

Developing Research Questions & Objectives

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KCMU Co & KCRI

BSU-MEPI Joint Workshop on Research Proposal Writing
8th – 9th October 2012, Uhuru Hotel, Moshi

Introduction

- The purpose of research is to find something out....
- It builds up on something already in place....
 - Add knowledge
 - Seal a gap in knowledge
 - Explore etc
 - Typically not to *'to make a model', 'to develop a methodology', 'construct a care facility'....etc.*

Introduction

- Research components:
 - Research question, design, subjects, measurements etc
 - Role of PI: create these elements into a form that will make the project feasible, efficient, and cost effective
 - **Structure of research is set out in its protocol = the written plan of the study**

Origin & conception of
the research question

- Any research must start with a **research question...**
 - It is the uncertainty the investigator wants to resolve (thru measurements..)
 - Starts with a general concern which is narrowed down to focused, concrete and measurable issues

Before you proceed, ask yourself these question about the research question!!

- What do I want to know?
- Is it answerable?
- Is it researchable?
- Is it significant?
- Can I do it?

- **Developing a research question is not equally simple among investigators**

- Easier by the experienced researcher than the young ones
- Scholarship: Mastering current literature about a line of study
- Being alert on new ideas and techniques
- Keeping the imaginations alive! (careful observations)
- Scientific interactions between investigators of different experiences/expertise
 - Conferences, emails, informal discussions etc

- Usually the general question may not be researchable

E.g.

—WHY IS THE PREVALENCE OF MALARIA DECLINING GLOBALLY?

- Is it answerable?
 - Is it researchable?
-
- MUST be broken down into more specific researchable components (objectives) for making the proposal

What smaller questions could answer to this general question?

- Is there a change in vector dynamics (abundance, activity etc)
- Are there changes in rainfall patterns?
- Shift of parasite strains? Host genetics?
- Any intervention programs? (use of ITNs, subsidies of drugs & other services etc)

Some attributes of a good research question

- A good research question is FINER,
 - Feasible
 - Interesting
 - Novel
 - Ethical
 - Relevant
- It must pass the 'SO WHAT' test
 - Must contribute usefully to the current status of knowledge

- Usually there are no shortages of research questions.....
 - Research will produce answers to the investigated problem BUT create more questions at the same time!
 - E.g. aromatase inhibitors (block synthesis of estradiol) are known to reduce the risk of breast cancer in women, BUT
 - How long should the treatment be?
 - Trade off between osteoporosis and the anti cancer effect? Etc etc

PLEASE NOTE

Its helpful to consider the relationship between

- The study question → what the PI intends answer
- The study plan → what the study is designed to answer
- Actual study → what actually the study answers with all logistics involved!

From research question to objectives **via literature review..**

- What kind of work do I need to do in order to answer my question/s?
- What steps do I need to take?

THOROUGH LITERATURE REVIEW!

Aims/Objectives: what are they?

- Having selected your research questions, the next is to design a research project
 - The focus of which is usually expressed in terms of **aims and objectives**.
- **Objectives** are statements of what you intend to do to find the answer to your research question/s through your methodology

NOTE: While the **research question** forms the basis of the objectives, **objectives** will therefore shape/guide on the type of **methodology**

Aims

- Are broad statements of desired outcomes, or the general intentions of the research, which 'paint the picture' of your research proposal
 - Emphasize what is to be accomplished, not how it is to be accomplished
- Address the long-term project outcomes, i.e. they should reflect the aspirations and expectations of the research topic
- **Do not need to be numbered**

Aims

- Generally, a project should have no more than two or three aims statements
- Once aims have been established, the next task is to formulate the objectives

Objectives

- Objectives are the successive steps you need to take in order to answer your research question/a specific list of tasks needed to accomplish the goals of the project
- Objectives are statements, not questions
- Emphasize how aims are to be accomplished
- Must be highly focused and feasible

Objectives

- Address the more immediate project outcomes
- Are usually numbered so that each objective reads as an '*individual*' statement to convey your intentions

Aims and Objectives should

- Be presented concisely and briefly
- Be interrelated. *The aim is what you want to achieve, and the objective describes how you are going to achieve that aim i.e.:*
 - *make sure that each aim is matched with specific objectives*
- Be realistic about what you can accomplish in the duration of the project and the other commitments you have i.e.:
 - the scope of your project must be consistent with the time frame and level of effort available to you

NOTE:

For each specific objective you must have a method to attempt to achieve it.

The development of a realistic time schedule may help to prioritize your objectives and help to minimize wasted time and effort.

Aims and Objectives should not

- Be too vague, ambitious or too broad in scope:
 - though aims are more general in nature than objectives it is the viability and feasibility of your study that you have to demonstrate and aims often present an over-optimistic picture of what the project can achieve
- Just repeat each other in different terms
- Contradict but synergize

How to write your objectives

- Your objectives are structured using action-words like:
 - assess or reassess
 - provide (an understanding of ...)
 - examine
 - analyse
 - interpret
 - elucidate
 - articulate
 - Establish
 - evaluate or re-evaluate

How to write your objectives

- Your action-words should be oriented towards an OUTCOME
 - an interpretation
 - an assessment or reassessment
- Be careful of words that are not precise about what you want to know
 - E.g. The word EXPLORE

How to write your objectives

- There should be a logical sequence to your objectives
 - A list of stages: the order in which you'll be finding things out,
e.g.
 1. To identify a problem
 2. To develop a solution
 3. To design and implement the solution
 4. To assess its impact

Point to Remember!

- At the end of your project → assess whether or not you have met your objectives and if not, why?
- You may not always meet your aims in full, since your research may reveal that your questions were inappropriate,
 - Intervening variables you could not account for or that the circumstances of the study have changed etc.
- Whatever the case, your conclusion will still have to reflect on how well the research design (guided by your objectives) has contributed to addressing your aims.

The link: Res Qn, Obj & methods

Research question?



