Workshop on implementation of standard treatment guidelines to support antimicrobial resistance (AMR) containment in Zambia: June 27-29, 2005

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ABSTRACT

As part of the USAID-initiated country-level antimicrobial resistance (AMR) advocacy and containment program, a workshop for physicians on implementation of standard treatment guidelines for infectious diseases of major public health importance was organized in Lusaka from June 27 to 29, 2005. This report describes the details of the workshop and other meetings held during the Zambia trip taken by the RPM Plus Program Manager for AMR Dr. Mohan Joshi from June 23 to July 3, 2005.

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Key Words and Terms

Antimicrobial Resistance, Standard Treatment Guideline, Drug Resistance, AMR containment

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ACRONYMS

AED	Academy for Educational Development
AIDS	acquired immunodeficiency syndrome
AMR	antimicrobial resistance
APUA	Alliance for the Prudent Use of Antibiotics
ARCH	Applied Research in Child Health
ARI	acute respiratory infections
ART	antiretroviral therapy
AWG	AMR Advocacy Working Group
CBoH	Central Board of Health
CHANGE	The Change Project [AED]
DTC	Drug and Therapeutics Committee
HIV	human immunodeficiency virus
MSH	Management Sciences for Health
NMCC	National Malaria Control Centre
RFCC	request for country clearance
RPM Plus	Rational Pharmaceutical Management Plus [MSH]
STG	Standard Treatment Guideline
STI	sexually transmitted infection
TB	tuberculosis
USAID	United States Agency for International Development
UTH	University Teaching Hospital
WHO	World Health Organization
ZNFC	Zambia National Formulary Committee

BACKGROUND

In response to the growing global problem of antimicrobial resistance (AMR), the U.S. Agency for International Development (USAID) has supported an initiative for country-level implementation of advocacy and interventions for AMR containment. The program was initiated with support from several AMR partners – Rational Pharmaceutical Management Plus (RPM Plus) Program of Management Sciences for Health (MSH), The Change Project (CHANGE) of Academy for Educational Development (AED), Alliance for the Prudent Use of Antibiotics (APUA), Applied Research in Child Health (ARCH), and Harvard Drug Policy Group. The program is current being pilot-tested in Zambia. Several reports submitted to USAID describe the progress made so far.[1-7] The major accomplishments in Zambia include:

- formation of a local AMR advocacy working group (AWG) [2]
- completion of a rapid assessment to understand the existing issues that impact AMR [3]
- rapid appraisal on media presence and communication channels in Zambia [3]
- the preparation of a "Call for Action" document by the AWG as background material for calling meetings and scaling up the advocacy process [4]
- AMR stakeholders' meeting attended by 70 key players [4]
- communication workshop to support AMR containment and development of communications and advocacy brief for the public and health providers [5]
- support for the formation and activities of APUA Country Chapter [6, 7]

The AWG is now planning to initiate both the pre-service and in-service training activities for health care professionals to advance the AMR advocacy and containment process. As part of this activity, a workshop for physicians was scheduled for June 27–29, 2005 to discuss issues related to implementation and utilization of standard treatment guidelines (STGs) for infectious diseases of major public health importance in Zambia to support the overall AMR containment process. The present report describes the details of this workshop and the subsequent AWG meeting.

1. Joshi, M., N. Pollock, and M. Sommer. 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.
2. Joshi, M., S. Zimicki, and M. Sommer. 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.
3. Joshi, M., N. Pollock, and M. Miralles. 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..
4. Joshi, M., N. Pollock, and K. Garrison. 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.
5. Soisson, D., and L. Shafritz. *Zambia Trip Report: Message, Advocacy, and Communication Workshops, Lusaka, February 23–March 4, 2005.* Academy for Educational Development.
6. Sosa, A., and J. Stelling. *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.
7. 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.

Purpose of Trip

Mohan P. Joshi, Program Manager for AMR at RPM Plus/ MSH, traveled to Lusaka, Zambia to provide technical assistance to further the implementation of the country-level AMR advocacy and containment effort in Zambia. Dr. Joshi was in Zambia from June 23 to July 3, 2005.

Scope of Work

The scope of the work for Mohan Joshi during the visit was:

- Provide an arrival briefing to USAID/Zambia upon request
- Participate in the AWG strategic planning and preparation of materials for the workshop
- Serve as facilitator and make presentations at the workshop
- Evaluate the workshop implementation process
- Discuss with AWG members and Mr. Oliver Hazemba, the Resident Representative of RPM Plus in Zambia regarding next steps in the AMR containment process in Zambia
- Provide debriefing to USAID officials in Zambia (if requested)
- Write a Trip Report

ACTIVITIES

1. Participate in the preparation for the workshop

Dr. Joshi and the AWG member Mr. Caesar Mudondo revised the workshop program and finalized in consultation with AWG chair Prof Chifumbe Chintu (*Annex 1*). Upon the return on June 25th of RPM Plus Regional Technical Advisor Mr. Oliver Hazemba, Mr. Mudondo and Dr. Joshi thoroughly discussed with him all aspects of the workshop preparation and finalized the "objectives" slides for presentation during the workshop.

Dr. Joshi reached Hotel Protea, the workshop venue, on June 26 evening and, together with Mr. Hazemba and Mr. Mudondo, oversaw logistics and arrangements (including workshop materials, meeting room, audiovisual aids, stationery, etc).

2. Attend and facilitate the workshop

A total of 32 participants attended the workshop. Of the total 31 Zambian participants, 15 were from Lusaka and 16 from outside Lusaka. The participants represented both the public and the private sectors. The participant details appear as *Annex 2*. Dr. Velepi Mtonga, Director of Clinical Care and Diagnostic Services at the Central Board of Health (CBoH), provided the opening remarks. Her key remarks during the Opening Session are included in the workshop proceeding attached as *Annex 3*. Mr. Hazemba explained the objectives of the workshop (*Annex 4*).

After this brief Opening Session, Dr. Joshi provided an overview of the AMR problem (*Annex 5*). Dr. Mtonga then highlighted the National Policies and Strategies to contain AMR (*Annex 6*). Deputy Chairperson of the AWG and Coordinator of APUA Zambia Chapter, Dr. James Mwansa spoke on the AWG strategies regarding AMR containment in Zambia (*Annex 7*). Mr. Mudondo then gave a brief overview of AMR activities in Zambia (*Annex 8*). Following the presentation by Mr. Mudondo, Dr. Joshi facilitated an interactive session on the benefits of STGs and the crucial importance of their proper development and implementation (*Annex 9*). Next, Mr. Hazemba gave an introduction to the recently launched Zambian National STG and explained how it was developed (*Annex 10*).

The next part of the workshop consisted of a series of sessions on STGs for infectious diseases of major public health importance in Zambia. The format for these sessions consisted of initial brief presentation by the facilitator followed by highly participatory discussions. The session on STG for *HIV/AIDS* was facilitated by Dr. Soka Nyirenda from the University Teaching Hospital (UTH) (*Annex 11*), session on *tuberculosis* (TB) guidelines by Dr. Mulenga Kasoma from the Provincial Health Directorate, Lusaka (*Annex 12*), session on *malaria* guidelines by Dr. Mabvuto Kango from the National Malaria Control Centre (*Annex 13*), session on guidelines for *sexually transmitted infections* (STIs) by Dr. Pierre Yasa from UTH (*Annex 14*), and sessions on guidelines for *acute respiratory infections* (ARI) and *diarrheal diseases* by Dr. James Chipeta from UTH (*Annexes 15 and 16*). Key issues discussed during the workshop and recommendations generated in each session are included in the attached *workshop proceeding* (*Annex 3, pages 15 to 30*).

The final part of the workshop on day three consisted of group work. Professor Chintu, Chair of the AWG and Chair of the Zambia National Formulary Committee (ZNFC), moderated the group work. The participants were divided into 4 groups: Group 1 – HIV/AIDS and STIs; Group 2 – TB; Group 3 – malaria; Group 4 – ARI and diarrheal diseases. The details of recommendations from each group on the technical content of the guidelines, on dissemination of the STGs, and on further AMR activities are provided in the *workshop proceeding* (*Annex 3*).

3. Participate in planning the next steps for the on-going AMR containment effort in Zambia

Dr. Joshi participated in the post-workshop Meeting organized by the AWG on June 30, 2005. The AWG members considered the workshop very useful and successful. The AWG members also planned the next steps, which are included in the Meeting Minutes attached as *Annex 17*.

Mr. Hazemba and Dr. Joshi also met with Mr. Richard Hughes, Director for the Zambia Country Office, JHPIEGO. JHPIEGO has supported the development of Infection Prevention Guidelines for Zambia and, along with Chemonics International and the Manoff Group, has contributed to activities relating to prevention of medical transmission of HIV in Zambia. Dr. Joshi and Mr. Hazemba discussed with Mr. Hughes the feasibility of collaborating with JHPIEGO regarding infection prevention and control activities.

In May 2005, RPM Plus had engaged Mr. Marjorie Kabinga as a local Zambian consultant to carry out a rapid assessment on in-service training (continuing education) offered to health care professionals in Zambia on AMR and rational antimicrobial use. Dr. Joshi met with Ms. Kabinga at the MSH Office in Lusaka and provided final feedback on the draft report. Ms. Kabinga subsequently finalized the report and submitted to RPM Plus. The report is attached as *Annex 18*.

4. Debriefing with the USAID Mission officials

Dr. Joshi and Mr. Hazemba met with USAID officials Dr. Abdirahman Mohamed and Dr. Dyness Kasungami at the USAID Mission in Lusaka and debriefed them on the STG implementation workshop and the possible next steps. Dr. Mohamed pointed out the need to emphasize adherence to treatment as the antiretroviral therapy (ART) is being scaled-up in the country. He expressed that revision of the STG would be a highly useful activity. He also noted that efforts towards pre-service training on AMR and rational antimicrobial use would be one of the key activities in the AMR containment process. Dr. Kasungami commented that just giving the treatment guideline documents to health providers would not automatically lead to higher levels of adherence to the recommendations. She suggested that utilization of Drug and Therapeutics Committees (DTCs), clinical symposiums and trainings should be made a part of the STG implementation strategy and that people doing supervision need to know the importance of these documents.

Collaborators and Partners

- Right from the inception of the program, Dr. Velepi Mtonga has been highly supportive of the AMR activity. As a key official at the Central Board of Health and as a member of the AWG, she is a key collaborator for the activity and ensuring her on-going support will be crucial for continued success of the program.

- Professor C. Chintu is an important opinion leader in Zambia in the medical field and his active involvement in the AMR activity has significantly contributed to the credibility and progress achieved thus far. Being the chair of both ZNFC and AWG, Prof Chintu is in a key position to facilitate implementation of the recommendations generated during the STG workshop. Other facilitators of the workshop – Drs. Soka Nyirenda, Pierre Yasa, and James Chipeta from the University Teaching Hospital; Dr. Mulenga Kasoma from the Provincial Health Directorate, Lusaka; and Dr. Mabvuto Kango from the National Malaria Control Centre – can collaborate not only for further work on revision and dissemination of STGs but also for the overall AMR advocacy and containment activity in Zambia.

- Zambia Country Director of ZHPIEGO Mr. Richard Hughes is a strong potential partner for RPM Plus to explore the feasibility of collaboration with JHPIEGO in their infection prevention/control activities. Further strengthening of the infection control/prevention activities in Zambia will provide much support to the overall AMR containment process.

Immediate Follow-up Activities

- AWG to forward the recommendations from the workshop to the ZNFC for consideration
- Identify local consultants to review medicine, pharmacy and nursing curricula in order to determine appropriate pre-service training on AMR and rational antimicrobial use
- Explore feasibility of collaboration with JHPIEGO for infection prevention and control activities
- APUA to conduct a training in Lusaka on "AMR Basic Research Methodologies"

Recommendations

- Provide significant support to the curricular review and pre-service training process that the AWG is initiating as an important intervention for AMR containment in Zambia
- As CHANGE project has now ended, explore collaboration with Links Media as a partner for the overall AMR containment process in Zambia
- Taking lessons learned from the Zambia experience, initiate the process for application of the activity in a second country

ANNEX 1: WORKSHOP PROGRAM

Workshop on Implementation of standard treatment guidelines to support antimicrobial resistance (AMR) containment in Zambia

Protea Safari Lodge, Chisamba, Zambia, June 27 to 29, 2005

Organised by the AMR Advocacy Working Group (AWG) in collaboration with Central Board of Health (CBoH) and Zambia National Formulary Committee (ZNFC).

Supported by USAID/RPM Plus, MSH.

Participants: Physicians from the private and public sectors in Zambia.

Objectives:

- To discuss the problem of antimicrobial resistance (AMR) and the initiatives of the AMR Advocacy Working Group (AWG) in Zambia
- To discuss the importance of Standard Treatment Guidelines (STGs) in rational drug use and AMR containment
- To discuss the recommendations provided in the STGs for infectious diseases of major importance in Zambia
- To critically analyze the recommendations for infectious diseases of major importance in the STGs
- To discuss ways to disseminate, implement and promote use of STGs at facility level

Program Schedule

JUNE 27, 2005		
Time	**Topic**	**Facilitator**
07:30 – 09:00	Registration	Secretariat
09:00 – 09:20	Official opening	Dr. Velepi Mtonga, Director of Clinical Care and Diagnostic Services, CBoH
09.20 – 09.30	Objectives of the Workshop	Oliver Hazemba, RPM Plus/MSH, Zambia
9.30-9.45	Individual Introductions	All
09:45 – 10:15	Overview of AMR	Dr. Mohan Joshi, RPM Plus/MSH, USA
10:15 – 10:45	AMR Containment in Zambia	Mr. C.M. Mudondo, AWG

Time	TOPIC	Facilitator
10:45 – 11:15	Tea Break	
11:15 – 12:00pm	AWG Strategies used to contain antimicrobial resistance	Dr. James Mwansa, AWG
12:00 – 12:30	National Policies and strategies to contain AMR	Dr. Velepi Mtonga, Director of Clinical Care and Diagnostic Services, CBoH
12:30 – 13:30	Lunch	
13:30 – 14:30	STGs – an overview	Dr. Mohan Joshi, RPM Plus/MSH, USA
15.:00 – 15:45	Objectives and general description of the STGs for Zambia	Mr. Oliver Hazemba, RPM Plus/MSH
15:45 – 16:15	Tea	
16:15 – 17:15	HIV / AIDS Guidelines (including strategies to contain resistance)	Dr. Soka Nyirenda, University Teaching Hospital, Lusaka
JUNE 28, 2005		
8:30 – 10:30	HIV / AIDS Guidelines (including strategies to contain resistance) (contd…)	Dr. Soka Nyirenda, University Teaching Hospital, Lusaka
10:30 – 11:00	Tea	
11:00 – 1200	HIV / AIDS Guidelines (including strategies to contain resistance) (contd…)	Dr. Soka Nyirenda, University Teaching Hospital, Lusaka
12:00 – 13:00	Lunch	
13:00 – 15:00	TB Guidelines (including TB - HIV co-infection and also including strategies to contain resistance)	Dr. Mulenga Kasoma, Provincial Health Directorate, Lusaka
15:00 – 15:30	Tea	
15:30 – 17:15	Malaria Guidelines (including strategies to contain resistance)	Dr. Mabvuto Kango, National Malaria Control Centre
JUNE 29, 2005		
8:30 – 10:00	Sexually Transmitted Diseases (including strategies to contain resistance)	Dr. Pierre Yasa, University Teaching Hospital, Lusaka
10:00 – 10:30	Tea	
10:30 – 11:30	Acute Respiratory Infections (including strategies to contain resistance)	Dr. James Chipeta, University Teaching Hospital, Lusaka
11:30 – 12:30	Diarrheal Diseases (including strategies to contain resistance)	Dr. James Chipeta, University Teaching Hospital, Lusaka

Time	Activity	Facilitator
12:30 – 13:30	Lunch	
13:30 – 14:45	Group Discussions	Groups (Moderated by Prof. Chifumbe Chintu, AWG chairman)
14:45 – 15:30	Plenary – Presentation of Group Work	Participants (Moderated by Prof. Chifumbe Chintu, AWG chairman)
15:30 – 16:00	Tea	
16:00 – 16:30	Plenary – Presentation of Group Work	Participants (Moderated by Prof. Chifumbe Chintu, AWG chairman)
16:30 – 17:00	Wrap up / Next Steps	Prof. Chifumbe Chintu, AWG Chairman
17:00 – 17:15	Closing Remarks	Prof. Chifumbe Chintu, Chairman, ZNFC

ANNEX 2: PARTICIPANT DETAILS

Workshop on Implementation of STGs to Support Antimicrobial Resistance (AMR) Containment in Zambia
Protea Safari Lodge, Chisamba Zambia
27th to 29th June 2005

No	Full Names	Organization / Address	Telephone	E-mail Address
1	Dr. Agnes Chomba	University Teaching Hospital Department of Medicine Dermatovenereology Division Private bag 1x, Lusaka	096 - 662618	agnesbungoni@hotmail.com
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3	Mr. Caesar Mudondo	Unicare Pharmaceuticals Lusaka	096 - 751206	caesarmud@yahoo.com
4	Dr. Canisius Banda	Chongwe DHMT P.O Box 25 Chongwe District Lusaka Province	096 - 780659	bandacanisius@hotmail.com
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18	Dr. Mabvuto Kango	National Malaria Control Centre P.O Box 32509 Lusaka	095 - 904243	mkango@nmcc.org.zm
19	Dr. Mohan Joshi	RPM Plus / MSH, USA	703 – 248-1635	mjoshi@msh.org
20	Dr. Rosemary Mulenga Kasoma	Provincial Health Directorate Box Lusaka	097 - 881630	mulengakasoma@yahoo.co.uk
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31	Dr. Wu Ming Ying	LDH Chainama Clinic Lusaka	095 - 760816	jzwumingying2003@yahoo.com.cn
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ANNEX 3: WORKSHOP PROCEEDINGS

A total of 32 persons, including facilitators and organizers participated in the work.

Official Opening

Dr. Mtonga opened the workshop. In her opening remarks she stressed the importance of prescribers using treatment guidelines and reporting back on their observations and experiences with STGs and other protocols set by the directorates at CBoH.
She urged prescribers to assist in determining resistance patterns and taking drug resistance into account when prescribing.

She informed participants that STGs had been disseminated and was of the view that they were useful tools for the management of patients as they promote rational prescribing. She pointed out that STGs were not an end in themselves but were aimed at improving the chances of achieving standard treatment outcomes in all health facilities. She was of the view that there was a need to harmonise patient management in both the private and public sectors. The private sector usually has access to newer drugs earlier than the public sector. It was important to ensure that newer potentially life-saving useful drugs were not rendered useless through resistance by irrational use. She felt that some of the newer life-saving drugs could be saved in reserve for when the older drugs started failing due to resistance. The development and consequences of Methicillin Resistant Staphylococcus Aureus (MRSA) experienced elsewhere in the world is a case in point.

She pointed out that there was a need to continuously review STGs for them to be useful. She indicated that knowledge is ever evolving as is the case with the management of HIV/AIDS. STGs should therefore be evidence-based therefore feedback from users was critical. Participants were urged to share information and experiences within the workshop and with those not able to attend the workshop so that all practitioners can be at the same level of understanding and competence.

She announced that the STG and Zambia National Formulary were to be reviewed every two years and there was a need for wide consultation in this process.

Dr. Mtonga acknowledged the important role of the private sector in health care provision in Zambia and the need to engage the sector as much as possible. She was pleased that there was private sector participation in this workshop.

She thanked the AMR AWG for spearheading the workshop and also RPM Plus and CHANGE Project for the support given in AMR containment activities. She also acknowledged the support rendered by other partners like SIDA in promoting rational drug use.

After the official opening the following presentations were made:

- **Overview of AMR** by Dr. Mohan Joshi
- **National Policies and Strategies to Contain AMR** by Dr. Mtonga
- **AMR Containment in Zambia** by Mr. Mudondo

Copies of presentations are attached.

These presentations were followed by discussion. The following issues arose during the discussion.

The poverty in the community was thought to contribute to AMR. It was also felt that there was a need to strengthen the various ordinances regulating medicines distribution and use.
Illiteracy was also thought to be a contributing factor and therefore a need for developing and broadcasting appropriately worded messages through the most effective media to increase awareness to the problem of AMR was identified. In this exercise, the involvement of journalists and consumer associations was advocated.
Prescribing habits of, especially, some foreign-trained practitioners was also said to contribute to the problem. This was said to be particularly so in some of the peripheral hospitals where the mechanisms for assessing the competence of health workers were not available. Pre-service examinations recently introduced by the Medical Council of Zambia (MCZ), in collaboration with the University of Zambia (UNZA) School of Medicine were reported to be a step in the right direction. It was felt that a mechanism should be developed to report AMR issues to the AMR AWG through CBoH, ZNFC secretariat or Zambia Pharmacovigilance Centre at the Pharmacy and Poisons Board.
There was concern that drug and therapeutic committees (DTCs) do not include members from the private sector. It was reported that DHMTs are mandated to work with the private sector on DTCs. The Pharmaceutical Act of 2004 makes it mandatory for health facilities to have DTCs.
Participants were concerned about the availability of counterfeit drugs on the Zambian market. The new Pharmaceutical Act was said to address this issue and to provide for the establishment of an enforcement mechanism. It was hoped that this law would result in better enforcement and controls in the distribution of medicines. The current situation is a source of worry to the health profession.
Syndromic management and polypharmacy were reported to be common practice. It was recognized that syndromic management was unavoidable in cases where there was insufficient laboratory diagnostic capacity. Participants were of the view that guidelines would be useful in guiding practitioners to follow good clinical practice. Integrated Treatment Guidelines for Frontline Health workers (ITGs) are available but are intended for use by the lower levels of care.

The use by the healthcare system of untrained workers was a concern. It was felt that there was an urgent need to build adequate capacity to ensure that all facilities were manned by trained personnel.
Patient pressure on prescribers for antibiotics was said to be a problem which could promote AMR. Also the use on expired drugs and the sale of drugs by unlicensed vendors were practices that needed to be controlled. The participants called for the MCZ and other relevant government organs like Ministry of Local Government to control the proliferation of illegal clinics.
The poor drug supply situation in some of the health facilities was felt to promote AMR. Health centres which receive their supplies through the kit system appear to be better off than hospitals. It was reported that a mechanism to improve supplies in the hospitals was being worked out. More resources are going to be availed to alleviate this situation. Out of the $20million required to adequately supply the health system in Zambia only $6million was available. The shortfall is often met through donations. Guidelines for drug donations are available.
The use of antibiotics in veterinary practice was seen as being a concern. This is because of the common use of antibiotics as feed additives and their use without the supervision by trained personnel. It was confirmed that there was evidence of a link between AMR in humans and the use antimicrobials in animals.

Dr. Mwansa made a presentation on **AWG Strategies to Contain AMR**. This was followed by a discussion.

Infection prevention (IP) measures were thought to be an important strategy for controlling AMR. Hand washing is very important as it helps prevent transmission of infections from patient to patient or to health worker.
Kitwe Central Hospital was reported to have a successful IP program in place and staff were very enthusiastic about it. The DTC is responsible for supervision and follow and regular training in IP. Points are awarded to staff for good performance. Solwezi has introduced changing rooms at the hospital for change of clothing for all personnel.
The confidence in the use of laboratory facilities in diagnosis is reported to have suffered from the lack of reagents. Some clinicians now assume that laboratories are unable to provide the support they require and simply do not request for laboratory tests.
Concern was expressed about the role neckties may play in transmitting nosocomial infections.

Dr. Joshi presented an **Overview of STGs** and Mr. Hazemba on **Objectives and a General Description of STGs for Zambia** followed by discussion.

Participants suggested that STGs should be incorporated into curricula for all cadres of health workers and STGs should be disseminated to student prescribers and dispensers. Students should be taught concepts of STGs.
Copies should be made available to all end users, including those in the private sector.
Concern was expressed about the poor dissemination of STGs. It was suggested that there should be a TOT for dissemination of STGs to improve distribution and coverage.

A participant reported seeing a copy of STG gathering dust.
It was suggested that there should have been participants from the mining sector and mission hospitals at the workshop (Note: Dr. Allyne is from St. Francis Mission Hospital). Representation from disciplines of health practice was also suggested in order to have the right when discussing the guidelines. There was a suggestion that similar workshops should be held in each provincial capital.
It was felt that the quality of the print (paper) needed improvement. There should be a list of reference literature included.
The view that STGs were restrictive in scope was expressed.
A short review period and encouragement of users to contribute to the review were recommended. It was reported that the review period was 3 years with addenda being produced more regularly.
Generally it was agreed that the STG was a good document that would be useful to health workers on all sectors.
Participants wondered why the ZNF was valid for 3 years (2005-2008). It was pointed out that the ZNF recommendation for managing organophosphate poisoning was different from the STG recommendation. Also p.95 on the Contents page refers to "Antivirals" yet P.95 contains different information (Replacement Therapy).
Participants agreed that the target for STGs should be all health workers. They should therefore serve as a health worker manual.

The distribution should be through the provincial Health office (Provincial Health Director/Provincial Pharmacist). The private sector practitioners should be included in the distribution. Medical Stores Limited and MCZ should also be used as distribution points. A focal point in every institution should be appointed. The focal person should sensitise all practitioners and distribute STGs to all relevant personnel. There is a need to establish how many people should have access to STGs and produce accordingly (Note: ZNFC could make this assessment). In Kitwe the District Pharmacist personally distributed STGs to practising individual practitioners with copies for institutions.

Dr. S. Nyirenda made a presentation on the **HIV/AIDS Guidelines** (Copy attached) followed by discussion.

It was established that the guidelines were intended to serve as a health worker manual for all health workers. A number of observations were made with respect to the content of the HIV/ AIDS chapter of the guidelines.

