching	402
Clinical and/or hands on tutorials	253
Lectures in non-classroom setting	112
Total	1022

However, the actual number of hours contributed by Visiting Professors in 2013 is likely much higher than shown above, as reports were submitted by only a subset of Visiting Professors. In addition, professors who visited from non-partner institutions are not included in these totals.

Student Feedback for Visiting Professors

On the 2013 annual student survey, 49% of student respondents (n = 506) indicated they had interacted with VPs “somewhat” or “a great deal”; this represented an increase from 2012 when only 32% had done so. The majority of these students (96%) had attended lectures given by Visiting Professors. In 2013, 69% of respondents indicated they were “satisfied” or “very satisfied” with the instruction provided by Visiting Professors, also an increase from 2012 when 53% of respondents indicated satisfaction.

Participant Feedback for Visiting Professors

In addition to annual survey results, two Visiting Professors elected to use the *Participant Feedback Survey* to collect student feedback on lectures. One of the professors presented seven lectures on different topics over an 11-day period, while the other taught a short-course on gastrointestinal physiology that spanned three weeks. Feedback was also collected from one session of the Sexually

Transmitted Infections (STI) workshop conducted by Visiting Professors. Results for these specific surveys are presented in the sections below.

Based on the number of completed surveys, the lectures on *Septic Shock* and *Pleural Diseases, Asthma/COPD* appear to have been the two best attended, as shown in the number of surveys collected shown in Exhibit 36. It is likely many participants attended more than one lecture.

Exhibit 36: Surveys Collected by Lecture Topic

Lecture Topic	Count
Critical Care Cases	5
CXR Conference	13
Pleural Disease Asthma/COPD	37
Respiratory Cases	11
Respiratory Failure	18
Septic Shock	45
Transfusion	19
Total	148

*One respondent did not indicate the name of the lecture attended

Overall, the lecture series was very highly rated, with 99% of respondents rating the quality of the sessions “good” or “excellent.” Similarly, 96% of respondents agreed the session met their expectations, 99% indicated the session would help them to provide improved patient care, and 95% felt it increased their personal knowledge. A complete summary of the results across all seven sessions is presented in Exhibit 37.

Exhibit 37: Summary of Student Feedback on Visiting Professor Lecture Series

Survey Items	N	Count/%
		“Agree” + “Strongly agree”
The session met my expectations.	142	136/96%
The session was presented in an effective way.	148	141/95%
The content of the session was presented in a knowledgeable way.	148	143/97%
I would recommend a similar session to a peer.	144	136/94%
	N	“Knowledgeable” + “Expert”
What was your level of knowledge about this content BEFORE the session?	148	54/36%
What was your level of knowledge about this content AFTER the session? (now)	148	132/89%
	N	“Good” + “Excellent”
Overall how would you rate the quality of this session?	146	145/99%
How will the content of the session be useful to you? (check all that apply)	N	Selected items
To increase my personal knowledge	148	140/95%
To provide improved patient care	148	146/99%
To provide improved ways of teaching students	148	132/89%
To support my research	148	32/22%
I am unsure of the usefulness	148	1/<1%
Other ways	148	1/<1%

Similar to the lecture series results, the gastrointestinal physiology short-course was very highly rated; 99% of respondents (n = 262) rated the overall quality of the session “good” or “excellent.” Participants also indicated a significant increase in their level of knowledge on the topic at the completion of the course as compared to their level of knowledge prior to the course. Only 6% of participants felt their level of knowledge on the course topic was “knowledgeable” or “expert” before the course, while 97% felt they attained this level of knowledge after completing the course. Complete results from the short-course exit surveys are shown in Exhibit 38 below.