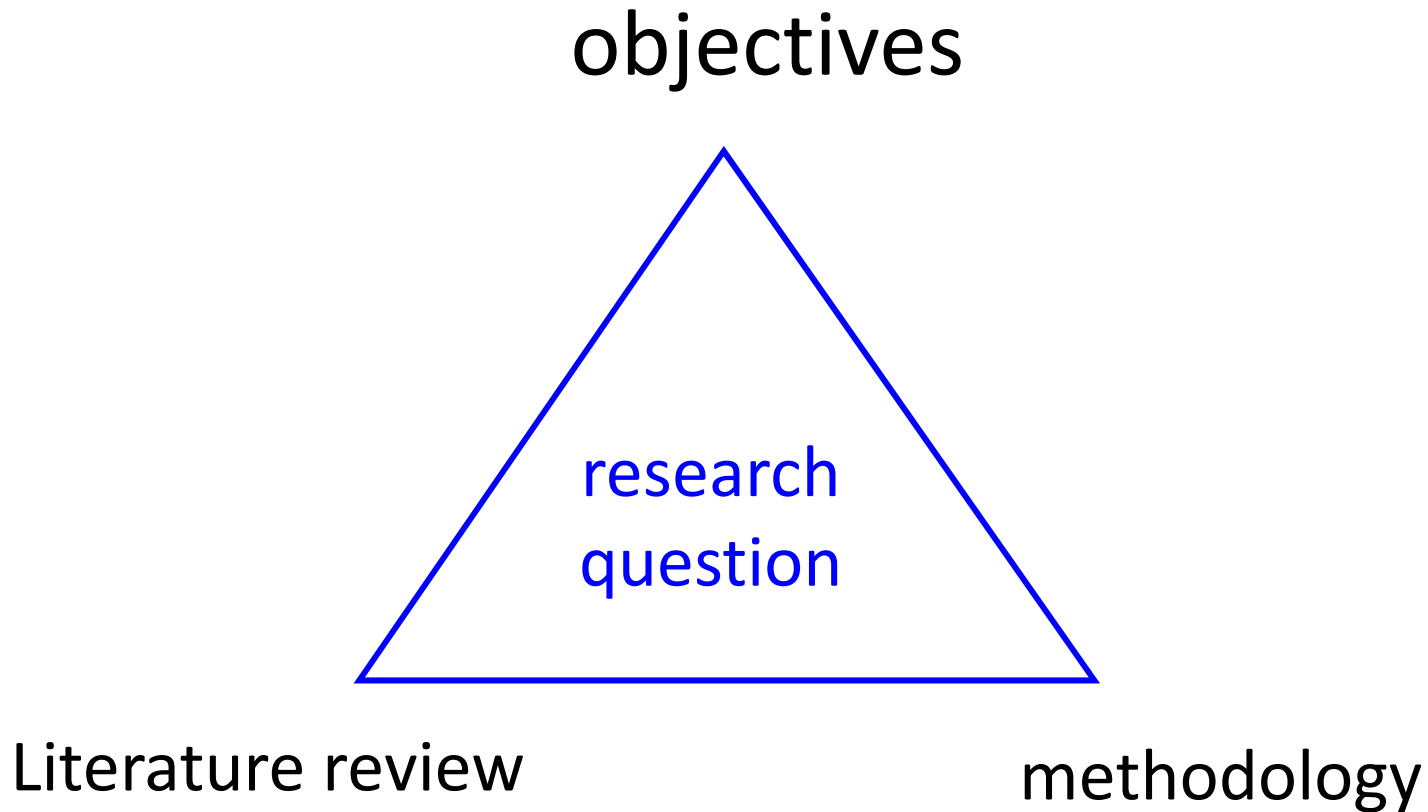
List of objectives

1. To identify a problem
2. To develop a solution
3. To design and implement the solution
4. To assess its impact

List of methods

1. HOW to identify the problem (lit review)?
2. HOW develop a solution?
3. HOW to design and implement the solution?
4. HOW to assess its impact

The research triangle



Literature Review and Significance

What is a literature review?

- Developing research questions and objectives must involve literature review (scholarship)
- A literature review **isn't**
 - a descriptive list
 - a series of summaries etc

What is a literature review?

- A literature review is
 - a thoughtful thematic review of any **historical, theoretical** and **methodological** issues you are dealing with
 - focussed around your **research question**
 - written discussively telling your readers which academic conversations you are taking part in - and WHY???

Why do a literature review?

- Helps you to ask:

what is the **significance** of my research?

- what is known and not known?
- what has and has not been done?
- what questions need further research/creative exploration?
- Why is the research question important?
- What type of answers will the study provide?

Why do a literature review?

- Cites references to show what is known and pinpoint unclear, unresolved issues, gaps the proposed study seeks to provide answers
- Automatically , literature search will give birth to the significance of the research question/study.

Why do a literature review?

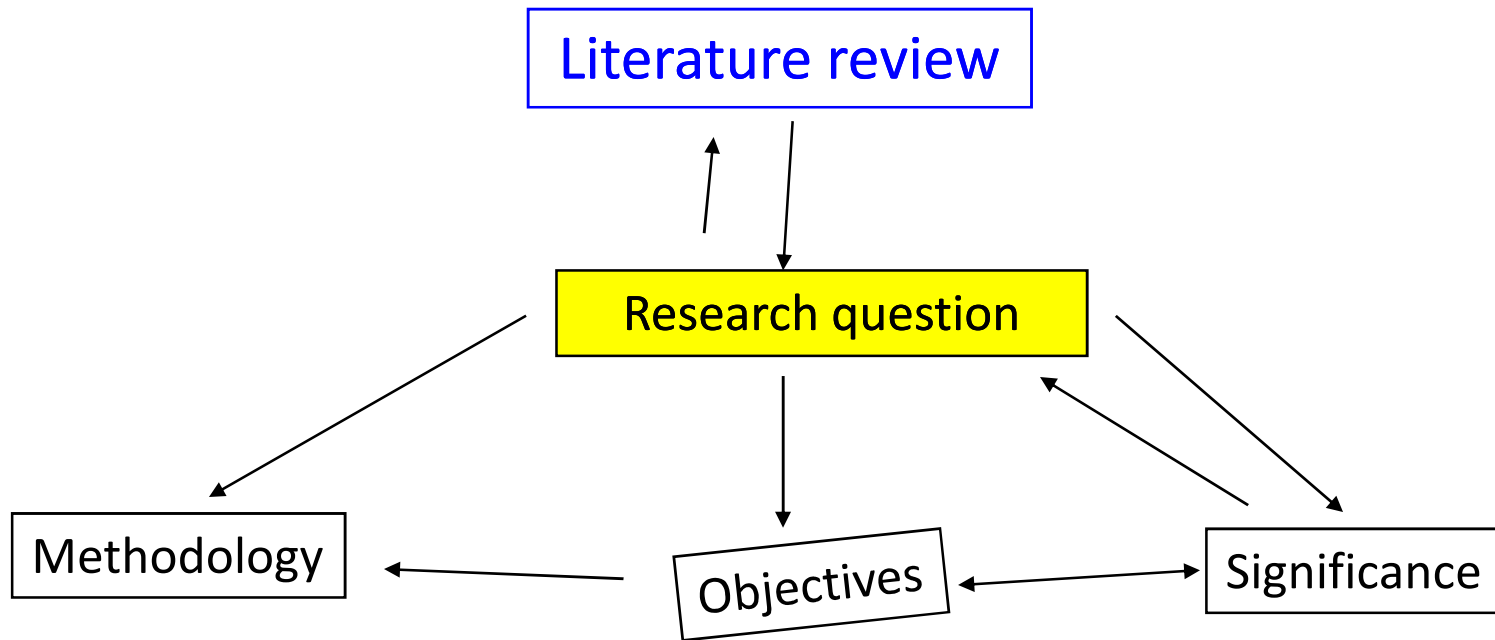
- Helps you to shape your research question and objectives
 - To think laterally and creatively about other potential search areas

Why do a literature review?