The following **recommendations** were agreed:

- Every chapter should start on a new page
- Review the format of the HIV/AIDS chapter to follow the WHO format
- There was a need to decide on what takes precedence when recommending protocols as in some cases there might be conflict between policy and medical evidence. The use of nevirapine in PMTCT is a case in point
- The definition in the chapter requires reviewing. Currently neither "HIV" nor "AIDS" is defined. What is provided is the mode of transmission

- The clinical features listed required updating to be in line with current thinking. These should follow either the WHO or the American model
- The staging needed readapting either to follow the WHO model or, as is the case with South Africa, Zambia's own model. But it was important to stage the adult and child syndrome differently. It was pointed out that the management of opportunistic infections (OIs) was influenced by the staging. Most third world countries, it was noted, are using the WHO staging
- Indicators for disease progression should also be provided
- There was a need to determine and recommend a value for the total lymphocyte count for initiating Antiretroviral Therapy (ART)
- There was a need to decide whether CD4 guidelines should also be included in the STGs
- It was observed that the management of hepatitis B was not included either under opportunistic infections or under infectious diseases. Participants were of the view that it was significant enough to be included
- It was suggested that guidelines should be provided on the management of pregnant women with sputum positive TB and HIV positive
- The OIs most commonly found in Zambia should be listed and presented, preferably, in the form a flowchart. These could include;
    - Respiratory: Streptococcus, PCP, TB
    - Gastrointestinal: Candidiasis, CMV, Salmonella, Cryptosporidiosis, Isosporidiosis and Shigella (also refer to WHO list- see slide availed at workshop)
    - CNS: CMV, Cryptococcus, TB, Toxoplasmosis, VCZ, HSV
    - Eye: As per WHO list (see slide)
- There should be a note making reference to the appropriate chapter for the management of each OI
- The management of specific categories of patients e.g. TB, PEP, pregnant women, children etc should be provided
- The criteria for commencing ART should be provided for both adults and children (for children the weight should be <10kg instead of >10kg stated)
- Provide a commentary about ART including indications, advantages of early initiation and assessing patient's preparedness for ART
- Drug interactions with ARVs should be tabulated at the end of the chapter
- The diagnosis using the saliva test is hardly applied in Zambia. It should be deleted
- CD4/CD8 counts are not used for diagnosis but for initiating ART and monitoring they should therefore fall under the evaluation
- CD4 count <200 should appear under diagnosis
- CD4 %, rather than CD4 count, should be used for diagnosis in children
- History should include other risk factors and not only restricted to sexual history
- History taking should be moved to the "Diagnosis" section
- HIV testing should also move to the "Diagnosis" section
- Include RPR and chest X-ray (if AIDS diagnosis is confirmed)
- Include pregnancy testing in females

- Laboratory tests should be listed out
- The workshop recommended initiating ART for patients with CD4 count of 350 or less
- There was a need to clarify the position stated on page 89 on the contraindication for use of efavirenz in pregnant women with TB
- Supportive care should include nutritional recommendations and exercise
- The chapter should cover all aspects of counseling
- Include a paragraph highlighting the problem and significance of drug resistance (AMR), include the implications, dangers of monotherapy, dual therapy and the importance of adherence
- Second line regimen, in case of treatment failure should be included as per WHO guidelines
- Recommendations for stopping ARVs should be included
- More information should be included on Post Exposure Prophylaxis (PEP). It was suggested to adopt the model in the Zambian HIV/AIDS guidelines
- Further, it was felt that the use of monotherapy for PEP needs to be reviewed. Triple therapy should be considered
- Include criteria for referral
- The workshop recommended prophylaxis with Cotrimoxazole for all children born HIV+
- A list of recommended additional reading and references should be included at the end of the chapter

It was established that only 7 out of 19 participants possessed copies of the STG before the workshop. Many, particularly those from the private sector, were not aware that such documents existed in Zambia. All participants were given copies of the following guidelines in their package:

- Standard Treatment Guidelines
- Guidelines for the Diagnosis and Management of Malaria in Zambia
- Management of Antiretroviral Therapy (complete set)
- Tuberculosis Manual
- WHO Global Strategy for Containment of Antimicrobial Resistance

On the distribution of STGs it was generally felt that this aspect required improvement as most participants did not know that the STGs had been disseminated prior to their participation in the workshop.

The participant from Monze reported that copies had been received and distributed to the wards but they had all disappeared and so were no longer accessible. In Kitwe district the District Pharmacist was said to have personally distributed copies to all practicing individuals and provided copies in the institutions as well. The private sector, it appears, was left out of the exercise.

Currently practitioners were using references from a variety of places and organizations to manage their patients. Following are some of the references mentioned:

- Management of Antiretroviral Therapy (training package)

- Pamphlets from the Southern African Society for Clinicians on HIV/AIDS. This was more so with private sector participants
- Medical text books
- WHO guidelines
- BNF
- Guidelines provided on the internet
- Integrated Treatment Guidelines for Frontline Health workers

It was interesting to note the national guidelines developed by the National HIV/AIDS Council (NAC) were not mentioned by anyone.

The following **recommendations** were made:

- Copies should be distributed to every practicing health worker in both the private and public sectors
- Every ward in all institutions should be provided with a copy
- An assessment should be made of the number of such practicing individuals (prescribers and dispensers)
- Distribution should be through the Provincial Health Office (Provincial Pharmacist) with instructions to include private sector practitioners)
- A focal person in every institution should be identified to be responsible for sensitizing practitioners on the availability and usefulness of STGs and ensure widespread distribution
- The Medical Council of Zambia (MCZ) can be used as a distribution point
- Professional organizations can also be used for distribution

Dr. Mulenga Kasoma made a presentation on **TB Guidelines** and the following observations and recommendations were made in the ensuing discussion:

- Tuberculosis should be redefined. The national TB guidelines and Dr. Kasoma's presentation can be used for the purpose
- The categorization should follow the national guidelines
- Recommendations for the management of TB during pregnancy and breastfeeding need revision
- The position on the benefits of BCG requires reviewing
- Kanamycin should be reserved for use in MDR TB and should not be included in drug kits

Dr. Mabvuto Kango made a presentation on the **Malaria guidelines** and the following arose from the discussion:

- Concern was raised on the use of quinine as monotherapy and the possibility of drug resistance as a consequence
- Some participants wanted to know if there was the risk of resistance with the use of the alternative artemisinin based combination therapies (ACTs)
- Questions were raised about the prospects of developing an effective malaria vaccine and parenteral forms of ACTs

- Participants were concerned that Coartem had not been deployed in the private sector and that this compromised the success of the policy change. It was felt that price control in the private sector would not be a problem as there is already experience with other commodities e.g. vaccines and contraceptives
- The availability of monotherapy options was also thought to be a matter for concern from the perspective of drug resistance
- Some participants were concerned about the possible promotion of drug resistance by Over the Counter (OTC) availability of antimalarials
- The use of sulfadoxine-pyrimethamine (SP) for the Intermittent Presumptive Treatment (IPT) in pregnancy was questioned in view of the known reasonably high treatment failure (drug resistance) rates in Zambia
- One participant reported that he had experienced more treatment failures with Coartem than with artesunate /SP
- Some participants advocated for availing quinine oral liquid preparations (syrup or suspension) in view of the bitterness. There was a counter view that current thinking is moving towards doing away with syrups for children as they are bulky, more costly and often not very stable
- The position of possible interactions between Coartem (artemisinins) and ARVs should be addressed. It was felt that there was a possibility of protease inhibitors (PIs) affecting the bioavailability of artemisinins
- The position on prophylaxis should be clarified especially for vulnerable groups like HIV/AIDS
- The stages listed in the STG may be misleading and should be removed. It is better to list the clinical features
- The definition also needs to be refined. Asymptomatic infection requires treatment going by the definition in the STG
- The section on the treatment of complicated malaria should be revised. The style followed in the Malaria guideline is clearer
- The statement headed “referred patients” should be deleted as that is covered adequately under “Criteria for referral”
- The Pharmacy and Poisons Board should be represented in such workshops

Only 6 participants had had prior access to the Malaria guidelines before the workshop.

Dr. Pierre Yassa made a presentation, supported by other slides, on **Sexually Transmitted Diseases**. In his presentation he made a case for the adoption of the sydromic approach to the management of sexually transmitted infections (STIs) in Zambia. This is because of the lack of diagnostic capacity to effectively effect aetiological management in the presence of mixed infections as is common in Zambia. Copies of all slides are attached. This was followed by discussion. The following comments and **recommendations** were made:

- The successful management of STDs requires breaking the chain of infection
- There are three approaches to the management of STIs; aetiological, syndromic and clinical

- Criteria for selecting drugs in syndromic management include; drug efficacy, safety and tolerance, simplicity of dosage and administration (oral dose) and contraindications in pregnancy
- Early treatment, in view of the link between STIs and HIV infectivity, is recommended

- The chapter on Sexually Transmitted Diseases should make recommendations for both aetiological and syndromic management of STIs
- A commentary explaining how and when to use either approach should be included and the criteria clearly elaborated
- On drug recommendations it was agreed there was a need to limit the choice of drugs practitioners could be availed for managing STIs.
- Some drugs should be reserved for use in case drug resistance develops to the recommended frontline drugs. In this regard kanamycin should be reserved for the management of multi-drug resistant (MDR) TB
- The guidelines for the syndromic management of STIs now being developed by Dr. Yassa et al should be adopted and incorporated in the STG.

Some guidelines on the syndromic management of STIs now exist and 7 participants had had access to these and were using them before the workshop. These are however, now being reviewed.

Dr. James Chipeta made a presentation on **Acute Respiratory Diseases** which was followed by discussion. The following observations and recommendations were made:

- The last case of diphtheria in Zambia was reported in 1976 and it is not reported to be a problem at the moment
- Immunization for all children is place
- Pertussis is still prevalent
- No resistance to penicillin has been reported to date in pharyngitis. The minimum course for both amoxycillin and penicillin G is 7 days and not 5 days as recommended in the STG and IMCI guidelines. The international recommendation is 10 days or a high dose shorter course
- Pharyngitis may be transmitted through oral sex. It is important to note this fact particularly when treating sexually active patients
- Antibiotics are commonly misused when treating viral infections like common cold. This may be due to the lack of laboratory diagnostic support facilities and fear of super infections sometimes encountered with common cold
- Streptococcal pharyngitis should be included in the ARI chapter rather than as an Ear Nose and Throat condition
- One participant was of the view that not all pneumonias require hospitalization. It was however agreed that hospitalization should be recommended as the potential for complications in pneumonia was real
- The recommendations in this chapter should be harmonized with the IMCI guidelines

Dr. James Chipeta also made a presentation on **Diarrheal Diseases**. The following observations and recommendations were made during the discussion:

- Vitamin A and other micronutrients may be of benefit in treating diarrhoea as they act as co-enzymes for the immune process and assist in gut healing.
- In adults it may sometimes be desirable to stop the diarrhoea than removing the cause
- In children there is no role for antidiarrhoeal agents. Definitely there is no role for loperamide and codeine in children
- It was felt that codeine and loperamide should altogether be removed as options in the STGs

GROUP WORK

On the final day, the participants were divided into 4 groups for group work. Instructions are as per slide attached.
The topics for discussion for groups were:

- Group 1 HIV/AIDS and STIs
- Group 2 Tuberculosis
- Group 3 Malaria
- Group 4 ARI and diarrhoeal diseases

The facilitators for each group were:

- Group 1 Dr. Yassa
- Group 2 Dr. Nyirenda (Dr. Kasoma not available)
- Group 3 Mr. Mudondo (Dr. Kango not available)
- Group 4 Dr. Chipeta

Following are the observations and recommendations made by the groups:

Group 1

A STIs

- The syndromic approach to management of STIs should be adopted
- The definition of Urethral Discharge should differentiate the condition in male and female patients as;
    - Male
    - Female
        - Gonococci
        - Non gonococci
        - Clinical features
- Vaginal discharge should be reflected separately from lower abdominal pain

- The causal pathogens should be stated
- Both gonorrhoea and Chlamydia are treated concurrently
- The treatment recommendation in syndromic approach should be using:
    - ciprofloxacin 500mg stat and
    - doxycyline 200mg twice daily for 7 days
- Trichomonas vaginalis, bacterial vaginosis and candidiasis are all treated syndromically
- The recommended regimen being metronidazole 2g once daily + clotrimazole 200mg vaginally for 3 days
- A patient presenting with genital ulcers should also be treated syndromically for syphilis, chancroid, Lymphogranuloma venereum (LGV) and herpes simplex virus
- The recommended regimen is:
    - Benzathine benzyl penicillin 2.4MU intramuscularly
    - Ciprofloxacin 500mg twice daily for 3 days
    - Doxycycline 100mg twice daily for 14 days
    - Acyclovir 200mg five times daily for 7 – 10 days
- To manage inguinal bubo it is recommended to also treat LGV and chancroid
- The recommended regimen is:
    - Ciprofloxacin 500mg twice daily for 3 days
    - Doxycycline 100mg twice daily for 14 days
- Kanamycin should be reserved for use in MDR TB and deleted from treating STIs
- Restricting the selection of antimicrobials available for managing STIs will help in reducing the chances of AMR developing

B HIV/AIDS

- The treatment protocol should be standardized
- Efavirenz should be kept as a reserve drug in case of need to consider a different regimen (2^{nd} or 3^{rd} line protocol)
- HIV testing during pregnancy should be a routine test. Apparently MCZ has directed as such
- CD4 count of 350 should be the limit for initiating HAART
- In children CD4 % should be used rather than the count as this varies with age
- Triple therapy at week 34 should be adopted in PMTCT
- Adherence should be emphasized during counseling
- The WHO staging should be adopted in the STGs
- The WHO recommendations should be adopted for PEP

On the distribution of STGs the group recommended the following:

- Institutional copies should be widely available
- Each health worker in every province and district should be given a copy
- Each student undergoing a health related training should have a copy
- STGs should be regularly updated (at least yearly)

The group recommended the following to the AMR AWG:

- Continue with on going research activities on AMR
- Continue with monitoring drug resistance
- Underatke awareness generation activities for the community
- Students undergoing health related training and health care providers should be oriented about AMR issues
- Promote infection prevention and control strategies in health care institutions

Group 2

TB

The group observations and recommendations were as follows:

- There should a commentary in the TB chapter of the STGs stating recommendations for prophylaxis for the various categories of risk groups
- Prophylaxis should be given to children exposed to TB sputum + individuals
- The role of BCG in children born to HIV+ mothers should be reviewed. Alternatively, BCG should be discontinued altogether as its value is, at most, doubtful
- Rifampicin and INH should be recommended for the continuation phase

Group 3

Malaria

The following were the observations and recommendations from this group:

- A thick and thin smear should be done, where possible. Some facilities may be unable to do thin smears
- The recommendation in the STG for a lumbar puncture gives the impression this is to be done in all comatose patients. It requires rephrasing to indicate it is for excluding meningitis
- It is important to carefully explain to patients or caregivers the role and the procedure of a lumbar puncture as some alarm may have been caused through efforts like one program on "Health for All"
- The policy on prophylaxis in vulnerable groups should be clear. Currently there is lack of understanding on this issue particularly in splenomegaly, Sickle Cell Anaemia and the immunocompromised
- The definition section in the chapter should be changed to "introduction"
- The introduction should include the basic characteristics of the presentation of malaria, i.e. febrile illness, mode of transmission and vectors
- There should be a discussion on the issue of monotherapy and resistance
- "Pathogenesis" should be moved to the introduction
- Remove cold stage/hot stage etc and reclassify as per Malaria guidelines
- Clinical features should differentiate between uncomplicated and complicated malaria
- Add the table from the 'guidelines for diagnosis and treatment of malaria in Zambia'
- Laboratory findings should be moved to diagnosis
- The importance of good history taking and examination in differential diagnosis and early detection of complications should be emphasized
- Other investigations should be done to assess the severity and to exclude other co infections. E.g. Hb and random blood glucose
- A negative blood slide does not rule out malaria

- The treatment recommendations for both uncomplicated and severe malaria should be updated
- Include information on the management of complications (in severe malaria) i.e.
    - cerebral malaria/unconscious patient (refer to febrile convulsion)
    - black water fever
    - Hypoglycaemia
    - Anaemia
    - Metabolic disturbance
- The information given under supportive therapy is part of treatment and therefore should be removed
- Include a paragraph on prevention
- Remove IPT and take it to treatment
- The use of SP in IPT was questioned in view of the reported SP resistance. What alternatives may be recommended?
- Remove the section on "referred patients"
- Move the points from counselling into the prevention
- Remove the part regarding "growth monitoring"

The group recommended the following to the AMR AWG:

- Information education and communication (IEC) activities should be undertaken to address the issues about:
    - Finishing the course
    - The dangers of inappropriate OTC purchases
    - Measures to prevent development of AMR
- Empower DHMTs to address AMR

On the distribution of STGs the group recommended the following:

- Ensure at the central level there is adequate availability to meet demand
- Means of distribution via
    - Medical Council
    - Nursing Council
    - District health offices
- Copies should be available in all OPD and hospital wards

- AMR AWG should meet with training colleges and include them in discussions
- STGs should be available at student level

Group 4

ARI and Diarrhoeal Diseases

The group made the following observations and comments:

- Remove "and conditions" in the title
- 6.1 should be broken down into "upper", "lower" and "obstructive"
- Explain "acute & chronic" briefly
- 6.1.1 common cold should fall under "upper".
- Under-complications-remove "secondary"
- Under treatment-aspirin given 3 times only and not 4 times
- Aspirin & nasal decongestants should not be recommended in children
- Instead of laryngotracheobronchitis, it should be "streptococcal pharyngitis" & lift information from page 228
- Definition to read as on page 228, but to read"secondary to streptococcal infection"
- The recommendation for treatment should be :
    - Penicillin G 50,000iu/kg as single dose or
    - Amoxicillin 50-100mg/kg in 3 divided doses or 250-500mg-adults for 10 days
- To the complications add rheumatic heart disease and acute glomerular nephritis
- 6.1.4 should read "Diphteria" instead of "stridor in children"
- The definition for dipthteria should read "an ARTI caused by *Corynebacterium diphteria*
- Remove definition of stridor from the guidelines and the treatment remains for croup
- Add Laryngotrachealbronchitis(LTB) add "usually presents as an emergency" and is always acute.
- LTB can be confused with acute epiglotitis or diphteria
- Signs for LTB :add barking cough and stridor.
- Remove doxycycline from recommended treatment
- Supportive treatment to include oxygen support, steam tent and re-hydration
- Chapter 6.1.6 should read "Pneumonia"
- The diarrheal diseases chapter should be harmonised with IMCI and the classifications re-organised
- All guidelines should not recommend loperamide

On the distribution of the STGs the group made the following observations and recommendations:

- An addendum to the STG should be done immediately to accompany the distribution of the current STG.
- Multiple launches should be done and as many doctors invited.
- The distribution points should be; MCZ, General Nursing Council, School of Medicine and all training schools
- For practitioners coming into Zambia-given at temporary registration points
- STGs must be available to all hospitals, private and public
- All participants in the workshop should go through it and send in their written comments.
- Continual education in each province (seminars) should be organised

Recommendations to the AMR AWG included:

- AMR surveillance should be continual .
- Regular national workshops to disseminate the data availed through the surveillance should be held at least once every year
- Public education should be undertaken
- A regular AMR bulletin should be produced
- Pharmacy and Poisons Board should enforce quality and professional practice by pharmacies

Plenary session:

The following observations and recommendations were made during the plenary session:

- The supervision of foreign trained health workers should be streamlined. Only UTH (School of Medicine) should be authorized to supervise
- The STG should include a commentary and guidelines on adverse drug reaction reporting (including drug interactions) and the reporting mechanisms
- The drug regulation body was urged to enforce the medicines laws in order to control inappropriate use

The chairman of the AMR AWG and ZNFC, Prof. Chintu closed the meeting and expressed his happiness with the participation of all those who attended. He felt that there was very good attendance and consensus had been reached on most issues. Gaps in the STG had been identified and suggestions for improvement made.
He informed participants that all training institutions would be availed copies and so efforts would be made to make them available as ready reference material in the wards. The STG would be revised regularly to include new information .

Annex 4: Objectives of the Workshop

Implementation of STGs to support Antimicrobial Resistance (AMR) Containment in Zambia

Organised by the AMR Advocacy Working Group in collaboration with Central Board of Health and Zambia National Formulary Committee

Protea Safari Lodge, Chisamba, 27 to 29 June 2005

Supported by USAID/RPM Plus

Objectives

- To discuss the problem of antimicrobial resistance (AMR) and initiatives of AMR Advocacy Working Group in Zambia
- To discuss importance of Standard Treatment Guidelines (STGs) in rational drug use and AMR containment
- To discuss recommendations provided in the STGs for infectious diseases of major public health importance in Zambia
- To critically analyse the guidelines for infectious diseases of major public health importance in the STGs
- To discuss ways to disseminate, implement and promote use of STGs at facility level

Format for discussions on Standard Treatment Guidelines

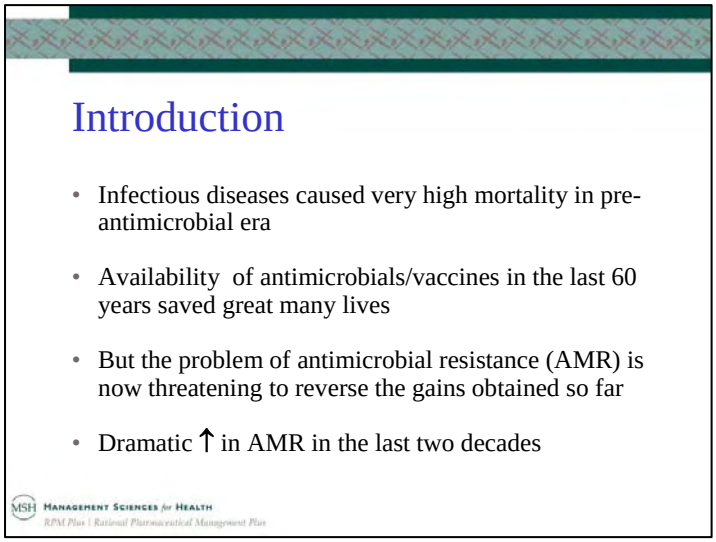
- Brief presentation by facilitators on the guidelines for
  - HIV/AIDS
  - Tuberculosis
  - Malaria
  - Sexually transmitted infections
  - Acute respiratory infections
  - Diarrheal diseases

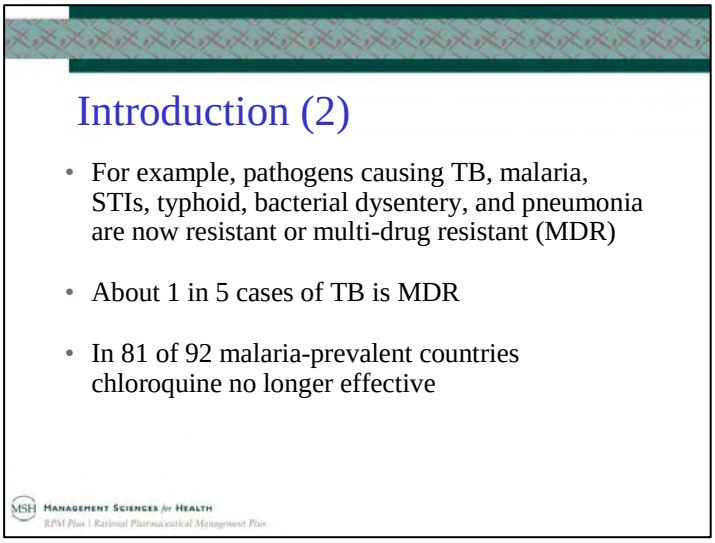
Participatory discussions after the initial brief presentation

- Actual practice in the field compared to STG recommendations (level of adherence to the STG)
- If problems with adherence to STG recommendations, what are the underlying factors/problems?
- Ways to solve the identified problems and improve STG utilisation at facility level
- Are AMR issues adequately addressed in the guidelines? If not, where are the gaps and suggest ways to bridge the gaps
- Identify any other deficiencies, inaccuracies or gaps in the STGs for review by the Zambia National Formulary Committee (ZNFC)

- Thank you

Annex 5: Antimircrobial Resistance: An Overview





Current AMR Levels to Illustrative Drugs

Infectious Disease	Global Deaths in millions (2002)	Primary Causative Agent	Illustrative Drug and Resistance Levels	Resistant to other drugs
ARI	3.845	*S.pneumoniae*	Penicillin: 12-55%	Yes
HIV/AIDS	2.821	HIV	Antiretrovirals: ??%	Yes
Diarrheal Disease	1.767	*S.dysenteriae*	Cotrimoxazole: 5-95%	Yes
TB	1.605	*M.tuberculosis*	Isoniazid: 2-39%	Yes
Malaria	1.222	*P.falciparum*	Chloroquine: 30-50%	Yes
Gonorrhea	0.001	*N.gonorrheae*	Penicillin: up to 98%	Yes

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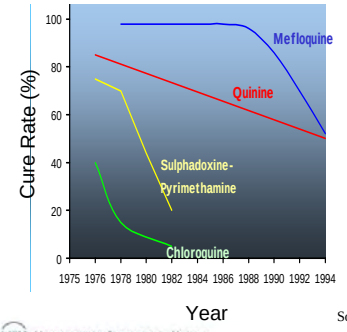
Sources: 2003 World Health Report and WHO reports

Running Out of Treatment Options



***P. falciparum* malaria in Thailand:**

Current treatment:
mefloquine + artesunate

Cost to public sector:
$ 3.59 per patient
(34 X greater than with CQ)

Few other drugs effective

Source: SE Asia J Trop Med Public Health 1999; 30: 68

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An added risk of rapid AMR escalation now exists with recent global initiatives…

…if the increased flow of ARV, malaria, and TB medicines is not matched by strengthening of drug management and AMR-containment activities.

