

Report Micro-Research Workshop Makerere University

*“Nurturing an Academic Career from Research Ideas to Finished Papers-using
Micro-Research”*

Workshop for Community Based Researchers

Held at
Makerere University,
Kampala, Uganda

From August 2 to 13, 2010

Lecturers

Robert Bortolussi, MD FRCPC, Professor Pediatrics,
Noni MacDonald, MD, FRCPC, FCAHS, Professor of Pediatrics,
IWK Health Centre and Dalhousie University, Halifax, Canada
and
Eric Wobudeya, Department of Pediatrics and
Paul Kutwabami, Department of Pharmacy,
Makerere University, Kampala, Uganda

Ugandan Mentor

Kasangaki Arabati, Faculty of Dentistry, Makerere University

Funding Sponsors

Micro-Research, IWK Health Centre
And
Canadian Child Health Clinician Scientist Program (CCHCSP)

Introduction and Background

The absolute need for capacity building in research was recognized several years ago by African nations. Lack of grant funds for small research projects is a major obstacle to research development in developing countries. Small projects are the fuel, upon which research skills are honed and a track record is established, a critical factor in any research grant proposal.

In March 2009, Drs. Noni MacDonald and Robert Bortolussi were awarded funds from CCHCSP for a pilot Micro-Research infrastructure project. Micro-Research, a concept modeled on Micro-Finance, was conceived by Jerome Kabakyenga, Dean of Medicine of Mbarara University of Science and Technology (MUST), Noni MacDonald and Bob Bortolussi in 2008 (Appendix 1). The CCHCSP pilot project would use educational tools, mentors, seed grant support and peer-to-peer interaction with CCHCSP and Ugandan researchers.

The program of the workshop at Makerere University was modeled after an earlier workshop but modified to address issues such as grant reviewing, knowledge translation and community engagement. To further ensure that the course met the needs of the local faculty, local experts from Makerere University participated in sessions on research ethics and community engagement. The workshop centered on enhancing skills for:

- o grant proposal development and management
- o pitfalls in research
- o research ethics
- o research manuscript development
- o pitfalls in presentations including abstracts
- o technical report writing
- o knowledge translation and policy development
- o time and resource management
- o community engagement
- o curriculum vitae development

The format for the workshop was an integrated combination of lectures and daily small multidisciplinary group interactive sessions. Each of three small groups (8 participants per group) selected their own research question and developed a research proposal over the course of the two weeks.

Program

The course was held at the New Pharmacy Building at Makerere University from August 2-13 from 8:30 AM until 1 PM. Participants were recruited at the University through word of mouth and posters (see Appendix 2) as well as direct invitations from the Dean of Health Professions – Dr Richard Odoi. A wide range of disciplines were represented by the faculty members who attended the program including professionals from medicine (pediatrics, psychiatry, medicine), dentistry, nursing, midwifery, demography, epidemiology, visual arts (graphic design, and sculpture), pharmacy, public health,

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maternal health, laboratory medicine, information technology (Appendix 3). All participants were committed to learning how to do research, especially research that could improve health outcomes in Uganda, a core principle of Micro-Research. More than half were members of Makerere's faculty, some at a senior level, and the rest were a mix of Makerere medical residents in various specialties, medical officers engaged in community or public health clinical work and senior Makerere graduate students

The Workshop lecture and program schedule is shown in Appendix 4. Daily attendance ranged from 18 to 22 (~ over 80%). All participants were very enthusiastic- as exemplified by their response to a declared national day of mourning/holiday due to the death of a former president. They asked us to proceed as they did not want to miss anything and the full class showed up on that day and the building had to be specially opened so the course could proceed.

Course participants were divided into three groups such that each group encompassed a wide range of professional disciplines. Most members had not met or worked together before the workshop. The collaborative work of each group started with their discussion of research questions put forward by each member of the group. The research questions were based on their own experience and developed using the principles outlined in one of the first lectures, "How to develop a research question". The group then vigorously discussed the merits of each topic and selected one to develop as their Micro-Research project over the next two weeks. A spokesperson for each group then presented the list of topics to the entire class and noted the one selected by the group and the rationale for its selection. (See appendix 5 for examples of topics)

The three topics selected were:

- Group A: Assessing the effectiveness of the government recommended Intermittent Preventive Therapy (IPT) program for malaria for pregnant women.
- Group B: Determination of whether a perinatal audit of neonates less than one week of age who were born at home in a village can improve outcomes.
- Group C: Assessment of what mothers living in the slums of Kampala know about health strategies to improve the health of their children under 5 yrs of age.

