University of Zambia Undergraduate Medical Curriculum Review Workshop on Basic Sciences and Antimicrobial Resistance Related Topics, March 13 – 17, 2007 : Trip Report

May 2007

Management Sciences for Health
is a nonprofit organization strengthening health programs worldwide.

This report was made possible through support provided by the U.S. Agency for International Development, under the terms of Cooperative Agreement Number HRN-A-00-00-00016-00. The opinions expressed herein are those of the author(s)

Mohan P. Joshi

Printed May 2007

University of Zambia Undergraduate Medical Curriculum Review Workshop on Basic Sciences and Antimicrobial Resistance Related Topics, March 13 – 17, 2007 : Trip Report

Mohan P. Joshi

Printed May 2007

Rational Pharmaceutical Management Plus
Center for Pharmaceutical Management
Management Sciences for Health
4301 N. Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Phone: 703-524-6575
Fax: 703-524-7898
E-mail: rpmplus@msh.org

Strategic Objective 5

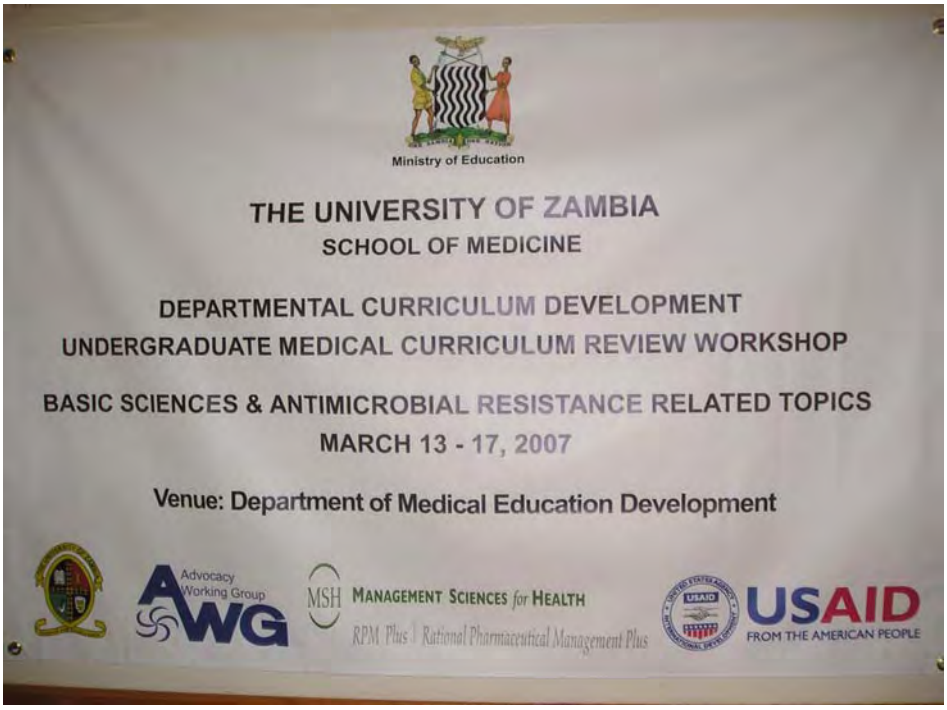
This report was made possible through support provided by the U.S. Agency for International Development, under the terms of cooperative agreement number HRN-A-00-00-00016-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development.

About RPM Plus

RPM Plus works in more than 20 developing and transitional countries to provide technical assistance to strengthen pharmaceutical and health commodity management systems. The program offers technical guidance and assists in strategy development and program implementation both in improving the availability of health commodities—pharmaceuticals, vaccines, supplies, and basic medical equipment—of assured quality for maternal and child health, HIV/AIDS, infectious diseases, and family planning and in promoting the appropriate use of health commodities in the public and private sectors.

Abstract

The WHO Global Strategy for Containment of Antimicrobial Resistance (AMR) identifies pre-service training as one of the first priority interventions to combat the growing problem of drug resistance. The University of Zambia School of Medicine is currently in the process of revising its undergraduate medical curriculum and has identified AMR as an issue to include in the revised curriculum. As a part of this process the School conducted a curriculum review workshop for basic sciences and AMR related topics in March 2007. RPM Plus technical staff Dr. Mohan Joshi visited Zambia to attend and facilitate this workshop. The report describes the details of the workshop with a focus on AMR.



Recommended Citation

Joshi, M. 2007. *University of Zambia Undergraduate Medical Curriculum Review Workshop on Basic Sciences and Antimicrobial Resistance Related Topics, March 13 – 17, 2007: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

Rational Pharmaceutical Management Plus
Center for Pharmaceutical Management
Management Sciences for Health
4301 North Fairfax Drive, Suite 400
Arlington, VA 22203 USA
Telephone: 703-524-6575
Fax: 703-524-7898
E-mail: rpmplus@msh.org
Web: www.msh.org/rpmplus.org

CONTENTS

ACRONYMS

AMR	Antimicrobial resistance
AMU	Antimicrobial use
ART	Antiretroviral therapy
AWG	Advocacy Working Group
CSO	Central Statistical Office
DHS	Demographic and Health Survey
DMED	Department of Medical Education Development
HIV/AIDS	Human immunodeficiency virus/acquired immunodeficiency syndrome
MDR	Multidrug resistance
MSH	Management Sciences for Health
RPM Plus	Rational Pharmaceutical Management Plus Program
SOM	School of Medicine
STG	Standard Treatment Guideline
UG	undergraduate
UNZA	University of Zambia
USAID	United States Agency for International Development
WFME	World Federation for Medical Education
WHO	World Health Organization

BACKGROUND

Antimicrobial resistance (AMR) is a serious global threat to public health. World Health Organization (WHO) U.S. Agency for International Development (USAID) and several other international and national bodies are currently advocating for containment of this rapidly growing threat. However, so far there have been only limited AMR advocacy and containment efforts in resource constrained countries.[1, 2]

AMR is a key component in USAID's infectious disease strategy. One critical area of USAID support is towards implementing at country level the WHO Global Strategy for Containment of Antimicrobial Resistance published in 2001.[3] Towards this goal, USAID is supporting the Rational Pharmaceutical Management Plus Program of Management Sciences for Health (RPM Plus/MSH) and other collaborating agencies (Academy for Educational Development, Alliance for the Prudent Use of Antibiotics, and Links Media) to implement an approach to advance country-level advocacy and containment of AMR. The approach is currently being implemented in Zambia[4-17] and Ethiopia.[18-20]

In Zambia the AMR Advocacy Working Group (AWG) is the champion body that catalyzes on-going AMR activities. One of the key action areas recommended by the AWG is curriculum review to address AMR topics in health professionals' education programs in Zambia[8, 11]. The WHO Global Strategy identified pre-service training as one of the first priority interventions for AMR containment. The Second International Conference on Improving Use of Medicines held in 2004 (ICIUM 2004) also recommended for inclusion of modules about AMR in undergraduate and postgraduate curricula.[21] Pre-service training is an important period to educate students on the use of antibiotics and the consequences of misuse.[22] Appropriate education during this period provides a frame of reference in the minds of the students for continuity of learning in practice.[23] Thus, recognizing the importance of pre-service education for AMR containment, RPM Plus is currently developing guidelines for curricular reform to include AMR topics in pre-service trainings. RPM Plus also collaborated with AWG in 2005-2006 to review the undergraduate (UG) medical, pharmacy, and nursing curricula of the University of Zambia (UNZA) for AMR-related content.[24-26] In July 2006 the AWG organized a dissemination seminar to inform the findings of the reviews to relevant stakeholders.[16]

The UG medial curriculum review[24] identified the following gaps:

- Inadequate or no exposure to key topics such as rational use of medicines; extent of the AMR problem and ways to contain the problem; standard treatment guidelines; counterfeit medicines; pharmaceutical promotion
- Examples of resistance—such as multidrug resistance (MDR), methicillin-resistant *Staphylococcus aureus*, and vancomycin-resistant enterococci—mentioned only in passing
- AMR not taught in clinical courses as a specific topic
- Vaccination as a strategy for infection prevention and reduction of AMR not covered in courses
- Barrier precautions (hand washing, use of gloves, gowning), isolation procedures, injection safety and appropriate use of injections, sterilization and disinfection of supplies and equipment, and aseptic techniques for medical procedures not taught as topics in lectures and

tutorials (left to apprenticeship)
- Issues of patients' misconceptions about antimicrobial treatment, self-medication, and poor adherence not specifically addressed in either preclinical or clinical years

The consultant reviewer recommended that the amount of coverage on rational antimicrobial use and AMR issues be increased in undergraduate medical curriculum and that the Ministry of Health, School of Medicine, and AWG collaborate to achieve this result.[24]

The UNZA School of Medicine (SOM) is currently in the process of revising its UG medical curriculum. As a key initial step in the process the School has completed self evaluation based on the standards for basic (undergraduate) medical education defined by the World Federation for Medical Education (WFME).[27] The school has also developed and circulated amongst the stakeholders two important documents—curriculum review manual 2006 [28] and handbook on policies, governance and administration regarding curriculum goals for the MBChB Program.[29]

As a part of this 2006–2008 curriculum review process, the School has come up with a consolidated list of curriculum issues for consideration. Suggested *new courses* included in the list that are relevant to AMR are those on *infectious diseases* (HIV & AIDS, malaria, tuberculosis, etc) and on *therapeutics*. Similarly, topics such as *rational use of medicines, antimicrobial resistance, and infection prevention* are suggested in the consolidated list for inclusion in the revised curriculum.[28] Thus the University has already identified AMR as an area to address during the current curriculum revision cycle. To advance the process, the University organized a curriculum review workshop in March 2007 to specifically discuss the basic science- and AMR-related topics. RPM Plus sent its AMR program manager Dr. Mohan Joshi to Lusaka to assist and facilitate in the workshop. The report mainly describes the AMR-related details of the workshop.

Purpose of Trip

The primary purpose of the visit for Dr. Joshi was to provide technical assistance to local stakeholders at UNZA School of Medicine on AMR-related issues during the curriculum review workshop planned for March 13 to 17, 2007. The other purpose was to hold discussions with local stakeholders to consolidate plans for field test of the AMR module developed jointly by RPM Plus and ORC Macro for use in Demographic Health Surveys (DHS).