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Impact of AMR

- Huge Individual as well as Public Health Consequences in terms of
  - Prolonged illness
  - Increased mortality
  - Prolonged periods of infectiousness with ↑ 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: An Example of multiple drug resistant TB

- Treatment 100 times more expensive
- Treatment duration much longer
- Cure rate much less even in the best centers

MSH Management Sciences for Health
RPM Plus | Rational Pharmaceutical Management Plus

AMR has Higher Implications for Low Resource Countries

- While all countries are hit by AMR, the worst hit are developing countries because
  - ~ about ½ of all deaths in low-income countries are still due to infections and
  - ~ comparatively much less resources are available to respond to this challenge

MSH Management Sciences for Health
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AMR in Hospitals

- Up to 10% of admitted patients get hospital-acquired infections
- Hospital is an important source of drug resistant infections
- Important hospital pathogens →

  MRSA, Enterococcus faecium, Enterococcus faecalis, E. coli; K. pneumoniae, Enterobacter spp., Citrobacter spp., Pseudomonas aeruginosa and Acinetobacter calcoaceticus

MSH Management Sciences for Health
RPM Plus | Rational Pharmaceutical Management Plus

AMR in Community

- Earlier thought that AMR is a problem only in hospital setting
- Increasingly being reported in community-acquired infections too
- *Strep. pneumonie, Strep. pyogenes, H. influenzae, Neisseria gonorrhoeae, Neisseria meningitidis, Salmonella* spp., *Shigella* spp., *Campylobacter* spp., *E. coli, and M. tuberculosis*

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Boundaries between Hospital & Community are getting blurred….

….and there are growing concerns that MDR pathogens, which are currently predominant in hospitals, may increasingly spread to community & lead to widespread problem in general population as well

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Causes of AMR

Multiple factors contribute to the development of AMR

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Inappropriate Use is 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 R et al. BMJ 1998; 317: 609-10.

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Inappropriate Use in Humans

- 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
- Numerous reports show inappropriate & excessive antibiotic use in hospitals

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Reasons for Irrational Prescribing

- ~ training deficiencies
- ~ diagnostic uncertainties
- ~ formularies/STGs not available or not used
- ~ fear of poor patient outcome & need for self reassurance
- ~ fear of litigation
- ~ dispensing prescribers
- ~ Microbiol. info. not available or not used
- ~ Patient demand

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Other Factors Contributing to AMR, Especially Relevant in Developing Countries

- ~ limited access to antimicrobials
- ~ unregulated over-the-counter availability
- ~ drug promotion
- ~ poor quality (substandard & counterfeit)

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Need for Urgent Action (1)

- Pace of AMR ↑ but pace of new antimicrobial development ↓
- This creates a great threat and urgency
- We either act urgently or soon lose ability to treat
- AMR is a Global problem requiring global solution
- Each country and each stakeholder group has a share of responsibility

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Need for Urgent Action (2)

- Essentials of control of AMR well known
- What is important is *action*
- More knowledge will further improve action but current knowledge adequate to ACT

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A Complex Problem Requiring Multiple Solutions

- Requires MULTIPLE INTERVENTIONS directed towards Education, Regulation, Surveillance, and Research
- Coordinated MULTISECTORAL approach essential
- Requires involvement of ALL STAKEHOLDERS

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Advocacy….

….should be a central element in the AMR containment effort

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Major AMR containment recommendations from

- WHO Global Strategy for Containment of Antimicrobial Resistance (2001)
- AMR Track of the Second International Conference for Improving the Use of Medicines (ICIUM 2004)

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Key Strategies

- Reduce the need for drugs through infection prevention
- Increase treatment effectiveness by improving drug quality
- Increase treatment effectiveness by improving drug use behaviors
- Collect and manage information for coordinated action

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Prioritization and Continuous Application of Interventions Essential

- Not all interventions can be implemented simultaneously
- Even highly developed countries can't do so
- Essential to prioritize interventions according to local relevance & feasibility
- Continuous application of AMR containment efforts necessary for long term success

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Conclusion

- Pace of AMR ↑ but pace of new drug development ↓
- So it's vitally important to preserve the effectiveness of the existing antimicrobial agents
- AMR is a global problem requiring global solution
- Every country has a share of responsibility and needs to develop locally suitable strategies to contain resistance
- Advocacy & multisectoral collaboration are critical for success
- Continuous effort is necessary for long term impact

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Annex 6: National Policies and Strategies to Contain AMR

NATIONAL POLICIES AND STRATEGIES TO CONTAIN AMR

WORKSHOP ON IMPLEMENTATION OF STGs

PROTEA SAFARI LODGE, CHISAMBA 27-29 JUNE 2005

Dr. V. Mtonga, Director of Clinical Care and Diagnostic Services, CBoH

Policies and strategies

- AMR recognized as a problem in Zambia (both potential and actual)
- Aware of havoc caused by AMR in other countries e.g. MRSA, TB drugs and ARVs
- Zambia is not immune to such effects
- GRZ recognises need for vigilance and action

Extent of problem

- Exact extent in Zambia not determined for most infections
- For some diseases e.g. malaria extent known
- NDP recognizes threat to drug efficacy caused by irrational use and importance of correct use of medicines
- Vital to know extent in order to develop appropriate national strategies

Areas needing to be addressed

- Disease prevention & infection control
- Access to antimicrobials
- Appropriate antimicrobial use
- Legislation & regulation
- Surveillance
- Focused research

Actions to date

- GRZ formulated laws, guidelines and appropriate reference literature to promote and ensure rational use of drugs
- National Drug Policy adopted and being implemented
- Medicines laws reviewed to improve manufacture, importation, sale, distribution and use of medicines
  - Specifically Pharmaceutical Act recently enacted
  - Medical and Allied Professions Act. Rules to regulate conduct of registrable practitioners reviewed and being enforced to ensure medicines are in safe hands

Actions (2)

- Improving immunization coverage (polio, TB, measles etc)
- Improvements in water, sanitation and housing through various projects and schemes in collaboration with other agencies

Actions (3)

- Policies for the management of major infections of public health concern in Zambia have all undergone reviews in recent years in order to specifically address AMR-related issues
- Consequently policies for management of TB, Malaria, HIV/AIDS, STIs, childhood illnesses and cholera now in place and being implemented

Actions (4)

- Infection Prevention Guidelines have been developed and disseminated
- Draft hospital guidelines in process of development
- Surveillance for TB, malaria and HIV/AIDS has been stepped up
- Outbreaks of cholera epidemics now reduced as result of improved surveillance and controls

Actions (5)

- Laboratory services being improved throughout the country for surveillance and more accurate diagnosis
- STGs, ITGs and some disease-specific guidelines e.g. malaria have been developed and disseminated
- Rational Use of Drugs courses are regularly organised for health workers
- Relevant personnel regularly attend drug logistical management courses
- Pharmacovigilance system being established

Actions (6)

- Drug and Therapeutic Committees (DTCs) have been introduced in most of our health facilities
- Evidence-based antibiotic (antimicrobial) policies within some institutions have been developed through DTCs
- Some DTCs developed and implemented operational guidelines to promote rational drug use in institutions

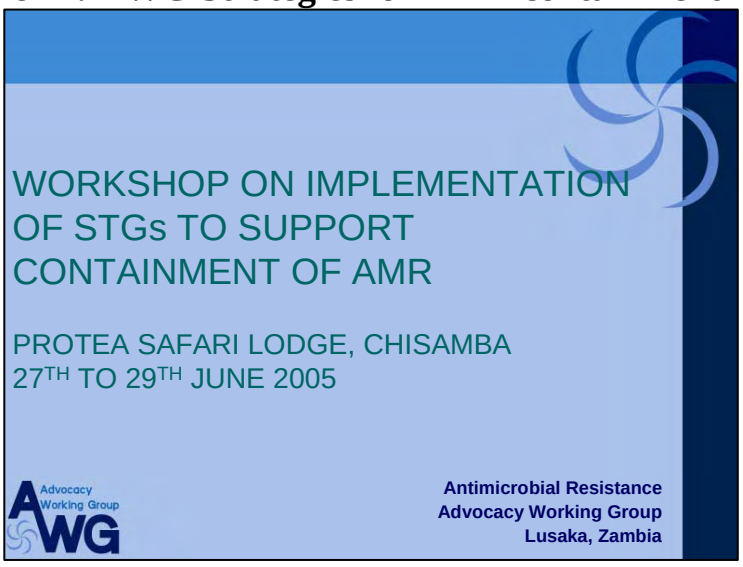
Strategies

- WHO suggests >60 possible strategies for AMR containment
- Not all relevant to all situations
- Need to determine what is appropriate to Zambia and prioritise strategies
- CBoH in collaboration with MSH/RPM-Plus and Change Project supported formation of AMR Advocacy Working Group (AWG) to coordinate AMR activities in Zambia
- Workshops like this are key in process of developing appropriate strategies for Zambia

Private sector

- Important to note key role of private sector in AMR containment and generally in health care provision
- Need to engage private sector actively
- Recognise that some activities supporting AMR containment already going on in private sector e.g generation of sensitivity data which helps in surveillance
- Encouraging to note participants from private sector among us

Annex 7: AWG Strategies for AMR containment in Zambia



AWG STRATEGIES FOR CONTAINMENT OF ANTIMICROBIAL RESISTANCE

Dr. James C. L. Mwansa
AMR AWG Vice Chairperson

STRATEGIES FOR CONTAINMENT OF ANTIMICROBIAL RESISTANCE

- 85% mortality due to respiratory, diarrhoeals, measles, AIDS, malaria worldwide.
- Resistance to first line drugs up to 100% in some pathogens.
- HAI, HIV, emerging infections and neglected parasitic diseases resistance add to the burden.

STRATEGIES FOR CONTAINMENT OF ANTIMICROBIAL RESISTANCE

- Resistance was recognized at the beginning of the twentieth century.
- Development of new antimicrobials have not matched the development of resistance
- Resistance is slow to reverse or is irreversible.
- The main driver of resistance is antimicrobial inappropriate use

STRATEGIES FOR CONTAINMENT OF ANTIMICROBIAL RESISTANCE

Resistance is only just beginning to be considered a societal issue:

- In economical terms, a negative externality in health care context.
- WHA resolution of 1998 urged member states to develop measures to encourage appropriate and cost effective use of antimicrobials.
- Many countries have since developed action plans to address the problem

WHO GLOBAL STRATEGY FRAMEWORKOF INTERVENTIONS

Reduce disease burden and spread of infections

- Improve access to appropriate antimicrobials
- Improve use of antimicrobials
- Strengthen health systems and surveillance capabilities
- Enforce regulations and legislations
- Encourage development of new drugs and vaccines.

RECOMMENDATIONS FOR INTERVENTION

- Patients and the general community.
- Prescribers and dispensers
- Hospitals
- Use of antimicrobials in food producing animals
- National governments and health systems
- Pharmaceutical promotion
- International collaboration

PATIENTS AND THE GENERAL PUBLIC EDUCATION (1)

- Educate patients and general community on the appropriate use of antimicrobials.
- Educate patients on importance of measures to prevent infections, such as immunization, vector control, use of bed nets etc.
- Educate patients on simple infection control measures, such as hand washing

PATIENTS AND THE GENERAL PUBLIC EDUCATION (2)

- Educate patients on suitable alternatives to antimicrobials for relief of symptoms and discourage self-initiation of treatment
- Encourage appropriate and informed health seeking behaviour

PRESCRIBERS AND DISPENSERS EDUCATION (1)

- Educate all groups of prescribers and dispensers on the importance of appropriate antimicrobial use
- Educate all groups of prescribers and dispensers on disease control and infection prevention
- Promote targeted undergraduate and postgraduate educational programs on accurate diagnosis and management of common infections.

PRESCRIBERS AND DISPENSERS EDUCATION (2)

- Encourage prescribers and dispensers to educate patients on antimicrobial use and importance of adherence.
- Educate all groups of prescribers and dispensers on factors that strongly influence prescribing habits e.g inducements.

MANAGEMENT, GUIDELINES AND FORMULARIES

- Improve antimicrobial use by supervision and support of clinical practices, especially diagnostic and treatment strategies
- Audit prescribing and dispensing practices
- Encourage development and use of treatment guidelines and algorithms
- Empower formulary managers to limit antimicrobial use to the prescription of an appropriate range of select antimicrobials.

HOSPITALS

- Establish infection control programs
- Establish effective hospital therapeutics committees
- Develop and regularly update guidelines and antibiotic policies.
- Monitor antimicrobial usage

DIAGNOSTIC LABORATORIES

- Ensure access to microbiology laboratory services matching the level of the hospital
- Ensure performance of quality assurance
- Ensure good record keeping and database producing clinically and epidemiologically useful surveillance reports

PHARMACEUTICAL INDUSTRY INTERACTIONS

- Control and monitor pharmaceutical promotional activities within the hospital environments

USE OF ANTIMICROBIALS IN ANIMAL FEEDS

- Create national systems to monitor antimicrobial use in food animals.

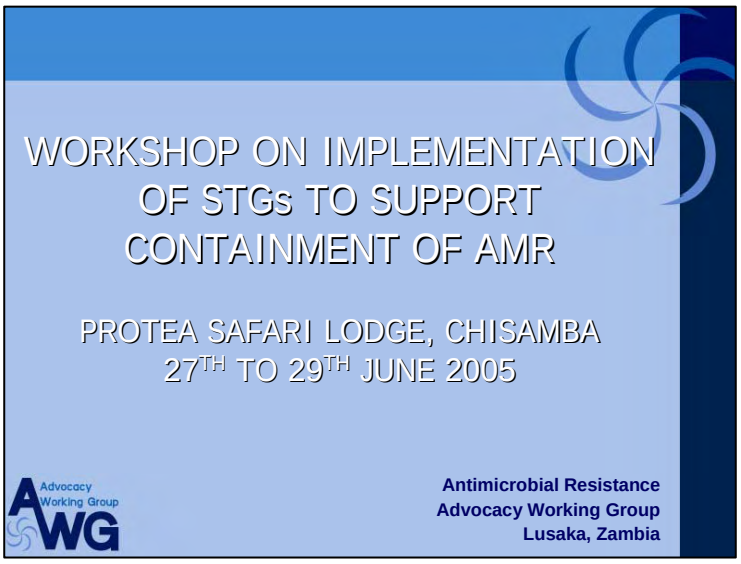
See

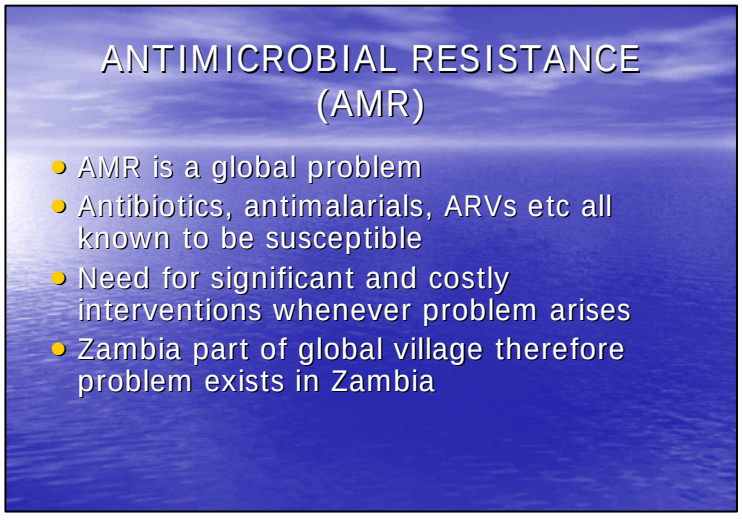
www.who.int/emc/diseases/zoo/who-global-principles.htm

SURVEILLANCE OF RESISTANCE

- Designate or develop reference microbiology laboratory
- Adapt and apply WHO models systems for antimicrobial resistance surveillance.

Annex 8: AMR Containment Activities in Zambia





MAGNITUDE OF PROBLEM

- Some programmes have established magnitude of problem and disseminated findings
- TB, malaria, cholera pathogens developed resistance to some of the commonly used drugs
- Resistance to a number of antibiotics by a variety of pathogens also known
- Data for some of these available

CURRENT AMR ACTIVITIES

- No coordinated activities to combat AMR
- Several significant AMR-related activities going on but not necessarily as part of systematic process to combat AMR
- Team of AMR experts funded by USAID paid exploratory visit to Zambia in July 2003 to assess problem and level of interest in containment
- Since early 2004 initiatives undertaken to specifically address problem

KEY FINDINGS OF 2003 VISIT TEAM

- Major concerns expressed over known resistance to tetracycline, ampicillin and chloroquine
- Some resistance data existed but not comprehensive
- Some of the data not shared and need for more interaction among key players in the arena
- High level of interest and support for AMR containment activities and advocacy
- Some cooperating partners had interest to support AMR-related activities

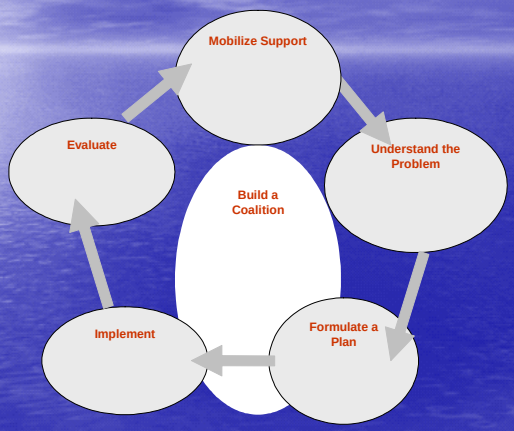
EXISTING AND PLANNED AMR-RELATED ACTIVITIES

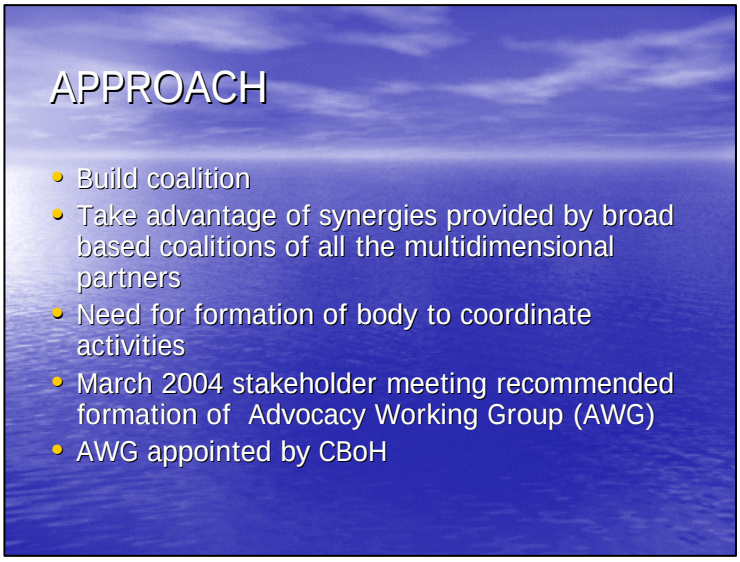
- NDP in existence
- Legislation review process in progress
- Pharmacovigilance system in process of being established
- New malaria treatment policy being implemented
- Cholera and TB protocols adapted to address drug efficacy trends
- IMCI Guidelines adopted and implemented
- Active laboratories (microbiology and virology) in place

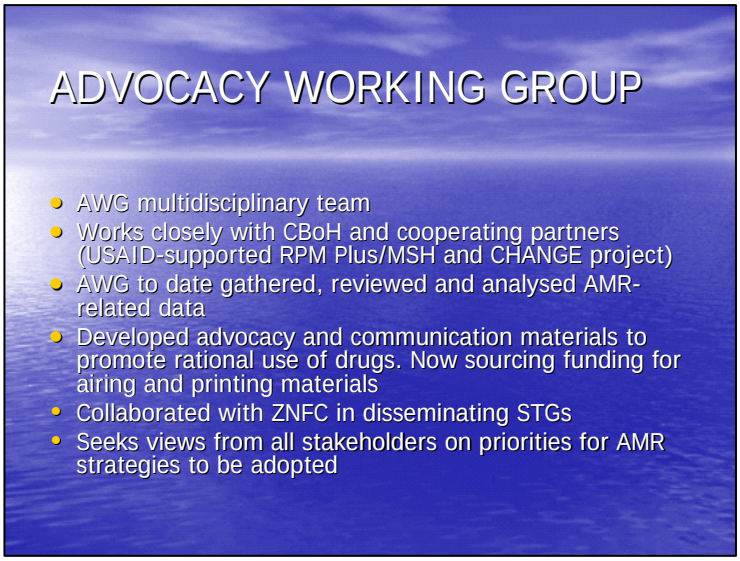
FURTHER ACTIVITIES

- 2004 further assessment carried out to assess what was actually happening and identify possible partners to initiate AMR containment programme
- Situation analysis and data collection undertaken through key stakeholder interviews and literature review
- Results disseminated to key stakeholders and decided on approach to be adopted in Zambia

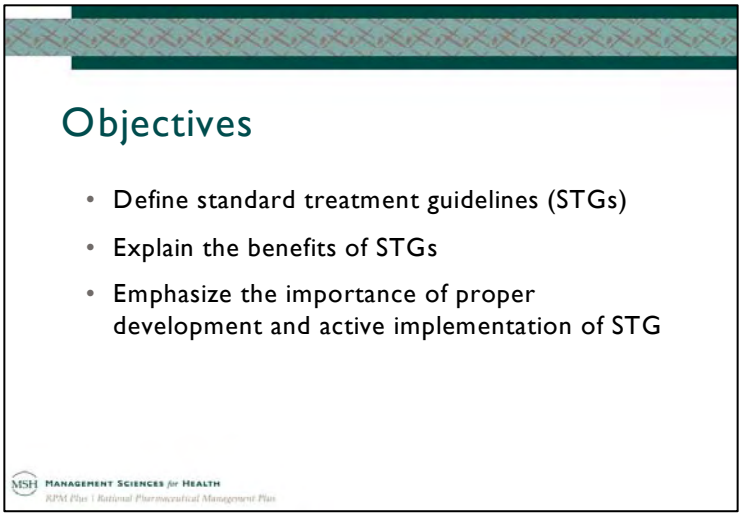
APPROACH ADOPTED

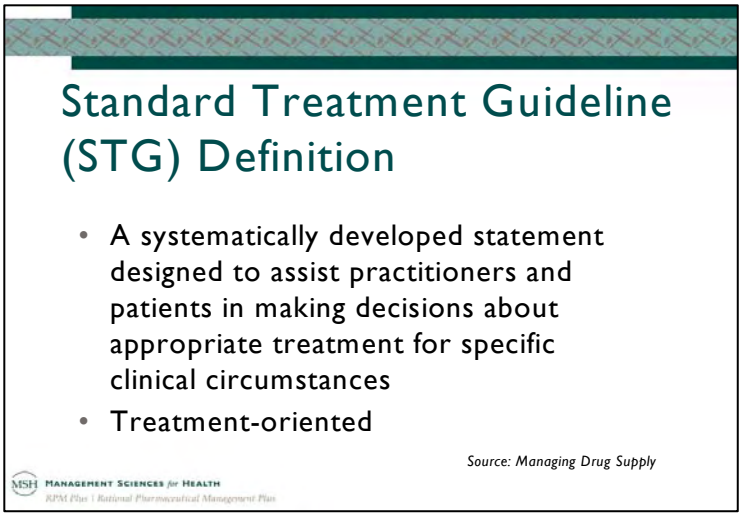



APPROACH
Build coalition
Take advantage of synergies provided by broad based coalitions of all the multidimensional partners
Need for formation of body to coordinate activities
March 2004 stakeholder meeting recommended formation of Advocacy Working Group (AWG)
AWG appointed by CBoH


ADVOCACY WORKING GROUP
AWG multidisciplinary team
Works closely with CBoH and cooperating partners (USAID-supported RPM Plus/MSH and CHANGE project)
AWG to date gathered, reviewed and analysed AMR-related data
Developed advocacy and communication materials to promote rational use of drugs. Now sourcing funding for airing and printing materials
Collaborated with ZNFC in disseminating STGs
Seeks views from all stakeholders on priorities for AMR strategies to be adopted

Annex 9: Standard Treatment Guidelines – An Overview





Examples of Standard Treatment Guidelines

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Benefits of STGs for Patients

- ~Consistency amongst prescribers
- ~Most effective treatments
- ~Improved drug supply
- ~Lower cost

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Benefits of STGs for Providers

- ~Provides expert consensus
- ~Provider can concentrate on diagnosis
- ~Good guidance where expertise limited (e.g. newly qualified doctors)
- ~Standard to assess quality of care
- ~Simple basis for monitoring and supervision

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Benefits of STGs for Supply Mangers

- ~Procurement, quality control, storage, & distribution easier and more efficient
- ~Pre-packs of common items
- ~Drug demand more predictable

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Benefits of STGs for Health Policy Makers

- ~Funds used more efficiently
- ~Assess quality of care
- ~Therapeutic integration of special programs
- ~Information & training easier & more focused

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Key Steps in developing STGs

- Determine the target user groups
- Identify all the relevant stakeholders
- Set up a STG Committee
- Establish roles/responsibilities of committee members
- Agree on the scope and content of the STG

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Key Steps in developing STGs (2)

- Establish methods of medicines and treatment selection process
  - ~ Use of unbiased information
  - ~ Evidence-based selection
  - ~ Major criteria: efficacy, safety, cost, convenience
  - ~ Method of establishing consensus where level of evidence appears inadequate
- Revise the draft based on wide consultation with external reviewers

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Implementing the Guidelines

- Printed reference materials
  - ~ STG, posters, training materials
- Official launch
- Initial training
  - ~ Vital to implementing guideline/formulary
  - ~ Provide training in advance of actual start date
- Reinforcement training
- Monitoring use of the guidelines and outcomes
- Supervision

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Some Indicators Relating to Guidelines

- Is there a national STG with standardized treatments?
- Is STG consistent with the national list of essential drugs?
- Is there a National Drug Policy statement to encourage use of STG?

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Some Indicators Relating to STGs (2)

- Is STG used for basic and in-service training of health personnel?
- What % of public-sector health facilities has a copy of STG?
- What % of prescriptions in public-sector health facilities complies with the STG?

Source: Managing Drug Supply

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Why Are STGs Not Followed?

