



Formulary Restriction

Turning evidence into practice

Anilawati Mat Jelani



Hospital Raja Perempuan Zainab II



Hospital Raja Perempuan Zainab II

- Hospital under Ministry of Health located in Kota Bharu, Kelantan, Malaysia.
- Tertiary care centre
- 920 beds
- Service – Cardiology , Infectious diseases, Gastroenterology, Respiratory , Oncology , Hematology, Nephrology & Transplant , Surgical , Urology , Orthopedics , Pediatric, Gynecology, Burn unit , ENT , Ophthalmology etc
- 5 main general medical wards , 1 HDW, 3 surgical wards , 2 orthopaedics ward , 2 ICU , 1 CCU, 1 CICU etc
- AMS team – 3 ID physicians/2 Microbiologist/2 clinical pharmacists/10 Infection Control Nurses

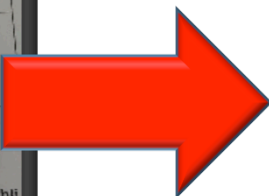
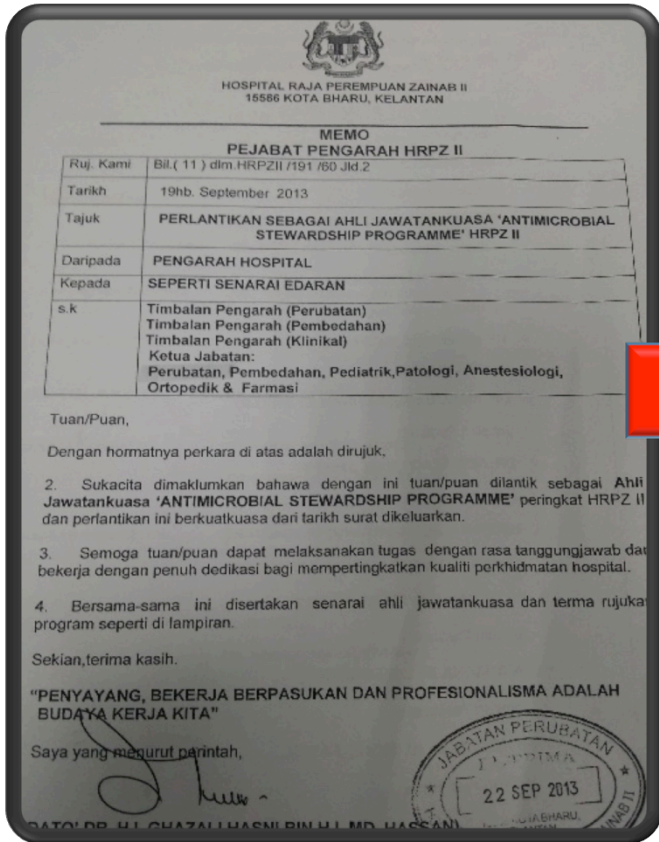