The series of lectures provided knowledge and skills needed to develop the topics into a research proposal. This included an emphasis on knowledge translation and community engagement- core principles to the Micro-Research concept. Many lectures stimulated lively discussions relevant to the projects. - e.g. issues on equity, quality of care and relevance became hot topics following the health policy lecture. As each proposal developed over the course of the two weeks, each group was coached by a consistent mentor (Group A: RB, Group B: NM, Group C: Kasangaki Arabati, an oral surgeon, in the Faculty of Dentistry and senior faculty member of Makerere University).

The workshop culminated with the three groups presenting a 10 minute overview of their research proposal followed by a 15 minute question and answer sessions. A six member panel adjudicated (Dr Richard Odoi, Dean faculty of Health Professions; Dr Sarah Kiguli, Chair Department of Paediatrics; Anne Katahoire, Director of Child Health Development Centre and the three mentors (RB, NM and KA). For reasons of conflict

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of interest, each Group mentor excused themselves from marking their own Group. The scoring system used was developed by the participants to take into account Micro-research principles (Appendix 6).

The three external judges were amazed at how much each group had accomplished in only two weeks and all commented on the high caliber of the presentations.

Sarah Kiguli commented: *“ All 3 groups made wonderful presentations. I believe the participants have gained life long [research] skills, and will be able to move the work forward. Neonatal health is a very important area in Uganda, which we have to address if we are to reduce infant mortality. I will work with group B, to see that the project yields research. Thank you for the wonderful idea of Micro-Research at Makerere.”*

Dr Vidya Swaminathan, Pfizer Global Health Senior Fellow at Mekerere, was invited as a guest to the final presentation. She told the participants that the quality of their presentations was exceptional comparing favourably with those prepared in industrialized countries where groups might have worked together for months not just two weeks. The participants themselves were amazed at the content and quality of what they achieved. She noted: *“it was an eye-opener into the clinical research capabilities of students, faculty, nurses, physicians and representatives from the arts and humanities that you(Prof. MacDonald and Prof. Bortolussi) had brought together at the workshop; it was both a preview and a practical demonstration of what can be achieved by harnessing local talent, equipping it with the necessary skills and providing micro-research funding for implementation of research projects on relevant health care priorities. What an innovative and impactful idea! I commend you on your creativity and your perseverance in addressing a vital need in promoting health care research in Uganda.”*

Dean Richard Odoi observed that it was a.. *“ great pleasure to be part of this project[Micro –Research]. As you can see already there is so much interest in this project from all perspectives. Too bad I did not personally participate as a student. I would have wanted to. As you know learning does not end. Fortunately, you gave me the sticks (flash drive) with all of the materials on it and secondly as a mentor [now for Micro-Research Group A] I will find myself much closer to these materials from time to time”*.

Group Winner:

The judges selected Group B as the winner but noted that only 3 points separated the three groups. Each group presented a highly relevant proposal of sufficient quality based on the adjudicators' findings to merit all three moving forward for refinement and formal submission to the CCHCSP Micro-Research Program. Each will be assigned a mentor form East Africa as well as a mentor form Canada (CCHSP) to hone the proposal for submission.

Of note, Group B has already opened favourable discussions with an NGO, “Save the Children Uganda” to become a funding partner for further support of their project based

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upon their draft proposal – an unexpected achievement for only two weeks. This is clear and dramatic evidence of the importance and relevance of Micro- Research team projects.

The Budget Proposals for the 3 projects:

Group A: Effectiveness of IPT for malaria in pregnancy- \$1805

Group B: Impact of Perinatal audit on neonates born in village setting-\$2500 (Micro-Research) and \$3330 (Save the Children Uganda)

Group C: Assessment of knowledge of mothers living in the slums of Kampala about preventive care for children under 5 years- \$1892

The support services provided by Dean Odoi's team at Makerere University Faculty of Health Professions were much appreciated.

A formal evaluation was completed by the participants- see Appendix 7.