- Not based on adequate evidence
- Lack of transparency during development process, which leads to the lack of credibility and acceptance
- Lack of involvement from respected members of the professional community
- Do not reach the right people
- Lack of appropriate dissemination and training in the use of STGs
- Pharmaceutical products available in facilities not on STGs
- Not updated regularly

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Summary

- **STG can have considerable impact if developed and used properly**
- **They can also be an expensive waste of effort**
- **With STGs, the processes of production and use are as important as the products**

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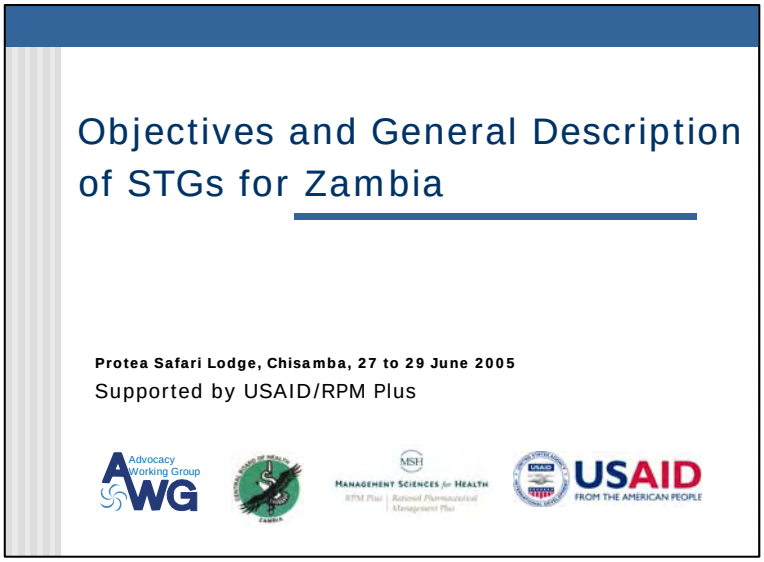
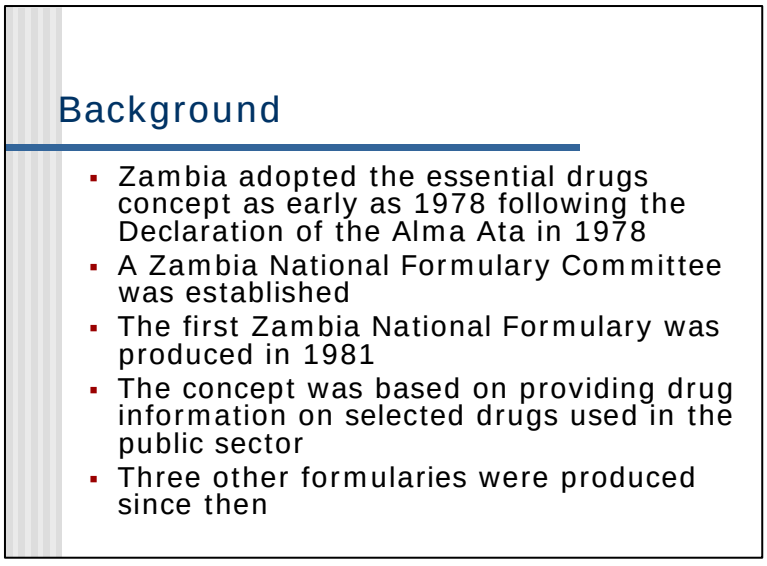
Annex 10: Objectives and General Description of STGs for Zambia





The Zambia National Formulary Committee

- Appointed in 1996
- To advise the Minister of Health on drug information used for public health
- Develop
  - Essential Drugs List (1998)
  - Zambia National Formulary (1998)
  - Standard Treatment Guidelines (2004)

Objectives

- To provide comprehensive information on the management of common diseases and conditions

Development process

- Initiated in 1997
- Committee under the chairmanship of a physician
- Consulted with health care providers
- Complete the process in 2004
- Due for update
  - Revised edition
  - Addendum

General Description

- Based on most effective, affordable and current practices
- Basic Health Needs of Zambians
- Improved quality health outcomes
- Essential drugs and medical sullies system
- Established Essential Drugs/Medicines List
- Government Commitment to provide

Arrangement of Information

- Chapters
- Sections
- Description
  - Definition
  - Clinical Features
  - Complications
  - Treatment
    - Supportive
    - Drugs
  - Prevention

Other Features

- General Treatment of Poisoning
- Zambia Essential Medicines List
- Essential Laboratory Supplies and Reagents
- Appendix
- Indexes

Annex 11: HIV/AIDs Treatment Guidelines

HIV/AIDS Standard Treatment Guidelines….2004

Soka Nyirenda,
UTH,

27th June, 2005,
PROTEA

- 3.11 HUMAN IMMUNODEFICIENCY VIRUS/ACQUIRED IMMUNODEFICIENCY SYNDROME (HIV/AIDS)

Format

- Title
- Definition
- Clinical features
- Opportunistic infections
- Diagnosis
- Clinical management
- Drug treatment

- Treatment failure
- Supportive care
- PEP
- PMTCT
- Children
- Table of ARV with their side effects

Way forward

- **Identification of target group**
- **Policy vs practice vs evidence**
- **Format of "section"**
- **Title**

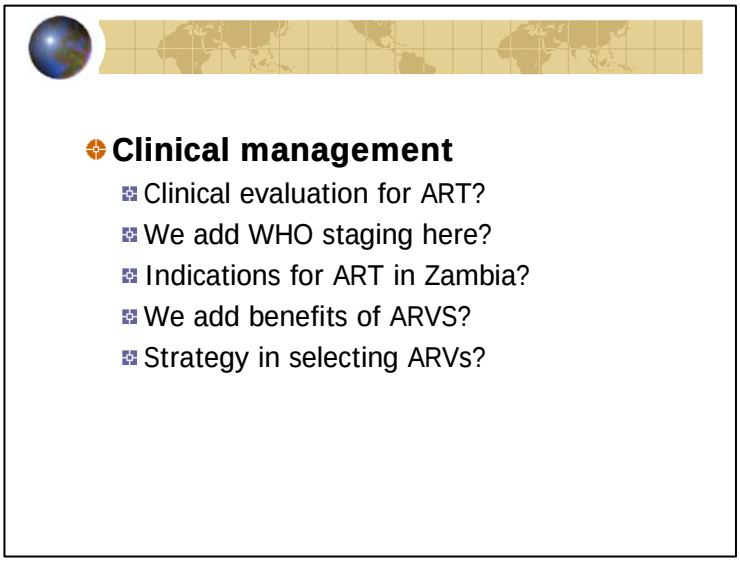
Should be a disease, not the cause i.e. **AIDS**
Any room for HIV cases who are not AIDS?

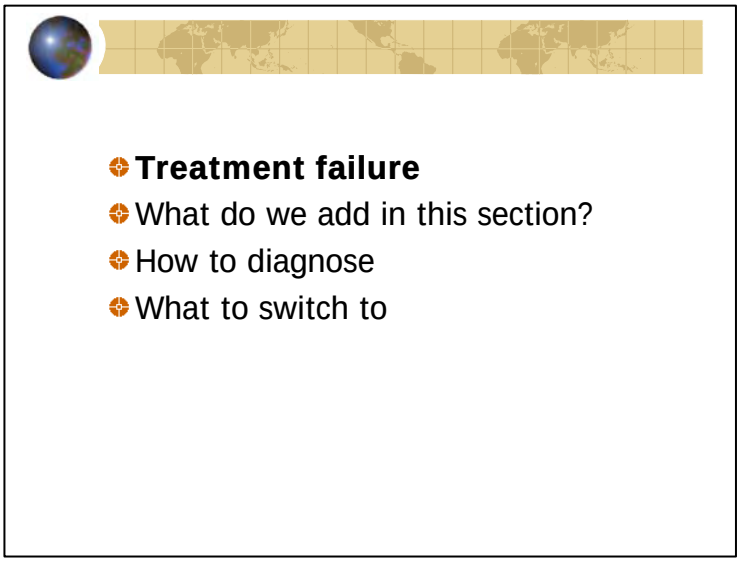
- **Definition**
- **Clinical features**

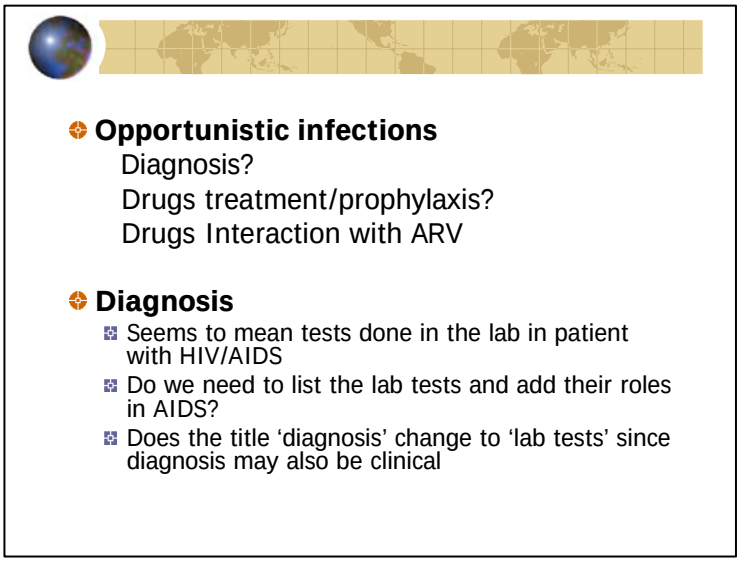
WHO staging; adults and children

- **PEP**
  - d4T and ddI

MTCT
Nevirapine
CHILDREN
Add CD%
Drugs and their side effects
Interaction of Coartem??
Interaction OI meds/ARV/others


Clinical management
Clinical evaluation for ART?
We add WHO staging here?
Indications for ART in Zambia?
We add benefits of ARVS?
Strategy in selecting ARVs?


Treatment failure
What do we add in this section?
How to diagnose
What to switch to


Opportunistic infections
Diagnosis?
Drugs treatment/prophylaxis?
Drugs Interaction with ARV
Diagnosis
Seems to mean tests done in the lab in patient with HIV/AIDS
Do we need to list the lab tests and add their roles in AIDS?
Does the title 'diagnosis' change to 'lab tests' since diagnosis may also be clinical

Drug resistance

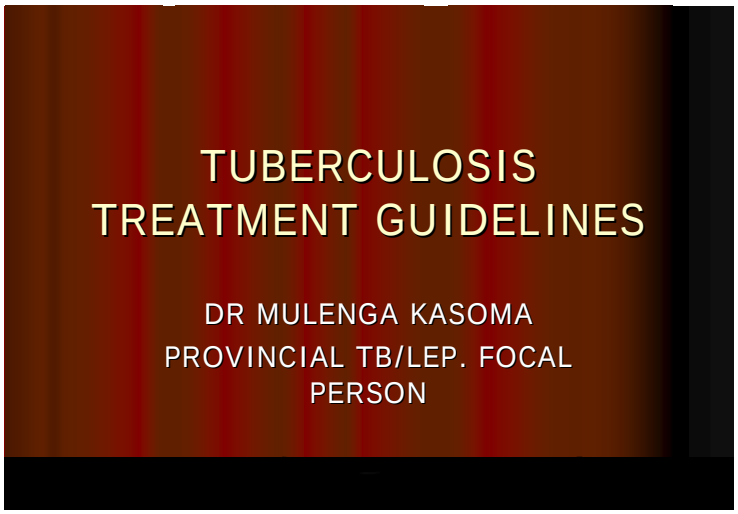
- Clinical/Immunological/Virological
- AZT vs d4T
- 3TC
- NVP vs EFV
- PI

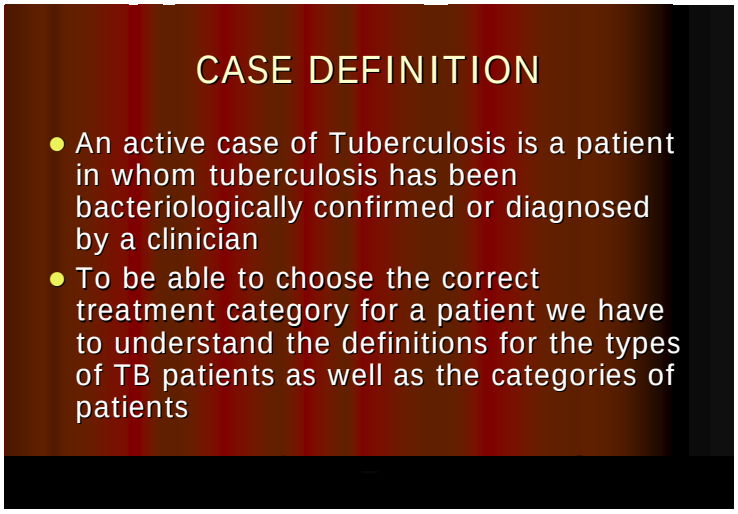
ARV	*Patients*	*%*
Trimune (d4T/3TC/NVP)	2205	74
Duovir-N (AZT/3TC/NVP)	507	16.9
Duovir/EFV	126	4.7
d4T/3TC/EFV	86	2.9
AZT/3TC/IDV	28	0.9
d4T/3TC/IDV	19	0.64
ddI+	4	0.1
ABC	1	0
other	2	0
	2978	

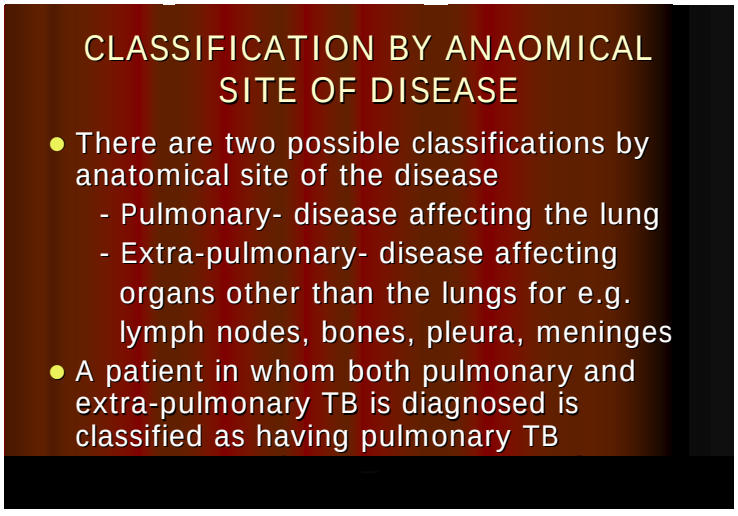
Strategies

- LOCAL
  - Adherence
  - Monitoring (Clinical, immunological, virological)
  - National treatment guidelines
  - Research
- 'NATIONAL'
  - Resistance monitoring (MONEY!)
  - Share experience
  - Research (TLC, ESR, CD8.....
  - Quality of ARV

Annex 12: TB Treatment Guidelines







CATEGORIES OF TB PATIENTS

- Sputum-smear positive pulmonary TB
- Sputum-smear negative pulmonary TB
- Extra-pulmonary TB
- Paediatric TB

DEFINITIONS OF TYPES OF TB PATIENTS

- NEW- A patient who has never had treatment for TB or who has taken anti-TB drugs for less than a month
- RELAPSE- A patient previously treated for TB who has been declared cured or treatment completed, and is diagnosed with bacteriologically positive TB
- CHRONIC CASE- Patient who is sputum positive after retreatment- MDR TB

TYPE OF TB PATIENTS CONT.

- TREATMENT AFTER FAILURE- A patient who is started on a re-treatment regimen after having failed previous treatment
- TREATMENT AFTER DEFAULT- A patient who returns to treatment following interruption of treatment for 2 consecutive wks in the intensive phase and for two consecutive months in continuation phase

TREATMENT CATEGORIES

- CATEGORY I- New cases of smear-positive pulmonary TB and all forms of newly diagnosed seriously ill patients with severe forms of TB (TBM, milliary TB, TB spine…) as well as smear negative relapses
- CATEGORY II- Smear positive relapses and treatment after failure as well as smear positive treatment after default

TREATMENT CATEGORIES CONT.

- CATEGORY III- Smear-negative TB as well as extra-pulmonary TB other than the severe forms
- CATEGORY IV- Tuberculosis in patients aged 12 yrs and below are to be considered in this category
- Multi-drug resistant TB- Resistance to at least Isoniazid and Rifampicin

DRUGS USED IN TB

- Ethambutol- E
- Isoniazid- H
- Pyrazinamide- Z
- Rifampicin- R
- Streptomycin- S
- MDR-TB: Ethionamide, Cycloserine, Kanamycin Capreomycin, Norfloxacin and Ciprofloxacin

TREATMENT REGIMENS

- CAT I 2EHRZ/6EH
- CAT II 2HRZES/1HRZE/5HRE
- CAT III 2RHZ/6EH
- CAT IV 2RHZ/4RH

TREATMENT REGIMENS CONT.

- For severe forms of TB in children such as TBM, milliary, spinal TB the following regimen is recommended:

  2SRHZ/10RH
- For treatment of MDR-TB the best is to treat patients in a specialist centre under supervision using second line drugs but it is expensive and difficult

FIXED DOSE COMBINATIONS (FDCs)

- Anti-TB drugs can be given as fixed-dose combinations where 2 or more drugs are present in fixed proportions in the same formulation
- Currently we have these in the country with Central province as the pilot
- There are plans to scale out to all the 72 districts by 2006

TYPES OF FDCs

- 4FDCs – contain 4 drugs HRZE
- 3FDCs – contain 3 drugs HRZ
- 2FDCs – contain 2 drugs HR
- Currently available in Zambia are the 4FDCs and 2FDCs

ADVANTAGES OF FDCs

- Reduction in pill burden and simplifying treatment thereby promoting adherence
- Simplification of drug management for the clinicians
- Reduces misuse of anti-TB drugs for other conditions other than TB
- Prevention of emergence of drug resistant strains

TB/HIV CO-INFECTON

- Tuberculosis one of the most common opportunistic infection in HIV
- If patient already on HAART patient should be referred to a clinician
- If patient not on HAART subsequent management will be influenced by CD4
- The priority is to treat TB and defer ART at least after intensive phase

MULTI-DRUG RESISTANT TB

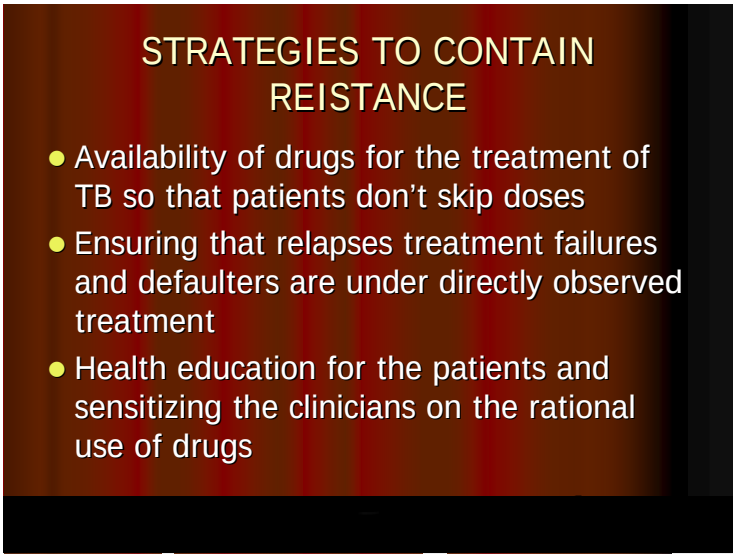
- Multi-drug resistant TB arises from failure of the NTP
- Its necessary therefore to devote time, effort and resources to improving the NTP
- Second line drugs are expensive treatment highly specialized and difficult
- Most countries regard these patients as untreatable

STRATEGIES TO CONTAIN RESISTANCE

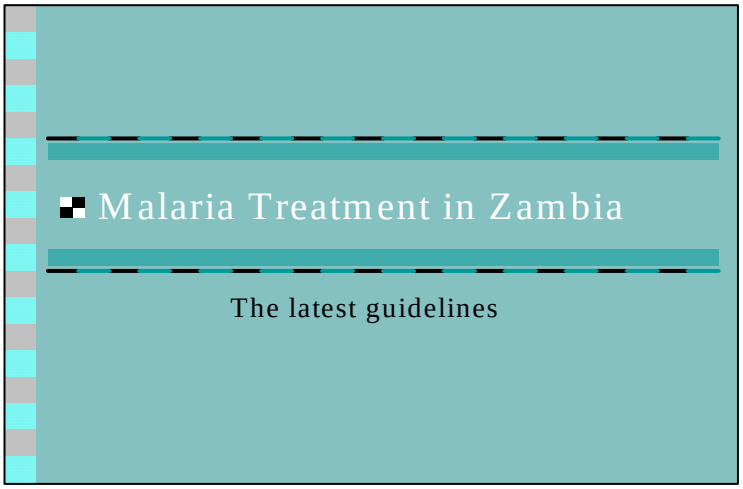
- Strong national TB control program with DOTs strategy and constant supervision
- Use of 4 drugs in the initial phase to avoid the risk of selecting out drug resistant strains
- Avoid using drugs like Rifampicin alone. It is the most effective anti-TB drug so if resistance to it develops TB treatment will become difficult

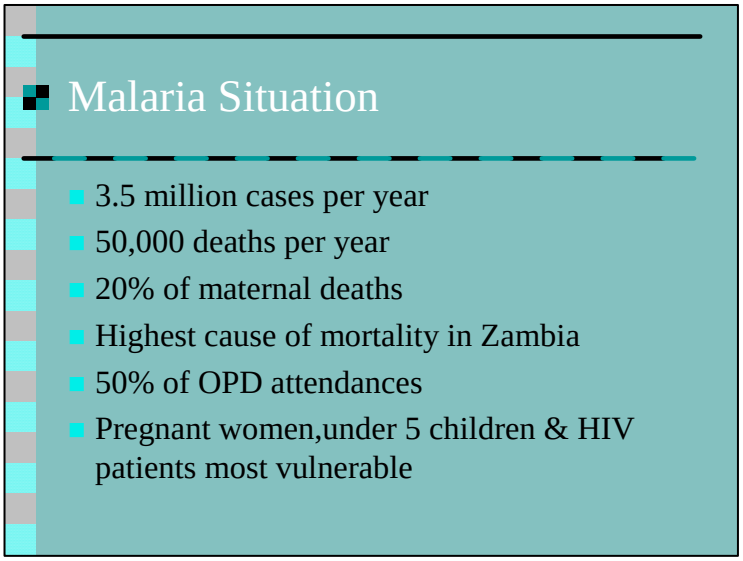
STRATEGIES TO CONTAIN REISTANCE CONT.

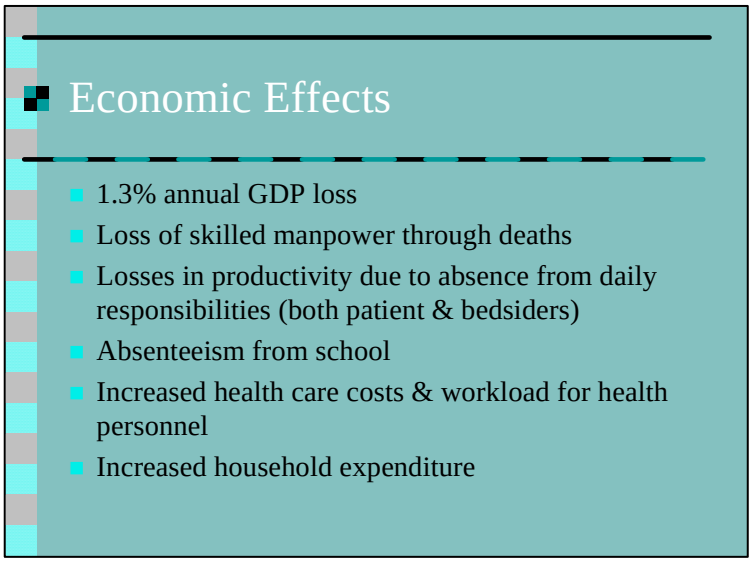
- Use of Fixed-dose combination to promote adherence & reduce risk of monotherapy
- Selecting the correct treatment category for the patient
- Dosing intervals follow weight bands so that patients get the correct dosage
- Ensuring that patients are on treatment for the correct duration

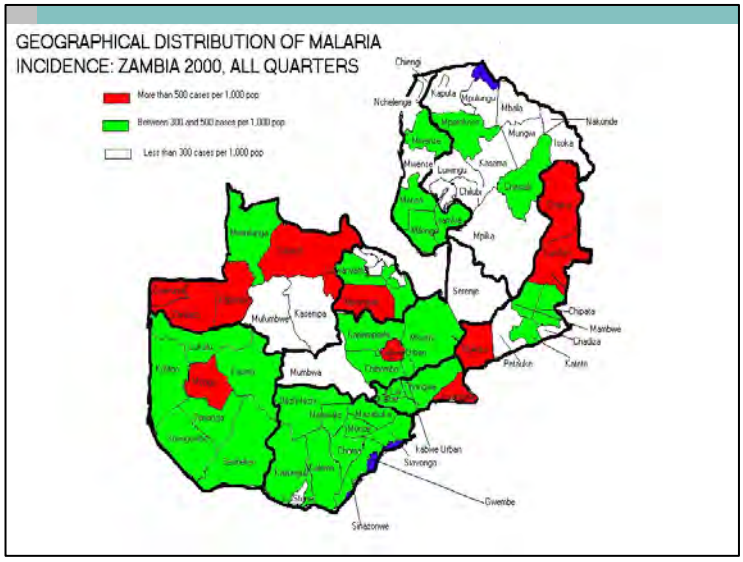

STRATEGIES TO CONTAIN REISTANCE
Availability of drugs for the treatment of TB so that patients don't skip doses
Ensuring that relapses treatment failures and defaulters are under directly observed treatment
Health education for the patients and sensitizing the clinicians on the rational use of drugs

Annex 13: Malaria Treatment Guidelines









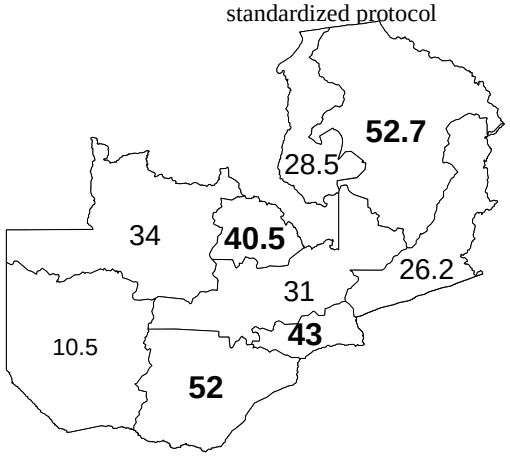
History of Malaria in Zambia

- It was not a major public health problem until the early 1980s
- It was almost eradicated
- Figures have risen exponentially in the past 3 decades
- Was mainly controlled through Case management & IRS

What went wrong?