Exhibit 38: Summary of Student Feedback on Visiting Professor Short-Course

Survey Items	N	Count/%
		“Agree” + “Strongly agree”
The session met my expectations.	256	230/90%
The session was presented in an effective way.	260	250/96%
The content of the session was presented in a knowledgeable way.	260	252/97%
I would recommend a similar session to a peer.	256	236/92%
	N	“Knowledgeable” + “Expert”
What was your level of knowledge about this content BEFORE the session?	262	15/6%
What was your level of knowledge about this content AFTER the session? (now)	262	253/97%
	N	“Good” + “Excellent”
Overall how would you rate the quality of this session?	261	99%
How will the content of the session be useful to you? (check all that apply)	N	Selected items
To increase my personal knowledge	262	229/87%
To provide improved patient care	262	201/77%
To provide improved ways of teaching students	262	95/36%
To support my research	262	71/27%
I am unsure of the usefulness	262	8/3%
Other ways	262	27/10%

In April, Visiting Professors conducted STI workshops for medical students, MMeds, junior doctors, and community physicians and nurses in Bulawayo and Mutare. In total, workshop participants submitted 20 completed surveys. All respondents agreed the workshop increased their understanding of STI epidemiology, knowledge of the science and practical applications of sexual health, and knowledge about HIV/STI interactions. Respondents indicated they had increased their knowledge of each of the workshop topics. The most drastic increases were seen in knowledge of HPV infection (+0.74) and vaginal discharge symptoms (+0.70). A complete summary of the responses to the STI workshop survey is shown in Exhibit 39 below.

Exhibit 39: Summary of Feedback on the STI Workshop

What is your opinion of the following statements, based on what you learned in the Sexually Transmitted Infections (STI) Workshop?	N	Count/%	
		“Agree” + “Strongly Agree”	
I increased my understanding of STI epidemiology.	20	20/100%	
I increased my knowledge of the science and practical applications of sexual health.	20	20/100%	
I increased my knowledge about HIV/STI interactions.	20	20/100%	
I understand the current recommendations for and potential benefits of HPV vaccination.	20	20/100%	
What is your opinion of the following statements?	N	“Agree” + “Strongly Agree”	
I learned clinical skills at this workshop that are useful in my medical practice.	19	18/95%	
The topics presented at this workshop are relevant to my work.	19	18/95%	
I am confident that I can apply what I have learned in this workshop to my medical practice.	19	19/100%	
How would you rate your knowledge diagnosing and treating the following conditions...	...BEFORE you participated in the STI Workshop?*	...NOW, after participating in the STI Workshop? *	Change knowledge level
HPV infection	3.32	4.06	+ .74
Vaginal discharge syndromes	3.50	4.20	+ .70
Anogenital warts	3.20	3.85	+ .65
Male urethritis	3.55	4.10	+ .55
Genital ulcer disease	3.60	4.10	+ .50
Pelvic inflammatory disease	3.63	4.05	+ .42
Gonococcal resistance	3.50	4.05	+ .55

*Scale: no knowledge (1), novice (2), some knowledge (3), knowledgeable (4), expert (5)

Faculty and Stakeholder Feedback

On the annual faculty survey (n = 55), 46% of respondents indicated they had interacted with Visiting Professors “somewhat” or “extensively.” Concerning the quality of instruction provided by Visiting Professors, 84% of respondents reported satisfaction. This represents a substantial increase from 2012, when just 50% of faculty respondents reported satisfaction with the quality of instruction provided by Visiting Professors.

Interviewees’ sentiments regarding the Visiting Professor program generally echoed those of survey respondents. Many felt the Visiting Professors had provided helpful expertise, helped in reviewing curriculum, and inspired students to consider pursuing a specialty. Two stakeholders felt the program was running much more smoothly than it had in previous years. Interviewees recommended expanding the Visiting Professor program to include other specialties and making lectures/materials provided by Visiting Professors sustainable by adapting the lessons and teachings into local practice. To address this, one individual stated that his/her department was encouraging UZCHS faculty to utilize the materials Visiting Professors provided.

Visiting Professor Feedback

Most respondents indicated on their post-trip report they were well prepared for their experience in Zimbabwe. The types of preparation differed by individual based on their home institutions; however, many mentioned benefiting from orientation materials received prior to leaving and especially from talking with previous visiting professors.

Almost all visiting professors felt his/her visit had some level of positive impact on the Zimbabwean medical community. Though the specific impacts varied, many felt they had helped to expand the knowledge base. Some respondents were hopeful that new programs and units they were helping to develop would lead to larger impacts once established. A few respondents were more measured in their assessment of the impacts with one individual stating, “The ultimate test [of the impact] will be to see how [disease] is managed in the hospital a year from now...and to see if any of the content I brought to the [course] are still in use a year or two from now.”

