



# antibiotic guide

# 2015

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**Family Medicine**

**MURIA 25 July 2016**  
**University of Botswana**

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**Why do we need  
this guide?**

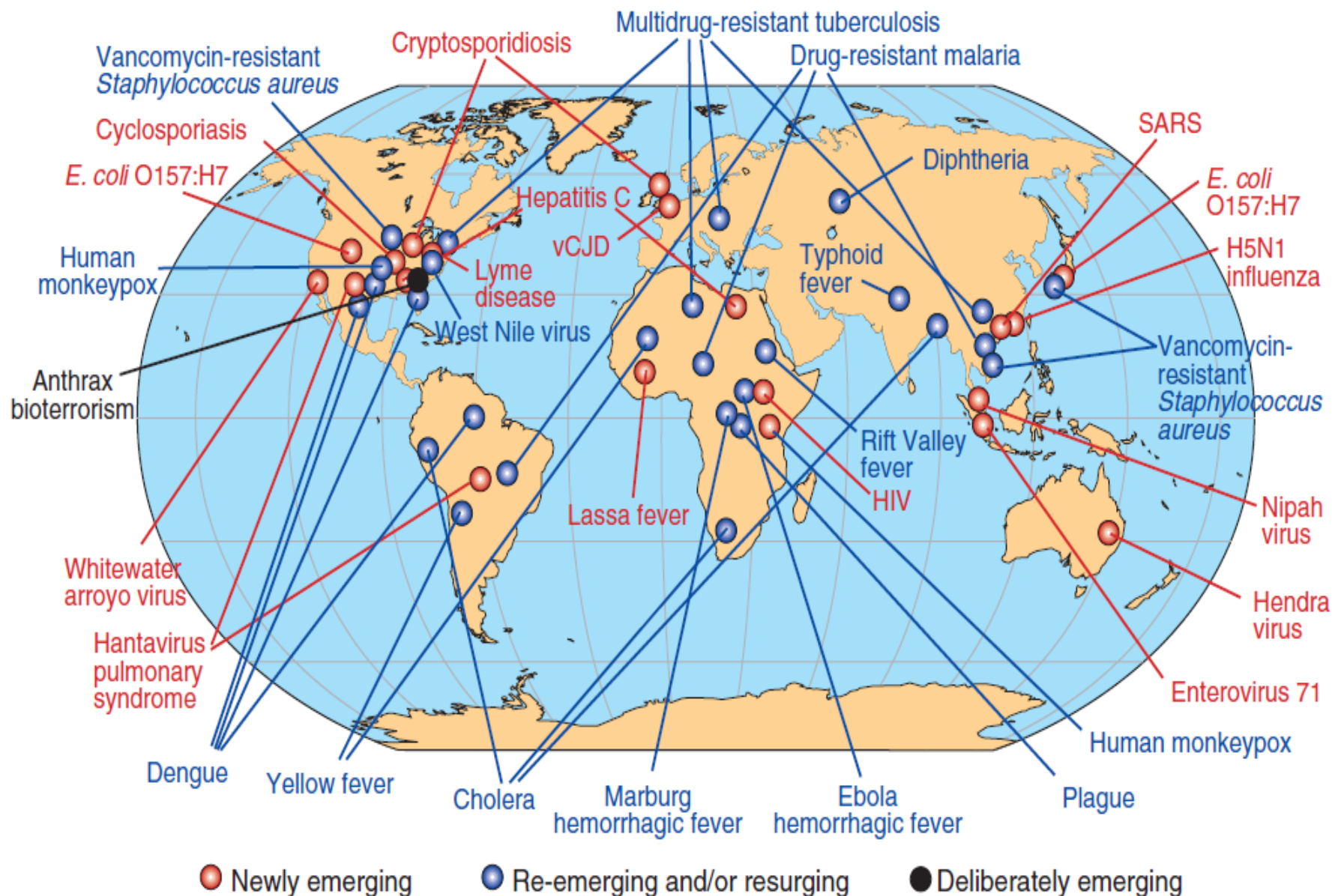


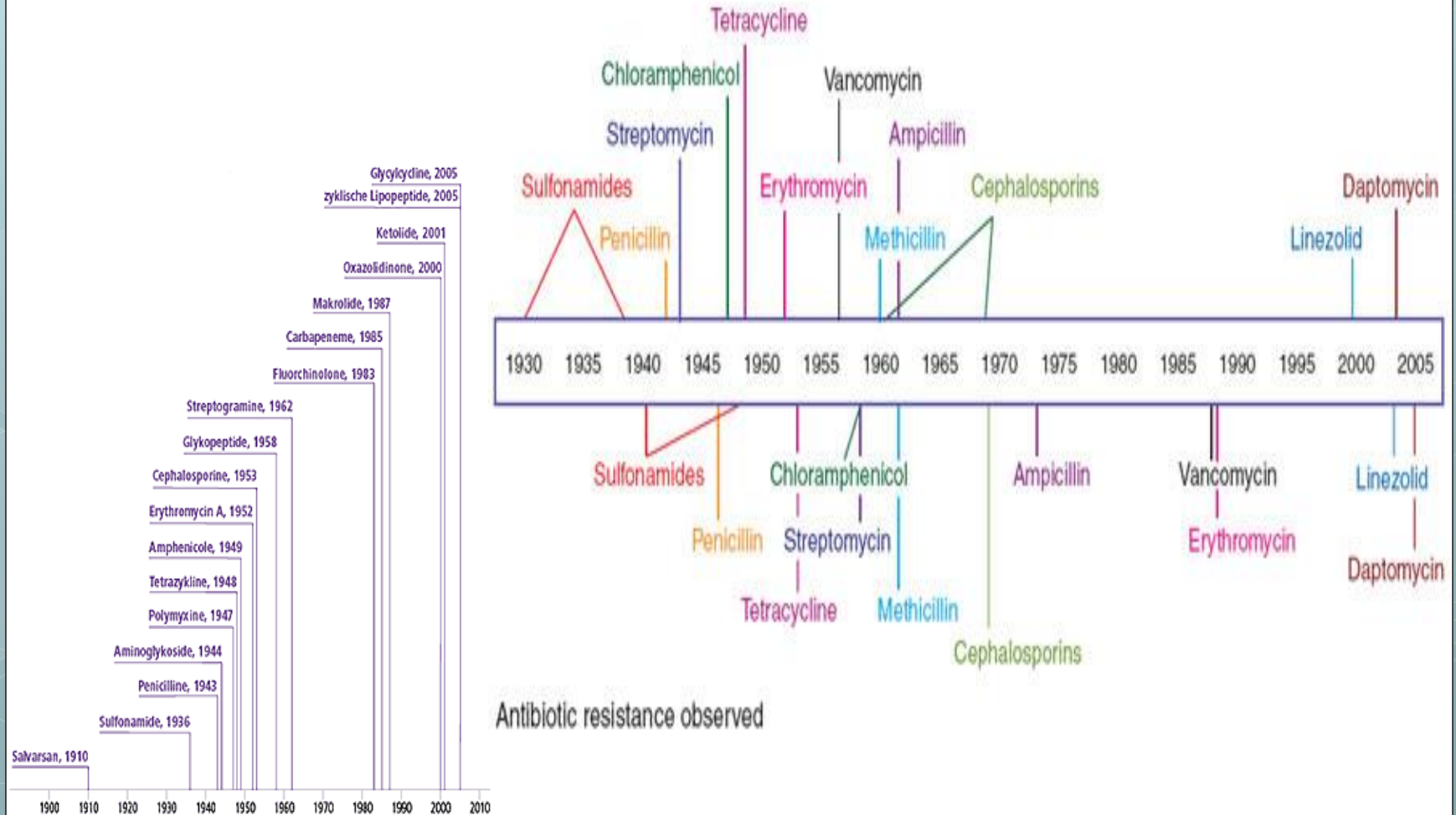
Figure 2 Global examples of emerging and re-emerging diseases. *E. coli*, *Escherichia coli*; vCJD, variant Creutzfeldt-Jakob disease. From ref. 1.