- IRS was stopped,Zambia could not afford because of falling copper prices & other economic problems
- Case management was not very effective anymore due to rising parasite's resistance to Chloroquine

Chloroquine Clinical Treatment Failure: 1995-2000, standardized protocol



Interventions taken

- Adoption of new treatment guidelines with ACT as first line treatment
- Resumption of IRS
- Information ,education & communication
- Strengthening of operational research (drug efficacy,drug compliance,vector susceptibility studies)

NATIONAL MALARIA TREATMENT POLICY

- Policy decision
- Purpose of policy
- Criteria for change
- Selection of drugs
- Recommended regimens
- IPT

Uncomplicated malaria

1. Discontinue the use of CQ as first line drug for uncomplicated malaria
2. Adopt the artemisinin-based-combination (ACT) drug, artemether-lumefantrine (Coartem) as first line treatment for uncomplicated malaria
3. Children<10kg be treated with SP as first line until more information is available on Coartem use in this category

Malaria in pregnancy

1. SP will be used for treatment of uncomplicated malaria in women in 2nd and 3rd trimester of pregnancy
2. Quinine will be used as first line drug for uncomplicated malaria in 1st trimester
3. SP will be used for Intermittent Presumptive Treatment (IPT)

Severe malaria

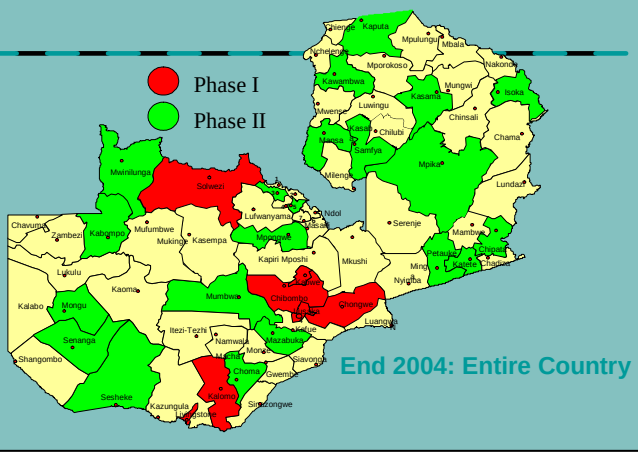
1. Quinine will continue to be used for management of complicated and severe malaria in both children and adults, including pregnant women

Implementation process

Policy implemented in phases:

- Started with few districts (7 pilot districts since Feb 2003)
- Scaled up to 28 districts (Nov 2003 to date)
- Scale up to cover whole country (all 72 districts by October 2004)

Coartem Distribution



Purpose of policy

- To ensure rapid and long lasting clinical care for individual malaria patients
- To prevent progression of uncomplicated malaria to severe disease and death
- To shorten clinical episodes of malaria and reduce the occurrence of malaria-associated anaemia.

Purpose contd

- To reduce the consequences of placental malaria infection and maternal malaria-associated anaemia through chemoprophylaxis or Intermittent Presumptive Treatment (IPT) during pregnancy
- To delay the development and spread of resistance to anti-malarial drugs.

Criteria for changing policy

In arriving at the policy the following factors were considered:

- Available data on malaria parasite resistance
- Currently available drugs and their role in the management of malaria

Selection of drugs

The criteria for selection of drugs included:

- Effectiveness and proven efficacy against *P.falciparum*
- Safety
- Simplicity of dosage
- Cost effectiveness

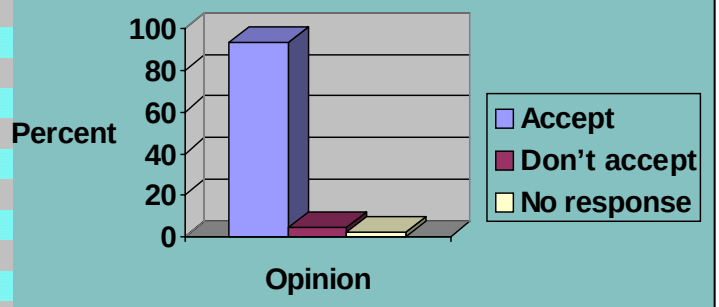
Rationale for selection

	Efficacy	Safety/ tolerability	Cost
SP	Acceptable . Fears of resistance in face of intense challenge	Good	*Cheaper* than CQ
Amodiaquine	Good. Fears of CQ cross-resistance in long term.	Like CQ	~2.5x's > than CQ
Quinine	Good. Reserve for severe disease.	Poor safety profile for first line use	~3x's > than CQ
Artemisinin derivatives	**Excellent (prolonged by use as ACT)**	Good	Expensive

Other factors

- Ease of administration-unsupervised use
- Availability
- Need to reserve drugs for use in IPT (SP) and for severe malaria (quinine) as long term strategies
- Need to preserve efficacy of chosen effective drug(s)
- Acceptability

Acceptability of Coartem among respondents



Artemisinin based combination therapy (ACT)

- Artemisinins-long history of safe use
- Single therapy- recrudescence and risk of resistance
- Combination- longer acting efficacious partner
- Different options available
- Artemether-lumefantrine- safety, efficacy, co-formulated etc

Coartem®

- **Indicated in**: Uncomplicated malaria in adults and children
- **Not recommended in**: Pregnancy and children <5kg (currently insufficient evidence to recommend use)
- **Side effects**: Sleep disorders, headache, dizziness, palpitations, abdominal pain, anorexia, diarrhoea, vomiting, nausea, pruritis, rash, cough, arthralgia, and myalgia

Artemether-lumefantrine (Coartem®)

Weight (Kg)	Age (yrs) (Approximately)	Number tablets, per dose. Give twice daily	Coartem® (A + L)/dose	Total no. tablets to be given over 3 days
<10	<1	Not recommended	N/A	N/A
10 – 14	1 – 5	1	20mg A + 120mg L	6
15 – 24	6 – 8	2	40mg A + 240mg L	12
25 – 34	9 – 12	3	60mg A + 360mg L	18
=35	= 12	4	80mg A + 480mg L	24

SP

- **Indicated in**: Treatment of uncomplicated malaria in children <10kg, 2nd and 3rd trimester and for IPT
- **Side effects**: Rash (including Stevens-Johnson syndrome), insomnia, nausea, vomiting, rarely allergic reactions, diarrhoea, anorexia, arthralgia,myalgia and crystalluria
- **Contraindications**: sulphonamide allergy

Sulfadoxine-pyrimethamine(SP)

[S 500mg + P 25mg]

Weight (kg)	Age (years)	Number of tablets
5-10	2-11months	0.5
10-14	1-2	0.75
15-20	3-5	1
21-30	6-8	1.5
31-40	9-11	2
41-50	12-13	2.5
>50	14 and above	3

Quinine

- **Presentation**: tablets containing 300mg sulphate, injection 600mg/2ml as dihydrochloride
- **Indications**: Complicated and severe malaria, 1st trimester of pregnancy
- **Side effects**: Tinnitus, headache, hot and flushed skin, nausea, abdominal pain, rashes, visual disturbances, confusion, hypoglycaemia (particularly after parenteral administration), cardiovascular effects
- **Contraindications**: Haemoglobinuria, optic neuritis
- **Caution:** Very toxic in over dosage

Artemisinin monotherapy

- Not recommended- protect drug against resistance
- Group includes, **artesunate**, **artemether**, **dihydroartemisinin**, **arteether** etc
- 7-day course for all artemisinins
- Shorter courses (3, 5-day) often result in recrudescence
- Some manufacturers recommendations ignore this fact
- Rapid resolution of symptoms may result in compliance problems.

Drug management logistics (Coartem)

- Expensive drug (US$2.40 vs $0.03 SP per adult course)
- Shorter shelf life (max 24 months)
- Not yet rolled out fully to private sector
- Some health facilities are pooling the drug
- Lack of consumption data affecting quantifications
- Self medication (over the counter purchases)

Measures to avoid resistance

- Introduction of & increasing access to ACT
- Scaling up lab diagnosis
- Development of Rx guidelines
- Drug efficacy & compliance studies
- Investment in IEC & BCC
- Avoid drug shortages(local production)

Some policy setbacks

- No replacement yet for SCD & TSS patients
- Not fully rolled out to private sector
- Drug in current policy don't provide quick symptomatic relief like CQ (anti-inflammatory & some antipyretic effect)
- Not known how long SP shall remain effective
- CQ in old policy was used as multi-purpose for treatment ,prevention ,prophylaxis
- Monotherapies in private sector

Achievements and The Way Forward

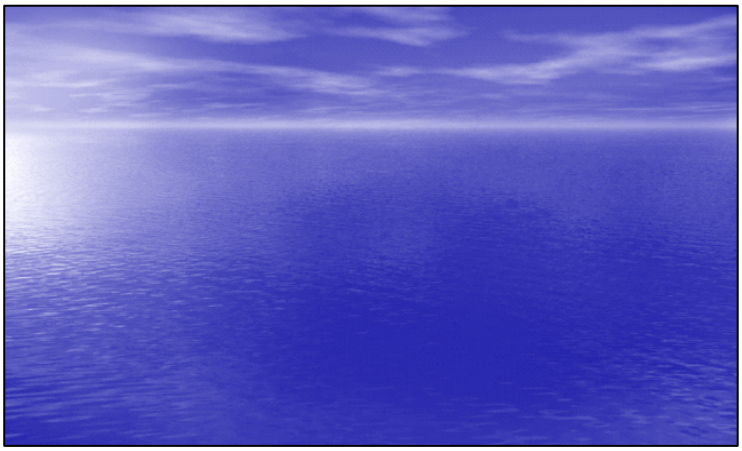
Achievements

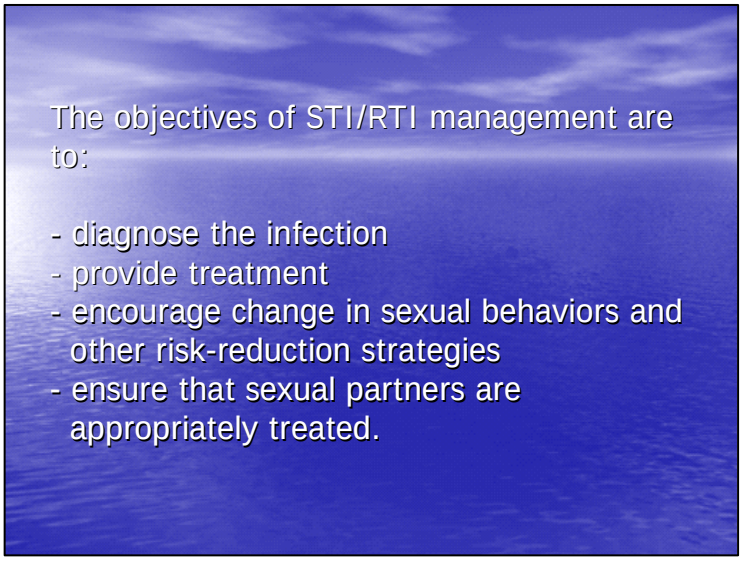
- Reductions in admissions
- Reduction in under 5 deaths
- Attraction of more resources to control malaria

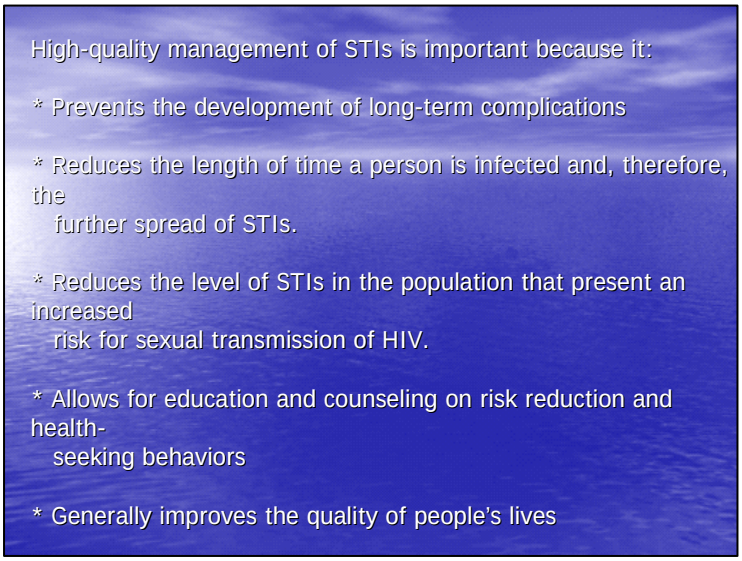
The Way Forward

- Introduce ACT at community level
- Roll-out ACT to private sector
- Local production of ACT

Annex 14: Treatment Guidelines for Sexually Transmitted Infections







Management of STIs/RTIs involves more than simply diagnosis and treatment of the infection. It also consists of the following critical components:

Counseling and education:

- Client-centered counseling helps prevent the spread of infection and reduce clients' risk for infection and re-infection.
- Counseling and education also provide clients with information on potential complications, as well as strategies to change risky sexual behaviors.

Condom promotion:

- Demonstration/instruction in the correct use
- Access to an adequate supply
- Help clients understand the importance of consistent and correct use
- Develop skills for negotiating condom use.

Adherence with treatment:

- Providers must educate clients about the importance of following and completing treatment regimens, even after all symptoms have disappeared.

- Providers should explore ways that clients can successfully adhere to treatment regimens by identifying potential barriers to adherence (e.g., costs, schedule, family or partner finding out) and strategize ways to overcome these barriers.

Partner notification:

When feasible, sexual partners of clients with STIs should be notified and encouraged to seek appropriate care. Treating partners prevents the further spread of the infection and reinfection of the client. There are three options for notifying partners:

1) Clients can be counseled about talking to their partners on their own,
2) Providers can tell partners in conjunction with clients, and
3) If resources permit, providers or public health workers can inform partners.

These four components are sometimes referred to as the "Four C's":

* Counseling and education
* Condom promotion
* Compliance with treatment
* Contacting partners

Three Approaches to STI/RTI Diagnosis

The management of **sexually transmitted infections (STIs)** and **reproductive tract infections (RTIs)** can be difficult:

* Testing is often not available in low-resource settings, so diagnosis must be made based on symptoms and signs.
* Some infections are impossible to differentiate, even by highly trained providers, based solely on their signs and symptoms.
* Clients who seek treatment from multiple providers may present with symptoms altered by previous treatments

APPROCHES TO STI MANAGEMENT

* Clinical approach
* Etiological approach
* Syndromic approach

The clinical approach

Least reliable of the three approaches:

- a health care provider relies on his or her own experiences based on the symptoms reported by the client and the clinical signs observed during physical examination.

Limitations:

* STIs often vary in the way they appear upon examination (i.e., they often do not appear as a "textbook" case).

* A person may have more than one infection at a time, making clinical diagnosis even more difficult.

* Previous self-treatment or previous treatment by another provider (or a traditional healer) may alter the signs and symptoms by the time the person comes to the clinic.

The ***etiological approach***,
The most traditional and accurate of the three
- based on the results of laboratory
- tests determine the treatment to be administered.

Limitations:
- often not available to health providers in the developing world
- depends on trained laboratory technician
- availability of lab supplies,
- Its expensive,
- specialized equipment.
- may require the client to return for a second visit for results and receive treatment.

Addressing Staff Concerns about Syndromic Management

Staff and colleagues may voice a number of concerns about the use of the syndromic approach to STI management. The following are some of the most common criticisms of the approach raised by clinicians, along with a response to each criticism.

1. The syndromic approach does not use a service provider's clinical skills and experience like the clinical approach does.

Many clinicians find it difficult to accept that using a clinical judgment alone could be a problem. However, studies have shown that even highly experienced STI specialists using clinical diagnosis will often fail to make the correct diagnosis. Studies show not only that clinical diagnosis is accurate for only 50% of STI cases, but that clinical diagnosis also misses ***mixed infections*** (when the client has more than one STI).

2. The approach does not seem scientific enough.

The algorithms (flow charts) used in syndromic management are based on epidemiological studies conducted throughout the industrialized and developing world. A number of validation studies comparing syndromic diagnosis with laboratory-assisted diagnosis have found them to be similar in terms of accuracy. As a result, syndromic diagnosis has been adopted in many settings all over the world.

3. It is better to treat the client for the most common cause first, and then to treat the client for a second cause only if the client's symptoms do not improve.

It is more effective to treat the client immediately than to require return visits for additional treatment. In many settings, it is difficult for clients to make repeat visits to a clinic. Additionally, if a client is not cured of symptoms by the initial treatment, the client is less likely to return to the clinic for additional treatment—or may even seek inappropriate alternatives or self-treatment. In addition, clients who become asymptomatic or are not treated for other potential causes of the syndrome immediately may continue to spread the infection to partners

- ***The syndromic approach wastes money: It requires us to waste a lot of drugs by treating clients for infections they may not have.***

- Studies have shown that the syndromic approach actually makes STI care *less expensive* in the long run because:
- The equipment, skills, and systems needed to make an etiological diagnosis are expensive.
- Failed treatment or incorrect clinical diagnosis that results in inappropriate or incomplete treatment make the cost of treating clients higher because they have to be treated again, may develop complications that are more expensive to treat, and may continue to spread the infection

5. What about the increased potential for antibiotic resistance with this approach?

Antibiotic resistance occurs when people do not take enough antibiotic to cure an infection completely. With the syndromic approach, providers are encouraged to give standardized treatment using the most effective medications available for a given syndrome. Providers are also encouraged to use single-dose therapy whenever possible, thereby preventing problems with client compliance. Better communication between providers and clients also makes it more likely that clients will continue to take the medication as requested after they leave the health facility.

6. Why not include simple laboratory tests as well?

When laboratory tests are included in the process, clients must wait for the results—and they may not return to the facility for treatment after testing. During this time, they remain infectious and complications can occur. Simple tests (such as Gram stains and wet mounts) are justified only when the appropriate technology is readily available, quick, and consistently accurate—and when clients can get results before they leave the clinic

The syndromic approach

Because of the unavailability of laboratory tests in many low-resource settings and the potential for inaccuracy when providers rely on the clinical approach alone

In this approach, diagnosis is based on the identification of ***syndromes***,

- Symptoms the client reports
- The signs the health care provider observes.
- syndromic management cannot address the widespread problem of ***asymptomatic infections***, in which clients do not experience any symptoms at all.

The syndromic approach, which has been recommended since 1990 by the World Health Organization (WHO) for use with clients who present with symptoms of STIs, consists of four elements:

- **Classification by syndrome:** Classifying the main causal pathogens by the syndromes they produce.
- **Use of algorithms:** Using flowcharts to guide the management of a given syndrome.
- **Treatment and counseling:** Using often more than one treatment that addresses all the pathogens with potential to cause a given syndrome.
- **Treatment of partners:** Promoting treatment of sex partners

Advantages and Limitations of Syndromic Management

Advantages of syndromic management:

- **Immediate treatment: Clients receive diagnosis and treatment within a single visit**

Effectiveness:

Clients are treated for a potential mixed infection

This approach helps to prevent incorrect diagnoses in settings where clinical diagnosis is common

Ease of use:

It is easy to teach and learn

Low costs:

There are cost savings since expensive lab tests are not used.

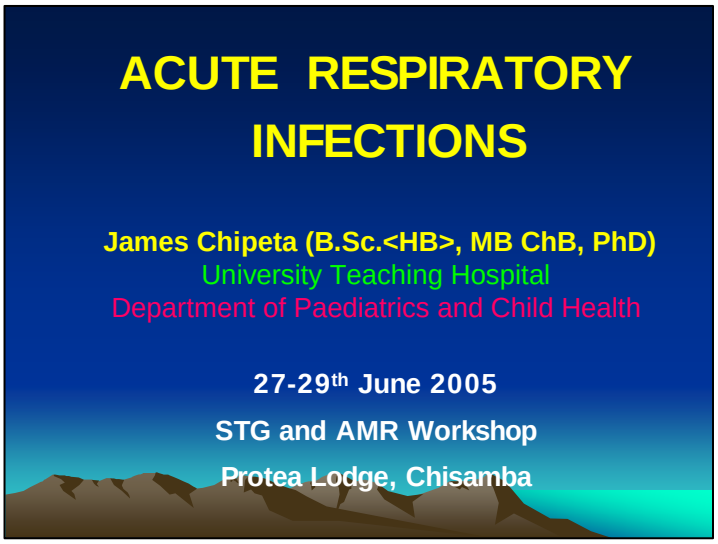
Limitations and concerns:

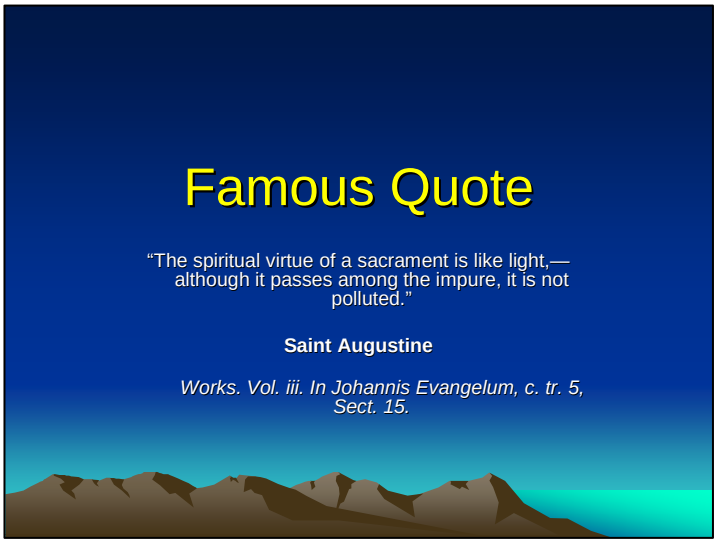
Women who do not have STIs but who have non-sexually transmitted RTIs that cause vaginal discharge may be told they should have their partners come for treatment; this can lead to relationship problems, including violence.

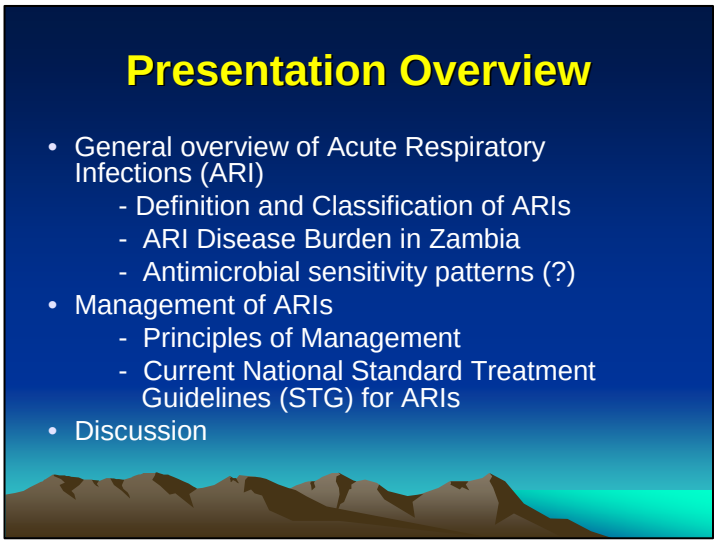
This is costly in terms of unnecessary drug use, waste of drugs that could be used to treat other clients, and the potential for microorganisms to develop resistance to antimicrobial drugs.

Ineffectiveness against asymptomatic infections: This approach cannot be used with clients who are infected but show no signs and symptoms.