Scope of Work for Mohan Joshi

- Work with the AWG and Zambia-based RPM Plus Regional Technical Advisor Oliver Hazemba to assist the local stakeholders on final preparation of the curriculum review workshop, particularly relating to the AMR components
- Make a technical presentation on the problem of AMR, irrational antimicrobial use as a major contributor to the problem, and the Global Srategy document launched by WHO to support containment of this rapidly growing problem

- Facilitate, along with Mr. Hazemba, an interactive discussion aimed at identifying "core AMR topics" that are potentially appropriate for inclusion in the revised curriculum
- Participate in AMR-related small group work during the workshop and assist in generating a consensus-based curricular recommendations by the group
- Discuss with technical staff at the Central Statistical Office (CSO) of the Ministry of Finance and National Planning on the technical and logistical issues of field testing the DHS AMR Module
- Debrief USAID Mission contact for infectious diseases

ACTIVITIES

- **Provide technical assistance for the Curriculum Review Workshop**

  - *Before the workshop:* Dr. Joshi worked with RPM Plus Regional Technical Advisor Mr. Oliver Hazemba to finalize preparations for the sessions RPM Plus was asked to facilitate during the workshop. Dr. Joshi and Mr. Hazemba also discussed about the details of the workshop and the overall curriculum review process with the key contact person Dr. Sekelani Banda, who is the Head of the Department of Medical Education Development (DMED) at the UNZA School of Medicine.

  - *During the workshop:* The week-long workshop *(Annex 1)* was attended by members of the core curriculum committee and representatives from basic science and some clinical departments *(Annex 2).* The workshop was originally planned for March 12 – 16, 2007 but started a day later becasue March 12 happened to be a local holiday.

    Dr. Joshi facilitated an introductory AMR session on the 1st day of the workshop. During this session he presented the global situation of the AMR problem, impact of AMR, irrational antimicrobial prescribing, the WHO Global Strategy for AMR Containment, and the importance of adequate coverage of AMR topics during pre-service education *(Annex 3).* Dr. Joshi and Mr. Hazemba also provided technical inputs during discussion following Professor Chifumbe Chintu's presentation on AMR-related efforts made by the AWG (*Annex 4*) and Dr. James Mwansa's presentation of an assessment conducted by the Zambia Chapter of Alliance for the Prudent Use of Antibiotics (APUA-Zambia) on antibiotic prescribing practices in Lusaka.

    On day 3 of the workshop, Dr. Banda highlighted the major findings of his review of UNZA medical curriculum for AMR content (*Annex 5*). This presentation set the context for an interactive session that Mr. Hazemba and Dr. Joshi facilitated to identify potential "core topics" on AMR, rational antimicrobial use and infection control issues. During this session, the participants discussed about several key AMR and antimicrobials related issues, difficulties, and areas to address in the curriculum. These discussion points were captured in PowerPoint slides and are presented as *Annex 6*. Towards the end of the session, RPM Plus facilitators circulated a list of potentially relevant core topics on AMR (*Annex 7*). The participants reviewed the list and discussed its potential use during detailed content development that would happen as a subsequent step in the curriculum development process.

    On day 4 of the workshop, additional interactive work by the participants led to discipline-specific identification of the following key AMR-related areas that will be proposed to the higher bodies as a part of MBChB basic science curriculum map and to form the basis for more detailed content development:

    Pharmacology

    - Include and emphasize teaching about antimicrobial use and resistance (note: widely prescribed)

- Emphasize on major disease burden, i.e., antiretroviral therapy, tuberculosis, malaria
- Methods of teaching to emphasize: case based teaching; practicals, treatment plans

Therapeutics

- Include emphasis on clinical and public health implications of antimicrobial use/AMR ; prescribers' responsibility to preserve efficacy of antimicrobials through rational antimicrobial use (AMU), infection prevention and control; patient counseling on adherence
- Expose students to standard treatment guidelines, national and hospital formulary, WHO guide to good prescribing
- Include pharmacovigilance / medication errors

Medical Microbiology

- Emphasize AMR (mechanisms, surveillance, efficacy, use of pathogen resistance reports to guide treatment)
- Emphasize national priorities of infectious diseases (tuberculosis, malaria, cholera, sexually transmitted infections, etc)
- Emphasize infection prevention; nosocomial infections; epidemic preparedness
- Increase clinical relevance and context to local setting while maintaining comprehensiveness

- **Discuss with technical staff of the Central Statistical Office for pilot test of the DHS AMR module**

RPM Plus collaborated with ORC Macro to develop a draft DHS "AMR module" to specifically address community knowledge/use of antibiotics and awareness of drug resistance. The module was reviewed by global experts and then revised. The module consists of introduction, indicators, questionnaire, rationale, and tabulation plan. The next step is to pilot test the module in a resource-constrained country leading to any required revision and finalization. Zambia is identified as a country for the pilot test and RPM Plus and ORC Macro are currently trying to initiate collaboration with the Central Statistical Office (CSO) of the Ministry of Finance, Republic of Zambia to implement the pilot test. To expedite this process, Dr. Joshi and Mr. Hazemba had two meetings with relevant contacts at the CSO office in Lusaka. The staff contacted were Mr. W. C. Mayaka, Ms. Nchimunya Nkombo, Ms. Margaret T. Mwanamwenge, Mr Richard Banda, and Ms. Chola N. Daka. These meetings led to finalization of the scope of work for CSO and the timelines for actions.

- **Participate in the AWG Meeting**

Dr. Joshi participated in the AWG meeting held on the 15th of March and took the opportunity to thank the AWG Chair and members for their continued collaboration with RPM Plus to advance AMR advocacy and containment actions in Zambia. The meeting discussed several AMR issues including the curriculum review workshop at SOM, the quality assurance training held in Lusaka from 26th February to 3rd March[30], and progress on

review of the national standard treatment guidelines. The members then discussed about the next steps. The minutes of the meeting are in *Annex 8*. The minutes of the previous meeting held a month earlier appear as *Annex 9*.

- **Debrief Dr. George Sinyangwe at USAID Mission in Zambia**

  Senior Health Advisor at USAID/Zambia Dr. George Sinyangwe, who is the focal person for antimicrobial resistance at the Mission, participated and provided inputs at the UNZA curriculum review workshop during both the sessions that were facilitated by RPM Plus. On March 16, Dr. Joshi and Mr. Hazemba debriefed him in detail at the Mission. Dr. Joshi provided an overview of the major SO5/AMR activities including country-level approach for AMR advocacy and containment, training and follow up regarding drug and therapeutics committees, quality assurance of antimicrobial products, development and pilot testing of DHS AMR module, development and piloting of ART adherence measurement tool, and use of self-assessment tool and rapid cycle quality improvement approach to strengthen hospital infection control practices. Following this general overview, Dr. Joshi and Mr. Hazemba briefed about the specific AMR activities that are currently ongoing in Zambia. Dr. Sinyangwe emphasized the importance of sustainability as a key element for the activities.

NEXT STEPS

- Coordinate with AWG to communicate and collaborate with Dr. Sekelani Banda to further assist in the initiative taken by the School of Medicine stakeholders to include AMR topics in the revised curriculum

- Finalize contract with the CSO for a collaborative pilot test of the DHS AMR module in Zambia

- Expedite the STG review process that has got slowed in the recent past

Recommendation

- As an immediate next step after the March 2007 curriculum development workshop for basic sciences and antimicrobial resistance related topics, SOM plans to conduct additional departmental level workshops for surgical and medical specialties. The materials generated from these workshops will form the basis for the initial draft of the curriculum that is expected to be revised after circulation to and feedback from a wider group of stakeholders. The revised draft will then be discussed at a consensus building stakeholders' meeting. The finalized working draft will subsequently be submitted for adoption by the Board of Studies, and then by the Senate. Once the Senate adopts, the School will then begin implementing the change. The UNZA curriculum review stakeholders have shown strong leadership and commitment to address AMR, antimicrobial use and infection control related topics in the curriculum. It is recommended that USAID/RPM Plus provide on-going support to the University stakeholders at all of the key remaining steps to ensure appropriate and adequate inclusion of AMR topics in the revised curriculum.

Partners and Collaborators

- Although voluntary in nature, the AMR Advocacy Working Group (AWG) continues to remain strongly committed to move the program forward. The group is capitalizing on available opportunities to support and facilitate activities by other in-country partners, e.g., drug quality work by the Pharmaceutical Regulatory Authority, STG work by Zambia National Formulary Committee, and curriculum review by UNZA School of Medicine. RPM Plus should maintain strong ties with the group's Chair Prof. Chifumbe Chintu and other members with increased focus towards maximizing local leadership and sustainability in future for AMR advocacy and containment activities in Zambia.

- UNZA School of Medicine is including attention to AMR in its curriculum review process. The key contact is the Medical Educationist and Head of the DMED Dr. Sekelani S. Banda. Ms. Julie Schurgers is the second medical educationist in the Department. Where possible RPM Plus should continue to support the on-going effort towards including AMR topics in the revised curriculum through effective collaboration with these and other stakeholders at

the School.

- For pilot test of the DHS AMR module, the main CSO contact is senior statistician Ms. Nchimunya Nkombo. Other contacts are Deputy Director of Social Statistics Mr. W. C. Mayaka, senior demographers Ms. Margaret T. Mwanamwenge and Mr. Richard Banda, and statistician Ms. Chola N. Daka. RPM Plus and ORC Macro will collaborate with these local experts to pilot and revise the module.

References

1. WHO. Implementation Workshop on the WHO Global Strategy for Containment of Antimicrobial Resistance, 25 – 26 November 2002, Geneva, Switzerland. World Health Organization, 2003 (WHO/CDS/CSR/RMD/2003.7)

2. Fifty–Eighth World Health Assembly, 25 May 2005 (WHA58.27)

3. WHO Global Strategy for Containment of Antimicrobial Resistance. Geneva: WHO, 2001 (WHO/CDS/CSR/DRS/2001.2).

4. Joshi M., Pollock N., and Sommer M. 2003. *Exploratory Visit for the Antimicrobial Resistance Country-Level Implementation Pilot in Zambia, July 6–18, 2003: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

5. Sosa A., and Stelling J. *APUA-Zambia Chapter Development, January 13–17, 2004: Trip Report.* Submitted to the Rational Pharmaceutical Management Plus Program, Management Sciences for Health, by the Alliance for the Prudent Use of Antibiotics, Boston, MA.

6. Joshi M., Zimicki S., and Sommer M. 2004. *Initiation of Antimicrobial Resistance Country-Level Implementation Pilot in Zambia, March 2–13, 2004: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

7. Joshi M., Pollock N., and Miralles M. 2004. *Antimicrobial Resistance Country-Level Implementation Pilot in Zambia: Trip Report of a Follow-up Visit in August 2004.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health..