- Helps you to choose appropriate approaches and methodologies
 - identify areas of theoretical or methodological debate or disagreement, controversy or inconsistency

Why do a literature review?

- Helps you to practice and develop research techniques and skills
 - to read in a targeted way
 - to develop skills of critical appraisal and capacity to identify the objectives and arguments of those you are reading
 - and to articulate their strengths and weaknesses





Summary

- Research must start with a research question
- The question may be based on observations, experience, interactions etc
- A general question must be broken into specific questions
- Research questions give rise to aims and specific objectives
- Objectives are listed activity statements and not questions
- Objectives must have an outcome oriented picture
- Objectives must converge to accomplish the aim/broad objective and
- they decide on the methodologies and background information

RESEARCH PROPOSAL WRITING WORKSHOP

8-12 December 2012

Topic: DEVELOPING BUDGETS

**F.W.Mosha
KCMUC, Tumaini University**

Introduction: Budget

- Financial plan for a project over a specified time period
- Pre-requisite for good financial management necessary for effective implementation of project activities
- Forms important section of Research Proposal

Basic principles

- Must base on:
 - research methods
 - work plans
 - sound accounting principles
 - accurate analysis of the protocol
- Need reasonable justification for all major expenditures

Budget tips:

- Use Budget guidelines
- Be realistic, not greedy
- Never under-budget, budgets must stand alone-unless there is a requirement for co-funding
- Identify costs that can be cut down when required to reduce the budget
- State budget whenever necessary, in the currency of the funding agency
- Avoid decimal points, in some cases may have to round up to nearest unit

Budget development

- Budgets can be constructed through a variety of methods:
 - individually
 - with peer groups or professionals in the institutions

Budget components

➤ *Sub-total amounts to be shown*

- Human resources(personnel)
- Travel
- Equipment and supplies
- Consumables
- Other services
- Information dissemination
- Overheads/Institutional costs

1. Human resources -

❖ Staff salaries

- Preferably not exceeding 50% of total costs in most projects
- Estimation fairly straight forward with new staff whose salary estimates can be based on institutional scales plus incentives
- With staff already on institutional pay roll- a bit difficult especially when estimating time effort, but can also be based on proportion of salary but to be paid as paid as honoraria
- Need to categorise staff, depending on nature of study but important to be proportional
- State numbers/names and duration

❖ Categories

- Principal investigator (s)
- Scientists/Clinicians
- Technicians/Nurses
- Laboratory/Field assts.
- Administrative support-including accountants, administrators, data entry clerks, drivers, guards, etc.
- Casual labour-estimate as man-days, based on government minimum salary scales

❖ Other personnel costs

- Consultancy services –estimation needs to take into account whether local or international, market cost, real need. Calculation to include travel, living costs and fees
- Contract services-where part of the work has to be sub-contracted to other institutions or individuals.

2.Travel

Categorise as local and abroad

- Estimated living costs/per diems, based on institutional guidelines (local or foreign)
- Per diems to cover accommodation, meals, local travel
- Means of travel based on most economical comfortable means-economy class for all air travel within the place of mission
- Road travel to consider rental charges based on mileage, where transport exists cost fuel, maintenance and insurance costs

3. Equipment

- Categorise major (eg. Motor transport, computers, microscopes, PCR machines, furniture) and minor equipment-based on cost or longevity/depreciation
- Cost estimates to be based on recent catalogue quotations or valid perform invoices
- For lab equipments- include installation, validation and maintenance costs
- Budget under specific expenditure period

4. Consumables/supplies

- Categorise as:
 - Laboratory eg. glassware, chemicals, reagents
 - Field eg. Nets, cool boxes, slide boxes
 - Insectary eg. Cages, feeds
 - Clinical eg. drugs, syringes, kits
- Requirements to be based on methodology and work plan
- State items with clear descriptions, amounts/quantity eg. weight, volume, packages
- State unit and total costs

5. Other services

- Infrastructure –renovation, rental, experimental huts, etc.
- Utility costs (eg. Electricity, water, telephones)-where these cannot be covered by overheads
- Shipping and clearance
- Auditing
- Evaluation
- Financial services-bank charges, bank guarantee costs
- Translation costs

6. Information dissemination

- Publication-based on estimated no.of manuscripts
- Costs for attendance to relevant conferences
- End of project stake- holders meeting

7. Overheads/Institutional costs

- Based on institutional requirements, at KCMUC 10-15% of total direct eligible costs
- Give justification where this is not possible , eg. funding agency regulations, provision of capacity building support

Assignment

- Draw up a 2 years Budget (in Tabular Form) based on one of your proposals, to reflect what has been presented

MEPI and MRTP Update

MEPI Team

October 8, 2012

The Medical Education Partnership Initiative (MEPI) in Africa

A PEPFAR investment to scale up the physician workforce with 3 Goals:

1. Increase the numbers and quality
2. Increase retention in underserved areas
3. Improve research capacity



University of Ibadan



Makerere University



Addis Ababa University



Kwame Nkrumah University



University of Zambia



University of Malawi



University of Botswana



Stellenbosch University



University of KwaZulu-Natal



University of Zimbabwe



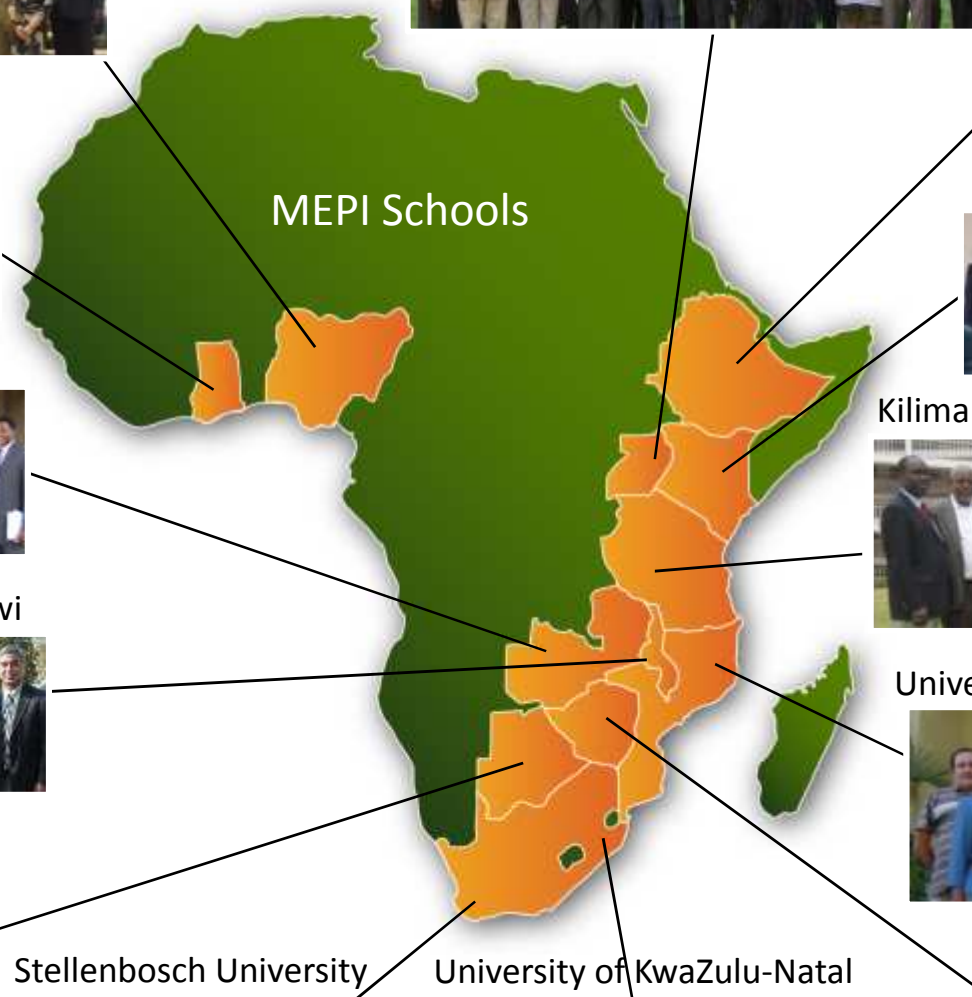
University of Nairobi



Kilimanjaro Christian Medical Centre



University of Eduardo Mondlane

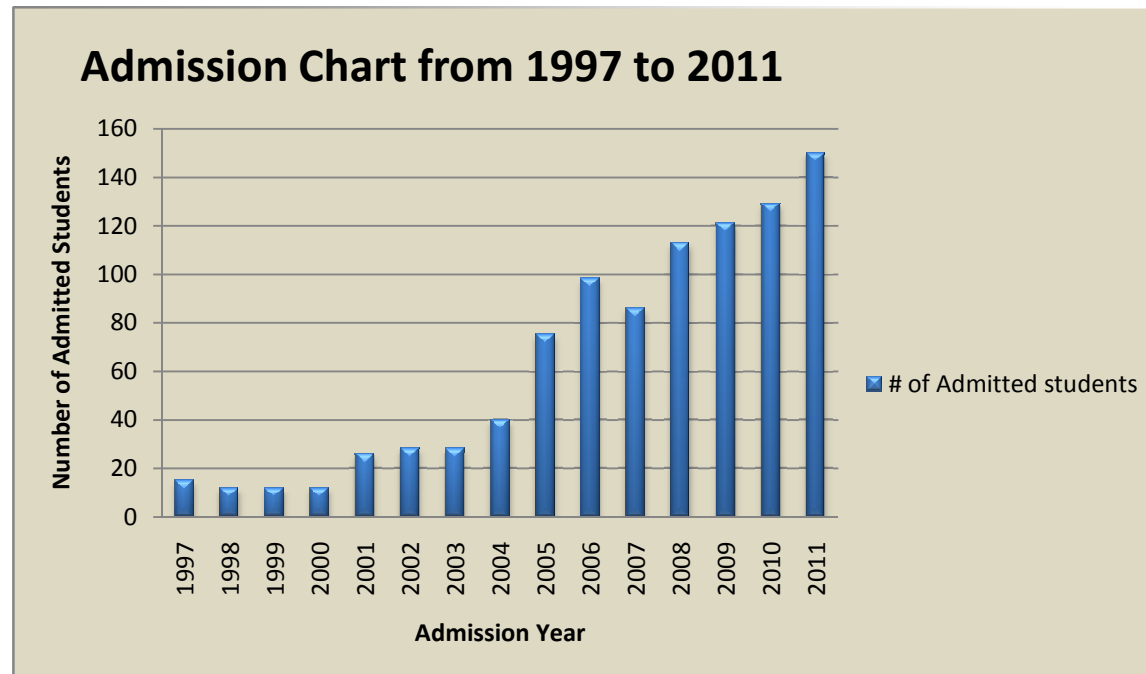


Medical Education Partnership Initiative

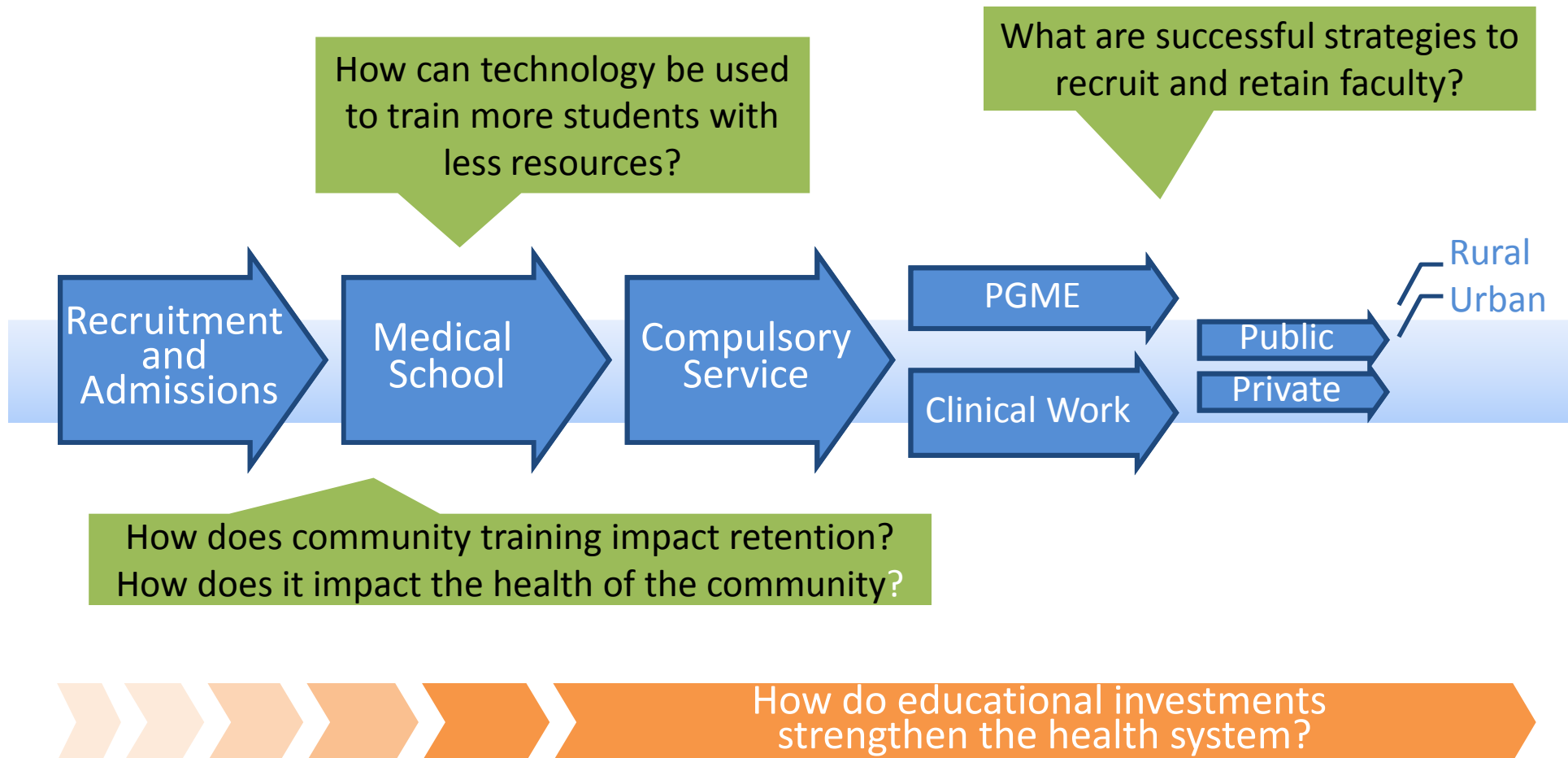
- Goal to sustainably enhance and support medical education through partnerships between African and US schools of medicine
- Jointly sponsored by NIH and PEPFAR
- Eleven programmatic awards
- Kilimanjaro Christian Medical College-Duke University School of Medicine awarded \$10,000,000 over 5 years



KCMU College Medical Students



Questions for MEPI to Address



MEPI IT Infrastructure

- Seacom cable to KCMC campus



MEPI IT Infrastructure

- MEPI Computer Laboratories



MEPI IT Infrastructure Learning Management System

- Based upon Blue Docs
- MD1 curriculum fully loaded
- Expanding into MD2-5, MMed and MSc curricula
- First on-line exams given
- Tremendous M&E tool
- Notice board, on-line resources, surveys

LMS Calendar Function

KUMC

[MyProfile](#) [New Files](#) [Email](#) [Logout](#) [RSS](#) [Timeline](#)

[Home](#)

[Favorites](#) [Calendar](#) [Wiki](#) [Announcements](#)


[About](#)
[QA](#)
[Messaging](#)
[MyDocuments](#)
[Lottery / Signup](#)
[Handy Links](#)
[Medical Center Library](#)
[Trouble Ticket](#)
[Stats](#)
[TEST](#)

No Advanced Filters in use

ANATOMY

Day Week Month




















☐ Show Weekends

New Dates: 

Wednesday, Apr 4, 2012

	Mon 4/2	Tue 4/3	Wed 4/4	Thur 4/5	Fri 4/6
8am	Anatomy lecture BF 11/GF 11 Julius Kauki	Biochemistry BF 11/GF 11 Jaffa Chikungula	Interpretation of abnormal ECG BF 11/GF 11 . No Faculty assigned	Community Health BF 11/GF 11 Sabina Mweve	Anat lab BF 11/GF 11 Julius Kauki