Visiting Professors’ goals varied widely, but nearly all respondents felt their goals were met during their visit. Post-trip reports listed the following goals as being accomplished: the opening of a stroke unit, initiation of academic partnerships, and successful delivery of lecture materials. A few individuals shared they did have some difficulty meeting the goals for his/her visit. Most felt this was primarily due to a lack of clarity in the goals prior to the visit.

Respondents provided recommendations for future Visiting Professors including:

- Making sure all goals, roles, and expectations are clear prior to arriving in Zimbabwe;
- Being flexible;
- Keeping an open mind and listening to the need expressed by registrars/students; and
- Being prepared for a shortage of resources yet working within the system.

Challenges

Many of the challenges presented in the past, specifically those related to the scheduling of Visiting Professors seem to have been addressed. However, some individuals still reported there was not clear communication between UZCHS faculty/staff and the Visiting Professors prior to the visit. In some cases, this led to Visiting Professors who had goals misaligned with the goals of the departments they were visiting. Expansion of the Visiting Professor program to departments outside of the department of Medicine continues to be a challenge.

Next Steps

As in previous years, interviewees reported a desire to expand the Visiting Professor program in terms of the number of Visiting Professors and the range of topics presented. Many interviewees also felt more needed to be done to capture the content and knowledge shared by the Visiting Professors for future use by UZCHS faculty.

Monitoring and Evaluation

Accomplishments

In 2013, the evaluation team, consisting of MEPI program administrators led by the Evaluation Coordinator and members of The Evaluation Center at UCD, continued to address the evaluation aims specified in the MEPI grants:

- 1) To provide program leaders with credible data to guide the process of improvement and measure impact, and
- 2) To build evaluation capacity of staff and faculty at UZCHS to continue the work after the grant period concludes.

This report is a summary of the 2013 work of the evaluation team related to the first goal. The comprehensive logic model, developed in 2011 and revised in 2012 and 2013, guides the data collection and analyses processes and is used to report of results to the MEPI Coordinating Center. (Please see the revised logic model in Appendix D and a summary of MEPI progress indicators in the Introduction.)

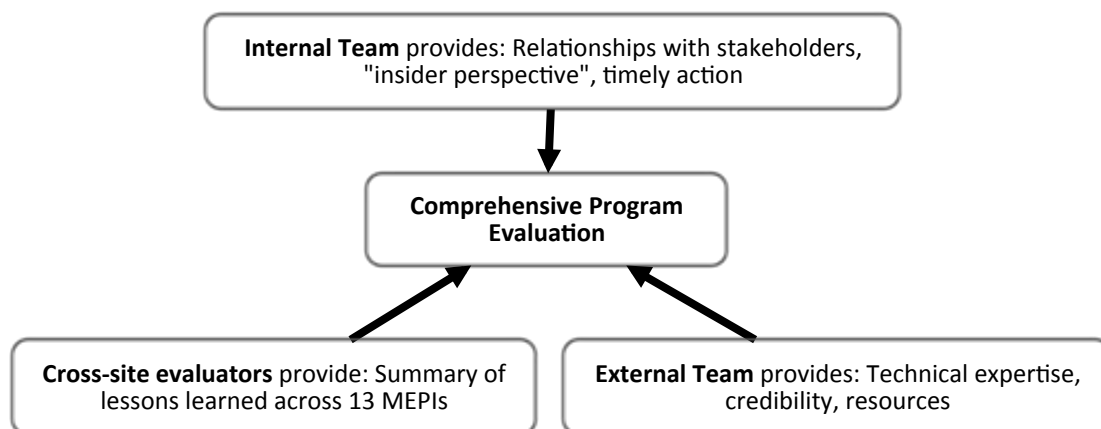
To address the second goal, efforts to build evaluation capacity have included shared work, such as co-facilitating interviews and collaborating on the development of instruments, interpretation of results, and report preparation. In addition, members of The Evaluation Center team conducted two workshops for program administrators in March and July 2013 at UZCHS on the development of evaluation plans, logic model preparation, formative and summative assessments, the roles of internal and external evaluators, and the importance of team work.

The Evaluation Center team also facilitated sessions to build the evaluation capacity of HEALZ Scholars during workshops in March, July, and October 2013. Evaluators assisted Scholars with the knowledge and skills necessary to conduct a needs assessment and to develop an evaluation plan for their curriculum projects during the workshops and mentored Scholars between sessions.