8. Joshi M., Pollock N., and Garrison K. 2004. *Antimicrobial Resistance Stakeholders' "Call for Action" Meeting: Lusaka, November 12, 2004.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

9. Sosa A. 2005. *The APUA-Zambia Chapter as the Local Champion in the Advocacy for Antimicrobial Resistance Country-Level Implementation Pilot in Zambia. February 12–19, 2005.* Trip Report Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

10. Soisson D., and Shafritz L. *Zambia Trip Report: Message, Advocacy, and Communication Workshops, Lusaka, February 23–March 4, 2005.* Academy for Educational Development.

11. Joshi M.P., Hazemba O., Pollock N. Supporting Country-Level Strategies for Advocacy and Containment of Antimicrobial Resistance. Paper presented at the SEAM Conference on Targeting Improved Access, June 20–22, 2005, Accra, Ghana. Organized by Strategies for Enhancing Access to Medicines (SEAM), Management Sciences for Health, USA.

12. Joshi M. 2005. *Workshop on implementation of standard treatment guidelines to support antimicrobial resistance (AMR) containment in Zambia: June 27-29, 2005.*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

13. Okeke I. and Stelling J. Antimicrobial Resistance Basic Research Methodologies Training, Lusaka, Zambia, October 25-29, 2005*: Trip Report.* Submitted to the Rational Pharmaceutical Management Plus Program at the Management Sciences for Health by the Alliance for the Prudent Use of Antibiotics. Boston, MA, USA.

14. Sanchez M. and Briones D. 2006. Antimicrobial Resistance Country-level Implementation Pilot in Zambia: Rapid Appraisal of Advocacy Activities. Submitted to Management Sciences for Health/Rational Pharmaceutical Management Plus by Links Media. Gaithersburg, MD.

15. Joshi M.P., Chintu C., Hazemba O., Pollock N. 2006. *Lessons from a Country-level Approach for Advocacy and Containment of Antimicrobial Resistance.* Poster no. 68 presented at the Global Health Council 33rd Annual International Conference on Global Health, May 30-June 2, Washington, DC.

16. Goredema W. 2006. *Antimicrobial Resistance Country-Level Advocacy and Containment Pilot in Zambia follow-up visit, July 2006: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

17. Hazemba O. 2006. Review of Standard Treatment Guidelines 2004 Zambia National Formulary Committee Workshop, Lusaka, September 22-24, 2006. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

18. Joshi, M. and Miralles M. 2006. *Antimicrobial Resistance Advocacy and Containment in Ethiopia: Report of Initial Activities in February-March, 2006.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

19. Goredema W., Hazemba, O., Nelson N., Sanchez M., Sosa A. 2006. *A Call-to-Action National Workshop on Antimicrobial Resistance Containment: Adama, Ethiopia, November 16-18, 2006: Trip Report.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

20. Konduri N., Green T., Daniel G. *Scaling up Antimicrobial Resistance, Drug and Therapeutics Committees, and Rational Drug Use Activities in Ethiopia - A Collaborative Strategy for Success, February 2007: Course Report.* Published for the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

21. Second International Conference on Improving Use of Medicines (ICIUM 2004), Chiang Mai, Thailand, March 30 to April 2, 2004.

22. Sam W.I.C. Medical schools have a role in preventing antibiotic resistance. *Br Med J*, 16 March 1999.

23. Joshi M.P, Jayawickramarajah PT. A problem-orientated pharmacotherapy package for undergraduate medical students. *Medical Teacher* 1996; 18(1): 75-76.

24. Banda S., 2006. Curriculum Review and Interview of Experts to Identify Topics on Antimicrobial Use and Antimicrobial Resistance Included in the Undergraduate Medicine Training Program in Zambia. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Science for Health.

25. Moonga H., 2006. Curriculum Review and Interview of Experts to Identify Topics on Antimicrobial Use and Antimicrobial Resistance in the Undergraduate Pharmacy Training Program, University of Zambia: January 2006. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Science for Health.

26. Syacumpi M., 2006. Preservice and Post-basic Nursing Training Curricula for Registered Nurses in Zambia: Curriculum Review and Expert Interview to Assess Antimicrobial Use and Antimicrobial Resistance Content, March, 2006. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Science for Health.

27. WFME. Basic Medical Education WFME Global Standards for Quality Improvement, Denmark: World Federation for Medical Education Office, University of Copenhagen, 2003.

28. Curriculum Review Manual. University of Zambia, School of Medicine, 2006.

29. Handbook: Policies, Governance and Adiministration – Curriculum Goals for the MBChB Programme. University of Zambia, School of Medicine, 2006.

30. Tran D. and Risha P. 2007. *Port of Entry Inspection and Minilab Training, 26 February-2 March, 2007, Lusaka, Zambia.* Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.

ANNEX 1. UNDERGRADUATE MEDICAL CURRICULUM REVIEW WORKSHOP: BASIC SCIENCES & ANTIMICROBIAL RESISTANCE RELATED TOPICS
13TH MARCH – 17TH MARCH 2007

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE

DEPARTMENTAL CURRICULUM DEVELOPMENT

TUESDAY

13th March 07 - 08:30 hours	-	Registration – DMED.
09:00 hours	-	Overview of Curriculum Review Outline – DMED
09:30 hours	-	Overview of AMR problem, irrational antimicrobial prescribing as an important contributor to the problem, and the Global Strategy of WHO to combat the problem - (Dr. Mohan Joshi, RPM Plus/MSH)
10:30 hours	-	**T E A B R E A K**
10:45 hours	-	AMR country-level advocacy and containment initiative in Zambia (Professor Chifumbe Chintu, AMR AWG)
	-	APUA Zambia's assessment on antibiotic use and other local evidences of irrational antimicrobial use and the problem of AMR in Zambia - (Dr. James Mwansa and Ruth Tembwe, APUA/ZAMBIA)
13:00 hours	-	**L U N C H**
14:00 hours	-	Review of the strengths and weaknesses of the Basic Sciences Curriculum (Group Work)

16:30 hours - Close

WEDNESDAY

14th March 07 - 08:30 hours - Review of the strengths and weaknesses of the Basic Sciences Curriculum

10:30 hours - **T E A B R E A K**

10:45 hours - Review of School of Medicine MB ChB Curriculum Goals and Outcomes

11:45 hours - Plenary of MB ChB Curriculum Goals and Outcomes

12:00 hours - How the Basic Sciences can contribute to Curriculum Goals and Outcomes (Discussion)

13:00 hours - **L U N C H**

14:00 hours - Alternative approaches – Overview of Practices from other institutions/ working curriculum document (DMED)

16:30 hours - Close

THURSDAY

15th March 07 - 08:30 hours - Formulating objectives and Aims (DMED)

09:30 hours - Standardising formats for Documents generated from Workshop (DMED)

10:30 hours - **T E A B R E A K**

11:00 hours - Review of consolidated list of Curriculum Issues (Plenary)

11:30 hours - UNZA Curriculum Review on AMR. – (Dr Sekelani Banda, DMED)

- Potential "core topics" on AMR, rational AM use and Infection Control issues that are of high local relevance and appropriate for coverage during undergraduate medical education in Zambia – (Interactive session facilitated by Dr. Mohan Joshi and Oliver Hazemba, RPM Plus/MSH).

13:00 hours - **L U N C H**

14:00 hours - Structure of courses for Basic Sciences and course codes

15:30 hours - Developing course objectives (Group Work)

16:30 hours - Close

FRIDAY

16th March 07 - 08:30 hours - Developing course objectives (Group Work)

10:30 hours - **T E A B R E A K**

11:00 hours - Course Content

13:00 hours - **L U N C H**

14:00 hours - Teaching methods, contact hours, Assessment, Prescribed Reading

16:30 hours - Close

SATURDAY

17th March 07 - 08:30 hours - Plenary on courses developed

10:30 hours - **T E A B R E A K**

11:00 hours - Plenary of courses developed

13:00 hours - **L U N C H**

14:00 hours - Finalisation of documents generated

16:00 hours - Submission of workshop outputs

16:30 hours - Closing Remarks

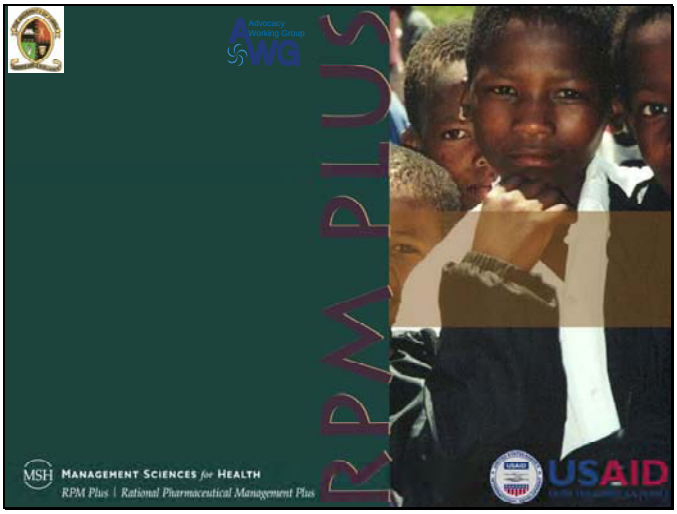
Dr Sekelani S Banda MB ChB, MSc, MMEd, PhD
ASSISTANT DEAN (G) & HEAD, MEDICAL EDUCATION DEVELOPMENT

ANNEX 2. LIST OF WORKSHOP PARTICIPANTS

DEPARTMENTAL CURRICULUM DEVELOPMENT
UNDERGRADUATE MEDICAL CURRICULUM REVIEW WORKSHOP
BASIC SCIENCES & ANTIMICROBIAL RESISTANCE RELATED TOPICS
13TH MARCH TO 17TH MARCH 2007

	NAME	ORGANISATION/INSTITUTION
1.	DR. MUNALULA	UNZA-PHYSIOLOGICAL SCIENCES
2.	DR. M. BANDA	UNZA –DEPT OF PSYCHIATRY
3.	DR. G. SIJUMBILA	UNZA- BIOCHEMISTRY
4.	MR. SHIBALATANI	UNZA – COMMUNITY MEDICINE
5	CHIBWE ANGELA	STUDENT REP-SOM
6	JULIE SCHUGARS	UNZA – MEDICAL EDUCATION
7	DR. S. S. BANDA	UNZA – MEDICAL EDUCATION
8.	SIVILE SUILANJI	STUDENT REP- SOM
9.	MUPETA FRANCIS	STUDENT REP-SOM
10	C.J. SHINONDO	UNZA – BIOMEDICAL SCIENCES
11	DR. MWANSA	UNZA - UTH
12	DR. SILUMBE	UTH-SCHOOL OF MEDICINE
13	G. MULUNDU	UNZA – DEPT OF PATHOLOGY
14	S. SINYANGWE	UNZA – DEPT OF PAEDIATRICS
15	MR. MWANGO	UNZA – DEPT OF PHYSIOTHERAPY
16	DR G. SINYANGWE	USAID/Zambia
17	MR. OLIVER HAZEMBA	RPM Plus/MSH
18	DR. MOHAN JOSHI	RPM Plus/MSH