9am					
10am					
11am	Mechanism of Arrhythmias BF 11/GF 11 Kajiro Kilongo	Psychology BF 11/GF 11 Aloyee Kibuli	Biostatistics BF 11/GF 11 Emily Foster		Coupling BF 11/GF 11 Dr. Hawlett

LMS Class Resources

File	Discussion	Events	Milestones	Reports	Assessment	G & O	Messaging
<div> <div>General Information</div> <div> <p>Begin Date: 2011-10-03</p> <p>End Date: 2012-09-21</p> <p>School Year: Year One</p> <p>Course Director: Julius Kauki </p> <p>Course Coordinator: Kondo Chilonga </p> <p>Course Coordinator: Augustine Mallya </p> <p>Course Coordinator: Kien Mteta </p> <p>Course Coordinator: Rogers Temu </p> </div> </div>							
<div> <div>Description</div> <div> <p>Description.</p> <p>This course intends to provide detailed theoretical and practical clinical anatomy knowledge for Medical doctor students in their first year. The course will cover the Human Gross anatomy, Human histology and Human Embryology. Laboratory study will involve working with human skeletal collections, dissection of cadavers, preserved specimens and histology laboratories. Form-function relationships are highly emphasized in the teaching-learning process apart from the clinical applications and relevant cases will form the basis for the applied examples.</p> </div> </div>							
<div> <div>Course Docs (17/18)</div> <div>Other Docs (0/0)</div> <div>Announcements (1)</div> </div>							
Course Material							
 Lodish Molecular Cell Biology 5th ed							
 Chest X-ray							
 CVS Heart							
 C:akepathHeart embryology20Jan 2012							
 Thorax and Thoracic wall							
 MD 1 RESP. HIST.lect							
 DIC							
Introductory Block							
 C:akepathMD1 2011.12 Final Introductory Histology RESULTS							
Locomotor (ML)							
 C:akepathMD1 Musculoskeletal Histology PP							
MD1-Abdomen							
 C:akepathEmbryology of the GIT. .							
MD1-Pelvic							
 Pelvis Anatomy							
 Pelvis Anatomy - Revised							
Anatomy Curriculum							
 Abdomen Module							
 C:akepathANAM 106 Lower Limb MODULE							