AMS

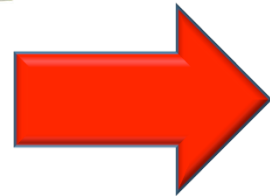
From Scratch



19th September 2013

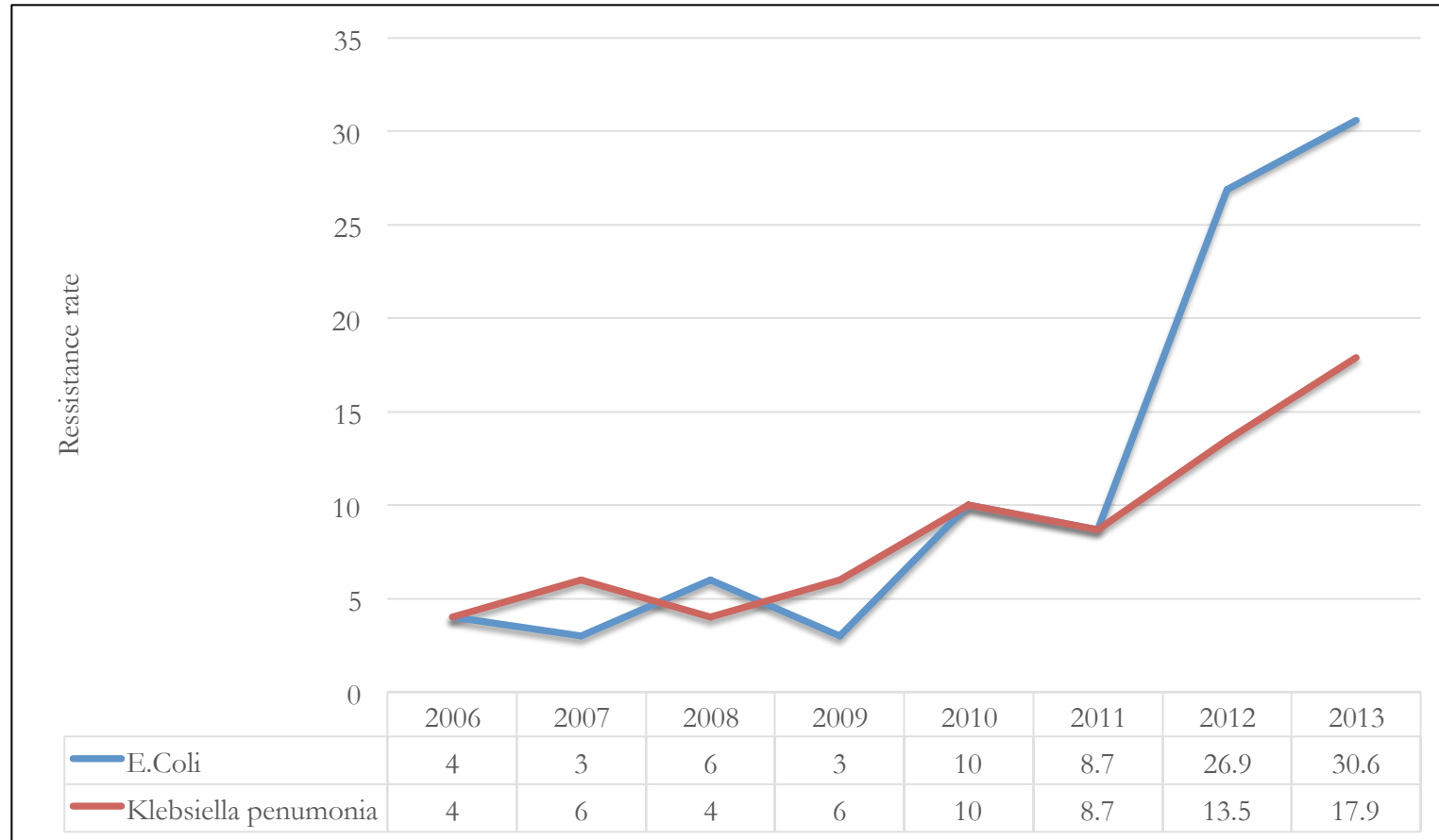


- ### EIGHT KEY STEPS for implementing an Antimicrobial Stewardship Program (ASP)
- 1 Assess the motivations
 - 2 Ensure accountability and leadership
 - 3 Set up structure and organization
 - 4 Define priorities and how to measure progress and success
 - 5 Identify effective interventions for your setting
 - 6 Identify key measurements for improvement
 - 7 Educate and Train
 - 8 Communicate



Hospital Raja Perempuan Zainab II

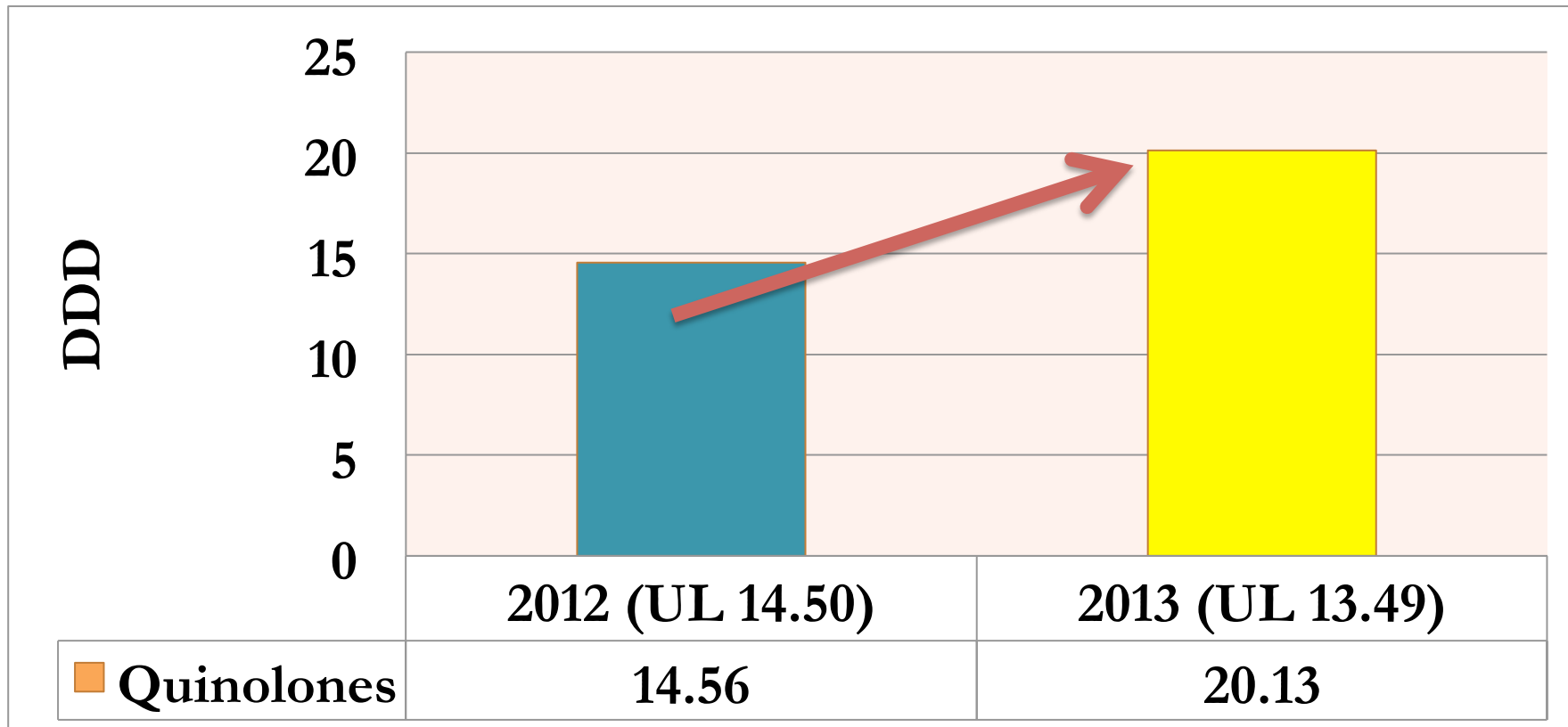
Ciprofloxacin resistance for E.Coli & Klebsiella Pneumonia 2006-2013