Annex 15: Treatmetnt Guidelines for Acute Respiratiory Infections







General overview of Acute Respiratory Infections (ARI)

Definition and Classification of ARIs

- Definition: Sudden onset infection of the respiratory system of short duration (signs and symptoms-Generally not more than 14days)

ARIs are classified into upper and Lower ARI

- Upper ARI
  - Viral
    - Rhinovirus(>100serotypes- Common Cold)
    - Respiratory Syncytial Virus
    - Influenza and parainfluenza
    - Adenoviruses, Pircona viruses, etc
  - Bacterial
    - Streptoccocal (Pharyngitis/Tonsolitis)
    - Haemophilus Influenzae type B (Acute epiglottitis)
    - Corynebacterium Diphtheriae (Diphtheriae)

- Lower ARI (Bronchiolitis, Pneumonias, etc)
  - Viral (Mainly in infancy and in immune Compromised Individuals)
    - Respiratory Syncytial Virus (In infancy; LTB, Acute Bronchiolitis, etc)
    - Herpes
    - CMV
  - Bacterial
    - S. Pneumoniae (commonest Cause of Pneumonia –Adult and older children)
    - Group A streptococcus (2° to Viral infection)
    - Staphylococcal aureus (Infancy and Immune Compromised Host)
    - H. influenzae (Common unvaccinated children)
    - B. Pertussis (Whooping Cough)
  - Miscellaneous (?Probable acute)
    - PCP
    - Mycoplasma Pneumonia

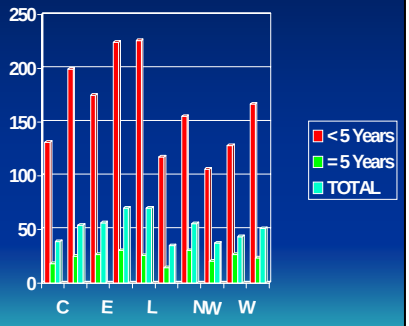
ARI Disease Burden in Zambia: Ten Major Causes of visitation to Health Facility (AHS-Bulletin CBOH 2003)

Disease	Incidence Per 1000 Pop. <5yrs	= 5yrs	Total
1. Malaria	1,296.4	226.3	428.0
2. Respiratory Infections (Non-Pneumonia)	523.1	100.2	179.9
3. Pneumonia	167.0	23.6	50.6
4. Non-Bloody Diarrhoea	290.7	34.5	82.8
5. Trauma	62.0	42.0	45.8
6. Eye infections	170.0	15.6	44.7
7. Skin Infections	101.7	23.2	38.0
8. Ear/Nose/Throat/Infections	63.5	16.2	25.1
9. Anaemia	65.0	11.4	21.5
10. Intestinal worms	60.5	10.2	20.2

ARI Disease Burden in Zambia: National Incidence Rates of Pneumonia

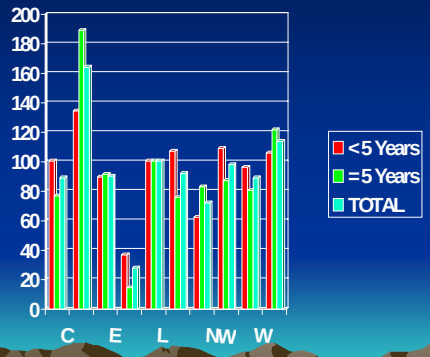
(Incidence/1000 Pop.: AHS-Bulletin CBOH 2003)

- The highest incidence of Pnuemonia is in Luapula (69.5 Total) followed by Lusaka (69.0)
- Northern has the lowest at 34.7
- In all the provinces children under five suffer more episodes than older children and adults



ARI Disease Burden in Zambia: National Case Fatality Rates of Pneumonia

(Case Fatality Rate/1000 Pop.: AHS-Bulletin CBOH 2003)



- Copperbelt has the highest Case fatality of Pneumonia and the lowest is in Lusaka
- In all the Provinces, except Lusaka, case fatality of Pnuemonia among the under fives is almost as high as in those five and above

Causes of Lung Disease Deaths Among Zambian Children

(The Necropsy Study at UTH: Chintu et al. Lancet 2002;360<9338>:985-990)

ARTICLES

	Total*	Adjusted % (SE)††	HIV-positive (n=180)	HIV-negative (n=84)	Odds ratio (95%CI)	p
Diagnosis						
Acute pyogenic pneumonia	116 (44%)	39·1% (3·2)	74 (41%)	42 (50%)	0·70 (0·40–1·21)	0·22
PCP	58 (22%)	27·5 % (3·1)	52 (29%)	6 (7%)	5·28 (2·12–15·68)	0·0001
Tuberculosis	54 (20%)	18·8% (2·5)	32 (18%)	22 (26%)	0·61 (0·31–1·18)	0·16
CMV	43 (16%)	20·2% (2·8)	40 (22%)	3 (4%)	7·71 (2·33–40·0)	0·0002
Interstitial pneumonitis	30 (11%)	11·8% (2·1)	15 (8%)	15 (18%)	0·42 (0·18–0·96)	0·04
Shock lung	27 (10%)	11·5% (2·2)	24 (13%)	3 (4%)	4·15 (1·20–22·10)	0·03
Pulmonary oedema	19 (7%)	6·4% (1·6)	10 (6%)	9 (11%)	0·49 (0·18–1·38)	0·21
Lymphocytic interstitial pneumonitis	10 (4%)	3·8% (1·2)	9 (5%)	1 (1%)	4·37 (0·59–193·7)	0·21

PCP=Pneumocystis carinii pneumonia. *Fewer than ten cases were noted of: measles (five HIV-1-positive, two HIV-1-negative), pleurisy (five HIV-1-positive), pulmonary embolism (one HIV-1-negative), respiratory syncytial virus pneumonia (one HIV-1-positive, one HIV-1-negative), herpes simplex virus pneumonia (one HIV-1-positive), lipoidal pneumonia (one HIV-1-positive), malaria (two HIV-1-negative), normal lung (one HIV-1-positive, two HIV-1-negative), Kaposi's sarcoma (two HIV-1-positive), bronchiolitis (three HIV-1-positive). †Percentages and standard errors adjusted to show age/sex structure of all deaths from respiratory disease during the study period.

Table 1: **Lung diseases identified at necropsy, by HIV-1 status**

- Pneumonia due to Pyogenic Infection tops the list of causes of Lung disease deaths
- Note the varying aetiology of Lung Disease in HIV Positive Children and the HIV negatives (e.g. CMV, PCP,etc)

Antimicrobial Sensitivity Patterns of ARI

- No published local data on ARIs
- Reportedly, especially in the developing world, there is change in the aetiological patterns of ARI
- World wide there is a growing trend of resistance to first line drugs (Pencillin, Co-trimoxazole, Gentamycin, etc)
- Local Hospital (UTH) antimicrobial-sensitivity surveys reveal Staphylococcus Areus and Gram negatives (Klebsiella and Enterococci) to be the major isolates from blood cultures
- These isolates show high resistance to conversional first line antibiotics
- What should be done to contain this problem?

Management of ARI

Principles of Management

- **Approach To a patient with ARI**
  - Quick exhaustive History and thorough physical examination is the basis and a necessity (Cough, Dyspnoea, wheeze, Haemoptysis, stridor,cyanosi, finger clubbing,etc)
  - Anticipate complications from the disease and treatment (Plan to avoid them)
  - Appropriate Investigations are a necessity prior to treatment
- **Objectives of treatment**

The treatment of ARI should at all cost be logical and evidence based and thus aim at;

- Eliminating the underlying cause more than relieving the symptoms
- Removing the predisposing factors
- Preventing and or relieving the patient of the complications

Management outline of Selected ARIs

UARI	Specific Rx		Supportive Rx	
	Children	Adult	Children	Adult
-Common Cold Short Incubation Period (1-3d) Malaise, Coryza and Cough With no complications last 4-10d	none	None	I. Warm, Rest, and Prevention II. Analgesics i. ?Decongestants	i. Warm, Rest, Pm ii. Analgesia-PX- iii. Decongest-nts
-Acute Epiglottitis 2yrs-adults Abrupt onset of high fever Drooling and RDS	AM,CX	AM,CX	i. Admit under I.C.U care ii. ?Steroids	i. Admit under I.C.U care ii. ?Steroids
-Diphtheria Incubation period 1-4d Nausea,emesis,sore throat Fibrinous Pseudomembrane	-Pp, EMX, AM -Antitoxin	-Pp, EMX, AM -Antitoxin	i. Admit under I.C.U care	Admit under I.C.U care
-S-Pharyngitis/Tonsolitis Sore throat,Fever,etc	Pen V, Amx,xpen or P-G	Pen V, Amx,xpen or P-G	Antipyretics and Analgesics	Antipyretics and Analgesics

Management of Selected ARIs

LARI	Specific Rx		Supportive Rx	
	Children	Adult	Children	Adult
-LTB (Croup) Mainly children 6m-3yrs Barking cough & hoarseness RDS, stridor, Hypoxemia Lasts 3-4d	None	None	i. Home therapy (R & H) ii. Hospital therapy (R,H,O_2,ET) iii. ?Antibiotics (CX,AM,EX) iv. ?Steroides	i. Home therapy (R & H) ii. Hospital therapy (R,H,O_2,ET) iii. ?Antibiotics (CX,AM,EX) iv. ?Steroides
-Acute Bronchiolitis Mainly children under 18m RDS, wheeze, and crepts	None (?Ribavirin)	None (?Ribavirin)	i. Hyration,O2 and Vent ii. ?steroides	v. Hyration,O2 and Vent vi. ?steroides
-Viral Pneumonia (Herpes,,CMV)	Anyclovir,Gancic-lovir,etc)	Anyclovir,Ganc ic-lovir,etc)	As per patient requirement	As per patient requirement
-Bacterial Pneumonia	Xpen, cefx, clx			

Discussion

- Need for regular national ARI epidemilogical and Antimicrobial sensitivity surveillance?
- Current STG on ARI (Need for Review?)

Current National Standard Treatment Guidelines (STG) for ARIs

UARI	Specific Rx		Symptomatic Rx	
	Children	Adult	Children	Adult
•Viral (common Cold)	None	None	i. Paracetamol-10-20mg/kg; ii. Nasal Decongestants (?) iii. i CCM (?)	i. Asa 600mg tds/qid/Paracetamol 500mg tds/qid; ii. Nasal Decongestants iii. CM
•Bacterial LTB	Amoxicillin 125-250mg tds for 5 days 0r Doxcycline ?200mg first day and then ?100mg daily for 4 days	Amoxicillin 500mg tds for 5 days 0r Doxcycline 200mg first day and then 100mg daily for 4 days	?	?
Stridor/croup	CX-50-100mg/kg iv qid for 5days		i. DXM-0.3mg/kg start &6 ii. O_2 & ETT/T	
Diptheria, S-Pharyngits/Tonsilitis, Pertussis, etc?	B/Pencillin 25 000-50 000 units/kg x 5days			

Current National Standard Treatment Guidelines (STG) for ARIs

LARI	Specific Rx		Symptomatic Rx	
	Children	Adult	Children	Adult
•Viral Pneumonia RSV CMV Herpes	?	?	?	?
•Bacterial Pneumonia	i.B/Pencillin 25-50 000 units qid i.v x 5 days ii.Ceftriaxone 20-50mg/kg od iv x 5days iii.Eythromycin 20-30mg/kg qid x 5days	i.B/Pencillin 25-50 000 units qid i.v x 5 days ii.Ceftriaxone 20-50mg/kg od iv x 5days iii.Eythromycin 20-30mg/kg qid x 5days	•O_2 in RDS •Analgesics	i.O_2 in RDS i.Analgesics

Back to St. Augustine
Shall we manage to have a Sacrament?

Thank Your for Your Attention!

Annex 16: Treatment Guidelines for Diarrheal Diseases

Diarrhoeal Diseases

James Chipeta (B.Sc.<HB>, MB ChB, PhD)
Department of Paediatrics and Child Health
University Teaching Hospital

27-29th June 2005

STG and AMR Workshop, Protea Lodge, Chisamba

Presentation Overview

- General overview of Diarrhoeal Diseases
  - Definition and Classification of Diarrhoeal Diseases
  - Diarrhoeal Disease Burden in Zambia
  - Approach to a Patient Presenting with Diarrhoea
- Management of Diarrhoea
  - Principles of Management
  - Management Outlines
  - Current National Standard Treatment Guidelines (STG) for Diarrhea
- Discussion

General overview of Diarrhoeal Diseases

Definition and Classification of Diarrhoeal Diseases

Category	Definition	Aetiology
Acute Diarrhoeal Disease (ADD)	=14Days	Infections and among under five children it is mainly viral
Persistent Diarrhoeal Disease (PDD)	14-28 Days	Multiple aetiology but mainly infections
Chronic Diarrhoea	>4weeks	Infectious and Non infectious causes

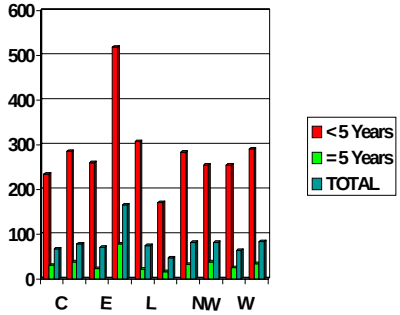
Diarrhoeal Disease Burden in Zambia

Disease	Incidence Per 1000 Population =5yrs	= 5yrs	Total
1. Malaria	1,296.4	226.3	428.
2. Respiratory Infections (Non-Pneumonia)	523.1	100.2	179.9
3. Pneumonia	167.0	23.6	50.6
4. Non-Bloody Diarrhoea	290.7	34.5	82.8
5. Trauma	62.0	42.0	45.8
6. Eye infections	170.0	15.6	44.7
7. Skin Infections	101.7	23.2	38.0
8. Ear/Nose/Throat/Infections	63.5	16.2	25.1
9. Anaemia	65.0	11.4	21.5
10. Intestinal worms	60.5	10.2	20.2

Diarrhoeal Disease Burden in Zambia: National Incidence Rates of Non-Bloody Diarrhoea

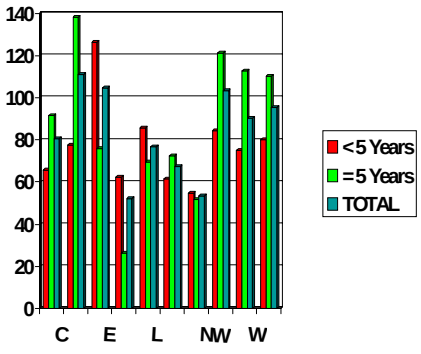
(Incidence/1000 Pop.: AHS-Bulletin CBOH 2003)

- The highest incidence of non-Bloody Diarrhoea is in Lusaka Province (165.1 Total) followed by NorthWestern (81.9)
- Northern has the lowest at 46.1
- In all the provinces children under five suffer more episodes of Diarrhoea than older children and adults



Diarrhoeal Disease Burden in Zambia: National Case Fatality Rates of Diarrhoea

(Case Fatality Rate/1000 Pop.: AHS-Bulletin CBOH 2003)



- Copperbelt has the highest Case fatality of Diarrhoea while the lowest is in Lusaka
- Peculiarly all the Provinces, except Eastern, Lusaka and Luapula, have lower case fatality rates of diarrhoea among the under fives than those five and above

Aetiology of ADD and PDD in Zambian Children

(The JICA infectious Disease Project 1980s-early 90s)

- Rota virus was isolated and reported to be the major cause of ADD in children presenting at UTH
- Bacterial causes of ADD (mainly epidemics) were *V. Cholera* and S. Dysentriae
- The four strains of Pathogenic *E. Coli* were found to be the major bacterial causes of PDD with non *Typhoid Salmonella* spp as a minor cause
- Antimicrobial sensitivity pattern then revealed resistance of *V.Cholera* to Tetracycline; *S.Dysentry* to Chloramphenicol, Co-trimoxazole, Xpen and Gentamycin

HIV-Associated Diarrhoea Disease Among Zambian Children and Adults

(The Necropsy Study at UTH: Chintu et al. AJTMH 1998;59<1>:38-41)

Selected clinical aspects of human immunodeficiency virus (HIV)–negative and HIV-positive adult and pediatric patients presenting to the University Teaching Hospital, Lusaka, Zambia

	Pediatric patients		Adult patients	
Clinical feature	HIV+ No. (%)	HIV− No. (%)	HIV+ No. (%)	HIV− No. (%)
Chronic diarrhea	21/40 (52)	59/121(48)	115/168 (68)*	8/35 (22)
Weight loss	26/40 (65)*	59/131 (45)	118/215 (54)*	13/42 (30)
Marasmus	14/38 (36)†	28/128 (21)	4/172 (2)	0/36
Kwashiorkor	15/39 (38)	45/128 (35)	0/173	0/36
Lymphadenopathy	2/39 (5)	2/128 (1)	94/212 (44)*	5/40 (12.5)
Persistent cough	23/40 (58)	70/131 (53)	58/212 (27)	7/42 (16)
Skin eruption	9/40 (22)	31/127 (24)	71/215 (33)*	3/42 (7)
Malaria	4/39 (10)	18/128 (14)	0/173	0/36
Tuberculosis	3/39 (8)*	1/128 (1)	5/173 (3)	0/36
Oral thrush	6/40 (15)	18/128 (14)	12/205 (5)	0/40

* = $P < 0.05$.
† = $P = 0.06$.

Intestinal Infections among Zambian Children with Persistant Diarrhoea and Malnutrition

(B. Amadi et al. J-Paed Gastro & Nut 2001; 32: 550-554)

- *Cryptosporium parvum* and non *Typhoid Salmonella spp* are closely associated with PDD both in HIV and non HIV malnourished children with a higher incidence in the former
- Cryptosporidium has seasonality in its incidence peaking up with the rain season

TABLE 3. *Intestinal infection in relation to HIV serological status*

Infection	HIV seropositive (n = 104)	HIV seronegative (n = 90)
Cryptosporidium parvum	30	17
Isospora belli	2	2
Giardia intestinalis	4	7
Blastocystis hominis	2	2
Microsporidia	0	1
Salmonella spp.	20	15
Shigella spp.	3	1
Vibrio cholerae	1	5
Hookworm	1	2
Ascaris lumbricoides	5	5
Yeast cells	44	30

The difference in prevalence of intestinal infections was not statistically significant for any of these infections.

Diarrhoeal Disease Burden in Zambia: Antimicrobial Sentivity Patterns in HIV-related Diarrhoea

(Mwansa J et al. Emeg Inf 2004)

Table. Summary of antimicrobial sensitivity patterns for three enterobacteria isolated from patients with HIV-related persistent diarrhea in Zambia

	No. sensitive (%)		
Antimicrobial agent[a]	Nontyphoidal salmonellae	Shigella flexneri	S. dysenteriae
Tetracycline	37 (23)	2 (6)	3 (16)
Chloramphenicol	36 (23)	7 (23)	8 (42)
Gentamicin	119 (75)	24 (77)	18 (95)
Sulphamethoxazole-trimethoprim	25 (16)	3 (10)	0 (0)
Amoxycillin	74 (47)	9 (29)	7 (37)
Amoxycillin-clavulanic acid	95 (60)	27 (87)	12 (63)
Cephalexin	105 (66)	23 (74)	17 (89)
Cefuroxime	93 (59)	11 (35)	16 (84)
Cefotaxime	149 (94)	28 (90)	19 (100)
Nalidixic acid	107 (68)	31 (100)	19 (100)
Ciprofloxacin	157 (99)	30 (97)	18 (95)
Erythromycin	22 (14)	0 (0)	4 (21)
Azithromycin	64 (93)	9 (100)	19 (100)

[a] One hundred fifty-eight isolates of nontyphoidal salmonellae, 31 isolates of S. flexneri, and 19 isolates of S. dysenteriae were tested against all these antimicrobial agents except for azithromycin, against which 69, 9, and 19 isolates were tested respectively.

Management of Diarrhoea

Principles of Management

- **Approach To a patient with Diarrhoeal Disease**
  - Thorough history and physical examination is the basis of accurate evaluation of the patient (Ascertain the category of diarrhoea, Degree of Dehydration, identify complications and elucidate the underlying cause)
  - Appropriate investigations are a necessity prior to treatment
- **Objectives of treatment**
  - Rehydrate
  - Correct or arrest any metabolic impairement
  - Treat the underlying cause wherever possible

ADD Management outline

SEVERITY	TREATMENT PROTOCOL
•No Dehydration	•Redydrate using Plan A •Investigate if any indication and treat accordingly
Some Dehydration	•Redydrate using Plan B •Investigate if any indication and treat accordingly
Severe Dehydration	•Redydrate using Plan A •Investigate if any indication and treat accordingly

Management outline other types of Diarrhoeal Diseases

DIARRHOEAL DISEASE	TREATMENT PROTOCOL
•PDD	•Redydrate appropriately according to the degree of dehydration •Investigate thoroughly and treat the underlying problems accordingly
Chronic Diarrhoea	•Redydrate appropriately according to the degree of dehydration •Investigate thoroughly and treat the underlying problems accordingly
Diarrhoea in Malnutrition	•Redydrate with modified rehydration regimen for malnutrition •Investigate thoroughly and treat the underlying problems accordingly

ANNEX 17: AWG MEETING MINUTES

MINUTES OF THE AMR AWG MEETING HELD AT MSH OFFICES, LUSAKA ON THURSDAY 30TH JUNE 2005

Present:

Prof C. Chintu	Chairman
Ms A. Zulu	
Dr. J. Chisanga	
Mr. P. Mwanza	
Mr. O. Hazemba	Secretariat
Mr. C.M. Mudondo	Note taker

In attendance:

Dr. Mohan Joshi	RPM Plus/MSH, USA
Ms Louise Kalusa	

Apologies:

Dr. V. Mtonga (on the Copperbelt)
Mrs. B. Mwale (in Malawi)
Dr. J. Mwansa (in Katete)

Chairman's Remarks

The chairman opened the meeting at 17.45hr and reported that the AMR AWG had organised a workshop for the implementation of STGs as a strategy to contain AMR. He was of the view that the workshop was successful. It was well attended and the contributions were very valuable. The criticism advanced was important and suggestions for improvement would be useful for the review of the STGs by the Zambia National Formulary Committee (ZNFC). He pointed out that there was a need to harmonise the various guidelines in operation. It was understandable that there were some differences between recommendations in the various guidelines because they were produced at different times and medical practice was evolving.
Some good suggestions on the methodology for distributing the guidelines were made by participants and these would be forwarded to the ZNFC.

Mr. Hazemba and Dr. Joshi had a meeting with the USAID who expressed their happiness that the workshop had gone well. They indicated that there were some people who were concerned about the syndromic approach for some conditions as they felt this could promote AMR and hoped that these views would be considered during the review. They were interested to know when the use of Fixed Dose Combinations in TB would be fully implemented and when the deployment of Coartem in the private sector would be

undertaken. They were of the view that it was important to step up measures to stress patient adherence to ART in view of the scaling up of ART.

Next Steps

Some of the recommendations from the workshop were briefly discussed. The secretariat was asked to circulate to all AWG members a report including all the recommendations from the workshop by Thursday 7th July 2005. The AWG would meet the following week to discuss the recommendations with a view to forwarding them to the ZNFC for consideration.

As next steps it was suggested that the AMR AWG should:

- Continue working with agencies involved in AMR surveillance
- Monitor causal agents for infections e.g. for urethral discharge with a view to advising on management modalities for these conditions
- Forward the recommendations from the workshop to the ZNFC as soon as they are ready

It was reported that the AMR AWG might be able to mobilize funding for producing the addendum to the STGs to include the changes suggested at the workshop.

It was also reported that RPM Plus might be able to support the review of the infectious diseases chapters of the STGs

The AMR AWG was urged to explore what partners like JPIEGO were doing in the area of infection prevention and control, as this was an important strategy for containment of AMR and determine if there was potential for collaboration and work in this area.

Curriculum review and pre-service training

It was reported that the final report on the training going on for in-service health workers will be ready next week. The meeting was requested to consider the possibility of recruiting consultants to review curricula for medicine, pharmacy and nursing in order to determine AMR content for pre-service training and incorporation in the curricula. Funding for the activity might be available from RPM Plus. There was a need to gather copies of the curriculum for each training program.
It was reported that a lecturer at Chainama College which trains clinical officers had indicated that there was a possibility of incorporating some elements of AMR into their lectures even before the curriculum is formally reviewed.
The following names were suggested for the consultants to undertake this task:

- Dr. Muungo — Dept of Pharmacy, UNZA
- Dr. Micky Ndhlovu — Chainama College of Health Sciences
- Dr. Kanyimba — Dept of Pharmacy, UNZA
- Prof. Iwass — UNZA
- A representative from School of Nursing (Ms Zulu to confirm)

ANY OTHER BUSINESS

Efforts to source funding for printing and airing of the advocacy and communication materials will be resumed 2nd week of July.

Dr. Joshi thanked the AMR AWG for having organised such a successful workshop. He felt that it was a good and fruitful workshop. He pointed out that Zambia was playing a pioneering role in AMR containment and other countries would have a lot to learn from Zambia. He urged the AMR AWG to continue with the good work.

The meeting was closed at 18.35hr

Chairman Secretary

Annex 18: Report of the Rapid Assesment of In-Service Training for Health Care Providers on AMR and Rational Antimicrobial Use

RATIONAL PHARMACEUTICAL MANAGEMENT PLUS (RPM Plus) Program/MANAGEMENT SCIENCES FOR HEALTH

and

ADVOCACY WORKING GROUP (AWG) FOR ANTIMICROBIAL PRESERVATION

RAPID ASSESSMENT OF IN-SERVICE TRAINING (CONTINUING EDUCATION) ON RATIONAL ANTIMICROBIAL USE AND ANTIMICROBIAL RESISTANCE TO HEALTH CARE PROVIDERS

FROM 7th to 29th MAY 2005

FINAL REPORT

BY MARJORIE KABINGA

Report submitted to Rational Pharmaceutical Management Plus (RPM Plus) Program of

Management Sciences for Health, Arlington, VA, USA

and

AMR Advocacy Working Group (AWG), Zambia

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LIST OF ACRONYMS

AIDS……Acquired Immune Deficiency Syndrome

AMR……Antimicrobial Resistance

AMU……Antimicrobial Use

ARV…… Anti retro viral

ART…… Antiretro Viral Therapy

CBoH……Central Board of Health

CHW…….Community Health Worker

CPE……Continuing Professional Education

CHAZ……...Churches Health Association of Zambia

CIDRZ……..Center for Infectious Disease Research in Zambia

DHMB……..District Health Management Board

DOTS……Directly Observed Therapy Short course

GNC……. General Nursing Council of Zambia

GRZ……..Government Republic of Zambia

HAART…….Highly Active Anti retro viral therapy

HIV……. Human Immunodeficiency Virus

MCZ……. Medical Council of Zambia

MoH……..Ministry of Health

MSH……..Management Sciences for Health

MTCT…….Mother- to- child transmission of HIV

NMCC……National Malaria Control Center

OI……Opportunistic Infection

PMTCT……..Prevention of Mother- to- child transmission of HIV

STG……Standard Treatment Guidelines

STIs……...Sexually Transmitted Infections

TB……Tuberculosis

TDRC……Tropical Disease Research Center

WHO……World Health organization

ZNA…….Zambia Nurses Association

EXECUTIVE SUMMARY

The emergence and spread of antimicrobial resistance increasingly threatens the success of infectious disease treatment and prevention. The inappropriate use of antimicrobials whether it involves overuse, misuse or under use is singled out as the most important factor contributing to the emergence of resistance. The consequences of AMR are severe because infections caused by resistant microbes fail to respond to treatment, resulting in prolonged illness and greater risk of death. This has led to World Health Organization (WHO) launching the first global strategy for combating the serious problems caused by the emergence and spread of AMR known as the World Health Organization Global Strategy for Containment of AMR (WHO, 2001.9).