LMS On-line Exam Scoring

 KCMC ScoreCard

BIOCHEMISTRY 2011/2012  





View scoreCard

Add Assignment

Add Category

Student Attendance

Export to CSV

Students (Last, First MI)	ESE Biochemistry - Biochem Exam - Group1  	ESE Biochemistry - Biochemistry Exam -Group 2  
ABDI, SIBTE MOHAMED ABDISIBTE	-	-
ABDULRAHMANI, MWANAIDI ABDULRAHMANIMWANAIDI	-	57 / 71
Akaro, Anna Vicent AkaroAnna	53 / 71	-
ALBOGAST, EVELINA ALBOGASTEVELINA	62 / 71	-
BEYANGA, GODIAN BEYANGAGODIAN	63 / 71	-
CLEMENT, JULIUS CLEMENTJULIUS	-	58 / 71
DAMJ, ZOIRADAMJIZOIRIRA	-	73 / 71
DENIS, MARIAM N DENISMARIAM	-	65 / 71
HIWARI, GWAMAKA HIWARI GWAMAKA	58 / 71	-
ELIAH, DOREEN T ELIAHDOREEN	72 / 71	-
ELISANTE, JOSEPH ELISANTEJOSEPH	-	42 / 71
EMMANUEL, ELIHURUMA EMMANUEL ELIHURUMA	60 / 71	-
FVARIST, DEOGRATIUS FVARISTDEOGRATIUS	57 / 71	-
Fredrick, Deborah Fredrickdeborah	30 / 71	-
GUTE, IVAN GUTEIVAN	-	62 / 71
GAMASSA, EDITRUDA GAMASSAEDITRUDA	59 / 71	-

LMS Analysis of Answer Patterns

Item Analysis Summary Report ESE Biochemistry Linked to Biochemistry Exam -Group 2 BIOCHEMISTRY 2011/2012

Reliability Coefficient: 0.77

Questions:	75	Median:	43
Participants:	71	Mode:	41
Mean:	43.51	Min Score:	26
Std Deviation:	7.81	Max Score:	60

Total %	Upper 27%	Lower 27%	PBS	Correct	A	B	C	D
57.61	84.21	42.11	0.36	C	3	17	*48	3
43.66	68.42	31.58	0.29	D	11	27	2	*31
42.25	68.42	10.53	0.44	A	*30	6	30	5
66.20	78.95	47.37	0.24	D	15	3	6	*47
85.92	100.00	68.42	0.45	C	4	3	*61	3
76.06	89.47	57.89	0.31	B	0	*54	0	17
29.58	36.84	31.58	0.04	A	*21	5	2	43
57.75	63.16	36.84	0.25	B	11	*41	3	16
73.24	94.74	47.37	0.43	B	8	*52	8	3
47.89	63.16	10.53	0.41	B	5	*34	12	20
35.21	63.16	21.05	0.34	A	*25	34	10	2
35.21	57.89	26.32	0.24	A	*25	11	27	8
40.50	61.50	10.53	0.01	D	00	*11	10	07

Faculty Reactions to LMS

Introduction

- 50% had fear of change and adapting new system
- 40% believed that the system would never work in an African setting, particularly at KCM College
- 10% were eager to learn and see how the system was going to change and improve the culture of teaching and learning



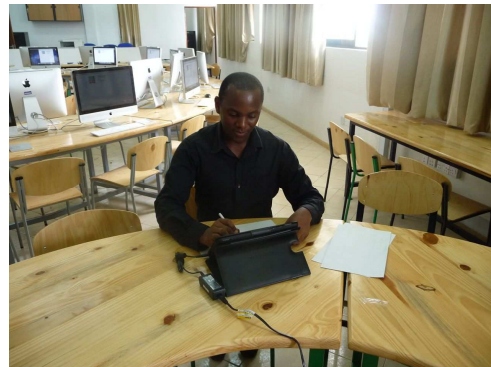
LMS Uptake- First 4 Months

- All 145 MD1 students
- 34 undergraduate faculty
- 74 graduate students
- 12 graduate faculty
- Added 2 new positions



MEPI IT Infrastructure

- All 157 MD1 students given tablets



Documenting Performance

- NBME given for the first time in Africa



Team Based Learning



Team Based Learning

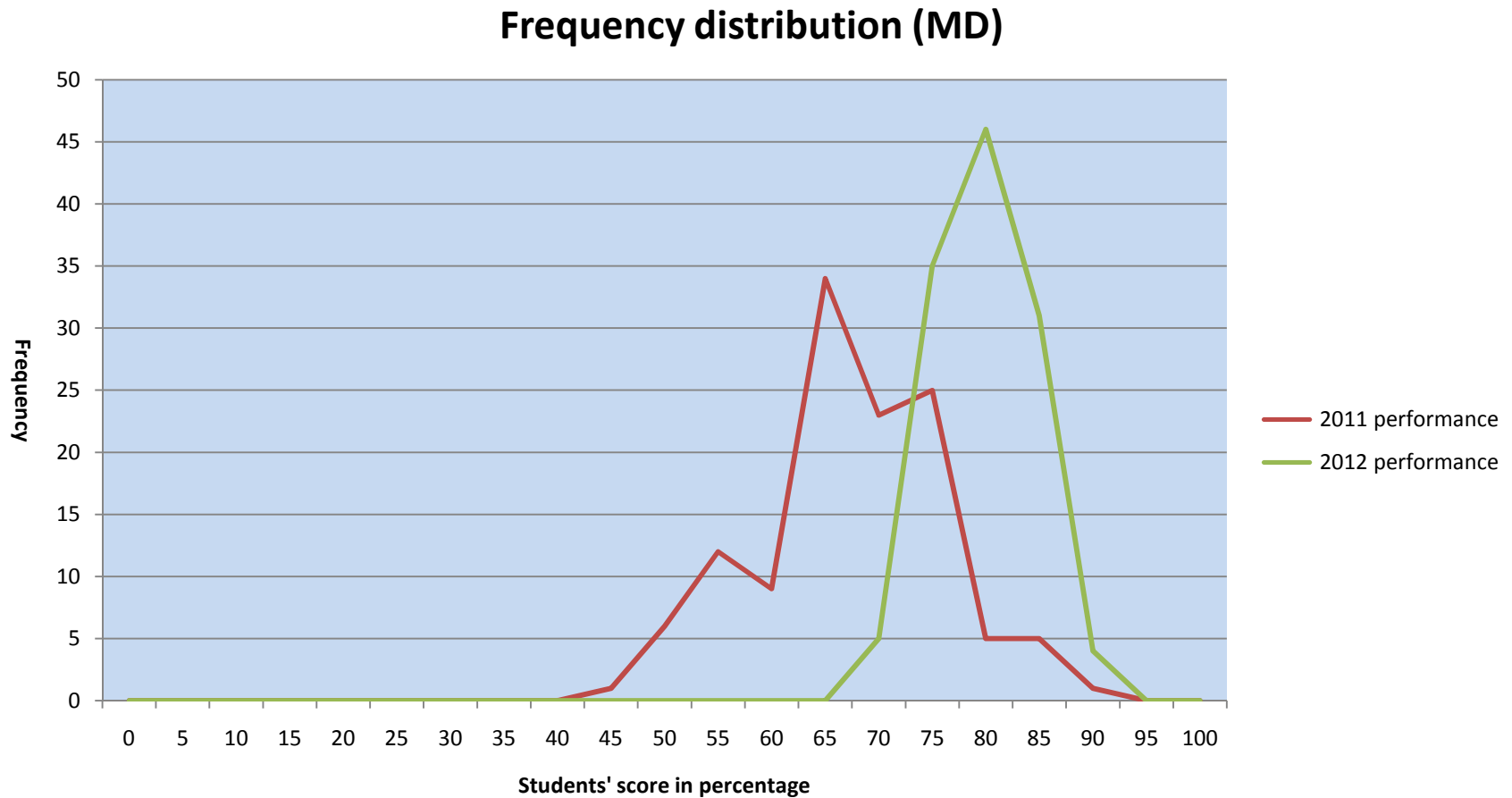
- Drs. Mramba Nyindo and Sabina Mtweve traveling to Duke-NUS for additional training