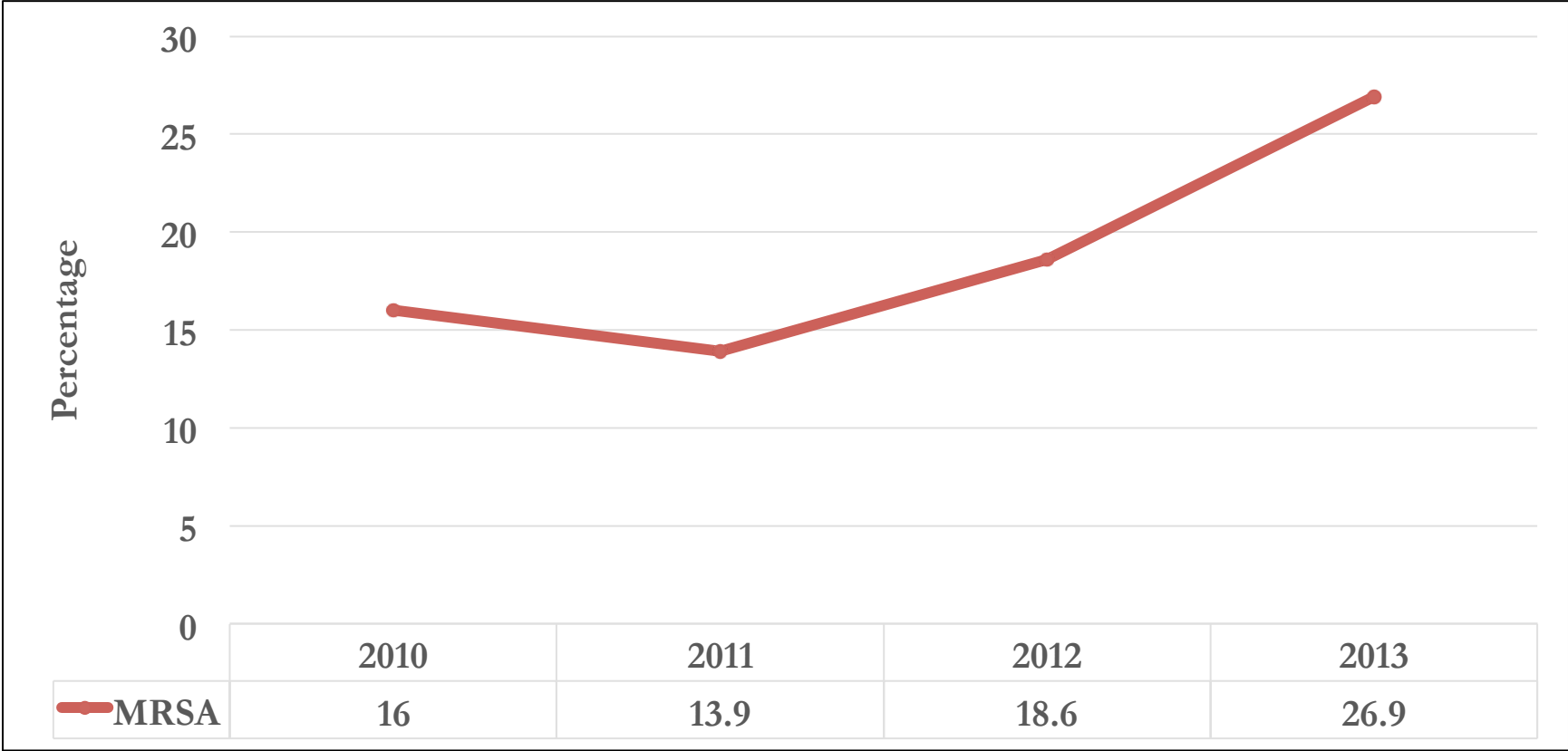
Hospital Raja Perempuan Zainab II

Source : Dr.Nurahan Maning , Dr.Azura Husin
Microbiology Unit , HRPZ II

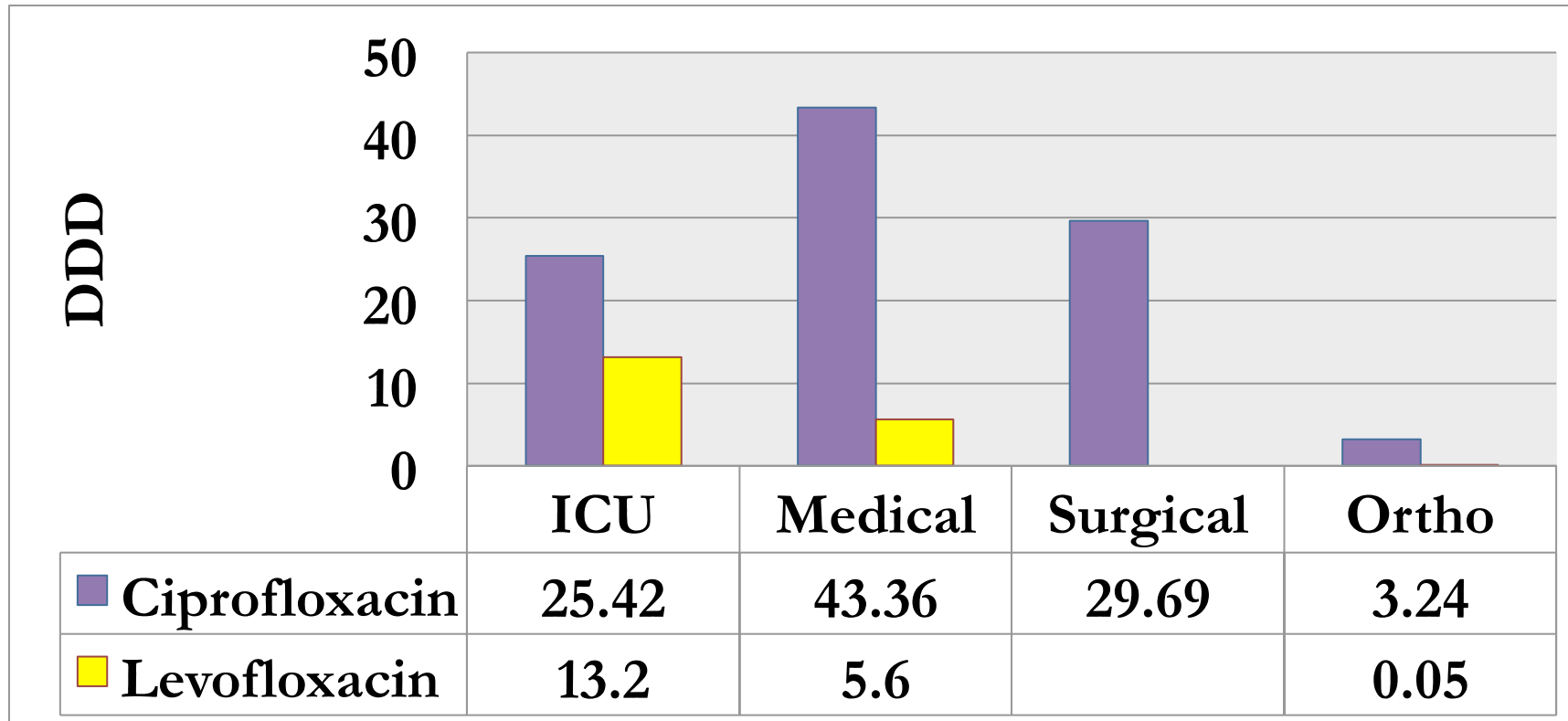
Quinolones usage pattern 2012/2013



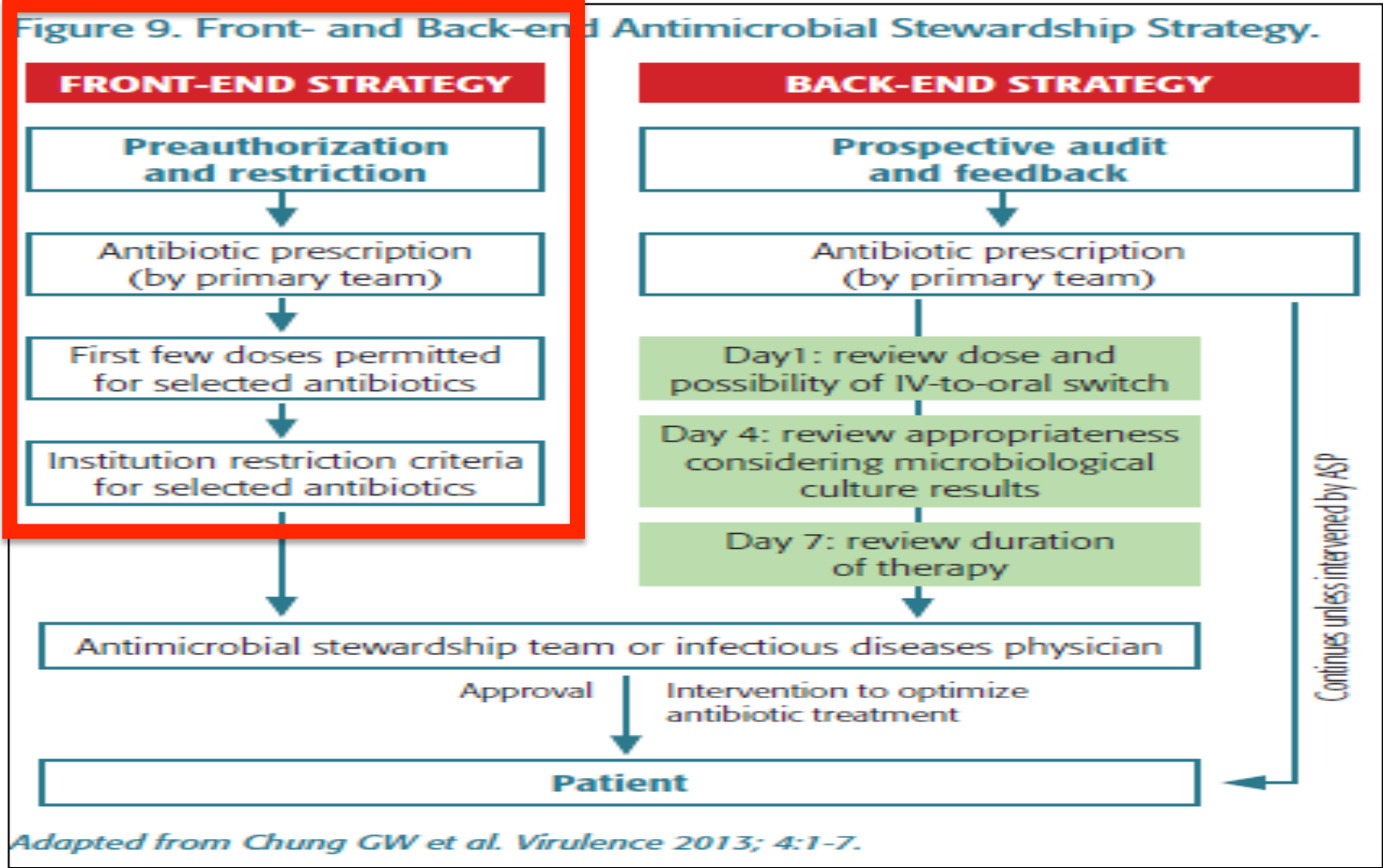
MRSA trend 2010-2013



Major department quinolones usage 2013



Which strategy fits best?



Quinolones formulary restriction and pre-authorization

- ID approval for indications other than :
 - typhoid
 - alternative anti-TB drugs
 - confirmed pseudomonas infection susceptible to quinolones
- Official letter to all HODs/head of unit by Infection Control Committee Chairman and endorsed by Hospital Director
- Selective reporting of quinolones susceptibly

MEMO UNIT KAWALAN INFEKSI

Ruj. Kami Tarikh	Bil (2) dlm ICC / HRPZ II / 2014 6hb. Januari 2014
Tajuk	UBAT DARI KUMPULAN QUINOLONES HANYA BOLEH DI PRISKRIPSI UNTUK PESAKIT MDR-TB DAN TYPHOID SAHAJA