Outcomes

1. Each Group has been encouraged to continue meet regularly to refine and complete their request for Micro-Research funding with assistance from their Ugandan and Canadian mentors. Three Ugandan mentors selected based on their interest and expertise are Dr Odoi - Group A, Dr Kiguli -Group B and Dr Arabati- Group C. Each group will also be linked to a mentor selected from CCHCSP. to polish their submissions and ongoing advice as the projects roll out. Once the ethical and scientific approval has been provided, funds from the CCHCSP Micro-Research pilot project grant will be transferred to Makerere University for project initiation.
2. Participants have also been encouraged to put into practice what they have learned, both for their personal research/academic growth, as well as through passing on this learning to others. The materials from this course were made available on flash drives given to each participant in the course.
3. Communication:
 - a. Each participant was invited to participate in the CCHCSP curriculum.
 - b. A Ugandan "site" was added to the CCHCSP website. Fifteen participants have registered and will have access to current and new curriculum resources. The Groups have used the CCHCSP web "Discussion" format to communicate.
 - c. RB and NM provided their email addresses for participants to be contacted them.
 - d. A list serve was set up for the participants.
5. Dr Kasangaki Arabati has reviewed the course materials on the CCHCSP site and has agreed to review African cases and strengthen knowledge translation and community engagement sections specific to the needs of Africa. He felt the Micro-Research model is such a good fit for Uganda and will strengthen the research training needs.
6. Discussions are also underway with Dr Odoi for transfer of research finds for the first three micro research projects once they are approved and for development of subsequent courses.

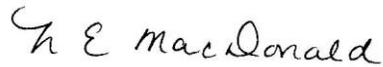
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In closing we would like to express our gratitude for the interest, energy and hard work of the participants, for the great help of Dr Kasangaki Arabati as a mentor for Group C and his insightful comments thorough out the course and for the participation of Dr. Paul Kutymbami and Dr Eric Wobudeya in the lectures and discussion on ethics and community engagement respectively. As well we would like to express our thanks to Dr Odoi for his support and for facilitating and encouraging such as broad participation - .a stand out range of backgrounds- that well show cased the power of the multidisciplinary Micro-Research model.

Respectfully submitted,



Robert Bortolussi MD, FRCPC



Noni E. MacDonald MD, FRCPC, FCAHS

Appendices:

1. Micro Research : MacDonald N and Kabakyenga J. Micro- Research: borrowing from the micro finance model. CMAJ 2008;179:399
2. Poster Invitation
3. Program Outline
4. List of participants, backgrounds and email addresses
5. Topics and Hypothesis explored by each group
6. Scoring System for Proposal presentation
7. Evaluation of course

Appendix 1

CMAJ

EDITORIAL

FRANÇAIS À LA PAGE SUIVANTE

Microresearch: borrowing from the microfinance experience

Who is at risk of severe head injuries in the hospital in Mbarara, and what are the outcomes? Why do some mothers in rural western Uganda seek care early for babies with severe diarrhea while others delay until the babies are in shock? These are 2 of the many vital applied health research questions raised by Ugandan health faculty members at a recent multidisciplinary research training workshop in Mbarara. Participants refined their questions, developed appropriate methodology and discussed the potential for this research to affect local health programs. But after days of hard work, a more worrisome question arose: Where will the money come from to undertake these small studies?

The lack of research capacity and access to local research funds has precluded the development of quality-of-care research using the “plan, do, study, act” approach common in industrialized countries. Local health faculty members are best placed to identify high-priority problems, help assemble local resources to study and solve problems and, most importantly, push local stakeholders into action. Motivation for change would be high, given that the community would live with the benefits or ongoing failures. Local research would also foster a culture of inquiry that would permeate the local health care system.

The scarcity of funding for locally applied research persists despite the dramatic increases in research dollars being spent in the developing world. The Bill and Melinda Gates Foundation, governments of developed countries and the World Health Organization have all invested millions of dollars in research on disease-specific health problems in developing countries, including tuberculosis, malaria and HIV/AIDS. Although this has led to important advances in health care, most projects are conceived, designed and managed by researchers from developed countries and offer little opportunity for local health faculty members to increase their research capacity. Even the Special Programme for Research and Training in Tropical Diseases (www.who.int/tdr/), which offers small grants to researchers in developing countries, does not accept applications beyond those related to infectious diseases. Furthermore, the program is run from a distance and local health faculty members are not involved in selecting the most relevant research projects.