## Why do we need this guide

- Antibiotics rapidly developed 1940 - 1970 : far fewer antibiotics developed 1970 -1990 : minimal new antibiotics 1990-2016
- Within 5 -30years of antibiotic development/deployment , antibiotic resistance has occurred with each class
- Antibiotic resistance - a major issue confronting healthcare providers and patients.
- Combination of widespread resistance and decline in introduction of new antibiotics = significant difficulty selecting optimal antibiotic regimens
- Now at a crucial point - near post -antibiotic era - common bacterial infections are no longer treatable with antibiotic armamentarium that exists.
- History lesson : if antibiotics not used carefully , efficacy will be lost
- Need to use all antibiotics appropriately – especially our newest big guns

# Timeline: Antibiotics

Antibiotic deployment



# Factors Driving Resistance

- Inappropriate use of Abx e.g viral infections
- Indiscriminate use of Abx e.g Agriculture
- Prolonged Abx use e.g prolonged “prophylaxis”
- Excessive Abx Use - Areas in hospital with highest Abx use = Areas with highest resistance rates  
- NB : Colonisation with resistant bacteria
- Social factors - travel , medical tourism
- Gene transfer between bacteria
- Inadequate hand hygiene
- Poor environmental sanitation

# Outcomes of Antimicrobial Resistance

- **Increased Mortality**
- **Increased Morbidity**
- **Prolonged Hospital Stay**
- **Increased Secondary Morbidity**
- **Increased Health Care Costs**

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**Clearly need to alter Antibiotic Use To Maximise  
Benefit/ Minimise Resistance - In Short -**

**Right Antibiotic  
Right Patient  
Right Dose  
Right Route  
Right Frequency  
Right Duration**



# **Len Med Bokamoso antibiotic guide**

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- **Bokamoso : ICC 2013 , DTC 2014 :**
- **Guidelines for Antibiotic Use : 2015**
- **Encourage rational use of antibiotics**
- **Indicate first choice drugs in many clinical situations**
- **Suggest alternative drug or drugs for patients in whom a first choice drug cannot be used.**

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**Remember - Guidelines are only Guidelines**

**Should NOT supplant clinical judgment**

**Should NOT be a substitute for Infectious  
Diseases Consultation**

- **Recognise departures from Guidelines will occasionally be necessary.**
- **Important to document reason for departure**
- **Guidelines not set in stone – need regular review and periodic update as new data emerges**

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**LBPH Guidelines 015 - Based on current literature reviews, various guidelines and consensus statements**

- **Botswana Antimicrobial Guidelines**
- **Guide to Antibiotic Prescribing in RSA**
- **WHO guidelines**
- **International Guidelines**
- **Incorporated our local hospital antibiogram data**

Available antimicrobials within the guidelines are classified as “Unrestricted Use”, and “Restricted Antimicrobials”.  
See table below for RESTRICTED ANTIBIOTICS.

<b>Restricted Antimicrobials</b>	<b>Exemptions (i.e. No restrictions applied)</b>
<b>Carbapenems: Meropenem Imipenem</b>	Infectious diseases specialists, critical care specialists
<b>Linezolid</b>	Infectious diseases specialists, critical care specialists
<b>Ganciclovir</b>	Infectious diseases specialists, ophthalmologist
<b>Colistin</b>	Infectious diseases specialists
<b>Fluoroquinolones</b>	Infectious diseases specialists

**If Attending Physician NOT ID Physician or Intensivist -**

- **If use of restricted antimicrobials desired**
- **Pre-Approval by Infectious Diseases Physician and Pharmacy required**