One of the interventions in containment of AMR is in-service training of prescribers and dispensers on rational antimicrobial use and antimicrobial resistance, and this can be achieved with the benefit of information necessary for determining what has already been taught in the area of infectious diseases, antimicrobial use and antimicrobial resistance in order to design training programs for these health workers.

In response to this need, a rapid assessment of in-service training on rational antimicrobial use and antimicrobial resistance to health care providers was conducted in Lusaka, Zambia from 7th to 27th May 2005. This report presents the results from this assessment.

The aim of the assessment was to identify what has been covered so far in the continuing education programs offered in Zambia to health workers on rational use of antimicrobials. Thirteen (13) institutions out of the targeted nineteen (19) took part in the study. The institutions where data were collected from were government institutions, statutory and registration bodies, and local and international non-governmental organizations. Data were collected through in-depth interviews with

key informants from the organizations. Training manuals and guidelines were reviewed and summarized.

The assessment demonstrated that five out of the thirteen institutions assessed were conducting comprehensive and continuous in-service trainings for health workers. These institutions had conducted from 12 to 72 training sessions in the last three years and the rest had conducted from 0 to 6 training sessions. The duration of each training session ranged from 1 to 10 working days with an exposure of 4 to 9 hours per day. However, most of these in-service trainings were in infectious diseases particularly HIV/AIDS and its opportunistic infections, and malaria. Only one organization had conducted in-service training in both infectious diseases and rational use antimicrobials and a small component on AMR.

The assessment further revealed that most health workers were not familiar with the Standard Treatment Guidelines (STG). The four institutions that were found to be active in conducting in- service trainings reported that they had adopted the STG from CBoH but no trainings had been conducted on the STG. In some organizations the informants were not even aware of the launch and existence of the STG.

The assessment has shown that not much has been done on in-service training of health care providers on rational use of antimicrobials and AMR. It is therefore necessary for RPM Plus to plan in-service trainings for all medical officers, clinical officers, nurses and pharmacy personnel specifically on rational use of antimicrobials. The trainings should be regular and repeated so that all health workers are trained and special emphasis should be placed on the STG and it should be integrated into on-going and established in-service training programs.

1.0 INTRODUCTION

Deaths from acute respiratory infections, diarrhoeal diseases, measles, AIDS, malaria and tuberculosis account for more than 85% of the mortality from infections worldwide (WHO, 2001.2). The use of antimicrobials has contributed to the dramatic fall in morbidity and mortality from infectious diseases although increased incidence of infections leads to excessive antimicrobial use and consequently antimicrobial resistance.

Antimicrobial resistance is an increasing problem worldwide with severe consequences because infections caused by resistant microbes fail to respond to treatment, leading to prolonged illness and greater risk of death. Resistance also impacts infection control efforts and costs money, livelihood and lives, and threatens to undermine the effectiveness of health delivery programmes. There are a lot of old and new antimicrobials that are currently on the market and to some, resistance has already been documented and is spreading rapidly making treatment of infectious diseases difficult and expensive. Many factors contribute to the problem including unnecessary antimicrobial prescribing by trained and untrained health workers, uncontrolled dispensing by drug vendors, poor antibiotic prophylaxis in surgery and poor infection control practices coupled with weak regulatory mechanisms on antimicrobial use especially in developing countries.

Factors that contribute to antimicrobial resistance (AMR) by health providers include prescriber's perception regarding patient's expectations and demands subsequently influencing prescribing practices and inappropriate drug use. Inappropriate drug use is characterized by over prescribing drugs when none are needed clinically, the use of inappropriate dosages, either too high or too low, incorrect duration unnecessary expense, that is the selection of newer and more expensive drugs when older cheaper drugs are clinically adequate and use of injections or intravenous antibiotics when oral forms would be suitable. Other

factors include lack of prescriber knowledge regarding optimal diagnostic approaches and lack of opportunity for patient follow-up. In the private sector, were profit is the driving factor this may influence prescribers to over prescribe in order to raise the profits. In countries where physicians are poorly paid, pharmaceutical companies have been known to pay commissions to prescribers who use their products (WHO, 2001).

The effective control measures in reducing antimicrobial resistance lies in addressing the above mentioned areas and it is crucial that we recognize that rational antimicrobial use is an essential component in addressing the problem of AMR. Proper training of health workers in the handling and prescribing of antimicrobials can play a big role in addressing the problem of antimicrobial resistance (AMR). The Central Board of Health (CBoH) under the hospice of the Zambian government has developed the Standard Treatment Guidelines that is meant to provide comprehensive information on the management of common diseases and conditions. This is used as an informational and educational strategy for the promotion of rational use of drugs (CBoH, 2004). The STG was launched on 12th November 2004 and its use amongst health workers has not yet been assessed. The purpose of this assessment is to identify what has been covered in the continuing education programs offered to medical, pharmacy, nursing and clinical officers health care providers in Zambia.

1.2 METHODOLOGY

The rapid assessment involved two activities.

a) Gathering data on existing local documents, reports, literature on in-service education for medical, pharmacy, nursing and clinical officers.
b) Contacting and seeking information from relevant contact person(s) at Central Board of Health, training institutions, professional councils and associations, disease programmes, local and international organizations, and other relevant bodies to help identify the continuing education.

1.2.1 Data collection technique

In the collection of data, face-to-face in-depth interviews with local key informants were conducted approximately lasting 20-30 minutes. This method of data collection was preferred because it allowed for probing. Reports and local documents outlining the details of trainings on antimicrobial resistance (AMR), antimicrobial use (AMU) and Infectious diseases conducted in the last three years were reviewed and copies made.

1.2.2 Data Collection Instruments

In gathering the data, a structured interview schedule was developed for carrying out the assessment (Appendix 1) and it had both open-ended and closed questions. The schedule was based on the in-service trainings that are conducted and it addressed questions on title of trainings, types/levels of professionals trained, frequency of trainings, dates of trainings and hours/days of exposure and details of specific topics that have been covered in the trainings. Other data sought through the schedule included information on infectious disease; AMR, AMU and STG related trainings.

1.2.3 Study Sites and Samples

Data were collected from thirteen (13) out of a targeted nineteen (19) institutions/organizations that offer training to health care providers, government health institutions, and professional bodies, local and international organizations in Lusaka, Zambia. These institutions were selected conveniently because they are health related institutions and are involved in training of health workers.

1. Under government institutions the following were listed:
    a) Central Board of Health (CBoH)
    b) Ministry of Health
    c) National Malaria Control Center
    d) National AIDS Council

2. Training Institutions
    a) University of Zambia, School of Medicine
    b) Evelyn Hone College
    c) Chainama College of Health Sciences
    d) Lusaka School of Nursing and Midwifery

3. Research Institutions
    a) Tropical Disease Research Center (TDRC)
    b) Center for Infectious Disease Research in Zambia (CIDRZ)

4. Regulatory Bodies
    a) Medical Council of Zambia
    b) General Nursing Council
    c) Pharmacy and Poisons Board

5. Professional Bodies
    a) Medical Association of Zambia
    b) Zambia Nurses Association
    c) Pharmaceutical Society of Zambia

6. Local/International Organizations
    a) Churches Health Association of Zambia (CHAZ)
    b) JHPIEGO
    c) HIV/AIDS Alliance

1.3 FINDINGS

Of the nineteen (19) listed organizations, thirteen (13) were interviewed. Some training institutions declined because they mainly offer pre-service trainings. Other organizations that is, the Pharmacy and Poisons Board and National AIDS Council do not offer any form of training to health workers while others were not willing to give information.

1.3.1 DETAILS OF INTERVIEWS

Central Board of Health (CBoH) -Pharmacy unit

The pharmacy unit is a wing of CBoH that ensures drug security; develop, implement and maintain function logistic management system with regard to pharmacy; give support to health institutions to ensure that supplies are available; implement rational use of drugs and also offers secretariat to the Zambia National Formulary Committee and National Drug Policy. The unit works with all health workers handling drugs.

The key informant was the pharmacy technologist on behalf of the Principal Pharmacy Advisor. She reported that CBoH has conducted in-service training in form of workshops in AMU, AMR, and infectious diseases in particular malaria. Only one in- service workshop has been conducted in the last three years and this was a five-day training session with six hours of exposure per day. The title of the training session was 'Rational Drug Use' and the specific topics covered were patient's behavior in antimicrobial use and education of patients and adherence to prescribed treatment. Participants were drawn from medical officers, clinical officers, laboratory personnel and nurses. The organization feels its members are familiar with the STG especially those at provincial levels were the STG has been disseminated although she was not very sure if all the health workers have access to the STG. It was also reported that the pharmacy unit of CBoH has not conducted any trainings on STG.

Lusaka Provincial Health Office

The Lusaka Provincial Health Office is an institution under the CBoH, which is responsible for giving technical support, assessing, monitoring and evaluating performance of district health offices in Lusaka province. The interview was conducted with the Provincial Tuberculosis/Leprosy/HIV focal point person and she reported that several in-service trainings have been conducted among doctors, nurses, clinical officers and pharmacists. A total of 12 trainings have been done, that is, 1 training per quarter in antimicrobial use and infectious diseases. The specific titles of these trainings were; Management of HIV/AIDS and Opportunistic Infections, Training in New Tuberculosis World Health Organization modules, Sexually Transmitted Infections and Management of malaria. The TB trainings were for 1 week, HIV/AIDS 2 weeks and malaria 3-4 days. The approximate hours of exposure were eight hours per day.

Specific topics covered included rational use of drugs, HIV/AIDS and malaria in pregnancy, insecticide treated nets, indoor residue spraying, malaria case management, and malaria business plan. In TB, specific topics included case detection, TB treatment, continuation of treatment, community DOTS, record keeping and recording, monitoring and evaluation. The institution has a standard curriculum they use to train health workers in these topics. They also have additional materials that are used under the following titles; WHO modules in TB/ National Guidelines, Opportunistic Infection Reference Manual (facilitators and participants guide), ART Reference Manual (facilitators and participants guides), and PMTCT Reference Manual (facilitators and participants guides), STI manuals and National Malaria Control modules on malaria.

For future continuing education the informant suggested that the priority diseases, which includes TB and malaria, should be focused on.

JHPIEGO

JHPIEGO is an affiliate of John Hopkins hospital in America working in Zambia to improve the health of women and their families through providing technical assistance to CBOH/MOH, developing training manuals and conducting training for health workers. The institution works with all government institutions, private sector and other organizations involved in health service delivery.

The key informant was the consultant and he reported that the organization has conducted several in service trainings among medical officers, nurses, clinical officers, laboratory personnel, pharmacists, pharmacy technicians and nutritionists. Areas were in- service training has been conducted are infectious diseases specifically in HIV/AIDS. Over twenty training sessions have been conducted in the last three years from February 2004 to March 2005. The titles of these trainings are Opportunistic infection (OI) Management, Antiretroviral therapy management and prevention of mother to child transmission of HIV/AIDS (PMTCT). The trainings in OIs management and ARTs management were for one week each and the PMTCT for 2 weeks. The approximate hours of exposure were seven to eight hours per day. Specific topics covered included; HIV/AIDS information and management issues, Goals and general principles of ARV therapy, managing ARV therapy, Guiding principles for the management of OIs, and syndromic management of OIs and HIV related conditions.

Other topics covered included infection prevention and infection control, accurate diagnosis and management of common opportunistic infections and education of patients on antiretroviral use and adherence to prescribed treatment. The institution has a standard curriculum it uses to train health workers in these topics. They also have additional materials that are used under the following titles; Opportunistic Infection Reference Manual (facilitators and participants guide), ART Reference Manual (facilitators and participants guides), and

PMTCT Reference Manual (facilitators and participants guides). The trainings are based on the STG though no specific training has been conducted on it.

The informant suggested that ARV drug resistance and importance of adherence to treatment should be some of the topics to be included in future for continuing of education.

National Malaria Control Center (NMCC)

From NMCC, information was collected from the Case Management Specialist under the directive of the Executive Director. NMCC is a government institution, which was set up to facilitate implementation of malaria intervention programs in the country. It works with all health workers starting from policy makers, medical officers, nurses, clinical officers, pharmacists and laboratory personnel.

The organization has been conducting in-service trainings for health workers and areas where in-service trainings have been conducted include infectious diseases in particular, malaria and antimalarial resistance. In the last three years, 72 in-service trainings have been conducted in Zambia, and all the districts have been covered. The trainings focused on Coartem use and Chloroquine resistance. The trainings on chloroquine resistance in the country were conducted between January 2003 and December 2003 and on Coartem use were from November 2003 to November 2004. These were two-day training sessions with 6 hours of exposure to the members per day. The specific topics that were covered included drug regimes, storage, efficacy, pharmacovigilance (side effects), factors contributing to the development of resistance to antimalarials, how to delay resistance, and consequences of drug resistance. Other topics covered included problems of irrational use of antimalarials, problems of antimalarial resistance, importance of appropriate use of antimalarials, infection prevention and infection control measures, accurate diagnosis and management of malaria, education of patients on antimalarial use and adherence to prescribed treatment.

The cadres who were trained are medical officers, clinical officers, nurses, and pharmacists. The institution has a standard curriculum and other materials used are Malaria Case Management manual and monogram on coartem. The institution has adopted the STG and has conducted training on the malaria diagnosis and treatment component of the STG. For future continuing education in infectious diseases, antimalarial resistance and AMU, priority topics felt should be included are medical ethics as regards to malaria drug prescription and communication skills to patients and the general public.

Center for Infectious Disease Research in Zambia (CIDRZ)

The key informant from CIDRZ was the Director- Department of Medicine. CIDRZ is a non-governmental organization that provides technical support to District Health Management Boards on ARV programmes. They work with clinical officers, nurses, pharmacists, medical officers and HIV/AIDS counselors. The organization conducts in-service training in infectious diseases, mainly HIV/AIDS. From May 2004 to December 2004, 15 in-service trainings have been conducted in 15 clinics in Lusaka on ARV therapy and these are one-day training sessions with 4-6 hours of exposure. Clinical officers and nurses were trained and specific topics that were addressed are HIV/AIDS and ARV therapy. Other topics included were infection prevention and control measures, accurate diagnosis and management of opportunistic infections, education of patients on ARV use and adherence to prescribed treatment. They have adopted the CBoH ARV treatment guidelines (Standard Treatment Guidelines on HIV). However, they have not conducted trainings on the STG.

For future continuing education in areas of infectious diseases, AMR, AMU, topics felt should be included are rational prescribing of drugs for opportunistic infections especially cotrimoxazole.

General Nursing Council (GNC)

The General Nursing Council (GNC) is a statutory body established to conduct among other things registration of nurses and midwives in Zambia, regulation of nursing practice, and setting and maintaining standards of education, practice and research among nurses and midwives. The institution works with all nursing cadres in the country.

The key informant was the Acting Registrar and she reported that the institution has been conducting in-service trainings on behalf of their members particularly in infectious diseases (Infection prevention practices in HIV/AIDS, TB and STIs). So far, 6 in-service trainings have been conducted in the last three years. The duration of each training session was 10 working days with 8 hours of exposure per day. The specific topics that were covered included infection prevention practices in maternal and child health, HIV/AIDS and opportunistic infections, infection prevention and control measures, accurate diagnosis and management of common opportunistic infections.

These training sessions have been ongoing since 2002 and the health workers trained were teaching staff from the schools of nursing and midwifery The organization has a standard curriculum and they also use the nursing curriculum and learning guidelines, JHPIEGO training manuals for Reproductive Health, and JHPIEGO training manuals for Infection Prevention Practices (IPP). The informant was not sure whether the nursing fraternity is familiar with the STG as it was just recently launched and as such GNC has never conducted any training on the STG. For future continuing education in areas of infectious diseases, AMR and AMU, the topics that the council thought should be included are treatment adherence and side effects, drug prescription by the nurses- what to look for and drugs and logistics management.

Zambia Nurses Association (ZNA)

Zambia Nurses Association (ZNA) is a non-governmental organization that was formed to protect and promote the interest of nurses and midwives; assist members in promoting and improving health services for the public, skills in nursing education, management and leadership, clinical practice and research; and to promote high professional ideals among members by taking steps necessary from time to time to further the knowledge, education and experience of members. The Association represents all nurses in the country and work with other health bodies. The informant was the Malaria Control Coordinator who is a member of the National Executive of ZNA.

To realize its objectives and functions, the organization has been conducting in-service trainings in form of workshops in all the provinces of Zambia. The trainings have focused on infectious diseases particularly malaria and HIV/AIDS. Under HIV/AIDS, three training sessions have been conducted in each of the nine provinces in the last three years. These are 5-day training sessions with 8 hours of exposure. The titles of the trainings covered were HIV/AIDS infection control and prevention, and malaria control and prevention. Specific topics covered under HIV were HIV/AIDS infection control, opportunistic infections and treatment, while in malaria; specific topics included prevention of malaria, use of antimalarials and chloroquine resistance. The Association has a standard curriculum they are using and they also use the National Malaria Control Manual, and ZNA- Norvatis Manual (still in draft form) and JHPIEGO Training Manuals for ARTs. The informant felt that its members are not familiar with the STG, which coincides with GNC. For future CPE, the topics that should be included are new antibiotics and their efficacies, drugs that are resistant and alternatives.

Churches Health Association of Zambia (CHAZ)

The Churches Health Association of Zambia (CHAZ) is a non-governmental organization formed to umbrella church run health institutions and it is involved

in resource mobilization, capacity building, logistic support and health care delivery. The informant was the Pharmaceutical and Logistic Manager. He reported that CHAZ runs mission health institutions in the country and therefore works with all health workers, that is, medical officers, pharmacists, nurses, pharmacy technologists, clinical officers, laboratory personnel and environmental health technologists. The organization has conducted in-service trainings particularly in antimicrobial use and infectious diseases (HIV/AIDS, and TB). In the last three years, 7 training sessions have been conducted in AMU and 9 training sessions in infectious diseases (HIV, STI and TB Directly Observed Therapy Short course). These spanned from 8th December 2002 to 28th August 2004. The duration of each training session was 6 days with 8-9 hours of exposure per day. Health workers trained included medical officers, nurses, pharmacy technologists, clinical officers and environmental health technologists.

The Titles of these trainings included 'drug management and rational use including sessions on antimicrobial use, HIV/AIDS clinical management including ARTs, TB DOTS, and adherence to ARVs. The specific topics covered include principles of antimicrobial use, problems of AMR, importance of rational use of antimicrobial drugs, choice of antimicrobial drugs, HIV/AIDS clinical management including HAART, TB DOTS, and adherence to ARVs.

The organization has a standard curriculum that was adopted from WHO/MSH, Rational Drug use training materials, IDA (managing drug supplies, managing HIV supplies), World Bank (Managing, procurement, and use of HIV/AIDS related supplies). The informant reported that for future in-service training, the following topics should be considered; resistance to TB drugs, resistance to antimalarials, strategies in delaying and preventing development of drug resistance.

Lusaka School of Nursing and Midwifery

The informant was the Nursing Education Manager and she reported that the institution is a government training institution formed to train nurses and midwives. It offers pre-service training for nurses, midwives and theatre nurses. The institution does not conduct any in-service training, not even for its staff. However for training of would be nurses, the institution feels there is need to conduct in-service training among its teaching staff in AMU, AMR and infectious diseases.

School of Medicine (University of Zambia)

The interview was conducted with the Dean of the school. The School of Medicine is a teaching institution under the University of Zambia offering pre-service training for medical officers, physiotherapists, pharmacists and biomedical scientists. The institution also conducts research and consultancy in the field of medicine. At pre-service level, topics on AMU, AMR and infectious diseases are taught in form of lectures and seminars. The lectures are one hour long while the seminar sessions last three to four hours. No in-service training is conducted.

Medical Council of Zambia (MCZ)

The Medical Council of Zambia **(**MCZ) is a statutory body established to determine, maintain and develop optimal standards of medical, dental, pharmaceutical, biomedical and paramedical practice in Zambia aimed at protecting the patients and guiding the professionals through registering health professions and regulating their professional conduct.

The informant was the Registrar heading the Council. The council does not conduct any in-service training for its members. However because of the emerging problems of AMR the Council suggested that for future continuing education in this area topics addressing alternative drug regimes should be offered in in-service trainings.

Dental Training School

Lusaka Dental Training School is a government training institution offering pre service training in dental therapy and dental technology. It also provides clinical and laboratory service to out patients. Interview with the Principal Tutor revealed that the institution does not conduct any in service training in AMU, AMR or infectious diseases.

Pharmaceutical Society of Zambia

The pharmaceutical Society of Zambia is an organization that represents pharmacists and all pharmacy cadres. The institution has conducted trainings in form of workshops for its members. The key informant was the president and he reported that one training has been done so far. The specific topics that were covered included HIV policy and access to ART, TB, pneumocystis carinii, STIs Malaria, the role of the pharmacist in the fight against the HIV/AIDS pandemic, concepts of rational ART commodity use-the drug use process, dispensing practices and STGs.

1.3.2 SUMMARY OF FINDINGS

Table 1: Inventory Of Key Informants

n=13

Organization	Informant
Central Board of Health –pharmacy unit	Pharmacy Technologist
Lusaka Provincial Health Office	Provincial Tuberculosis/Leprosy/HIV focal point person
JHPIEGO	Consultant
National Malaria Control Center (NMCC)	Case Management Specialist
Center for Infectious Disease Research in Zambia (CIDRZ)	Director-Department of Medicine
General Nursing Council (GNC)	Acting Registrar
Zambia Nurses Association (ZNA)	Malaria Control Coordinator
Churches Health Association of Zambia (CHAZ)	Pharmaceutical and Logistics Manager
Pharmaceutical Society of Zambia	President
School of Medicine-University of Zambia	Dean- School of Medicine
Medical Council of Zambia (MCZ)	Registrar
Lusaka Dental Training School	Principal Tutor

Table 1 shows the organizations and key informants who were interviewed. These key informants were either Head of the organizations or representatives directed by the head of organizations to participate in the interviews.

Table 2: Institutions/Organizations That Have Conducted In-Service Training For Health Workers In The Last Three (3) Years

n=13

Organization	Number of in-service trainings conducted	Duration per training session	Hours of exposure per day	Health workers trained
Central Board of Health (CBoH)	1	5 days	6 ½ hours	Medical officers, clinical officers, laboratory personnel, pharmacists and nurses.
Lusaka Provincial Health Office	12	TB- 1 week HIV/AIDS- 2 weeks Malaria 3-4 days	8 hours	Medical officers, clinical officers, pharmacists and nurses.
JHPIEGO	Over 20	ARTs 1wk OI 1 wk PMTCT 2 wks	8 hours	Medical officers, clinical officers, laboratory personnel, pharmacists and nurses, nutritionists
National Malaria Control Center (NMCC)	72 (all districts in Zambia)	2 days	8 hours	Medical officers, clinical officers, pharmacists and nurses
CIDRZ	15 (in 15 clinics under Lusaka DHMB)	1 day	4-6 hours	Clinical officers, and nurses
General Nursing Council of Zambia	6	10 days	8 hours	Teaching staff from schools of nursing and midwifery
Zambia Nurses Association	4	5 days	8 hours	Clinical officers, laboratory personnel, pharmacists and nurses
Churches Health Association of Zambia	16	6 days	8-9 hours	Medical officers, clinical officers, lab personnel, nurses environmental technologists, CHW
Pharmaceutical Society of Zambia	1	2 days	9 hours	All pharmacy cadres.
Lusaka School of Nursing	-	-	-	-
School of medicine	-	-	-	-
MCZ	-	-	-	-
Lusaka Dental School	-	-	-	-

The results in table 2 shows that of the thirteen organizations assessed, five conducted comprehensive in-service trainings ranging from 12 to 72 trainings in the last three years. The duration of training ranged from 1 to 10 working days.

Table 3: Titles Of Trainings Offered

n=13

Organization	**Titles Of Trainings Offered**
CBoH	AMU/Infectious diseases: - • Rational drug use
Lusaka Provincial Health Office	AMU/Infectious diseases: - • Management of HIV/AIDS and Opportunistic Infections, Training in New Tuberculosis World Health Organization modules, Sexually Transmitted Infections and Management of malaria.
JHPIEGO	Infectious diseases: - • Opportunistic infection management, ARV management and PMTCT
NMCC	Infectious disease: - • Coartem use and Chloroquine resistance.
CIDRZ	Infectious diseases: - • ARV therapy
GNC	Infectious diseases: – • Infection prevention practices in maternal and neonatal health, Infection prevention in HIV/AIDS, and Opportunistic infections
ZNA	Infectious diseases: - • HIV/AIDS infection control and prevention, • Malaria control and prevention
CHAZ	AMU/AMR: - • Drug management and rational use of antimicrobials, Infectious diseases: - • HIV/AIDS clinical management including ART, • Adherence to ARVs, DOTS in TB
Pharmaceutical Society of Zambia	AMU/AMR:- • HIV policy and access to ART, TB, pneumocystis carinii, STIs Malaria, the role of the pharmacist in the fight against the HIV/AIDS pandemic, concepts of rational ART commodity use-the drug use process, dispensing practices and STGs.
Lusaka School of Nursing	-
School of medicine	-
MCZ	-
Lusaka Dental School	-

From table 3, most of the organizations conducted in-service training in infectious diseases (malaria and HIV/AIDS and TB) including aspects of ARV management and antimalarials. Only 3 organizations (CHAZ, CBoH and Pharmaceutical Society of Zambia) did some training in rational use of antimicrobials.