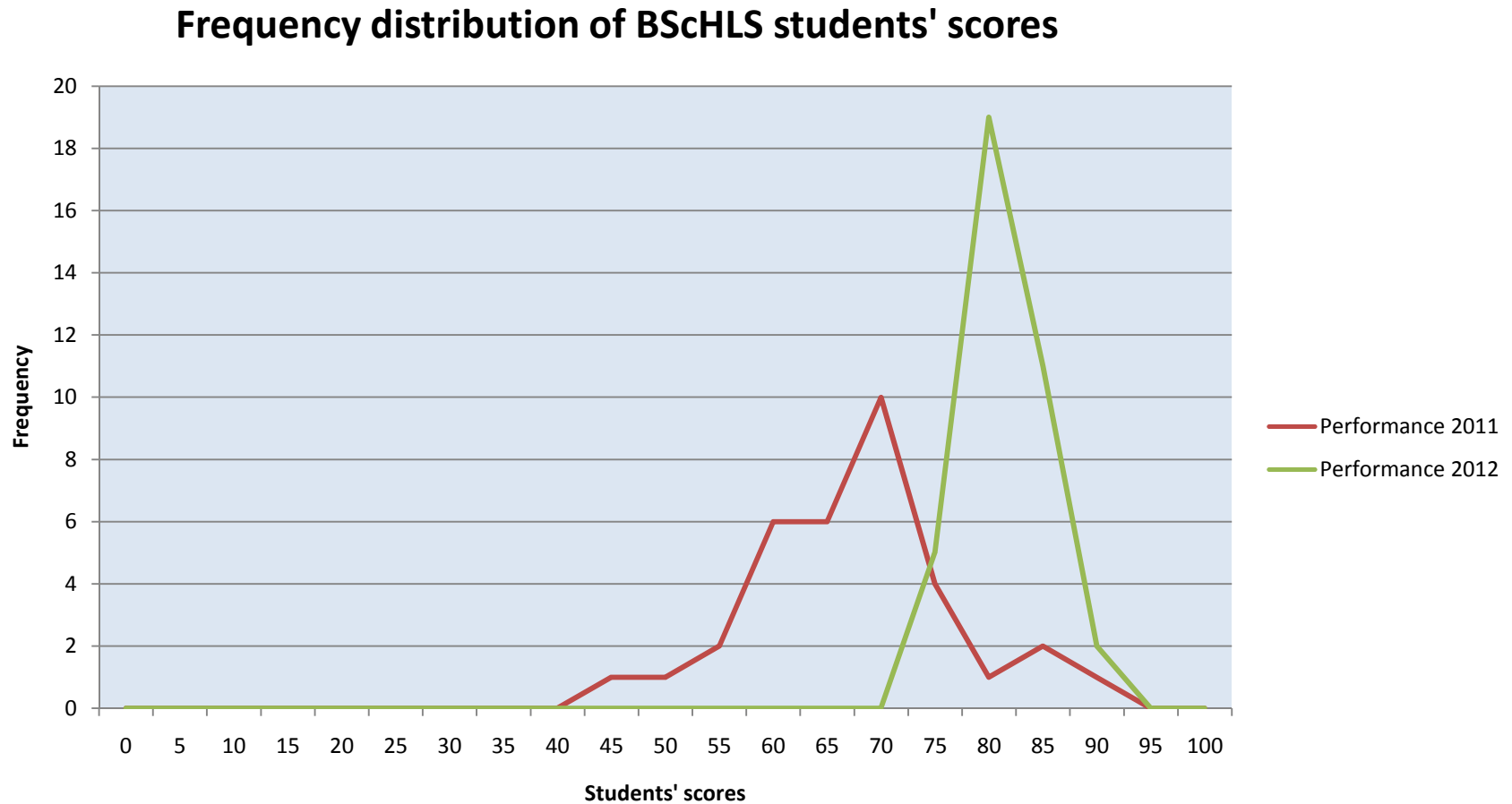
TBL for Teaching Ectoparasites: Student Perceptions

Domain	Mean	sCns (%)
Learning process	4.4	87
Course content	4.5	90
Educational environment	4.4	87
Assessment	4.3	85
Instructors	4.3	85
Efficiency	4.5	90

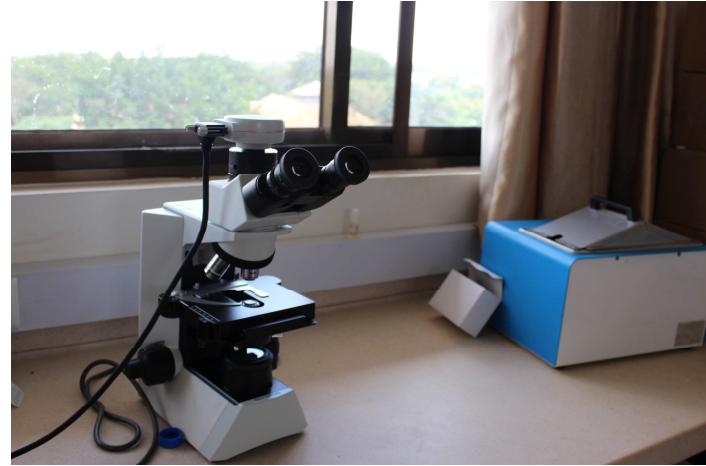
Ectoparasite Final Exam Scores



Ectoparasite Final Exam Scores



MEPI Wet Laboratory



Additional Accomplishments

- 3 Education Innovation Awards (\$50,000 each; Media Center, Information Specialist, vehicle and GPS equipment; 9 applications)
- Mentored Research Award applications due April 27 (\$25,000 each; 34 letters of intent received)
- Written English teaching with Virginia Tech University
- First 2 manuscripts describing KCMC MEPI in progress