On 17 – 18 October 2013, the evaluation team presented at two sessions of the American Evaluation Association’s annual conference held in Washington, D.C. This organization is an international professional association of evaluators with approximately 7,700 members from over 60 countries.

The first presentation was a 90 minute panel discussion entitled, “An Internal, External, and Cross-site Evaluation: A Case Study at the University of Zimbabwe College of Health Sciences.” NECTAR program administrators described their work as internal evaluators – part of their role as program administrators. External evaluators from UCD shared the perspective of the external evaluation team. Dr. Candace Chen from George Washington University described the role of cross-site evaluation being conducted by MEPI. During the panel, each group shared their unique role in providing a comprehensive evaluation for the NECTAR programs, as summarized in Exhibit 40.

Exhibit 40: Three-tiered Evaluation Design



The challenges and benefits to having a multi-tiered evaluation were described and discussed with the audience of experienced evaluators.

A second presentation at the conference a scholarly paper entitled, “Applying the Multidisciplinary Model of Evaluation Capacity Building: A Case Study of the Medical Education Partnership Initiative Monitoring and Evaluation Processes in Zimbabwe.” The paper describes the work of the local evaluation team to increase the organizational evaluation capacity.

Members of the evaluation team also participated in professional development workshops and attended sessions during the conference.

Next Steps

The internal and external evaluation teams will continue to work collaboratively to provide information to program leaders to guide improvement and assess program impact in 2014. Members of The Evaluation Center team will continue to build faculty capacity to engage in evaluation through the HEALZ program. The evaluation team will support the proposed working group within the HPE department related to peer review and evaluation.

Two proposals for presentation at the American Evaluation Association’s national conference in October 2014 are also planned. Journal articles resulting from the 2013 presentations are in progress.

Program Impact

In this section, an overview of the progress of the MEPI Zimbabwe programs is presented including the perceptions of key stakeholders and data related to the MEPI goals. Stakeholder suggestions for promoting the sustainability of progress begun and for program improvement are also summarized.

Key Accomplishments in 2013

Similar to 2012, interviewees tended to see key accomplishments related to the work in which they were engaged. Specific areas identified where progress was evident were:

- Increased number of MMed applicants/placements and more students applying for advanced degrees;
- Increased number of faculty including returning faculty and alumni and UZCHS post-graduates joining faculty;
- Retention of medical students and MMeds;
- Improvements to ICT and e-learning resources;
- Number of faculty engaged in professional development and the number of HEALZ Scholars prepared;
- The establishment of the HPE department including a Simulation Lab;
- Initiation of a comprehensive curriculum review;
- Construction of the Research Support Center building;
- Improved research administration capacity;
- Quality research being conducted by students and increasing interest in research careers;
- Contributions from the Visiting Professors;
- Support from the Vice Chancellor and the Ministry of Health and Child Care and the Ministry of Higher and Tertiary Education; and
- Establishment of the medical school at NUST in Bulawayo.

Again in 2013, the major impact noted by students on the annual surveys was improvements to technology resources. Faculty survey respondents indicated the greatest impact of NECTAR to date has been to the development of their skills as educators, the same as in 2012. Sample faculty comments related to improved teaching included:

Taught me other ways of making teaching exciting for me and interesting for the students. It also improved the way I assess students.

I gained confidence and [ability] to use a variety of ways to teach. Can give students homework using e-learning facilities.

Other faculty respondents noted personal benefits received from the NECTAR program, as evident in these comments:

Confidence, pride and self-respect, feelings of being a professional and having the ability to offer admirable service

Has helped to redefine my place in the College of Health - have reasons to keep working here

Program Impact

Student Enrollment

Undergraduate student enrollment in the medical school continued to be higher than before the NECTAR grant, as shown in Exhibit 41. While fewer new students were admitted in 2013 ($n = 214$) than in 2012 ($n = 286$), admission rates were more than double the new admissions in 2009 ($n = 94$). In January 2014, there were more MMed ($n = 176$) enrolled than in the two previous years.