ANNEX 3. OVERVIEW OF ANTIMICROBIAL RESISTANCE, IRRATIONAL ANTIMICROBIAL USE, AND WHO GOBAL STRATEGY TO CONTAIN RESISTANCE



Overview of Antimicrobial Resistance, Irrational Antimicrobial Use, and WHO Global Strategy to Contain Resistance

Mohan P. Joshi, Oliver Hazemba, Wonder Goredema, Nick Nelson
MSH/RPM Plus, Arlington, VA, USA

Presented at the University of Zambia Undergraduate Medical Curriculum Review Workshop: Basic Sciences and Antimicrobial Resistance Related Topics, 13 to 17 March 2007, UNZA School of Medicine, Lusaka

Advocacy Working Group AWG
USAID FROM THE AMERICAN PEOPLE
MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Global Situation of Antimicrobial Resistance (AMR)

- Pathogens causing diseases like tuberculosis (TB), malaria, sexually transmitted infections, typhoid, bacterial dysentery, and pneumonia are now resistant to traditional antimicrobials
- About 1 in 5 cases of TB is multidrug-resistant (MDR)
- In 81 of 92 malaria-prevalent countries, chloroquine is no longer effective

Source: World Health Organization (WHO). 2000. *Essential Drugs Monitor*. No. 28 - 29. Geneva: WHO. <http://mednet2.who.int/edmonitor/edition/EDM2829en.pdf> (accessed Aug. 28, 2006).

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Global Situation of AMR:

Prevalence of *Streptococcus pneumoniae* not susceptible to any three drug classes (including penicillin), Alexander Project 1998—2000

- South Africa (33.5%)
- France (49.1%)
- Italy (22.4%)
- Spain (32.9%)
- Hong Kong (79.3%)
- Japan (63.1%)
- Singapore (39.9%)
- Saudi Arabia (23.5%)
- Mexico (31.1%)
- US (25.8%)

Adapted from: Jacobs and Others 2003. *Quoted in:* Laxminarayan and colleagues. Drug resistance (Chapter 55, Pages 1031-1051) In: Disease Control Priorities in Developing Countries, 2006.

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Country/Local Examples of AMR (1)

- Malaria in Ethiopia—very high chloroquine resistance (65% treatment failure)[1] and high sulfadoxine-pyrimethamine resistance (32% parasitological failure)[1,2]
- 30-50% of isolates from previously untreated TB cases in Uzbekistan and Turkmenistan were resistant to one TB drug, and 10-30% were MDR[3]

Sources:
1 – Jimma et al. *East African Med. J.* 2005; 82(8): 391-5
2 – Kassa et al. *Ethiop. Med. J.* 2005; 43(3): 181-7
3 – Cox et al. *Emerg Infect Dis* 2004; 10: 865-72

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Country/Local Examples of AMR (2)

- Current range of penicillin resistant gonorrhea—9-90% in Asia and more than 35% in Sub-Saharan Africa and the Caribbean[1]
- Zheng and colleagues showed a remarkable increase of resistance amongst *N. gonorrhoeae* isolates in Guangzhou in China during a 6-year period from 1996 to 2001—from 57.2% to 81.8% for penicillin G and from 17.6% to 72.7% for ciprofloxacin[2]

Sources:
1. Okeke et al. *Lancet Infect Dis* 2005; 5: 481-93
2. Zheng et al. *Sex Transm Infect* 2003; 79(5): 399-402

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Country/Local Examples of AMR (3)

- The *Shigella* strains isolated from children under 5 with acute diarrhea in Chile over a 4-year period showed high levels of resistance to ampicillin (82%), chloramphenicol (49%), cotrimoxazole (65%), and tetracycline (53%)
- 51% of the strains were resistant to multiple antibiotics

Source: Fulla N et al. *Am J Trop Med Hyg* 2005; 72(6): 851-854

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Country/Local Examples of AMR (4)

1981-1999 Surveillance data on nosocominal infections at National Taiwan University Hospital showed a great increase in the incidence of some drug resistant pathogens

Pathogen	Incidence in 1981-1986	Incidence in 1993-1998
Methicillin-resistant *Staphylococcus aureus*	4.3%	58.9%
Cefotaxime-resistant *Escherichia coli*	0%	6.1%
Cefotaxime-resistant *Klebsiella pneumoniae*	4%	25.8%

Source: Hsueh et al. *Emerg Infect Dis* 2002; 8(1): 63-8

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Impact of AMR

- Huge Individual as well as Public Health Consequences in terms of
  - Prolonged illness
  - Increased mortality
  - Prolonged periods of infectiousness with increased risk of transmission of resistant pathogen to others
  - Increased direct cost (longer hospital stay, use of more expensive 2nd or 3rd line drugs)
  - Indirect costs (prolonged absence from work, etc)

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Impact of AMR— Example of MDR-TB

MDR-TB (resistant to at least isoniazid and rifampicin)

- Treatment 100 times more expensive, treatment duration much longer, cure rate much lower even in the best centers
- A report showed that the cost for drug treatment for TB in Northwest Province of South Africa was Rand 26,354 (roughly US$4300) for MDR cases vs. Rand 215 (roughly US$35) for susceptible cases[1]

Source:

1. Hensher M. Budget Planning Assistance for North West Province: TB and HIV/AIDS/STD Programs - Final Report, 23rd September 1999. *Quoted in:* Okeke et al. *Lancet Infect Dis* 2005; 5: 481-93.

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Impact of AMR— Example of XDR-TB

- Extensively drug resistant TB (XDR-TB) cases—cases that are resistant to 3 of the 6 classes of second-line drugs—carry a very high mortality rate and are increasing
- An XDR-TB strain in South Africa killed 52 of 53 identified cases in 2006 causing widespread concern in the public health community[1]

Source:

1. Singh et al. *PLos Med* 2007; 4 (1):e50.

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Impact of AMR—Cost Implications of Nosocomial MRSA

Primary blood stream infections due to nosocomial methicillin-resistant *Staph aureus* caused about 3-fold increase in cost and hospital stay when compared with infections due to methicillin-sensitive *Staph aureus*

Pathogen	Median hospital stay (days)	Median total cost (US$)
Methicillin-sensitive *Staphylococcus aureus*	4	9,661
Methicillin-resistant *Staphylococcus aureus*	12	27,083

Source: Abramson and Sexton. *Infect Control Hosp Epidemiol* 1999; 20(6): 408-11

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Impact of AMR—Cost Implications of Changing Over to ACT Regimen for Malaria Treatment

- Because of failing treatment with chloroquine or SP, most malaria-affected African countries have changed to ACT-based regimen, which has significant cost implications

Drug	Cost for an adult treatment course (US$)[1]
Artemether-lumefantrine (Coartem)	2.4
Chloroquine	0.13
Sulfadoxine-pyrimethamine (SP)	0.14

Source: 1. Omari et al. *Tropical Medicine and International Health* 2004; 9(2): 192-199

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

AMR in Hospitals

- Up to 10% of admitted patients get hospital-acquired infections
- Hospitals are a major source of drug-resistant infections
- Important hospital pathogens

  Methicillin-resistant *Staphylococcus aureus (MRSA), Pseudomonas aeruginosa, Escherichia coli, Klebsiella pneumoniae, Enterococcus faecium, Enterobacter spp., Citrobacter spp.,* and *Acinetobacter calcoaceticus*

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

AMR in Community

- Increasingly being reported in community-acquired infections
- *Strep. pneumonie, Strep. pyogenes, H. influenzae, Neisseria gonorrhoeae, Neisseria meningitidis, Salmonella* spp., *Shigella* spp., *Campylobacter* spp., *E. coli, M. tuberculosis, community acquired MRSA*

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Multi-drug Resistant (MDR) Pathogens

- Many pathogens have become MDR
  MRSA; MDR *M. tuberculosis*; MDR *S. typhi*; MDR *Shigella* spp.; MDR *Plasmodium falciparum*; aminoglycoside- & glycopeptide-resistant enterococci; ESBL-producing enterobacter, citrobacter, *E. coli* and *K. pneumoniae*; MDR *Neisseria gonorrhoeae* & *Neisseria meningitidis*; MDR pneumococci; MDR *L. donovani*.
- There have been many outbreaks of MDR infections in recent years

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Increased Drug Flow Through Recent Initiatives and the Risk of AMR Escalation

- Multifold increase in supply of HIV/AIDS, TB and malaria medicines to resource-limited countries through recent global health initiatives (GFATM, The President's Emergency Plan, GDF, and others)
- Resistance likely to escalate rapidly if appropriate management strategies not implemented along with this multifold increase in medicine supply
- Adequate attention is thus required to strengthen pharmaceutical management capacity and ensure proper use

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Key Factors Contributing to AMR

- Inappropriate use by providers and patients
- Limited access to antimicrobials
- Easily obtainable over-the-counter where available (in most resource-constrained countries)
- Poor quality antimicrobial products
- Poor infection prevention and control
- Drug promotion, including direct-to-the-consumer and Internet ads

MSH MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Inappropriate Use—A Major Contributor to AMR

- Antimicrobials are one of the most widely used and misused agents
- 20–50% of human use UNNECESSARY
- 40–80% of animal use HIGHLY QUESTIONABLE

Source: Wise et al. *British Medical Journal* 1998; 317(7159): 609–10.