***Caveat :***

**Attending physician may prescribe restricted antibiotic x 48 hours e.g weekend :**

**Pre-abx samples *MUST* be sent to lab for MCS**

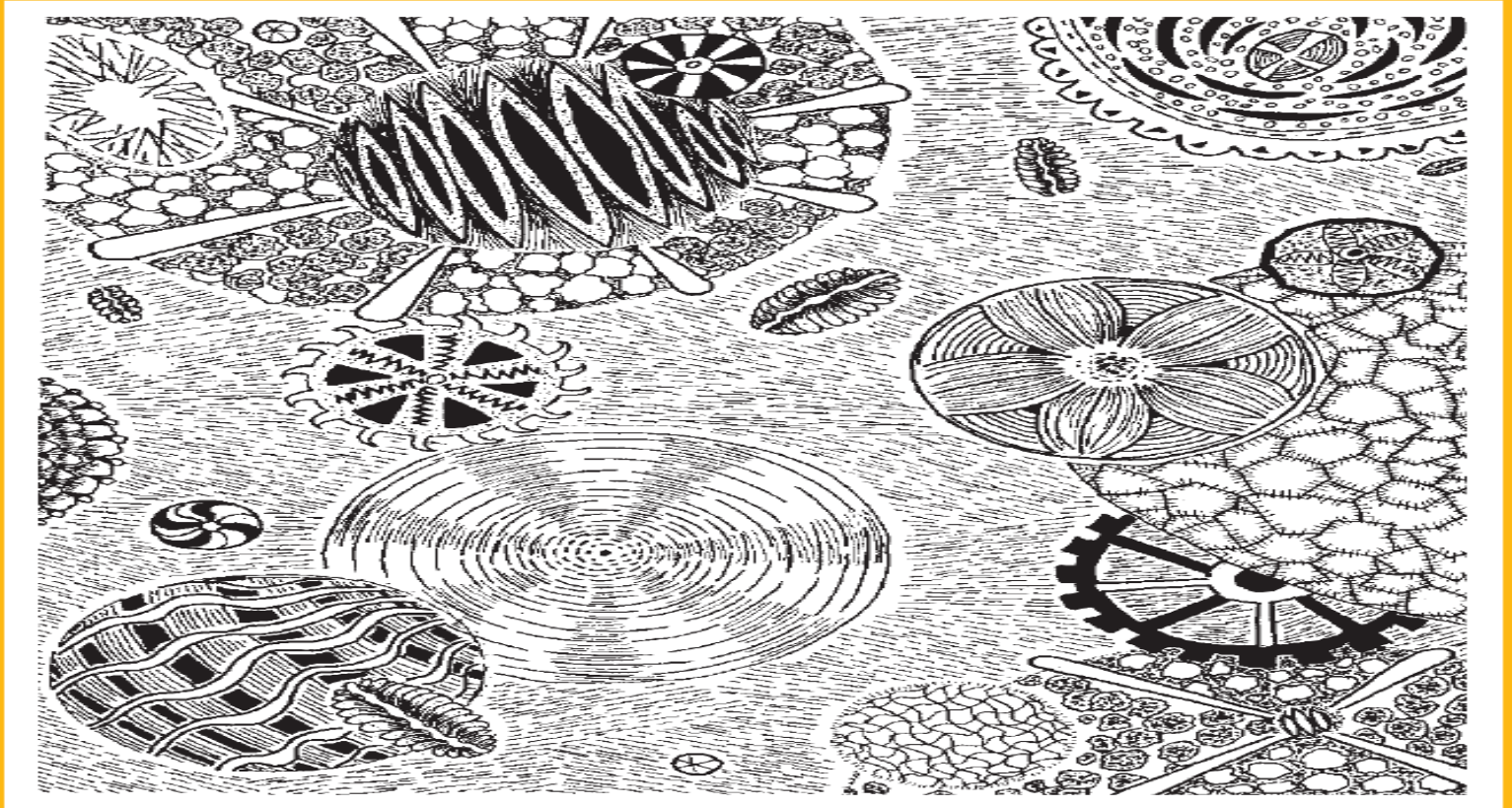
**Consultation with the infectious disease specialist needed if it is desired to continue antibiotic**

# International Precedent

- Johns Hopkins , Baltimore , USA
- 2015-2016



# Antibiotic Guidelines 2015-2016



## Treatment Recommendations For Adult Inpatients

Also available online at  
[insidehopkinsmedicine.org/amp](http://insidehopkinsmedicine.org/amp)



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## Selected formulary antimicrobials and restriction status

The following list applies to ALL adult floors and includes the status of both oral and injectable dosage forms, unless otherwise noted.