Exhibit 41: Medical School and MMed Enrollment

	2009-2010 Before NECTAR	2010-2011 NECTAR Year One	2011-2012 NECTAR Year Two	2012-2013 NECTAR Year Three	2013-2014 NECTAR Year Four
Medical School					
# of Students Admitted	94	126	205	286	214
Total # of Students	755	725	758	865	918
	2010	2011	2012	2013	2014
MMed					
# of MMeds Admitted	--	61	95	84	64
Total # of MMeds			154	140	176

Note: Enrollment numbers collected in August for Medical School students and in January for MMeds.

Graduation Rates

The number and percentage of students graduating increased in 2013, as shown in Exhibit 42.

Exhibit 42: Number and Percentage of Medical School Graduates

	2010	2011	2012	2013
Number of Graduates	159	154	143	172
Percentage of incoming class (5 years prior)	85%	75%	66%	88%

Quality of Preparation of UZCHS Graduates

Faculty perception of how well prepared UZCHS graduates are to practice medicine continued to improve in 2013. 76% of faculty survey respondents reported they believed students were “prepared” or “very well prepared” to practice medicine at the completion of their undergraduate degree programs; this represents an increase from 2012 when 71% reported students were prepared.

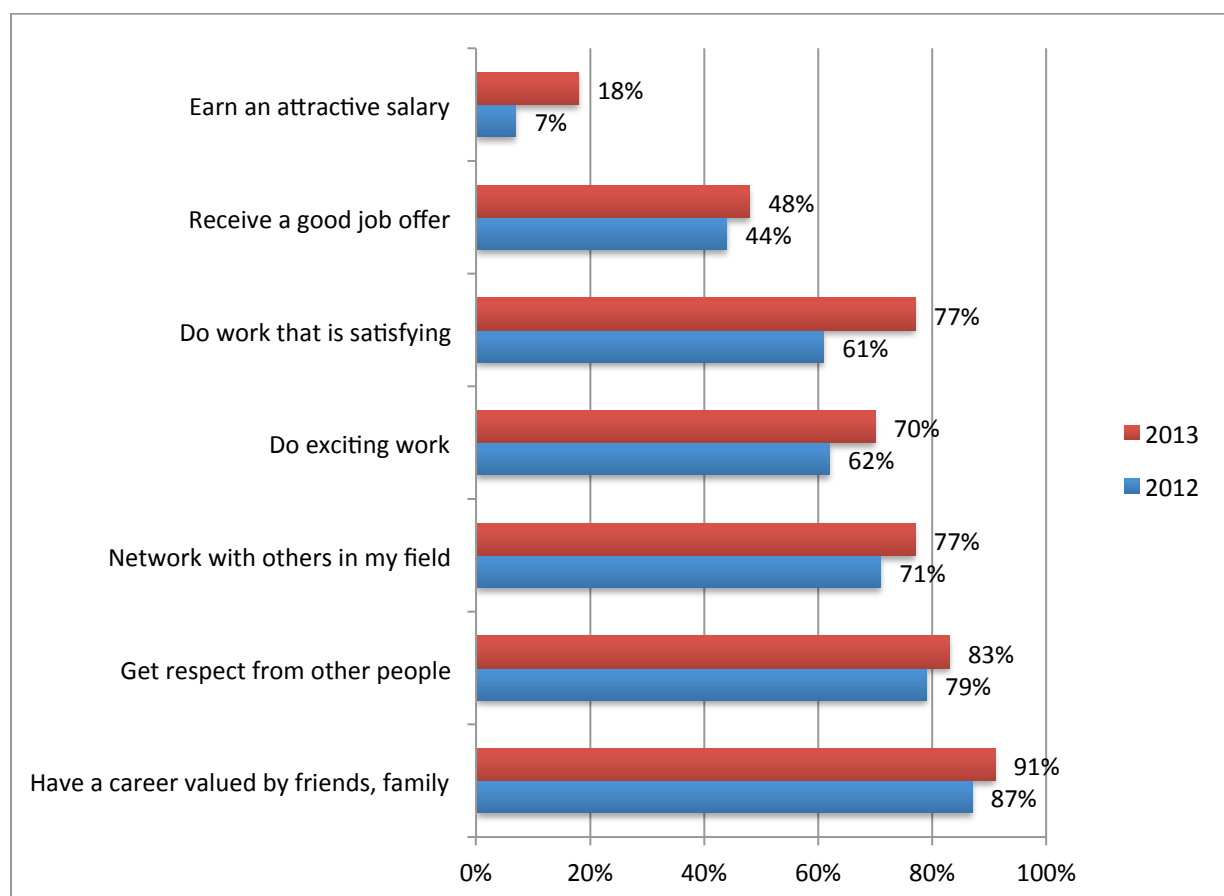
There was a decrease in the percentage of faculty rating the preparation of MMeds to practice in their area of specialty as “prepared” or “very well prepared” from 88% in 2012 to 76% in 2013. Only 35% were confident about MMed preparation for medical research, similar to 2012. There was a small increase in the percentage of faculty who believed MMeds were “prepared” or “very well prepared” to become faculty members from 47% in 2012 to 49% in 2013.