Table 4: Specific Topics Covered In The Trainings

n=13

Organization	Specific Topics Covered
CBoH	AMU/AMR • Patients' behaviour in use of antimicrobials and education of patients and adherence to prescribed treatment.
Lusaka Provincial Health Office	AMU/Infectious diseases: - • Rational use of drugs, Malaria in pregnancy, malaria case management, and malaria business plan. • TB case detection, TB treatment, continuation of treatment, community DOTS, record keeping and recording, monitoring and evaluation
JHPIEGO	Infectious diseases: - • HIV information and management • Guiding principles for opportunistic infections, syndromic management of opportunistic infections and HIV related conditions, • Goals and general principles of ARV therapy, managing ARV therapy
NMCC	Infectious diseases: - • Factors contributing to development of antimalarial drug resistance, how to delay drug resistance and consequences of drug resistance • Dosage regimes, storage, and drug efficacy, pharmacovigilance (side effects), irrational use of antimalarials, importance of appropriate use of antimalarials, infection prevention and infection control measures, accurate diagnosis and management of malaria, education of patients on antimalarial use and adherence to prescribed treatment.
CIDRZ	Infectious diseases: - • HIV and ARV therapy, infection prevention and control measures, accurate diagnosis and management of opportunistic infections, education of patients on ARV use and adherence to prescribed treatment.
GNC	Infectious diseases: - • STIs, HIV/AIDS, TB, Opportunistic infections, accurate diagnosis and management of common opportunistic infections, infection prevention practices in maternal and child health
ZNA	Infectious diseases: - • HIV/AIDS infection control and treatment of opportunistic infection • Malaria prevention, use of antimalarials and chloroquine resistance
CHAZ	AMU/AMR / Infectious diseases: - • Principles of AMU, Choice of antimicrobial drugs

	• Problems of AMR and Importance of rational use of antimicrobial drugs • TB DOTS • HIV/AIDS clinical management including HAART and Adherence to ARVs
Pharmaceutical Society of Zambia	AMU/AMR: - • HIV policy and access to ART, TB, pneumocystis carinii, STIs, Malaria, the role of the pharmacist in the fight against the HIV/AIDS pandemic, concepts of rational ART commodity use-the drug use process.

Table 4 shows specific topics that are covered during in-service trainings. Most organizations conducted in-service trainings on infectious diseases mainly HIV/AIDS and malaria. CHAZ went further to train on rational use of antimicrobials.

Table 5: Suggested Priority Topics For Future Continuing Professional Education

n=13

Organization	**Priority Topics**
CBoH	• Infectious diseases – HIV/AIDS, STIs management
Lusaka Provincial Health Office	• Infectious diseases-TB and malaria.
JHPIEGO	• ARV and drug resistance, • Importance of adherence to treatment
NMCC	• Medical ethics in prescribing of antimalarials • Communication skills to patients and the general public
CIDRZ	• Rational prescribing of drugs for opportunistic infections especially Septrin
GNC	• Drug adherence versus side effects • Sensitization and effects of AMU • Drug prescription by nurses, what to look for • Drug and logistic management
ZNA	• Drug resistance and alternative regimes • New antibiotics and their efficacy
CHAZ	• Resistance to ARVs • Resistance to anti TB drugs • Resistance to antimalarials • Strategies to delay and prevent development of drug resistance
Lusaka School of Nursing and Midwifery	• Antimicrobial use and resistance

School of Medicine-University of Zambia	• HIV/AIDS related drug interactions • Systemic pharmacology
Medical Council of Zambia	• Emerging epidemics • Alternative drug regimes
Lusaka Dental Training School	-

Table 5 shows some of the topics that organizations recommended and felt should be included for future continuing education. Almost all the organizations recommended that antimicrobial use and AMR, including infectious diseases should be considered for CPE.

1.3.3 SUMMARIES OF TEACHING MATERIALS/DOCUMENTS COLLECTED

It was difficult to get other documents like the curricula for certain for organizations. Others indicated that their teaching manuals were still in draft form and therefore could not release them. However, the following documents were reviewed and summaries made. In summarizing these documents, the title of the document and main topics and issues highlighted in the documents are discussed. Copies of these documents are compiled separately.

1. **CBoH/GRZ, 2004. Antiretroviral Therapy, Course Notebook For Participants. March 2004 Edition.**

This is a training manual for participants for management of ART. It has guiding principles to the provision of antiretroviral therapy; patient assessment; when to start the therapy; when to change the regime; what to change to; when to stop; and when to refer and follow up care of patients on antiretroviral drugs.

It highlights the ARV combinations available in Zambia; it describes the drug actions, interactions and side effects.

2. CBoH/GRZ, 2004. Management Of Antiretroviral Therapy, A Reference Manual For Health Workers. November 2004 Edition.

This is a training manual for health workers for management of ART. It has guiding principles to the provision of antiretroviral therapy; patient assessment; when to start the therapy; when to change the regime; what to change to; when to stop; and when to refer and follow up care of patients on antiretroviral drugs.

It highlights the ARV combinations available in Zambia and it describes the drug actions, interactions and side effects.

3. **GRZ, 2004. Management Of Opportunistic Infections And Neoplasms, A Reference Manual For Workers. November 2004 Edition.**

This manual is on opportunistic infections that come along with HIV/AIDS like TB, pneumonia, malaria, septicemia and pneumocystis. It highlights how these infections can be prevented, successfully treated and prophylaxis initiated to prevent disease recurrence. It outlines the methods of diagnosis and treatment regime of these infections and conditions.

4. CBoH/MoH, 2004. Prevention Of Mother To Child Transmission Of HIV (PMTCT), A Reference Manual For Health Workers. May 2004.

This manual addresses the basic PMTCT services. The manual incorporates four arms of PMTCT. It includes primary prevention of HIV, prevention of unwanted pregnancies, prevention of perinatal infections for babies born to infected mothers, and linkages to long term care and support for those infected. It has also a component on community partnership, primary prevention and family planning; counseling and testing for HIV; antenatal, labour and delivery, and postnatal care to prevent MTCT; mother and young child nutrition; ARVs in

pregnant women, including both short course ART as well as linkages to clinical care services providing HAART; and basic management of quality PMTCT services.

5. GRZ, 2004. Malaria case management. Educational programme.

This teaching material was adopted from Malaria Case Management educational program, which was held at Mulungushi International Conference Center Lusaka Zambia from 20th-24th September 2004. It discusses Malaria in general, in children and in pregnancy, and diagnostic methods. It highlights the treatment regimes of malaria in adults, pregnant women and children; the preventive methods; the resistance to antimalarial drugs; cost effectiveness, pharmacovigilance and monitoring; Novartis (Coartem) clinical programs, logistics (drug supply management of coartem), and the role of communication in malaria case management.

6. CBoH/GRZ 2004. Standard Treatment Guidelines, Essential Medicines List and Essential Laboratory Supplies List for Zambia. 1st Edition 2004

This STG is the first one of its kind in Zambia. It is a comprehensive treatment guideline for management of common diseases and conditions and provides for the rational use of drugs and supplies. The book describes the disease condition in detail, highlighting clinical features and method of diagnosing the disease. The last component of any disease condition described is the list of drug regimes and the alternatives that can be used to treat the condition. The complications or sequelae of the condition are listed and prevention and control measures described for some conditions. The STG was designed to suit the Zambian situation placing emphasis on cost-effective management of disease condition thereby making it an easy tool for prescribers and procurers to use.

7. CHAZ Drug Management and Rational Use Teaching Materials

This course is designed in such a way that it addresses issues of drug management and rational use from the stage of planning drug requirements, to decision making for rational drug use interventions.

The specific topics that are covered in this teaching material are:

a) Planning drug requirements; this topic highlights methods of estimating drug requirements (consumption method and morbidity method), and steps in planning drug requirements.
b) Drug management information systems; the topic highlights the importance of a drug management information system.
c) Problems of irrational drug use.
d) Learning about a drug use problem
e) Sampling to study drug use
f) Implementing a drug use indicators study
g) Field visit to learn about drug use. This is a practical session involving visits to a local health facility so that participants can be able to: -
    i. Identify quantitative and qualitative data available about drug use in a variety of local health facilities
    ii. Plan the logistic aspect of data collection process in these facilities

h) Framework for changing drug use practices. In this session factors that influence drug use are identified and interventional strategies to improve drug use are given.
i) Standard treatments. This highlights advantages of standard treatments, key features of standard treatments, development and implementation of standard treatments.
j) Role of dispensers in promoting rational drug use. A dispenser is described, dispensing processes, dispensing practices that enhance rational drug use, roles of prescribers and dispensers and promoting correct dispensing methods to improve compliance with therapy, public Vs private sector dispensing.

k) Decision making for rational drug use interventions. This topic covers choosing strategies to test and implement. It includes methods of choosing managerial and regulatory strategies in drug management, testing the strategies and implementing it.

1.4 DISCUSSION OF THE FINDINGS

1.4.1 Introduction

This study was a rapid assessment on in-service training on the rational anti-microbial use (AMU) and antimicrobial resistance (AMR) to medical officers, pharmacists, nurses and clinical officers in Zambia. The study was conducted in Lusaka the administrative capital of Zambia. The objective of the study was to assess the in-service trainings that have been conducted in AMU, AMR and STG among institutions that provide pre-service and in-service training to health workers in the country. It was a 4-week assessment with one week of data collection.

The institutions that took part in the study were conveniently selected to meet the objective of the study. These institutions were either government or non-governmental organizations with local and international affiliation. There were nineteen (19) institutions that were targeted to take part in the study. However, only thirteen (13) institutions were able to provide comprehensive information desired. Other institutions declined to take part as they felt the information sought was outside their functional and operating spheres.

The thirteen (13) institutions that took part in the study are the following; Central Board of Health (CBoH) – pharmacy unit, Lusaka Provincial Health Office, National Malaria Control Center (NMCC), Medical Council of Zambia (MCZ), General Nursing Council of Zambia (GNC), Zambia Nurses Association (ZNA), JHPIEGO, Center for Infectious Disease Research in Zambia (CIDRZ),

Churches Health Association of Zambia (CHAZ), Pharmaceutical Society of Zambia, School of Medicine (UNZA), Lusaka School of Nursing and Midwifery and Lusaka Dental Training School.

These will be discussed under the following sub headings: -

- Institutions assessed
- In-service training
- Standard treatment guidelines (STG)

1.4.2 Institutions Assessed

The study findings revealed five out of the thirteen (13) institutions assessed conducting comprehensive and continuous in-service trainings for health workers. These institutions had conducted from 12 to 72 training sessions in the last three years. The organizations that had comprehensive training programs are Lusaka Provincial Health Office (12), CHAZ (16), NMCC (72), JHPIEGO (over 20) and CIDRZ (15). Other institutions from the thirteen had conducted form 0 to 6 training sessions and are GNC (6), ZNA (4), CBoH (1), Pharmaceutical Society of Zambia (1), MCZ, School of Medicine, Lusaka School of Nursing and Midwifery, and Lusaka Dental Training School (0).

JHPIEGO was found to be instrumental in conducting continuing education to health workers and developing of teaching materials in the country. The organization has conducted over twenty (20) refresher courses and developed teaching materials. The assessment showed that their in-service programmes are well organized. The rational use of anti-retrovirals and standard treatment guidelines is well stipulated in their teaching materials and many institutions have adopted their teaching materials for training purposes. However, this was in HIV/AIDS and ART management. The area of antimicrobial use and resistance is not dealt with except a small component on management of opportunistic infections. The successful organization of in-service training

programmes JHPIEGO has could be partly attributed to a good funding system the organization enjoys and the vision it has on improving the health of women and their families.

The local Non Governmental Organization that has made strides in training health workers in church health institutions is CHAZ. It's the only organization that was found to be training health workers in AMU/AMR. In the last three years, the organization had conducted sixteen (16) in-service training courses spread over from drug management and rational use, HIV/AIDS and ART management to Directly Observed Therapy Short Course (D OTS) in TB.

CIDRZ is a research institution providing technical support to Lusaka District Health Management Board (LDHMB) in ARV programmes. The organization has conducted one-day trainings in fifteen (15) clinics in Lusaka. The focus has been in HIV/AIDS and ART management.

NMCC a government institution has conducted 72 refresher courses on antimalarials in all Zambian districts. This achievement could be due to the Zambian government embarking on phasing out chloroquine and replacing it with coartem as the first line drug in treatment of malaria. As an institution created by government to facilitate implementation of antimalaria interventions, NMCC had to do a lot of work to educate the health workers and public on the new drug.

The institutions that had not conducted any in-service training could be due to the fact that they offer pre-service trainings. However, it was mentioned that their members (teaching staff) have attended in-service trainings offered by other organizations. MCZ was purely involved in regulatory functions of the medical standards in the country and does not conduct any refresher courses for its members. Resources and funding could be one of the factors that could have limited these institutions to stick purely to pre-service trainings, as observed

from the assessment that the international NGOs and local NGOs that had donor support were active in the in-service training of its members.

It has been shown that health workers trained comes from all levels namely medical officers, clinical officers, nurses, pharmacists, laboratory personnel and environmental health technicians. CHAZ had gone further to train community health workers in DOTS (See table 2).

1.4.3 In-Service Trainings

Refresher courses (in-service training) for health care providers is a well recognized tool for improving rational drug use as it is accompanied with the dissemination of new information thereby allowing the health care provider to fully comprehend the change. From the thirteen (13) institutions which provided comprehensive information desired in the assessment, nine (9) had conducted in-service trainings or refresher courses.

The duration of each training session ranged from 1 to 10 working days with an exposure of 4 to 9 hours per day (See table 2). Most of the in-service trainings were in infectious diseases particularly HIV/AIDS and its opportunistic infections and malaria. This bias towards HIV/AIDS and malaria could be due to the magnitude of the impact the two infections are causing on the health sector in Zambia. The other factor could be due to the recent introduction of ARVs on the Zambia scene thereby calling for extensive training of health care providers in the management of these drugs. CHAZ was the only organization assessed that is conducting in-service training in both HIV/AIDS and rational use antimicrobials.

1.4.4 Standard Treatment Guidelines

The standard treatment guidelines for Zambia were for the first time launched in November last year by CBoH. It's a comprehensive tool for the prescribers and procurers of drugs in drug management for the country. This if properly used by

the health worker can address issues of cost, efficiency, and appropriate use of drugs. The factors most contributing to the resistance of antimicrobials arise from the prescribers attitudes, knowledge, and prescribing practices. The assessment revealed that most health workers were not familiar with the STG even the CBoH which is responsible for the dissemination was only certain of health workers being familiar with the STG at provincial levels. The four institutions that were found to be active in conducting in service trainings namely JHIEGO, CHAZ, CIDRZ and NMCC showed that they had adopted the HIV/AIDS component of the STG from CBoH but no trainings had been conducted on the STG. In some organizations (specifically statutory bodies and training institutions) they were not even aware of the launch and existence of the STG. If the heads of institutions representing health workers are not familiar with the STG, then there is a likelihood that the health workers at the grass root involved in prescribing and dispensing are not aware of the STG despite being in existence for over five months. Factors contributing to low familiarization and use of the STG could be inadequate publicity and dissemination mechanisms by CBoH. The other reason could be due to the fact that it as it was just recently launched and trainings have not yet been planned.

1.5 CONCLUSION AND RECOMMENDATIONS FOR IMPLEMENTATION

1.5.1 Conclusion

The assessment was useful in identifying in-service trainings that have been conducted so far in areas of infectious diseases, AMU and AMR in Zambia. The assessment demonstrated that some organizations in Zambia have been conducting trainings especially in the area of infectious diseases and drug resistance to antimalarials and ART. It is evident however, that not much has been done in Zambia on AMU and AMR although most heads of the organizations that were involved in this assessment acknowledged the importance of training health care workers on AMU and AMR. It is interesting however, to note that on topics that should be included for future continuing

education in Zambia, most organizations especially those that are instrumental in conducting in-service training still felt topics on ARV resistance should be included. A standard treatment guideline (STG) manual for health workers exist in Zambia but very few health workers are familiar with the manual and no training has been conducted in the use of STG to date. Most organizations felt that continuous in-services trainings in promoting appropriate use of antibiotics, ARVs and antimalalarials should be embarked on.

1.5.2 Recommendations

1. There is need to do a country wide situational analysis amongst the health care providers to assess how much knowledge they have on rational antimicrobial use and AMR. This should involve interviewing the medical officers, clinical officers, nurses and pharmacists working in the hospitals and health centers. This is because the findings of this study may not fully reflect the countrywide picture as most of the NGOs, which are active in training health workers, are located centrally and only benefits health workers in urban areas and CHAZ mostly targets church health institutions.

2. In-service training for health care providers and dispensers of drugs on rational antimicrobial use and AMR should urgently be planned if we are to contain the problem of AMR. All health care providers should be targeted for in-service training, employees in private and public sector, pharmacy operators and drug vendors. Teaching staff in the institutions that offer pre-service training should be included in these trainings as they are responsible for training the 'would be' health workers.

3. Special emphasis should be placed on the STG as trainings are planned and it should be integrated into on-going and established in-service training programs for RPM Plus. Efforts should be made to have the STG integrated into curricula for all training institutions. Partners

already involved in the training should be requested to assist with the process.

4. Training should be regular and repeated so that all health workers are trained and training should be decentralized, that is, taken to the provincial and district levels. This will ensure that all health workers involved in prescribing and dispensing the drugs understand the problem of AMR and improve on rational use of antimicrobials. It would be helpful to conduct Training Of Trainers, so as to speed up the process to cover as many health workers as possible.

5. In planning for training, RPM Plus should involve all stakeholders especially the beneficiaries. Consultations among organizations conducting in-service training will reduce duplication of training programmes in the same area. As already observed, there are many stakeholders conducting trainings in HIV/AIDS, which has led to neglecting the issue of antimicrobial use. Involving the stakeholders will also assist in identifying accurate training needs of health care providers.

6. A monitoring and evaluation mechanism should be put in place to ensure that the trained personnel are implementing the knowledge they are empowered with if the problem of irrational antimicrobial use is to be addressed. To achieve this, indicators need to be developed for monitoring and evaluation.

1.6 REFERENCES

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INTERVIEW GUIDELINES

RAPID ASSESSMENT OF IN-SERVICE TRAINING (CONTINUING EDUCATION) ON RATIONAL ANTIMICROBIAL USE AND AMR TO HEALTH CARE PROVIDERS IN ZAMBIA.

Date:

1. Informant (position) _____
2. Name of the institution/ organization _____
3. What is main function the organization? _____
   _____
   _____
   _____
   _____
4. Which health workers does your organization represent?
   _____
   _____
   _____
5. Do you conduct any in-service training for your members /employees?
   a) Yes
   b) No
6. If "YES" have you ever conducted any in-service training in the following areas?
   a) Antimicrobial use
   b) Antimicrobial resistance
   c) Infectious diseases (specify) _____
      _____

7. How many of these in-service trainings have you conducted in each of the following in the last three (3) years?

   a) AMR _____

   b) AMU _____

   c) Infectious diseases _____

   _____

   _____

8. What were the specific titles of these trainings _____

   _____

   _____

   _____

9. Which were the dates for these trainings? _____

   _____

   _____

   _____

   _____

   _____

   _____

10. Which health professionals were trained?

    _____

    _____

    _____

    _____

11. How often did you conduct these in-service trainings per year?

    _____

    _____

    _____

12. What was the duration of each training session (in months, weeks or days)?

    _____

    _____

    _____

13. Approximately how many hours per day were allocated in a training session?

    _____

    _____

    _____

14. Which specific topics were covered in relation to

    AMU_____

    _____

    _____

    _____

    AMR _____

    _____

    _____

    _____

    Infectious diseases

    _____

    _____

    _____

    _____

15. Were any of these topics included during these trainings?

    a) Problem of irrational use of antimicrobials
    b) Problem of antimicrobial resistance (drug resistance)
    c) Importance of appropriate use antimicrobials
    d) Disease prevention and infection control issues
    e) Accurate diagnosis and management of common infections
    f) Education of patients on antimicrobial use and adherence to prescribed treatments

16. Do you have a standard curriculum that you have been using to conduct these trainings?
    a) Yes
    b) No

17. Are there any other training materials that you have been using in training your employees/members?
    a) Yes
    b) No

    If yes, what are they? (List)

    a)
    b)
    c)
    d)

18. Are your members/employees familiar with the Standard Treatment Guidelines (STG)?

    _____

19. Have you conducted any training to your employees/members on the STG?

    _____

20. If yes, which component of the STG did you focus on?

    _____

    _____

    _____

    _____

21. For future continuing education of physicians/ nurses/ pharmacists/ clinical disease, AMR and AMU, what do you think are the priority topics in the current context?

    _____

_____

_____

_____

_____

22. Do you have any other recommendations concerning in-service trainings of health care providers on AMR, AMU, Infectious diseases and STG in Zambia?

_____

_____

_____

_____

_____

_____

ANNEX 19: REQUEST FOR COUNTRY CLEARANCE (RFCC)

TO: Barbara Hughes, USAID/Zambia
Jeannie Friedmann, USAID/Zambia
Abdi D. Mohamed, USAID/Zambia
Dyness Kasungami, USAID/Zambia
Lisa Luchsinger, USAID/Zambia

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

SUBJECT: Request for Country Clearance for travel for Mohan Joshi to Lusaka, Zambia from June 23 to July 4, 2005.

COPY: Anthony Boni/Global HPSR/CTO RPM Plus
Kama Garrison, Pharmaceutical Management Advisor, USAID/GH
Douglas Keene, Director, MSH/RPM Plus
Maria Miralles, Deputy Director, MSH/RPM Plus
Michael Gabra, Project Manager/AFR, MSH/RPM Plus
Mohan Joshi, Program Manager, MSH/RPM
Oliver Hazemba, Technical Advisor, MSH/RPM Plus Lusaka

1. The RPM Plus Program wishes to request country clearance for proposed travel to Lusaka, Zambia by Mohan Joshi, Program Manager for Antimicrobial Resistance, RPM Plus Program for the period of June 23–July 4, 2003.

2. Background

   Antimicrobial resistance (AMR) is a major global health problem, threatening the beneficial effects of many health programs such as mother and child health, HIV/AIDS, TB, and malaria. Endemic and epidemic infections caused by bacteria that are resistant to relatively inexpensive first-line antibiotics are common throughout the world. Resistance to antimicrobials is increasing, making many infectious diseases more difficult to treat, and increasing morbidity, mortality and healthcare cost.

   In September 2001, the World Health Organization completed and published their strategy for containment of AMR. This global plan is comprehensive and complex, making it difficult to implement in many developing countries. There needs to be a succinct methodology for implementing the interventions contained in the global strategy at country level in order to address the emerging crisis of antimicrobial resistance. To further the WHO global initiative, RPM Plus, in collaboration with APUA, AED/Change, and Boston University/ARCH, is supporting the development of a systematic approach to guide the design of country-level efforts to contain AMR. The primary thrust of this activity is to catalyze an initial response by local stakeholders to build and scale up coalition, commonalities, and advocacy.

The approach is currently being pilot tested in Zambia. Important achievements so far include: holding a stakeholders' meeting; formation of an AMR advocacy working group (AWG); completion of a rapid appraisal survey to understand the existing issues that impact AMR; the preparation of a "Call for Action" document by the AWG as background material for calling meetings and scaling up the advocacy process; development of communications and advocacy brief for the public and health providers; support for the formation and activities of APUA Country Chapter; and communication workshop to support AMR containment. The AWG is now planning to initiate both the pre-service and in-service training activities for health care professionals to advance the AMR advocacy and containment process. As part of this activity, a workshop for physicians has been scheduled for June 27–29, 2005 to discuss issues related to implementation and utilization of standard treatment guidelines (STGs) for infectious diseases of major public health importance in Zambia to support the overall AMR containment process.

3. Purpose of Proposed Visit:
   Dr. Joshi will travel to Lusaka, Zambia to provide technical assistance to further the implementation of the country-level AMR advocacy and containment effort in Zambia.

4. Scope of Work:
   The scope of the work for Mohan Joshi during the proposed visit will include the following:
   - Provide an arrival briefing to USAID/Zambia upon request
   - Participate in the AWG strategic planning and preparation of materials for the workshop
   - Serve as facilitator and make presentations at the workshop
   - Evaluate the workshop implementation process
   - Discuss with AWG members and Mr. Oliver Hazemba, the Resident Representative of RPM Plus in Zambia regarding next steps in the AMR containment process in Zambia
   - Provide debriefing to USAID officials in Zambia, (if requested)
   - Write a Trip Report

5. Anticipated Contacts:

   - Ms Barbara Hughes, USAID/Zambia
   - Ms. Jeannie Friedmann, USAID/Zambia
   - Dr. Abdi D. Mohamed, USAID/Zambia
   - Dr. Dyness Kasungami, USAID/Zambia
   - Ms. Lisa Luchsinger, USAID/Zambia
   - Professor C. Chintu, UTH, Lusaka
   - Mr. Oliver Hazemba, RPM Plus Program
   - Other key stakeholders relevant to the AMR activities

6. Logistics: Mohan Joshi will arrive in Lusaka on or about June 23, 2003 and will leave on or about July 4, 2003. Accommodation will be at Pamodzi Hotel in Lusaka.

7. Funding:
   Mohan Joshi's participation in the in-country work proposed will be paid for with RPM Plus AMR Global funding.

8. Action: Please inform RPM Plus Program whether country clearance is granted for the activity to take place as proposed. Please reply via e-mail to the attention of Anthony Boni, USAID/G/PHN/HN/HPSR, e-mail address: aboni@usaid.gov, tel: (202) 712-4789, fax (202) 216-3702. Please send carbon copies to Kama Garrison at kgarrison@usaid.gov, Douglas Keene at dkeene@msh.org, Maria Miralles at mmiralles@msh.org, Michael Gabra at mgabra@msh.org, Mohan Joshi at mjoshi@msh.org, Oliver Hazemba at ohazemba@msh.org and Lindsay Gibbs at lgibbs@msh.org. We appreciate your cooperation.

Annex 20: Workshop Photos

Group photo of participants of the workshop

Dr. Velepi Mtonga, Director of Clincial Care and Diagnostic Services, Central Board of Health, providing opening remarks

Participants during the workshop (1)

Participants during the workshop (2)

Participants during the workshop (3)

Participants during the workshop (4)

Participants during the workshop (5)

Participants during the workshop (6)

Workshop Banner