Daripada	Jawatakuasa Kawalan Infeksi & Antibiotik HRPZ II
Kepada	SENARAI SEPERTI EDARAN
S.K	AJK Kawalan Infeksi HRPZ II

Y.Bhg Dato'/Tuan/Puan,

Dengan hormatnya perkara di atas dirujuk.

2. Untuk makluman bahawa penggunaan ubat dari kumpulan Quinolones hanya boleh di priskripsi untuk pesakit MDR-TB dan Typhoid.

3. Memandangkan peningkatan yang mendadak dalam kerintangan (resistance) terhadap bakteria gram-negatif seperti *Escherichia Coli* dan *Klebsiella pneumonia* (ESBL). Langkah-langkah kawalan infeksi perlu diambil untuk membendung daripada berlakunya peningkatan kadar multidrug resistance organism (MRO/MDR) dihospital.

4. Kerjasama daripada Y.Bhg Dato'/Tuan/Puan, amatlah diharapkan.

Sekian, terima Kasih.

" PENYAYANG, BEKERJA BEKERJA BERPASUKAN & PROFESIONALISMA ADALAH BUDAYA KERJA KITA "

Yang menjalankan tugas

.....
(DR MAHIRAN BINTI MUSTAFA)
Pakar Perunding Perubatan (Penyakit Berjangkit)
Gred Khas B
Koordinator Kawalan Infeksi & Antibiotik HRPZ II



Selective reporting of quinolones susceptibility

LABORATORY REPORT : 951600253338

	MRN	: HRPZ619270
	Age : 35 Yr	Register Date Time : 18/10/2016 1
		Sample Date Time : 18/10/2016 1
		Report Status : Final Report

: WAD MAWAR

Type : Swab - Abdomen

RESULT	UNIT	REF. RANGE
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Culture & FEME

AB Culture & FEME

1. Organism Isolated: Escherichia coli
=====

	Result	
Amoxicillin-Clav	I	
Ampicillin	R	
Cefotaxime	S	
Gentamicin	S	
Pip/Tazobactam	S	

Comment : swab from abdomen.



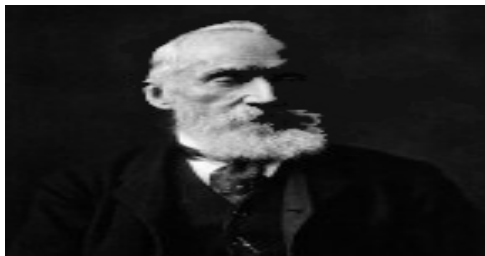
Key measurements : Process & outcome

Process measures

Did the intervention result in the desired change of antimicrobial usage

Outcome measures

Did the process implemented reduce the unintended consequence ?