In 2013, a higher percentage of students (75%) reported they were “well” or “very well prepared” to practice general medicine than in 2012 when the percentage was 71%. A lower percentage of students (53%) reported they were “well” or “very well prepared” to pursue an advanced medical degree than in 2012 (70%).

Retaining Graduates in Zimbabwe

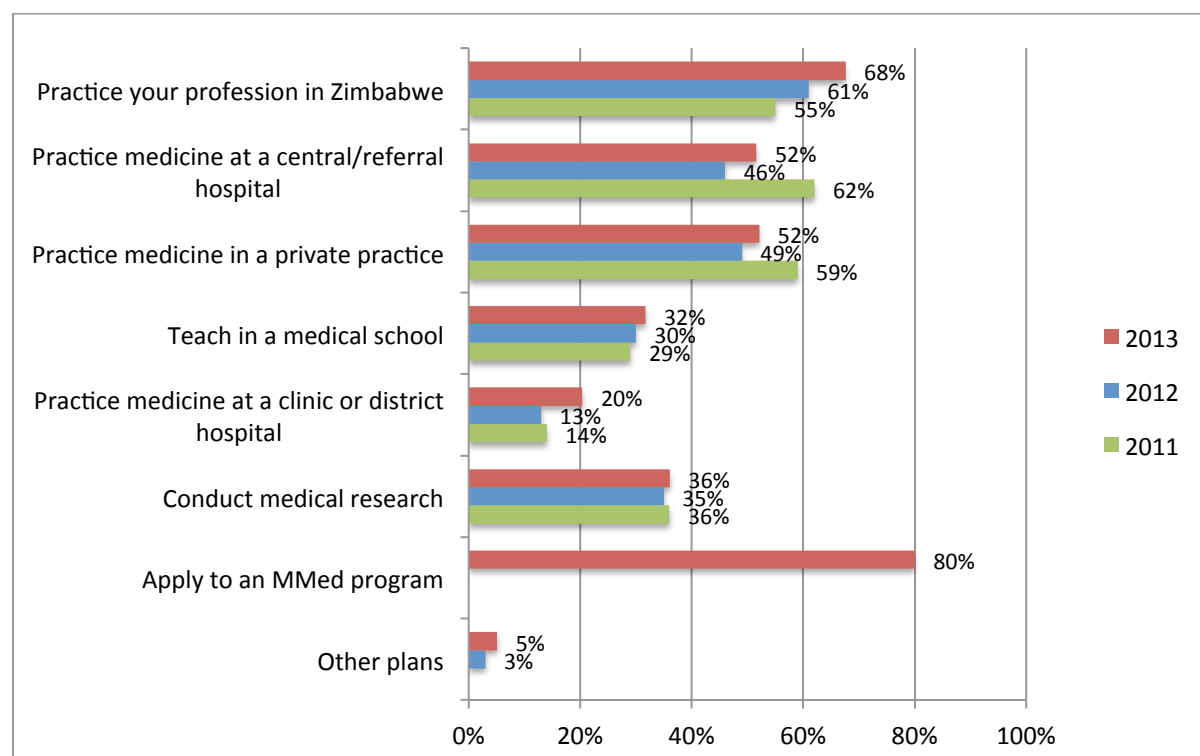
On the 2013 annual survey, a higher percentage of students reported they “agreed” or “strongly agreed” with each of the various factors that may influence whether they practice in Zimbabwe than in 2012. Results are summarized in Exhibit 43.

Exhibit 43: Students agreeing, “Pursuing a medical career in Zimbabwe will allow me to...”