To enhance capacity and find funding for locally applied research in developing countries, a new model is needed. Such a model might be found in the bold microfinance concept of the 2006 Nobel Peace Prize winner, Muhammad Yunus, who revolutionized financial opportunities for the poor in many developing countries.¹ An analogous approach could revolutionize research opportunities in such settings. Let's call it “microresearch.”

Borrowing from microfinance principles, a microresearch model would offer grants of about \$3000 to those who normally have no access to research funding opportunities. Only immediately relevant, local, applied health research questions

would be eligible. Multidisciplinary groups of local faculty members would set the research priorities, assist in developing and reviewing grant applications, and assess the progress and outcomes of each project. Research networks could evolve, allowing local research groups to share new knowledge and develop best practices. Repayment of monetary loans is a measure of success in microfinance; the parallel in microresearch would be improvement in the health of communities, as assessed by community members. This approach would reward both the researchers and the communities.

Barriers, such as insufficient baseline local research knowledge and the capacity to do research, could be addressed by providing online access to clinical research education opportunities, such as those developed through the Canadian Child Health Clinician Scientist Program (www.cchcsp.ca). To ensure a high rate of success in research, prominent clinical and health services researchers worldwide could volunteer time to mentor a microresearch group.

A dedicated start-up fund of \$20–\$30 million, distributed among developing countries and managed by local universities, is needed. Bureaucracy must be kept to a minimum, and the major focus kept on the outcomes, including enhanced research capacity, answers to local research questions and regional health improvements. As with microfinance, the spinoffs for microresearch would likely be dramatic, with improved health reaching areas of the world where the need is greatest.

Making microresearch a reality will require champions to get the movement underway, perhaps as pilot projects in 2 or 3 countries. We need to persuade governments, nongovernmental organizations and volunteers to step up with the necessary financial and mentoring support. The developing world is waiting.

Noni MacDonald MD MSc

Section Editor, Public Health

CMAJ

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Competing interests: None declared for Jerome Kabakyenga. See www.cmaj.ca/misoc/edboard.shtml for the Editorial-Writing Team's statements.

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1. Gungemil J. Nobel winner Yunus: microcredit missionary. *Bar Week* 2005 Dec 26. Available: www.businessweek.com/magazine/content/05_52/b3965024.htm (accessed 2008 Jul 24).

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Appendix 2 Poster Announcement

Clinical Research Training Workshop: August 2-13

Makerere University, Kampala.



This Micro-research workshop will provide training and opportunities to do community based research. Especially research to improve health for mothers and children.

- Encourage collaboration,
- Provide mentors in Canada and East Africa
- Permit an exchange of ideas, strategies and knowledge local community needs,

Who is eligible to attend?

- o Academic faculty staff in any clinical training program, such as nursing, pharmacy, social work, medicine etc. are encouraged.
- o Trainees in clinical areas who would like to become researchers will be considered.

What will be expected from you ?

The workshop will take half a day every day for 2 weeks (August 3-13).

What will you get?

- o Excellent training on research
- o Outstanding teachers:
 - Dr Nani MacDonald Journal Editor, Canada
 - Dr Robert Bortolussi Award winning Canadian researcher
- o Course material on memory stick
- o Certificate
- o Opportunity to do your own research of up to \$1,000
- o Ongoing support to do research through mentors, collaborators, research funding opportunities.

Learn secrets to successful clinical research projects

- How to do clinical research
- How to publish results
- How to write a Grant

"Modeled after the microfinance concept, Micro-research will provide small grants, training and mentoring to clinical researchers to ensure the researchers are successful in Uganda."

How to apply?

Contact: Dr. Richard Odoi Adome, Dean, School of Health Sciences, Makerere University College of Health Sciences

Tel: 312 213 113
<rodoiadome@gmail.com>

Appendix 3 Course Participants

Group A: Mentor- Dr Bob Bortolussi bob.bortolussi@iwk.nshealth.ca

Name	Background	Email address
Dr Haruna Muwonge	Medical officer	harunamwuonge@yahoo.com
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Mayanja Raymond	Data management	Marax7777@yahoo.com mraydor@gmail.com