"to measure is to know – if you cannot measure it, you cannot improve it"
– Lord Kelvin

Key measurements : Process & outcome

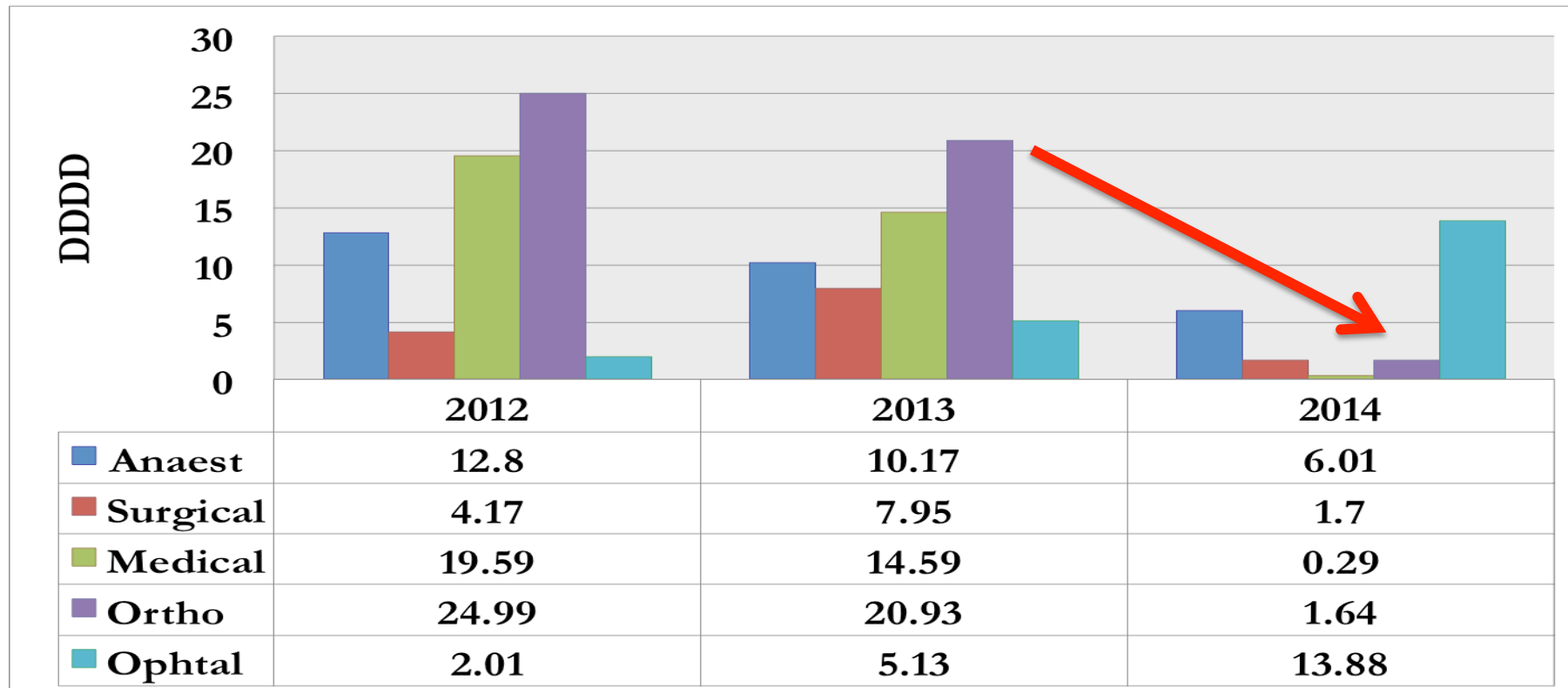
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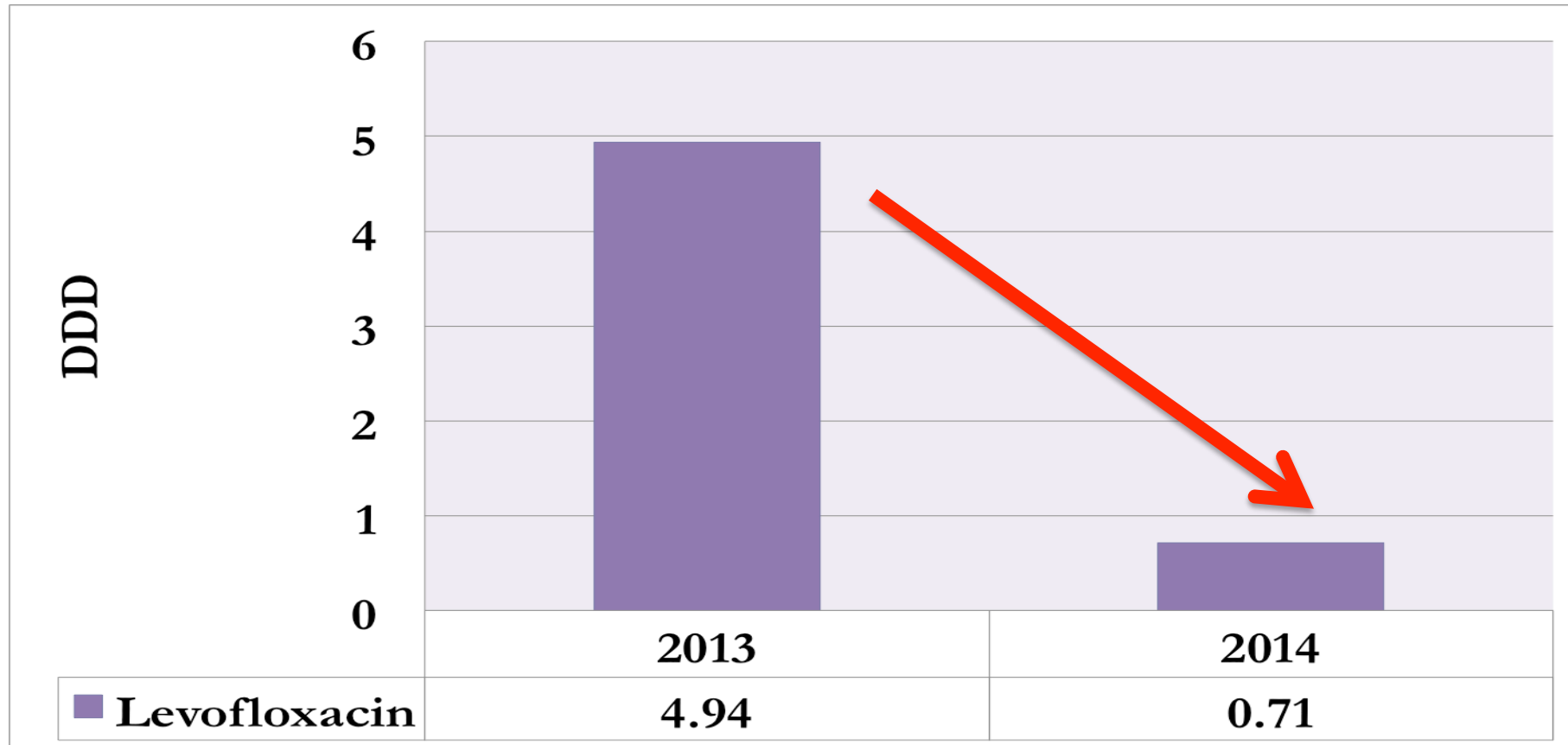