On the 2013 survey, the percentage of undergraduate students who reported they planned to practice medicine in Zimbabwe increased from the previous two years. In 2011, 53% of medical students reported they planned to remain in Zimbabwe, 61% in 2012, and 68% in 2013.

Medical students’ specific career plans were consistent with survey results from 2011 and 2012, as shown in Exhibit 44.

Exhibit 44: Career Plans (Respondents could select multiple options)

To track the impact of programs on the retention of health care workers in Zimbabwe, records from the Medical and Dental Practitioners Council of Zimbabwe (MDPCZ) were examined for 2011, 2012, and 2013. As shown in Exhibit 45, the total number of registered practitioners in Zimbabwe increased by 321 individuals from 2011 to 2013 (a 16% increase).

Exhibit 45: Number of Individuals Registered to Practice in Zimbabwe

Specialty	# of Registered Practitioners		
	2011	2012	2013
Medical Practitioners & Specialists	1,345	1,628	1,656
Dental Specialists	213	281	303
Interns	445	394	365
TOTAL	2,003	2,303	2,324

Retaining Faculty

UZCHS faculty continued to increase in numbers in 2013. In 2010, the baseline number of faculty was 128; as of December 2013, the roster showed 188 faculty members, an increase of 47%. (Note: numbers may include both full and part-time faculty.)

On the annual survey, 80% of faculty members “agreed” or “strongly agreed” they were more satisfied with their job since NECTAR improvements have begun, an increase from 2012 when 54% responded they were more satisfied.

Recommendations for Sustainability and Improvement

Sustainability

Sustaining the accomplishments and progress of the MEPI grant has been a focus of program leaders since its inception. On the 2013 annual survey, a higher percentage of faculty respondents (53%) “agreed” or “strongly agreed” improvements will be sustained than in 2012 when the percentage was 51%.

Interviewees in 2013 shared their recommendations for ensuring the sustainability of advancements begun through the MEPI programs in Zimbabwe. Many indicated it was essential to continue to build on the progress underway (see above). The importance of new research funding to support sustainable progress was emphasized. Additional suggestions included:

- Maintain relationships and collaboration with partner institution representatives;
- Integrate grant-sponsored staff into the UZCHS structure;
- Identify protected time for faculty to engage in the improvements; and
- Conduct additional trainings of trainers to further build capacity.

Many interviewees expressed the belief that a second funding cycle for the MEPI grants would be vital to sustained progress.

Improvement

Interviewees in 2013 provided specific recommendations for improvements to the MEPI programs in Zimbabwe as summarized below:

- Increase the number of UZCHS faculty involved;
- Increase faculty ownership and leadership in the work, especially for those in key positions;
- Document program outcomes in publications and conference presentations;
- Include more disciplines;
- Support institutional student exchanges; and
- On-going faculty development.

Conclusion

In 2013, the NECTAR/CHRIS/IMHERZ programs in Zimbabwe made headway toward achieving the stated MEPI goals.

Goal One - Increase the number of health workers trained

Progress was evident in the enhancement of faculty skills as medical educators, updated technology and e-learning resources, and initiation of a comprehensive curriculum review -- strategies intended to contribute to an improved academic environment resulting in the graduation of increased numbers of well-prepared health care workers. More students were enrolled in 2013 than in 2010 in both the undergraduate and MMed programs; the graduation rate was 88%.