Unrestricted	Restricted (requires ID approval)
Amoxicillin	Amikacin
Amoxicillin/clavulanate	Aztreonam
Ampicillin/sulbactam (Unasyn®)	Cefepime
Ampicillin IV	Ceftaroline <sup>1</sup>
Azithromycin	Ceftazidime
Cefazolin	Ceftolozane/tazobactam <sup>1</sup>
Cefdinir	Ciprofloxacin
Cefotetan	Colistin IV
Cefpodoxime	Cytomegalovirus Immune Globulin (CytoGam®) <sup>2</sup>
Ceftriaxone	Daptomycin <sup>1</sup>
Cefuroxime IV	Fosfomycin <sup>3</sup>
Cephalexin	Linezolid
Clarithromycin	Meropenem
Clindamycin	Moxifloxacin
Dicloxacillin	Nitazoxanide <sup>4</sup>
Doxycycline	Palivizumab (Synagis®) <sup>5</sup>
Ertapenem	Piperacillin/tazobactam (Zosyn®)
Erythromycin	Quinupristin/dalfopristin (Synercid®)
Gentamicin	Ribavirin inhaled <sup>5</sup>
Metronidazole	Telavancin <sup>1</sup>
Minocycline	Tigecycline
Nitrofurantoin	Vancomycin
Oxacillin	
Penicillin V/G	
Ribavirin oral	
Rifampin	
Streptomycin	
Tobramycin	
Trimethoprim/sulfamethoxazole	
Amphotericin B deoxycholate (Fungizone®)	Liposomal amphotericin B (AmBisome®)
Flucytosine	Micafungin
Itraconazole oral solution	Fluconazole <sup>6</sup>
	Posaconazole
	Voriconazole

<sup>1</sup>Approval must be obtained from Antimicrobial Stewardship Program 24h/7 days a week

<sup>2</sup>Approval required, except for solid organ transplant patients

<sup>3</sup>Approval must be obtained 24h/7 days a week

<sup>4</sup>Approval must be obtained from Polk Service or ID Consult

<sup>5</sup>Approval must be obtained from ID attending physician 24h/7 days a week

<sup>6</sup>Oral Fluconazole, when used as a single-dose treatment for vulvovaginal candidiasis or when used in compliance with the SICU/WICU protocol, does not require ID approval

Restricted antimicrobials that are ordered as part of a P&T-approved critical pathway or order set do NOT require ID approval.

**REMINDER: the use of non-formulary antimicrobials is strongly discouraged. ID approval MUST be obtained for ALL non-formulary antimicrobials.**

**NOTE: Formulary antivirals (e.g. Acyclovir, Ganciclovir) do NOT require ID approval.**

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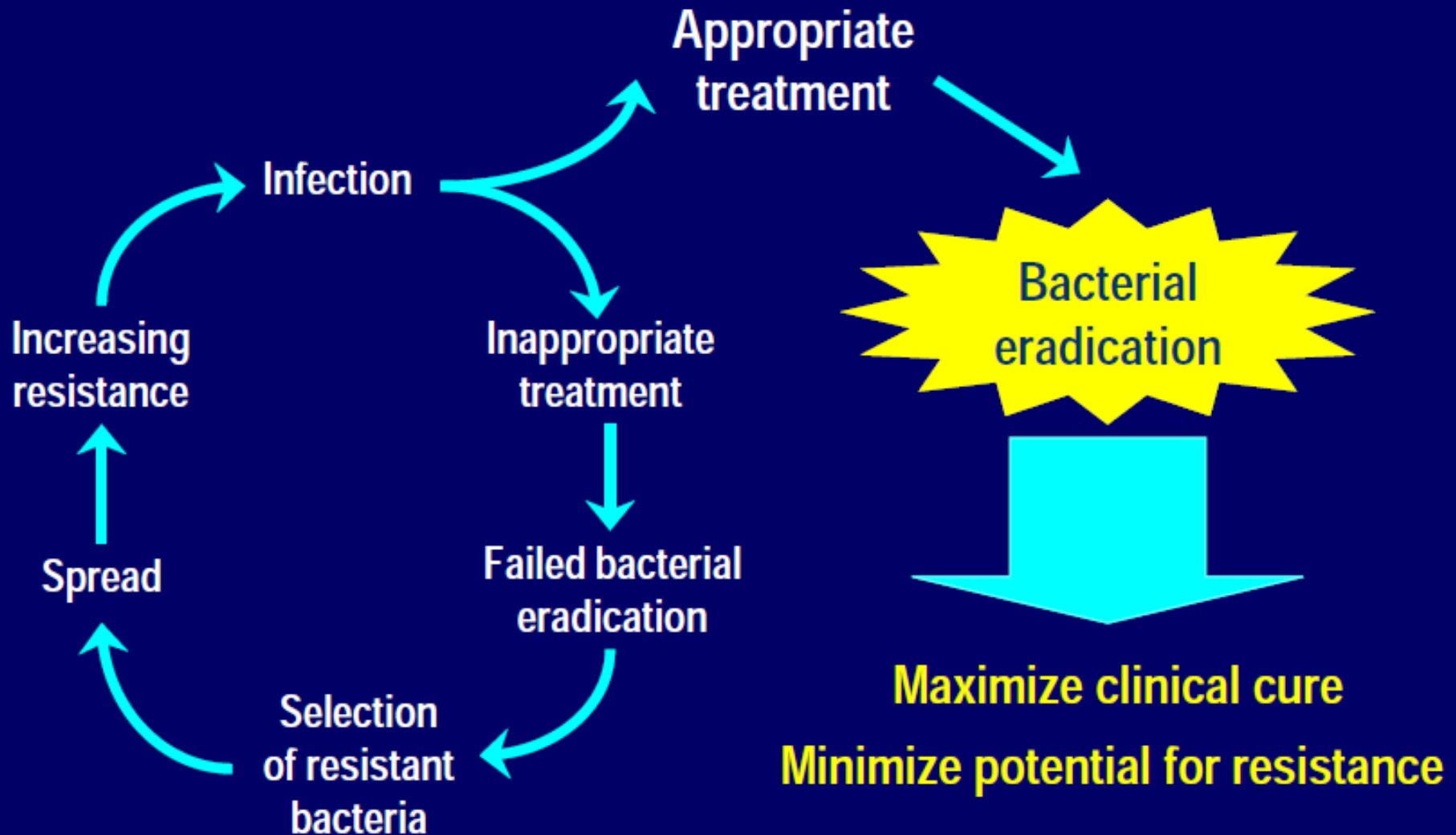
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- **TEAMWORK ESSENTIAL**
- **COMMUNICATION PARAMOUNT**
- **Need to use our available personnel well**
- **Microbiology Scientists -**
- **ID Physicians -**
- **Provide practical advice on appropriate antibiotic therapy in individual patients – in person, by phone , e mail**
- **In particular - close collaboration on difficult , unusual , lifethreatening infections**