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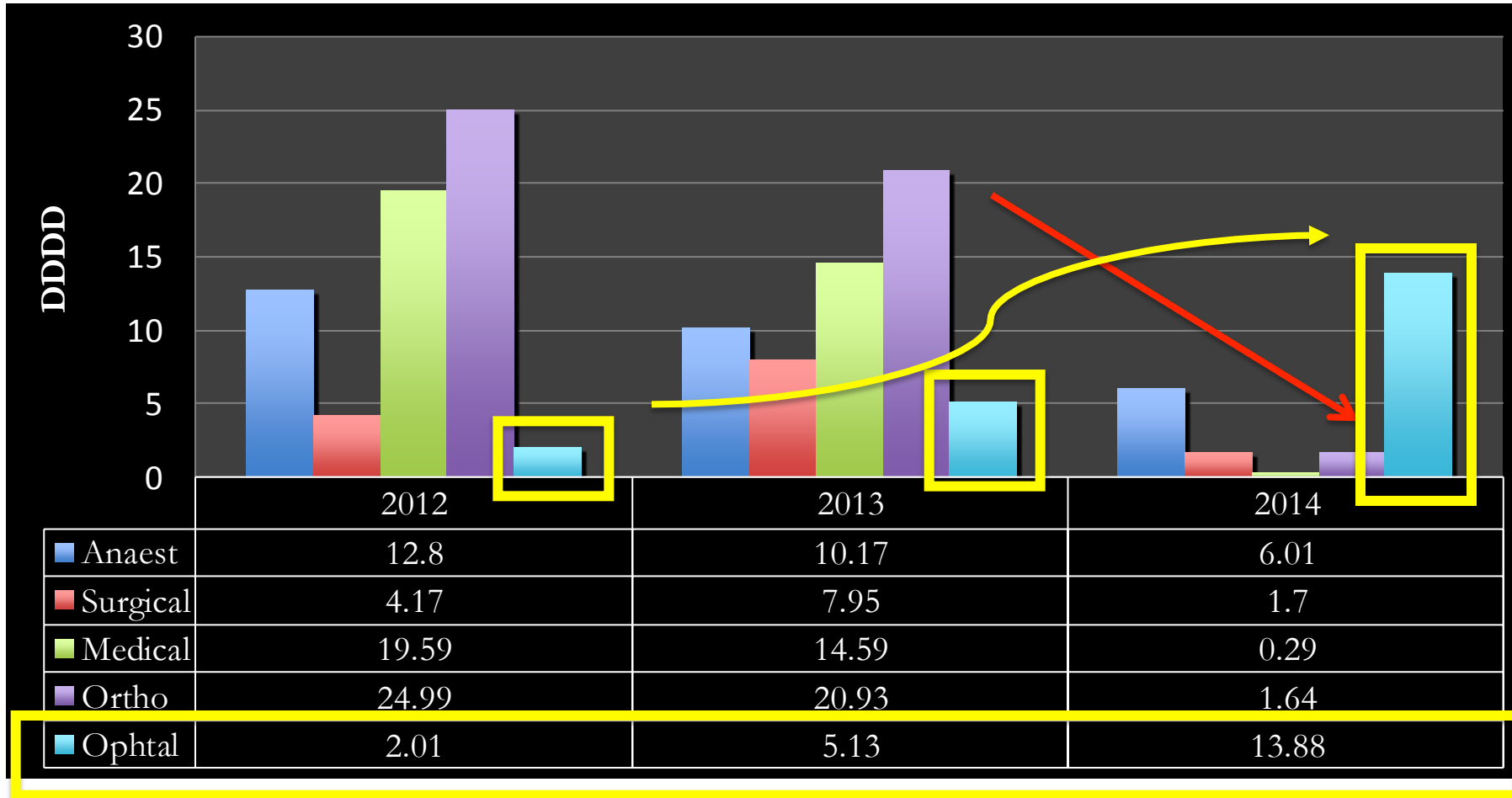
Ciprofloxacin Usage Pattern by Department 2012-2014



Levofloxacin Usage Pattern 2013-2014



Increase in ciprofloxacin usage in ophthalmology



How did we deal with this ?