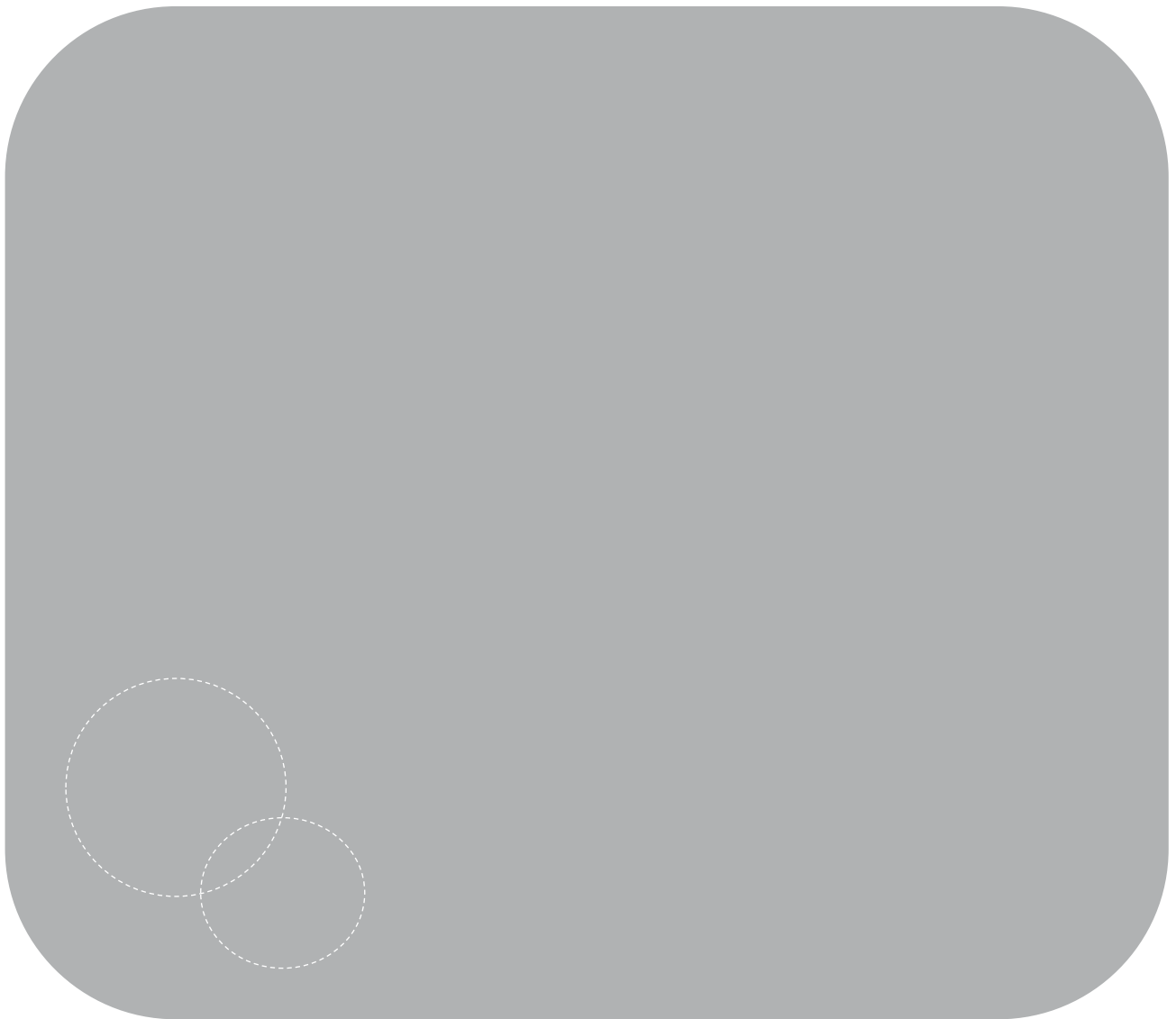
Goal Two - Retain health care workers in Zimbabwe

Headway toward achieving this goal was evident in the on-going training of future medical educators to address the shortage of faculty. The establishment of a Department of Health Professions Education was a significant accomplishment because it shifted responsibility for faculty support and professional development from the NECTAR grant to the auspices of UZCHS. The enhancement of the Community Based Education program remained a challenge.

Progress toward retaining health care workers was evident in the 47% increase in the number of UZCHS faculty since 2011; 80% of faculty reported they were more satisfied with their jobs since NECTAR improvements have begun. The percentage of medical students reporting they intended to practice medicine in Zimbabwe increased from 53% in 2011 to 68% in 2013. Although likely a result of many economic factors, the number of medical practitioners registered in Zimbabwe continued to increase in 2013.

Goal Three - Promote regionally-relevant research

The expansion of medical research was evident in the progress of mentored scholars in the primary and linked award programs. The construction of the new Research Support Center is a key accomplishment to sustaining research work at UZCHS. Regular training opportunities and improved policies for grant administration further enhanced research capacity.



The Evaluation Center
University of Colorado Denver
Campus Box 106; P.O. Box 173364
Denver, CO 80217-3364

General Email: TheEvaluationCenter@ucdenver.edu

www.the-evaluation-center.org

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