M RTP Requirements

- Proposing Team- must include a medical student and KCMC/KCMU Co consultant
- Must include clear research question, methods, analysis plan, timeline, mentorship plan, and future funding prospects
- Workshops held for proposing investigators and students
- Epidemiology Department consulting on proposal development
- All proposals submitted on PHS 398 forms

Challenges with Sponsor

- Prevented by Congressional mandate from supporting research
- Sponsor requested to see sample budgets prior to review
- Need to re-formulate MRTP with strong emphasis on “mentored research” experience

M RTP Proposal Review

- Committee chaired by Dr. Franklin Mosha
- NIH scoring system
- Subcommittees chaired by KCMU Co/KCMC leader, reported back to Committee
- Committee deliberated on Subcommittee recommendations
- Financial review by MEPI staff

Recommended for Approval

- Dynamics of protective immune responses against clinical malaria
- Screening for biomarkers of artemether-lumefantrine and amodiaquine
- Microbiologic analysis and clinical outcomes associated with ESBL
- Prostate cancer in patients attending KCMC: Cell and tissue culture studies

Recommended for Approval

- Developing and implementing a population-based cancer registry in the Kilimanjaro Region
- The role of foetal programming as a risk factor for hypertension in NE Tanzania
- Overweight and obesity among type 2 diabetic patients attending diabetic clinics
- Evidence-based approach for surgical site infection prevention at KCMC
- Improving outcomes for traumatic brain injury

Recommended for Approval

- Assessment of obesity among adults and perceptions of risk factors
- Community-based medical education program

Challenges Encountered

- Few applications mentioned specific students
- Mentorship models not well developed
- Handling of finances and USG regulations
- How to handle unsuccessful applications

Conclusions

- Substantial challenges in addressing HRH needs in sub-Saharan Africa
- KCMC-Duke MEPI is off to a good start!
- Highly competent MEPI team at KCMC
- Roll-out of MRTP underway

Interpreting an RFA/RFP/FOA

October 9, 2012

John Bartlett

Initial Steps

- Read the announcement carefully
- What are the requirements?
- Who is eligible?
- What is the due date?
- What is the proposed budget?
- Read the announcement carefully again
- Are you a credible applicant?
- Do you have preliminary data?
- Ask a colleague to read it with you and help determine eligibility, feasibility and competitiveness

Next steps

- Plan a timeline
- Begin with the budget timeline because administrative reviews may be lengthy
- If an NIH proposal, need a DUNS number and eRA Commons address
- Set date for completion of the first draft
- Plan for letters of support- they may take time!
- Give yourself time for pre-submission peer review from colleagues
- If an NIH proposal, plan to submit electronically several days ahead of the deadline to deal with error messages

Next Steps

- Read the RFA/RFP/FOA and underline/highlight the key words and requirements
- Look for the “code words”; think how you can tell them what they want to hear!
- Develop a clear outline for proposal writing

Think Like a Reviewer

- Your first page is critically important- you must develop a clear message here!
- Have clear goals/objectives/Specific Aims; do not over- or under-state; 3 seems to be a magic number
- Identify 2-3 themes and weave them throughout the proposal
- Make organograms and organizational charts clear
- Have a clear communications plan
- Have clear roles and responsibilities
- Use figures and visual aids
- Include preliminary data if you have it
- Have clear outcomes and contingency plans

If It Is an NIH Proposal...

- Tendency to look for “synergies/safe investments”; how can you include existing NIH-funded projects and leverage resources and history
- Page limits have recently been reduced significantly; how to deal with the page limits!
- Use Resources section for in-depth description of the environment
- Use the Personal Statement on the NIH Biosketch page to expand qualifications and interest of investigators

Attention to Detail is Important!

- A poorly prepared proposal sends a negative message
- Have others read your proposal- your best friends will be critical of it!
- Attention to proper written English, sentence structure, spelling, capitalization and formatting

How does an NIH review work?

- Study section = review committee
- In US, considered an academic honor to be a reviewer
- Usually meet 2X/year
- Each reviewer will receive 4-8 applications to review
- Primary, secondary and commenting reviewers assigned
- Prepare written remarks in advance
- Deliberation in Study Section; need an “advocate”
- Entire Study Section scores an application

NIH Scoring Categories

- Significance
- Investigator
- Innovation
- Approach
- Impact
- Human Subjects

NIH Scoring

- 50% of applications are not discussed due to poor preliminary scores; overall funding of top 10-15%
- Scale of 1-9; like golf, a low score is good
- 1-3 means no major or moderate weaknesses, and only minor weaknesses
- 4-6 means a moderate weakness or several minor weaknesses
- 7-9 means major weaknesses
- Realistically, scores above 3 are very unlikely to be funded
- If 2 applications on the same topic are unsuccessful, may not be re-submitted
- Scores are posted at eRA Commons website within 48 hours; full critique “pink sheets” come in 2-4 weeks

After you receive your score....

- If it is in the fundable range, you may receive a “Just in Time” notice. This is hopeful but NOT a guarantee of funding!
- Need to respond with updated Biosketch, Other Support and human subjects documents
- Prior to funding, all proposals must be approved by the relevant NIH Institute Council
- Then a Notice of Grant (NGA) award is issued; beware that your budget may have been cut, and there may be stipulations on the use of funds-read the fine print!

Conclusions

- Preparing a grant application is a very deliberate process which requires careful planning and a timeline
- Your goals are to answer the call for applications with a crystal clear description of the proposed project, (make the reviewers job easy!)
- Use peers as critical reviewers prior to submission
- Do not under-estimate the time needed to prepare budgets and receive administrative approvals, letters of support, and on-line submission
- Be resilient, and if your first application is not successful, take criticisms seriously and revise by directly addressing the criticisms
- Good luck!

Research question group work

Notable points:

1. Good Research question

- Relevant
- Achievable/researchable/answerable
- Clear/unambiguous
- Ethical
- Novel
- Interesting
- If more than one should be coherent

2. Research objectives

- Clear
- Concise
- Specific
- Simple
- Measurable
- logically arranged

Group task

- 6 proposals submitted to BSU selected and discussed in groups
- Go through the given proposal and comment on the objectives?
- Summarize comments/improvements on Res question and objectives and present to the audience for discussion