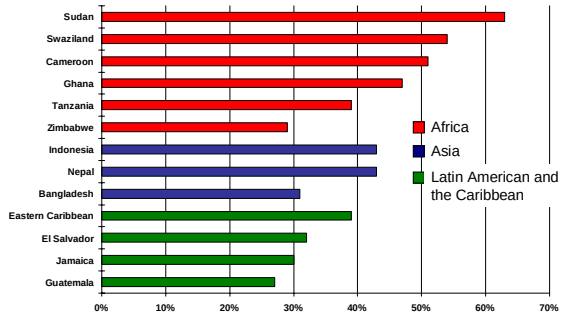
MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Inappropriate Use—A Major Contributor to AMR (2)

- Inappropriate prescribing common in both primary health care & hospital practice
- 30–60% patients given antibiotics in primary health care. This is perhaps twice that is clinically needed
- Every 2nd patient in acute care hospitals receives antibiotics
- Many reports show inappropriate antibiotic use in hospitals for treatment and for surgical prophylaxis

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

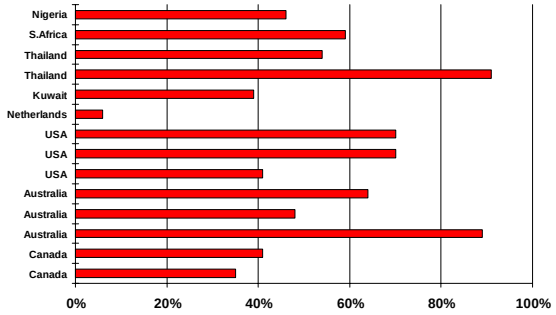
Percent of Primary Health Care Patients Receiving Antibiotics



Sources: Management Sciences for Health and WHO. 1997. *Managing Drug Supply.* 2nd ed. West Hartford, CT: Kumarian Press; WHO. 2000. *Essential Drugs Monitor*. No. 28 - 29.

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Percent of Patients Receiving Inappropriate Antibiotics in Hospitals



Adapted from: Hogerzeil HV. *British Journal of Clinical Pharmacology* 1995; 39(1):1–6.

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Reasons for Irrational Prescribing

- training deficiencies
- diagnostic uncertainties
- standard treatment guidelines/formularies not available or not used
- fear of poor patient outcome & need for self reassurance
- fear of litigation
- dispensing prescribers
- Microbiological information not available or not used
- Patient demand

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Recent evidence for direct relationship between antibiotic use and resistance (1)

- Surbhi Malhotra-Kumar and co-workers did an important study in Belgium using macrolide antibiotics that strengthened *causal* relationship between antibiotic intake and emergence of resistance in vivo
- Randomized, double-blind and placebo-controlled trial in which volunteers were exposed to azithromycin, clarithromycin or placebo
- Proportion of streptococci that were macrolide-resistant was assessed using pharyngeal swabs obtained before and at different time intervals after drug exposure
- Compared with placebo, both azithromycin and clarithromycin significantly increased the proportion of macrolide-resistant streptococci at all points studied

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Recent evidence for direct relationship between antibiotic use and resistance (2)

- Additional key finding of the study was that each antibiotic exerted selection pressure in its own distinctive way. Azithromycin quantitatively selected for more resistant organisms. Clarithromycin qualitatively selected for erm(B), a gene that confers not only high level macrolide resistance but also lincosamide, streptogramin B and tetracycline resistance.
- This study has provided a robust evidence of direct effect of antibiotic exposure on resistance

Source: Malhotra-Kumar S et al. *Lancet* 2007; 369: 482-90

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Antimicrobial stewardship by prescribers is a key measure for AMR containment

An Editorial Commentary in *Clinical Infectious Diseases* writes—

"Antimicrobial resistance is fueled by excessive antimicrobial use. Thus, careful, discriminating use of antimicrobial agents remains the keystone for minimizing the problem of resistance, although it is not the only control measure needed. This need for effective antimicrobial stewardship must be communicated more effectively to prescribers."

Source: McGowan JE. *CID* 2004; 38 (1 April): 939-942.

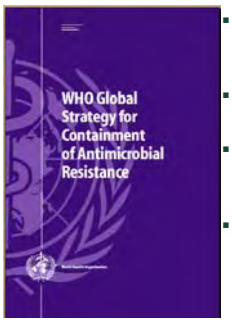
MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

2005 World Health Assembly Resolution to Improve AMR Containment

Recognizing the increasing threat posed by antimicrobial resistance, the 58th World Health Assembly of WHO adopted a resolution to improve AMR containment, particularly through the rational use of medicines (WHA 58.27)

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

WHO Global Strategy for Containment of AMR[1]



- A framework of interventions to slow the emergence and reduce the spread of antimicrobial resistance
- Essential information on factors responsible for increasing resistance
- Assessment of issues around appropriate antimicrobial use and specific interventions needed to contain resistance
- Practical guide to implementation in line with national realities

1. WHO Global Strategy for Containment of Antimicrobial Resistance. Geneva: WHO, 2001 (WHO/CDS/CSR/DRS/2001.2)

MSH Management Sciences for Health

WHO Global Strategy: Framework of Interventions

- Reduce disease burden and spread of infection
- Improve access to appropriate antimicrobial agents
- Improve use of antimicrobial agents
- Strengthen health systems and their surveillance capacity
- Enforce regulation and legislation
- Encourage the development of appropriate new drugs and vaccines

Source: WHO Global Strategy for Containment of Antimicrobial Resistance. Geneva: WHO, 2001

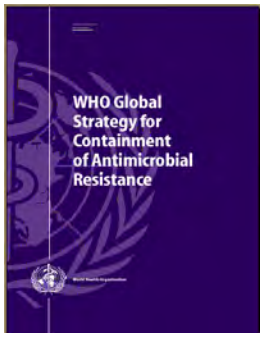
MSH Management Sciences for Health

WHO Global Strategy: multifaceted recommendations directed towards

- Patients and the general community
- Prescribers and dispensers
- Hospitals
- Use of antimicrobials in food-producing animals
- National governments and health systems (advocacy, regulations, policies and guidelines, education, surveillance)
- Drug and vaccine development
- Pharmaceutical promotion
- International aspects of containing AMR

MSH Management Sciences for Health

Pre-service Training: a Priority Intervention



Targeted undergraduate and postgraduate education is recommended as one of the first priority interventions in the WHO Global Strategy

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

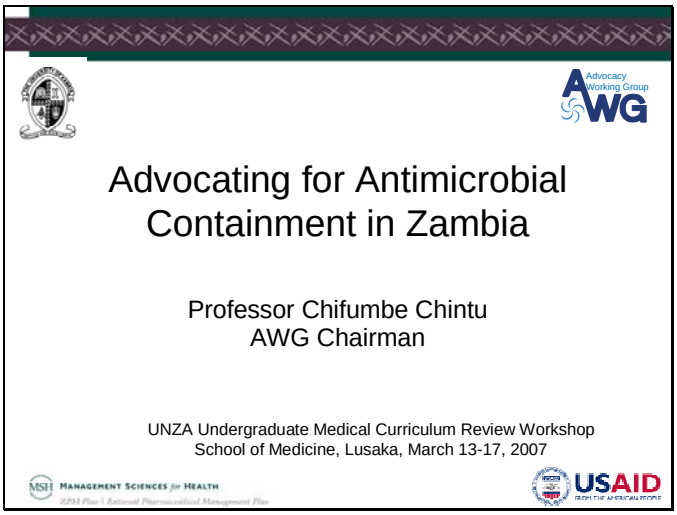
The role of medical schools in preventing AMR

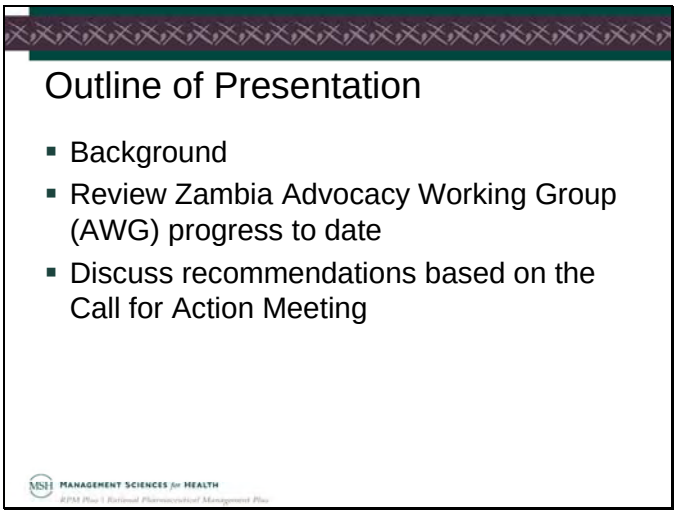
- WIC Sam writes in the 16th March 1999 issue of *BMJ* (Vol 318):

  "Insufficient training is a factor in the misuse of antibiotics. In the hectic work atmosphere of the junior doctor, it is often easier to follow a senior's actions without thinking. As doctors rise through the ranks, it becomes increasingly difficult to alter prescribing habits. Therefore it would seem that the most crucial time to educate doctors on the use of antibiotics, and the consequences of misuse, is while they are still students."

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

ANNEX 4. ADVOCATING FOR ANTIMICROBIAL CONTAINMENT IN ZAMBIA



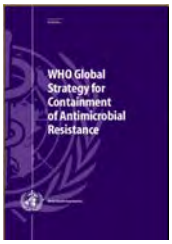


Background (1)

- Antimicrobial resistance (AMR) is an emerging problem in diseases of major public health importance worldwide
- Resistance to first-line treatment has been noted in HIV/AIDS, malaria, TB, *S. aureus* (MRSA), *V. cholerae, N. gonorrhoeae* and *S. dysenteriae*
- Is there a solution to the growing trend?

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Background (2)



- In 2001, the World Health Organization (WHO) released a global strategy to contain AMR.
- With support from the U.S. Agency for International Development, a group of partners developed a country-level approach for advocacy and containment of AMR in Zambia and helped in-country partners implement this approach.