* indicates Faculty member

Group B: Mentor – Dr Noni Macdonald noni.macdonald@dal.ca

Name	Background	Email Address
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Group C- Mentor and Participant Dr Arabat Kasangaki (Dental Surgeon)
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Julia Kabajurizi W	Microbiology and Laboratory sciences	jkabzy@gmail.com

* indicates Faculty member

Appendix 4: Program Outline

Nurturing an Academic Career through Micro Research: *from research ideas to a finished paper*

Agenda: Makerere University Aug 2010

Day 1 (Monday: 8:30-12:30)

- Welcome and Introduction:
- Course objectives and Outline: Commentary
Break
- Defining the research question: NM

Day 2 (Tuesday: 8:30-12:30)

- Principles of Clinical Research (design, blinding, GCP): RB
- Pitfalls in Research: NM
- Getting started on writing a proposal or manuscript: Commentary RB and NM
Break
- **Small Group Session:** Each member of the group will identify a research question from his/her own experience. The group will select one of these proposals for further development and refine the hypothesis and experimental models.

Day 3 (Wednesday: 8:30 to 12:30)

- Basics of Research Ethics: RB and Paul Kutwabami
- Research Ethics Case Scenario: Commentary PK
Break
- **Small Group Session:** refine the research question

Day 4 (Thursday: 8:30 to 12:30)

- Writing an abstract for presentation at a meeting: NM
- What editors are looking for: NM
- Introduction to the web program and access to CCHCSP
Break
- Introduction to Clinician Scientist Handbook
Small Group Session: refine the research question

Day 5 (Friday 8:30 to 12:30)

- Introduction to Clinician Scientist Handbook
- Preparing a written report: RB
- Oral and Poster presentations: RB
Break
- **Small Group Session:** Each group will refine the research proposal selected in session B and continue developing the proposal over the weekend.

Appendix 4: Program Outline (Continued)

Day 6 (Monday 8:30 to 12:30)

- How a manuscript is reviewed: NM
- 6B How a grant proposal is reviewed: Commentary RB and NM
Break
- **Small Group Session C:** Each group will consolidate their research proposal selected in session B and prepare a 10 outline of the proposal to the plenary session.

Day 7 (Tuesday: 8:30 to 12:30)

- Effective Utilization of time and resources: Commentary RB
- *Break*
- **Small Group Session D:** Each group will refine the research proposal.

Day 8 (Wednesday: 8:30 to 12:30)

- Principles of Knowledge Translation: NM
- Moving research into policy: NM
- Community Engagement: NM and Eric Wobudeya
Break
- **Small Group Session E:** Each group will complete the research proposal selected in session A and prepare a 10 minute presentation.

Day 9 (Thursday 8:30 to 12:30)

- Developing your Curriculum Vitae:
Break
- **Preparing Small Group Presentations**

Day 10 (Friday 8:30 to 12:30)

- Small Groups Present the research proposals
Break
- **Awards and Graduation Ceremony**

Small Group Research Sessions: Those participating in the program will divide into groups. Each group will remain together throughout the course as they develop, refine and complete their research proposal. These sessions will be facilitated to help them focus the research proposal and develop their plan.

Each group will give a 15 minute research presentation at the end of the course (Day 10).

Appendix 5: Initial Project Topics and Final Selected Projects (Bold)

Group A

- 1. The prevalence of malaria resulting in hospitalization and its association to ITP use among women delivering in Mulago hospital.**
2. Is there a role of malaria prophylaxis in preventing Under 5 mortality in children in Uganda?
3. What is the quality of maternal mortality audits as presented by the Ministry of Health Uganda?
4. What is the prevalence of Hepatitis B in Ugandan adults?
5. What of the effect of HIV infection on the lipid profiles in Ugandan children?
6. What are the normal values of serum lipids in Ugandan children attending Mulago hospital?
7. What is the prevalence of DM and associated risk factors among the HIV+ patients attending Mulago ISS clinic?
8. What is the adequacy of patient records and the associated risk factors affecting record keeping on ward 16 in Mulago hospital?