## Prescribers Should Avoid:

- Using longer courses than are necessary.
- Unnecessary use of combinations where a single drug would be equally effective.
- Broad-spectrum antibiotics where a narrow spectrum agent is indicated.
- Prophylactic antibiotics unless of proven benefit.

# Breaking the 'vicious cycle'



# Antimicrobial Stewardship - International Recommendations

- **TEAM WORK**
- **Ideal Leaders : Infectious Disease Physician and Clinical Pharmacist with Infectious Disease training**
- **Close collaboration -ID Physician, Clinical Pharmacist and Infection Control Practitioner**
- **Full support of Hospital administration required**
- **Involvement of Quality Assurance a help**
- **Nursing Input essential**
- **Measure and track antimicrobial use**
- **Prospective intervention + immediate feedback**
- **Antimicrobial restriction**
- **EVERYONE NEEDS TO BE COMMITTED**



# Lenmed Bokamoso AMS

- Multi-disciplinary Subcommittee of DTC
- Started late 2015
- Committee members :
  - 1. Pharmacist
  - 2. Microbiology Lab Scientist
  - 3. ID Physician
  - 4. Surgeon
  - 5. Paediatrician
  - 6. Intensivist
  - 7. A/E doctor,
  - 8. Infection Control nurse
  - 9. Hospital Management - Nursing manager

# Achievements Thus Far

- Monthly meetings
- Co-option of Additional Members prn
- Development of Terms of Reference
- Decision re Priority Targets
- Allocation of Duties
- Development of Intervention Tools
- Commencement of Clinical Interaction
- Revision of Intervention Tools
- Details from Mr Utlwang Toko - Tuesday



# Antimicrobial Stewardship

- Emphasise Samples/Cultures
- Dose optimisation
- Shortest Time to First Dose
- Dose Frequency /Doses Missed
- De-escalation therapy
- Parenteral to oral conversion
- Reduce Antibiotic Redundancy
  
- INTERACTION/EDUCATION – doctors, nurses

**WASH HANDS +++**



# Acknowledgements

- Lenmed Bokamoso AMS
- Lenmed Bokamoso DTC
- Lenmed Bokamoso ICC
  
- WHO - Drugs and Therapeutics Committee – A Practical Guide