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Background (3)

- Initial conceptual work for the activity—
  - RPM Plus/MSH
  - The CHANGE Project of Academy for Educational Development
  - Alliance for Prudent Use of Antibiotics (APUA)
  - Applied Research on Child Health (ARCH) Project
  - Harvard Drug Policy Research Group

MANAGEMENT SCIENCES for HEALTH
RPM Plus | Rational Pharmaceutical Management Plus

Background (4)

- AMR Advocacy Working Group (AWG), a multidisciplinary local champion group, was initiated with support from RPM Plus/MSH and the CHANGE Project/AED in collaboration with APUA in 2004
  - To lead and catalyze the AMR advocacy and containment process
  - Guide and support local stakeholders on how to develop and carry out appropriate interventions to address the AMR problem

MANAGEMENT SCIENCES for HEALTH

Background (5)

- Zambia AMR Advocacy Working Group—
  - Has a wide representation of experts and concerned citizens—Ministry of Health (MoH) regulatory authority, surveillance laboratory, academia, disease control programs, professional societies, NGOs, private sector

MANAGEMENT SCIENCES for HEALTH

Activities of the AWG (1)

- Conducted a review of issues that impact AMR in Zambia—included an appraisal of media presence and communication channels
- Drafted a "Call-to-Action" document to generate advocacy
- Held a "Call-to-Action" meeting attended by 70 AMR stakeholders on November 12, 2004

MANAGEMENT SCIENCES for HEALTH

The "Call to Action" (1)

- **Drew attention to actions that should be taken to preserve the effectiveness of existing medicines**
  - Lack of knowledge has been shown to be a key determinant in the appropriate use of antimicrobials
  - Incorrect prescribing and dispensing of antimicrobials is often due to diagnostic limitations

MANAGEMENT SCIENCES for HEALTH

The "Call to Action" (2)

- **Drew attention to actions that should be taken to preserve the effectiveness of existing medicines**
  - Ensure that health workers at all levels are trained (pre-service and in-service) on antimicrobial resistance (AMR) and Antimicrobial Use (Action: University of Zambia)

MANAGEMENT SCIENCES for HEALTH

AWG Response to the "Call to Action"

- Supported review of pre- and in-service training curricula for health care professionals for AMR content
  - Undergraduate medical, pharmacy and nursing education
  - Inservice training
- Shared the results with stakeholders

(Dr. Sekelani Banda will share highlights of the medical curricula review later)

MANAGEMENT SCIENCES for HEALTH

School of Medicine Response

- Review of Undergraduate Medical Education to incorporate antimicrobial use (AMU) and AMR in the curriculum
- Encourage lecturers to give adequate information on AMU and AMR to students and young doctors

MANAGEMENT SCIENCES for HEALTH

Other AWG Activities to date (1)

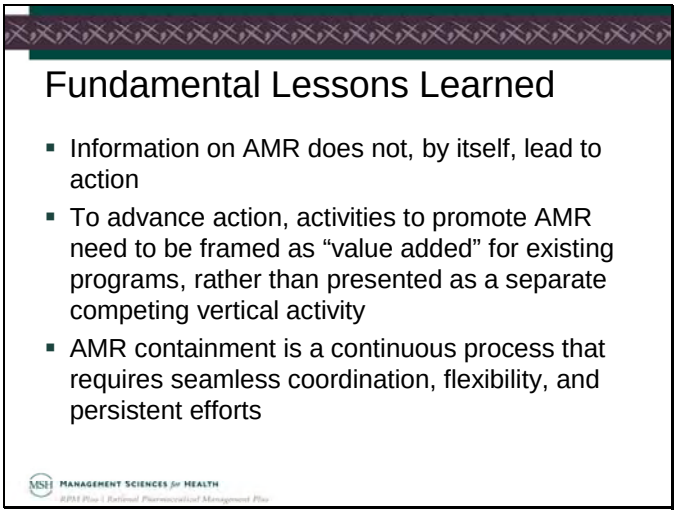
- Pushed for broad coverage of AMR issues in national and local newspapers
- Supported communication workshops to advance advocacy strategies and develop print and radio materials about drug resistance (March/April 2005)
- Links Media performed an interim appraisal to review program achievements and recommend effective future advocacy strategies (December 2005)

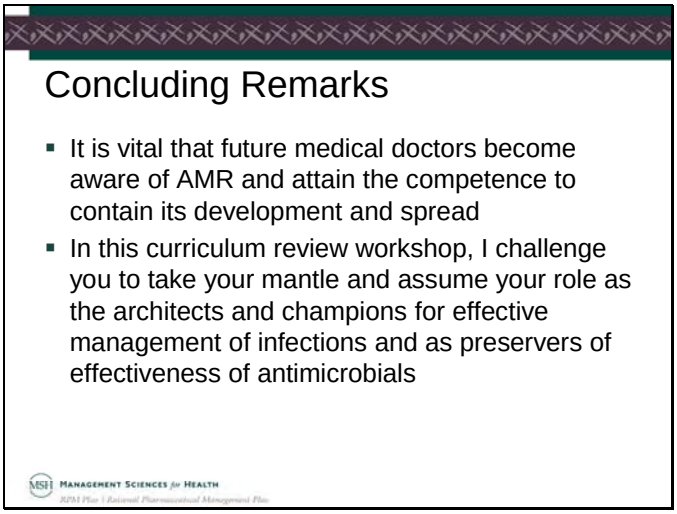
MANAGEMENT SCIENCES for HEALTH

Other AWG Activities to date (2)

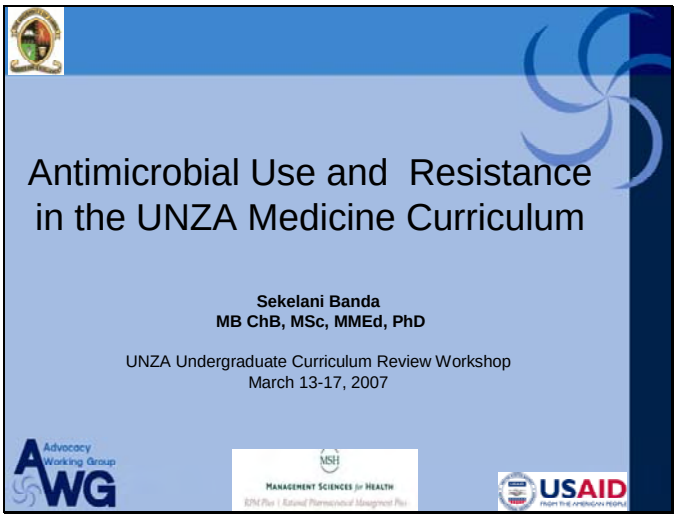
- Collaborating with the Zambia National Formulary Committee to review the standard treatment guidelines for major infectious diseases in Zambia (2005/2007)
- Supporting the Pharmaceutical Regulatory Authority in Quality Control of Medicine using Thin-layer Chromatography technology

MANAGEMENT SCIENCES for HEALTH


Fundamental Lessons Learned
Information on AMR does not, by itself, lead to action
To advance action, activities to promote AMR need to be framed as "value added" for existing programs, rather than presented as a separate competing vertical activity
AMR containment is a continuous process that requires seamless coordination, flexibility, and persistent efforts
MSH MANAGEMENT SCIENCES for HEALTH


Concluding Remarks
It is vital that future medical doctors become aware of AMR and attain the competence to contain its development and spread
In this curriculum review workshop, I challenge you to take your mantle and assume your role as the architects and champions for effective management of infections and as preservers of effectiveness of antimicrobials
MSH MANAGEMENT SCIENCES for HEALTH

ANNEX 5. ANTIMICROBIAL USE AND RESISTANCE IN THE UNZA MEDICINE CURRICULUM



Disclaimer

- This report was made possible through support provided by the U.S. Agency for International Development, under the terms of Cooperative Agreement Number HRN-A-00-00-00016-00. The opinions expressed herein are those of the author

Recommended Citation

- **Banda, S. 2006. *Curriculum Review and Interview of Experts to Identify Topics on Antimicrobial Use and Antimicrobial Resistance Included in the Undergraduate Medicine Training Program in Zambia*. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health.**

Objective of the Study

- Conduct a curriculum review and interview experts to identify antimicrobial (AM) use and antimicrobial resistance (AMR) topics included in undergraduate medical training programme in Zambia.
- To identify gaps in the training programme and to assist in developing recommendations on suitable modifications and additions required in the Zambian context to ensure adequate coverage of these topics.

Survey Methods

- Curriculum review
- Interviews with lecturers, governmental officials, and representatives of the professional physicians association
- Focus group discussions with graduates to review the findings

Methods: Curriculum Review

- Part A was a course review using a Course-by-Course Review Form to identify the course, its learning objectives, and its content.
- A preliminary analysis for AM Use and AMR content was explored for each course.
- Each course was categorized as AMU/AMR-related or non-AMU/AMR related, using general themes from the *WHO Global Strategy for Containment of Antimicrobial Resistance*.

Methods: Curriculum Review

- Part B was the Course Summary Form and was used to gather information about:
  - total number of courses in the curriculum,
  - approximate length of each course,
  - overall length of the curriculum,
  - content covered,
  - total number of courses with AMU/AMR content,
  - approximate amount of time devoted to AMU/AMR-type content,
  - and teaching/learning methods.

Methods: Curriculum Review

- Information from Part B was used to determine the total course time devoted to AM/AMR related teaching, using the following calculations—first, the total number of hours spent in the curriculum for all the courses was calculated. Second, using the focus group discussion with five graduates of the curriculum, the total number of hours spent on each major topic area was estimated and compared to the total number of hours spent on courses categorized as AM/AMR related.

Summary of Features of the MB ChB Curriculum

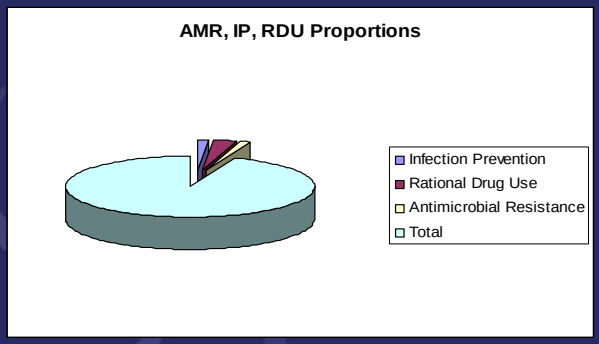
- Total number of courses in curriculum = 40
- Total number of hours in curriculum = 2,800 hours over 5 yrs
- Number of AM/AMR-related courses = 10
- Total number of hours of AM/AMR-related courses = 700 hours
- Hours per course = 70

(Source: *Reference Book 2000)*

Curriculum Review Results

- Of these 700 hours, teaching hours in infection prevention (IP), rational use of medicines (RUM), and AMR were distributed as follows—

Proportion of AMR-related Courses



In absolute numbers of hours:

- Infection Prevention = 43.75 hours;
- Rational Use of Medicines = 87.5 hours;
- Antimicrobial Resistance = 43.75 hours

(generated from focus group discussions with graduates).

Gaps: Antimicrobial Use

- Issues of patients' misconceptions about AM treatment, self-medication, and poor adherence were not specifically addressed in either preclinical or clinical years.