Group B

1. Why do newborns die in Uganda ?
- 2. Will a perinatal audit at the village level decrease perinatal deaths in Uganda?**
3. At what stage does Salmonella contamination occur in chickens in Uganda ? Implications for improved health in children
4. Village health teams- can they help document the level of disability in the villages?
5. How can communities become more involved in health careimprovements?
6. Nutritional status of newborns in Uganda
7. How can visual communications be used to help communities become more involved in public health

Group C

1. Street children in the slums of Kampala – where do they get their health care ?
2. How can the mental health issues of HIV patients be better addressed?
- 3. What do mothers living in the slums of Kampala know about health strategies to improve the health of their children under 5 years.**
4. How well is Uganda addressing gender disparities ?
5. What are the major causes of diarrhea in children under 5 years with HIV infection compared to those without?
6. What do VHTs know about oral health care in the villages in Mulago?
7. Health information systems and relation to quality of health care in rural Uganda- implicatiосn for children’s care factors leading to HIV prevlaance
8. What are the microbes on toothe brushes – is this relevant in HIV?

Appendix 6: Proposal Presentation Scoring System

1. Feasibility 0-4
 - Possible within reasonable time frame
 - Budget fit within Micro-Research Program grant
 - Tools are feasible
 - Target population attainable / accessible
2. Importance to Health in Uganda 0-1
3. Novel and practical 0-1
4. Demonstration of multidisciplinary contributions 0-1
5. Relevant 0-3
 - To science
 - To local community
 - For policy

Appendix 7: Course Evaluation

1. Why did you come to the course?

- Improve research skills and knowledge
- Learn about micro –research
- Passionate about research in the community
 - this course will help me do this better
- Would learn skills I can use in my community research
- Strengthen my research knowledge as a tutor
- Strengthen my research skills so can be more effective and efficient
- Learn procedures for applying for a grant and writing a manuscript
- Enhance research skills to be a better research team member
- Enhance my skills so can become a more productive researcher
- Learn about multidisciplinary research
- Learn research skills that can work well with few resources
- Learn how to better ask research questions and how to get research done in timely manner
- Hone my research skills so can be better able to effect change

2. What was most helpful in the course?

- The interaction with the teachers and mentors for the small groups was so helpful and so personal
- What is of interest to an Editor and why for improving chances of publication
- How to build a publication track record
- The big benefit of having team members with varied backgrounds for proposal development – multidisciplinary research
- Working as a research group instead of trying to develop a proposal alone
- Learning about how to engage community and why so important for health
- I can hardly select the most helpful as entire course has changed my thinking on my research strategies and plans
- Group discussions were so helpful
- Knowledge translation – so practical an approach
- Everything was helpful
- The community engagement and knowledge translation as could see how to do this and how go together on so many topics
- Pitfalls in research as I have bumped into so many of these
 - helpful to have an approach to address/prevent them
- Principles of knowledge translation – I grasp the importance of doing more than just publishing

3. What needs to be changed ?

- Make the course longer – 5 participants
- Increase the time for the group work beyond 2 hours for 10 days4 participants
- Nothing needs to be changed -6 participants
- Consider having the course in afternoon – better for clinicians

Add in formulation of research budget

4. What lecture was most helpful?

Knowledge translation – 6 participants
Community engagement – 5 participants
Manuscript publishing and polishing
How to formulate a research question/ refine it
All lectures – 4 participants

5. What lecture topic could be shortened or dropped?

None- 7 participantsbut add more time
All of them are fine
Add budgeting process

6. How will you use what you have learned?

Will transfer some of this to undergraduate teaching- importance of knowledge translation and community engagement in changing health outcomes
Will use what I have learned to improve my dissertation
Will use what I have learned to improve my thesis work for my master's program
Will improve my thesis work for my PhD
Will enhance my manuscript and grant writing – with hopefully more success
Will help me write up my pending research project
Will be modeling my next research proposal using the micro research techniques
Will enhance my Will help me improve my clinical research program
Will help me develop a better proposal for my postgraduate research program
Will use these processes to improve health outcomes – especially in pediatrics
Will put knowledge into practice by connecting my research work to
my clinical questions
Will be more proactive about forming a research group and
about developing practical research proposals
Will be better able to use research to make changes in the health system
Will work to start micro research group on my clinical research project
–to make it better
Will be better able to engage community in my research work
This has totally changed my research thinking- will apply much I have learned
to my current grant funded research- has opened my mind to so
many possibilities for future work
Will be now able to better refine my doctoral research project
Will be applying all of this to the public health research I am involved in
Will use this to further my research career as a demographer
Will use these principles to improve student research projects and outcomes
Will work to make others understand how micro research can change
health in Uganda