Gaps: ***Infectious Diseases of Major Public Health Importance***

- No special attention was paid to the use of antimicrobials in treating these diseases with regard to the issue of AMR.
  - The issue is important because of increased volume of antimicrobials on the market caused by international initiatives such as The President's Emergency Plan for AIDS Relief and the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Gaps: Infection Prevention and Immunization

- Vaccination as a strategy for IP and how it relates to reduction of AMR was not covered in courses.
- Barrier precautions (hand washing, use of gloves, gowning), isolation procedures, injection safety and appropriate use of injections, sterilization and disinfection of supplies and equipment, and aseptic techniques for medical procedures were not taught as topics in lectures and tutorials (Left to apprenticeship)

Gaps: Rational Use of Medicines

- RUM & subtopics such as accurate diagnosis and selection of correct medicines, dosages, and treatment durations
- Patient education on appropriate use of medicines;
- Use of standard treatment guidelines
- The role of counterfeit medicines
- Pharmaceutical promotions coercion
- Prescribing audits

As issues that are important for the containment of AMR were not expressly addressed.

Gaps: Antimicrobial Resistance

- The extent of the AMR problem, AMR surveillance and research, and prevention and control were not taught.
- Examples of resistance—such as multidrug resistance (MDR), methicillin-resistant *Staphylococcus aureus*, and vancomycin-resistant enterococci—were mentioned in passing.
- AMR was not taught in clinical courses as a specific topic.

Recommendations

- Increase the amount and scope of coverage for AM RUM in the undergraduate curriculum.
- Increase the amount and scope of coverage for AMR and containment of AMR, especially in the clinical years.
- Draw a comprehensive curriculum outline of AMU, RUM and AMR and containment of AMR. Plan for placement of topics in the curriculum to have systematic coverage of all important components.
- Increase availability of laboratory infrastructure, supplies, and staffing to students in training to improve awareness and practices of accurate diagnosis and RUM.

Recommendations

- Improve the availability of essential medicines in the pharmacies, and dissemination of EMLs and STGs for student training, to promote RUM.
- Increase awareness of students on the impact of increase of volume of consumption and availability of AMs caused by international initiatives such as The President's Emergency Plan for AIDS Relief and the Global Fund.
- Provide funds for curriculum review to support the integration of AM/AMR in the School of Medicine undergraduate programme.

Summary

- The need for teaching AMR issues in the undergraduate medical curriculum has been established by the curriculum review and interview of experts both from the government and from the teaching faculty members.
- It is recommended that the Antimicrobial Advocacy Working Group, the Ministry of Health, and the School of Medicine commission work to oversee the systematic and longitudinal coverage of AMR (components) in the undergraduate medical curriculum.
- The faculty members must be trained to effect this change; while the other support infrastructure, such as laboratory services, must be enhanced in the undergraduate training.

Thank You

ANNEX 6. ANTIMICROBIAL USE AND AMR RELATED DISCUSSION POINTS BROUGHT UP BY WORKSHOP PARTICIPANTS DURING AN INTERACTIVE SESSION ON POTENTIAL "CORE" TOPICS ON AMR

AMR

- Consider module on AMU/AMR in microbiology/pharmacology/therapeutics courses.
- Consider public health / social implications of AMU
- Pharmacovigilance
- Strengthen teaching of antimicrobials in pharmacology

AMR (cont'd)

- Definition, mechanism of resistance, and determination
- Bridging the gap between clinicians and the laboratory (accurate diagnosis)
- Introduce &/or increase exposure to laboratory medicine; improve reporting system of lab results

AMR (cont'd)

- Access to regular AMR surveillance reports to inform prescription trends
- Incorporate Infection Prevention in undergraduate training
- Introduce cases of adherence/self medication etc in patient counseling of communication skills teaching.
- See objectives for proposed AMR (MSH)
  (Included in this report as Annex 7)

ANNEX 7. POTENTIAL CORE ANTIMICROBIAL RESISTANCE (AMR) TOPICS FOR UNZA SCHOOL OF MEDICINE UG MEDICAL CURRICULUM

Topic	Possible Subject/Discipline
AWARENESS OF KEY AMR ISSUES	
(At the end of the session, the student will be able to) Define AMR, including multi-drug resistance (MDR)	Pharmacol, Microbiol
Enumerate diseases of major public health importance for which AMR is an issue (TB, malaria, pneumonia, bacillary dysentery, STI, HIV/AIDS)	Comm Med, Pharmacol, Microbiol
Briefly describe the mechanism of resistance	Microbiol, Pharmacol
Briefly explain key factors contributing to emergence and spread of AMR (limited access, unregulated availability, irrational use by providers and patients, poor drug quality, poor infection prevention and control, drug promotion)	Pharmacol, Comm Med
List individual and public health consequences of AMR (increased morbidity, mortality, cost, transmission of infection to others in community)	Pharmacol, Comm Med
Cite selected local and global examples/case stories of AMR (eg, in TB, malaria, hospital-acquired infections, STIs, etc)	Pharmacol, Comm Med, Surg, Paed, Obgy
List local resistance patterns for commonly encountered pathogens	Microbiol, Med, Surg, Paed, Obgy
Distinguish between hospital-acquired (nosocomial) and community-acquired infections and recognize that AMR has become a problem in both types	Pharmacol, Comm Med, Microbiol, Med, Surg, Paed, Obgy
Recognize and tell the risk associated with worsening of AMR situation for HIV/AIDS, malaria and TB if the recent increase in medicines availability through GFATM, PEPFAR etc is not matched with their proper management and use	Comm Med, Pharmacol
PRESCRIBER-RELATED RATIONAL ANTIMICROBIAL USE AND INFECTION CONTROL ISSUES FOR AMR CONTAINMENT	
Explain the importance of accurate diagnosis of infections and selection of appropriate antimicrobials with correct dose, route	Pharmacol, Med, Surg, Paed, Obgy

and treatment duration	
Explain the role of prescribers in effective provider-patient communication and in counseling patients/caregivers regarding appropriate antimicrobial use, adherence to treatment, responsible self-medication, and infection prevention (eg, vaccine, food hygiene, handwashing, condom, bednet, etc)	Pharmacol, Comm Med, Med, Surg, Paed, Obgy
Recognize and list factors influencing antimicrobial prescribing	Pharmacol
Explain the critical importance of efforts to "preserve the effectiveness of currently available antimicorbials" in view of the current reality of development of very few new antimicrobials	Pharmacol, Microbiol, Med, Surg, Paed, Obgy
Critically analyze promotional antimicrobial information provided by pharmaceutical industry	Pharmacol, Med, Surg, Paed, Obgy
Demostrate awareness and understanding by defining standard treatment guidelines/drug formularies/essential drugs lists, recognizing these docuemnts produced locally, and explaining their role in promoting rational use of drugs, including antimicrobials	Pharmacol, Med, Surg, Paed, Obgy
Explain the vital role of Drug& Therapeutics Committees in rational use of drugs, including antimicrobials	Pharmacol
Explain the role of hosptial infection control programs in reducing the burden of drug-resistant nosocomial infections (eg, establishment of well-functioning Infection Control Committee, handwashing, use of gloves, waste management, sterilization/disinfection, food hygiene, injection safety, etc)	Microbiol, Med, Surg, Paed, Obgy
State the importance of regular surveillance of local patterns of antimicrobial use and resistance patterns and use the information generated to guide prescribing	Microbiol, Med, Surg, Paed, Obgy
Expain the role of prescribers as agents for awareness and advocacy on issues such as substandard/counterfeit drugs, use of antimicrobials for growth promotion in animals, and overall AMR containment	Comm Med, Pharmacol, Med, Surg, Paed, Obgy

ANNEX 8. MINUTES OF THE AMR ADVOCACY WORKING GROUP MEETING HELD IN THE MSH/RPM PLUS BOARDROOM ON THURSDAY, MARCH 15, 2007 – 17:45 TO 19:05 HRS

Present:

- Professor Chifumbe Chintu (CC) - Chairperson
- Dr James Mwansa (JM) – Vice Chairman
- Patrick Mwanza (PM) - member
- Bernice Mwale (BM) - member
- Dr Jennifer Chisanga (JC) - member
- Oliver Hazemba (OH) - member

Apologies

- Anne Zulu,
- Pascalina Chanda
- Velepi Mtonga

Agenda

1. Welcome remarks from the AWG Chairman
2. Review and correction of previous meeting minutes
3. School of Medicine Undergraduate Curriculum Review Workshop
4. Report on the National Quality Assurance Workshop
5. Progress report on the Review of the National Standard Treatment Guidelines
6. Next steps
7. Any other business
8. Close of the meeting

Topic	Discussion
1. Chairman's introduction and welcome Remarks	• The Chairperson welcomed the all the members present to the meeting at 17.45hrs • The agenda of this meeting was proposed by the Chair and seconded by the members
1. Review and correction of previous meeting minutes	• The members reviewed the minutes of the previous meeting and made the following corrections: a. The name "Ann Zulu" to read "Anne Zulu' b. The second bullet, the word "chair" to cite as "Chair" with a capital C. c. The word, "passed" to read "agreed upon" d. Third bullet, the word "call to action" to read, "Call to Action" with a capital C and A wherever they appear e. On page 2, second bullet, line number three, the word

	"have" to be replaced with "has". f. Line number 5, the word "Agency" to be replaced with "Authority" g. Second Bullet, line number 2, the word "medicine" should cite as "Medicine", with a capital M.
2. School of Medicine Undergraduate Curriculum Review Workshop	• The secretariat gave a brief on the ongoing workshop. He informed the members that the AWG Chairman, AWG Vice Chairman in his capacity as APUA Chairman and RPM Plus AMR Manager made presentations to advocate for inclusion of AMR topics in the Medical Undergraduate curriculum. Dr. Sekeleni Banda also presented the report of the "Medical Undergraduate Curriculum Review that he did in 2006. In general, the presentations were well received. It was observed that the participants got the message and were eager to incorporate the information in the curriculum. The Vice-Chairman informed the members that the change likely to happen is a paradigm shift from traditional to modern innovative approaches incorporating AMR issues.
3. Report on the National Quality Assurance Workshop	• The Chairman requested a member from PRA to give an update on the Quality Assurance Workshop that was held in February with the support of RPM Plus. In response the member informed the members that 7 inspectors drawn from Lusaka PRA office and Nakonde District Hospital were trained. One trainee came from NISIR and will assist with analysis of samples. The participant from Nakode will assist with tests on the products imported through the Nakonde border. PRA plans to hold a stakeholders meeting to inform them of the initiation of min-labs tests to be done on imports and locally manufactured products. • Customs officers will work with PRA. The Chairman reminded members that Customs officer have power to refuse entry of imports in the country which PRA inspectors may not have. It is important that the collaboration is strengthened. • PRA plans to extend the use of min-labs technology to other border posts such as Chirundu, Kazungula and Kasumbalesa. PRA intend to have the entry points gazetted in the near future. • Tests will be applicable to all imports including donations, gifts and sales. This will be done to complement drug donations guidelines.
2. Progress report on the Review of the National Standard Treatment Guidelines	• The secretariat reported the slow progress on the STG review. Not all the eminent persons requested to contribute have submitted their pieces. As a result this has slowed down the original momentum initiated at the September 2006 workshop. However, some of the contributors contacted committed themselves to hand in their materials the following Monday (March 19). • The secretariat will make a follow on all the other issues raised

	from the previous meeting to ensure that the remaining pieces are availed, including the issue of remunerations
Next Steps	• It was generally agreed that the AWG should continue to: o Support the curriculum review process of the medical undergraduate curriculum review. It was agreed that Dr. Sekeleni Banda be informed that AWG is willing to support the development of the AMR module even before the review process is completed. o Complete the STG review process o Continue to advocate AMR issues through the public and health care workers
6. AOB	• The Chairman requested each member for any other business. o A question was raised on the continued support to PRA on quality assurance. The Chairman informed the members that PRA should mainstream the activity and budget for its continued operations. In addition, it should look for a long term strategy to ensure that a Quality Control Laboratory is instituted. In addition, Dr. Joshi acknowledged the PRA and the AWG for the good work and initiatives in promoting AMR containment. The PRA use of SOPs is a very good strategy as it provides step by step guidance on quality control analysis. However, the SOPs are dynamic and should be reviewed regularly for their relevance. AWG/RPM Plus may support the monitoring and evaluation in the future to ascertain the impact of the intervention. o The secretariat was requested to circulate the minutes electronically prior to the scheduled meeting. This was agreed. o Continued financing of AWG activities, particularly public information dissemination was also raised. It was observed that the migration of donors to a centralized budget has a big impact NGO's capacity to access donor funding. It was agreed that AWG should approach Reuben Kamoto at MoH to incorporate AMR issues in the MoH weekly health messages. o Patrick Mwanza volunteered to assist with dissemination of AMR issues through the print media. He call upon the members to avail him with articles and any other AMR related activities He is available to assist with publishing the information in the print media

There being no other business, the meeting was closed at 19.05hrs

_____ _____

Chairman Secretariat

ANNEX 9. MINUTES OF THE AMR ADVOCACY WORKING GROUP MEETING HELD IN THE MSH/RPM PLUS BOARDROOM ON THURSDAY, FEBRUARY 15, 2007 – 17:45 TO 19:30 HRS

Present:

- Professor Chifumbe Chintu (CC) - chairperson
- Dr James Mwansa (JM) - member
- Ms Anne Zulu (AZ) - member
- Dr Jennifer Chisanga (JC) - member
- Oliver Hazemba (OH) - member

Agenda

Agenda:

9. Welcome remarks from the AWG Chairman
10. Report on the Ethiopian Call-to-Action National Workshop on AMR
11. Progress report on the Review of the National Standard Treatment Guidelines
12. Report on the National Quality Assurance Workshop
13. School of Medicine Curriculum Review Workshop
14. Any other business
15. Close of the meeting

Topic	Discussion
1. Chairman's introduction and welcome Remarks	• The Chairperson welcomed the members to the meeting at 17.45hrs • The agenda of this meeting was proposed by the Chair and agreed upon by the members
3. Report on the Ethiopian Call-to-Action National Workshop on AMR	• The Secretariat informed the members on successful Ethiopian "Call to Action" Workshop held in November 16-18, 2006. Oliver Hazemba and Wonder Goredema made presentations on behalf of the Chairman who was out of the country on another assignment. The "call to action" declaration developed at the workshop was circulated. In addition, the Zambia "Call to Action" declaration was also shared for the members to compare. The experience and influence of the AWG was well received and appreciated.
4. Progress report on the Review of the National Standard Treatment Guidelines	• The secretariat reported on the slow progress on the STG review. Not all the eminent persons requested to contribute have submitted their pieces. As a result this has slowed down the original momentum initiated at the September 2006 workshop. The reviewed STG was meant to be available by December 2006. It was resolved that the secretariat make a follow up to ensure that the remaining pieces are availed. In addition, some token of appreciation should be given to the contributors. The secretariat was asked to make a follow up with MoH.

4. Report on the National Quality Assurance Workshop	• The secretariat informed the members that, following the November 2004 call for action resolution, PRA in collaboration with CHAZ has responded to improved quality assurance of medicines. They are working in collaboration with Tanzania Food and Drugs Authority (TFDA) and RPM Plus to improve the capacity of PRA inspectors on quality assurance and inspection. A training workshop on the use of Min-Labs, a thin-layer chromatography technology was scheduled to take place from February 26 to March 2, 2007.
5. School of Medicine Curriculum Review Workshop	• The Chairman in collaboration with the Secretariat updated the members on the forth coming School of Medicine undergraduate medical curriculum review scheduled for March 12 - 16, 2007. This is another response to the November 2004 "Call to Action" meeting resolution. Dr Sekelani Banda, in charge of Department of Medical Education and Development invited the AWG to make a case for AMR. The Chairman will make a presentation at the meeting. The APUA-Zambia Chapter will also make a presentation. The Meeting is one of the series of workshops for the medical curriculum review process. RPM Plus is sponsoring the first workshop.
6. AOB	• The Chairman requested each member for any other business.

There being no other business, the meeting was closed at 19.30hrs

_____ _____

Chairman Secretariat

ANNEX 10. UNZA MEDICAL CURRICULUM WORKSHOP PHOTOS


1. 3. 2000

ANNEX 11. RFCC

Request for Country Clearance

TO: Barbara Hughes, USAID Zambia
George Sinyangwe, USAID Zambia

FROM: Management Sciences for Health (MSH)/Rational Pharmaceutical Management (RPM) Plus Program, Cooperative Agreement # HRN-A-00-00-00016-00

SUBJECT: Request for Country Clearance to Lusaka, Zambia for Mohan Joshi, Program Manager for Antimicrobial Resistance, MSH/RPM Plus

COPY: Anthony Boni, USAID/GH/HIDN/HS, CTO RPM Plus
Jennifer Murphy, Pharmaceutical Management Advisor, USAID/GH/HIDN/HS
Douglas Keene, Director MSH/RPM Plus
Maria Miralles, Deputy Director MSH/RPM Plus
Michael Gabra, Program Manager/Africa, MSH/RPM Plus
Mohan Joshi, AMR Program Manager, MSH/RPM Plus
Oliver Hazemba, Regional Technical Advisor, MSH/RPM Plus, Lusaka

The RPM Plus Program wishes to request country clearance for proposed travel to Zambia by:

- Mohan Joshi of MSH/RPM Plus for the period March 7 – 18, 2007.

1. Background

U.S. Agency for International Development has supported the development and implementation of a country-level approach towards building local advocacy, coalition, and packages of activities to combat the growing problem of antimicrobial resistance (AMR). The approach is currently being catalyzed in Zambia by a local AMR Advocacy Working Group (AWG) with support from RPM Plus and other partners. The AWG has identified undergraduate curriculum review and incorporation of appropriate pre-service training package on rational antimicrobial use and AMR as a locally relevant priority intervention. As a part of this process the undergraduate curriculum of the University of Zambia (UNZA) School of Medicine was reviewed by a local technical consultant and the findings shared during a dissemination meeting held in Lusaka in July 2006.

The UNZA School of Medicine is now in the process of revising the undergraduate curriculum and has planned for a workshop in March 2007 for basic medical sciences that will include discussions on potential AMR, rational antimicrobial use and infection control topics to be recommended for inclusion in the revised curriculum.

Another AMR-related activity that RPM Plus is currently working on is finalization of the draft AMR module developed for Demographic and Health Survey (DHS). Zambia has been tentatively identified as a country for field test of the module. RPM Plus and the collaborating

organization Macro International are currently communicating with local stakeholders in Zambia for the field test.

2. Purpose of Proposed Visit:

The purpose of Dr. Joshi's Lusaka visit is to (1) provide technical assistance to local stakeholders at UNZA School of Medicine on AMR-related issues during the curriculum review workshop planned for March 12 to 16, 2007, and (2) discuss with local stakeholders to consolidate plans for field test of the DHS AMR module mentioned above.

3. Scope of Work for Mohan Joshi:

- Work with Zambia-based RPM Plus Regional Technical Advisor Oliver Hazemba to assist the local stakeholders on final preparation of the curriculum review workshop, particularly relating to the AMR components
- Make a technical presentation on the problem of AMR, irrational antimicrobial use as a major contributor to the problem, and the global strategy document launched by WHO to support containment of this rapidly growing problem
- Facilitate, along with Mr. Hazemba, an interactive discussion aimed at identifying "core AMR topics" that are potentially appropriate for inclusion in the revised curriculum
- Participate in AMR-related small group work during the workshop and assist in generating a consensus-based curricular recommendations by the group
- Discuss with technical staff at the Central Statistical Office (CSO) of the Ministry of Finance and National Planning on the technical and logistical issues of field testing the DHS AMR Module
- Debrief USAID Mission officials, if requested
- Prepare and disseminate a trip report

4. Anticipated Contacts:

- USAID Mission officials
- Professor Chifumbe Chintu, Chair of the AWG, and other members of the AWG
- Professor Mulla, Dean, School of Medicine, UNZA
- Dr. Sekelani Banda, Vice Dean, School of Medicine, UNZA, and other teaching faculty members of the School of Medicine
- Dr. Velepi Mtonga, Director, Technical Services, Ministry of Health
- Nichimunya Nkombo, Central Statistical Office (CSO), Ministry of Finance and National Planning

5. Logistics:

Dr. Joshi will arrive in Lusaka, Zambia on or about 7 March and depart on or about 18 March, 2007. While in Lusaka, he will stay at the Taj Pamodzi Hotel (Tel: + 260 1 254455).

No Mission assistance is required.

6. Funding: This visit will be funded by RPM Plus core funds (SO5/AMR).

7. Action: Please send concurrence to the RPM Plus Program for the proposed visit of Mohan Joshi, replying via e-mail to the attention of Anthony Boni, USAID/GH/HIDN/HS, CTO RPM Plus, aboni@usaid.gov, tel (202) 712-4789, fax (202) 216-3702. Please send carbon copies to: Jennifer Murphy jmurphy@usaid.gov, Douglas Keene dkeene@msh.org, Maria Miralles mmiralles@msh.org, Michael Gabra mgabra@msh.org, Mohan Joshi mjoshi@msh.org, Oliver Hazemba ohazemba@msh.org, and Lindsay Gibbs lgibbs@msh.org.

   Thank you for Mission cooperation.