Justification of use of quinolones

Reviewed all culture results from ophthalmology from Jan to April 2015

Only 2 out of 27 swabs and pus culture grew pseudomonas which justified use of quinolones

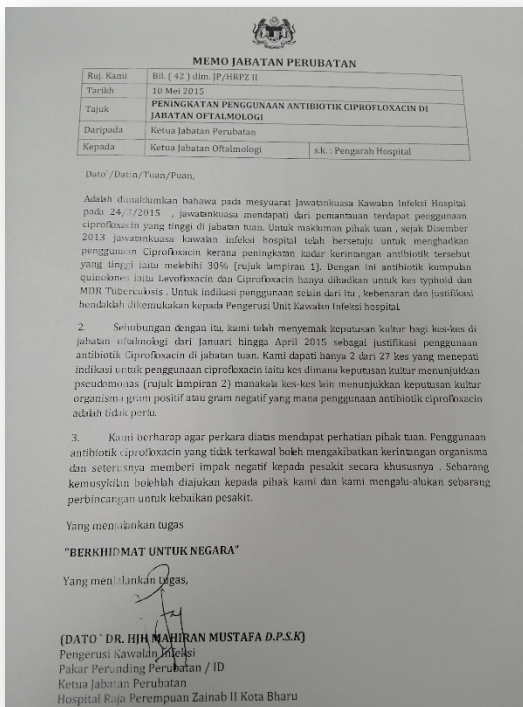
How did we deal with this ?



Justification of use of quinolones

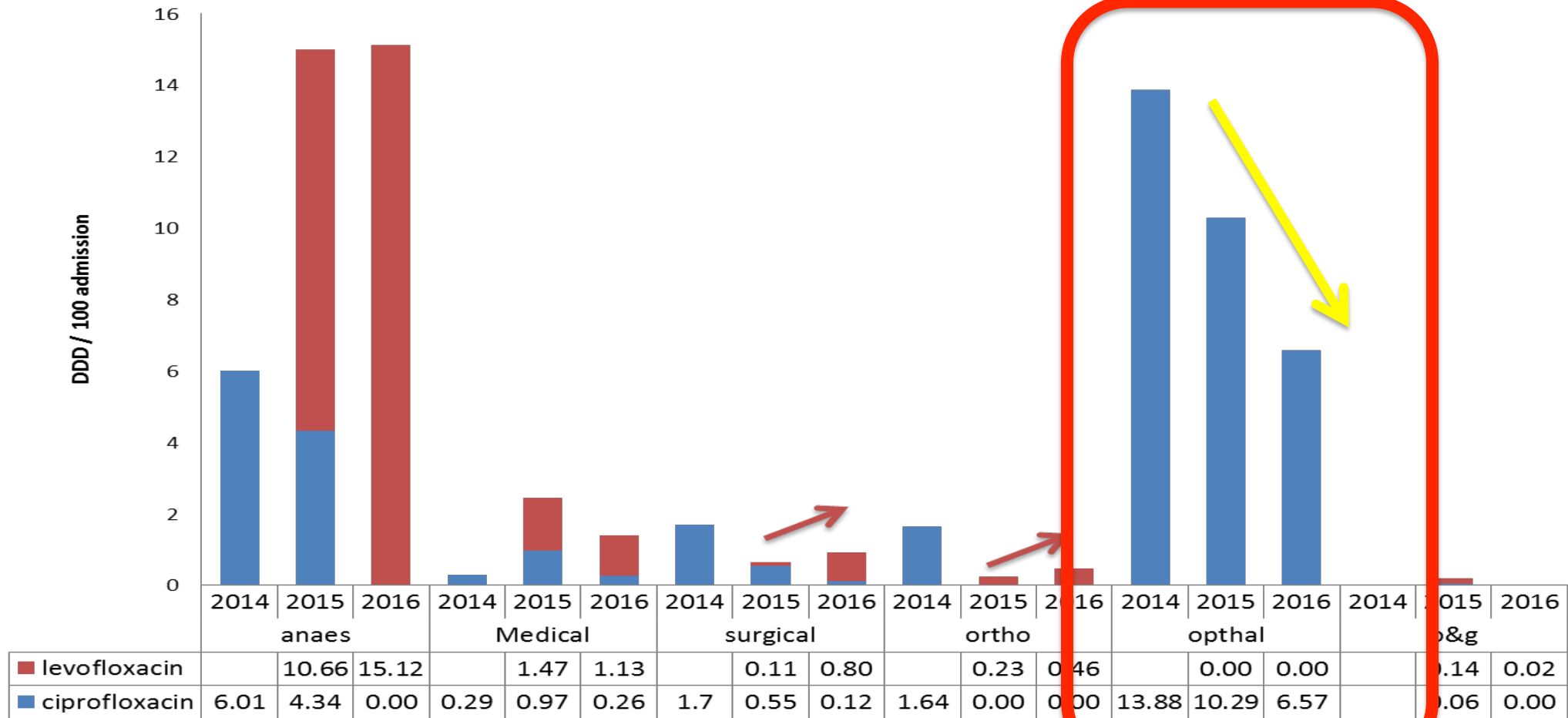
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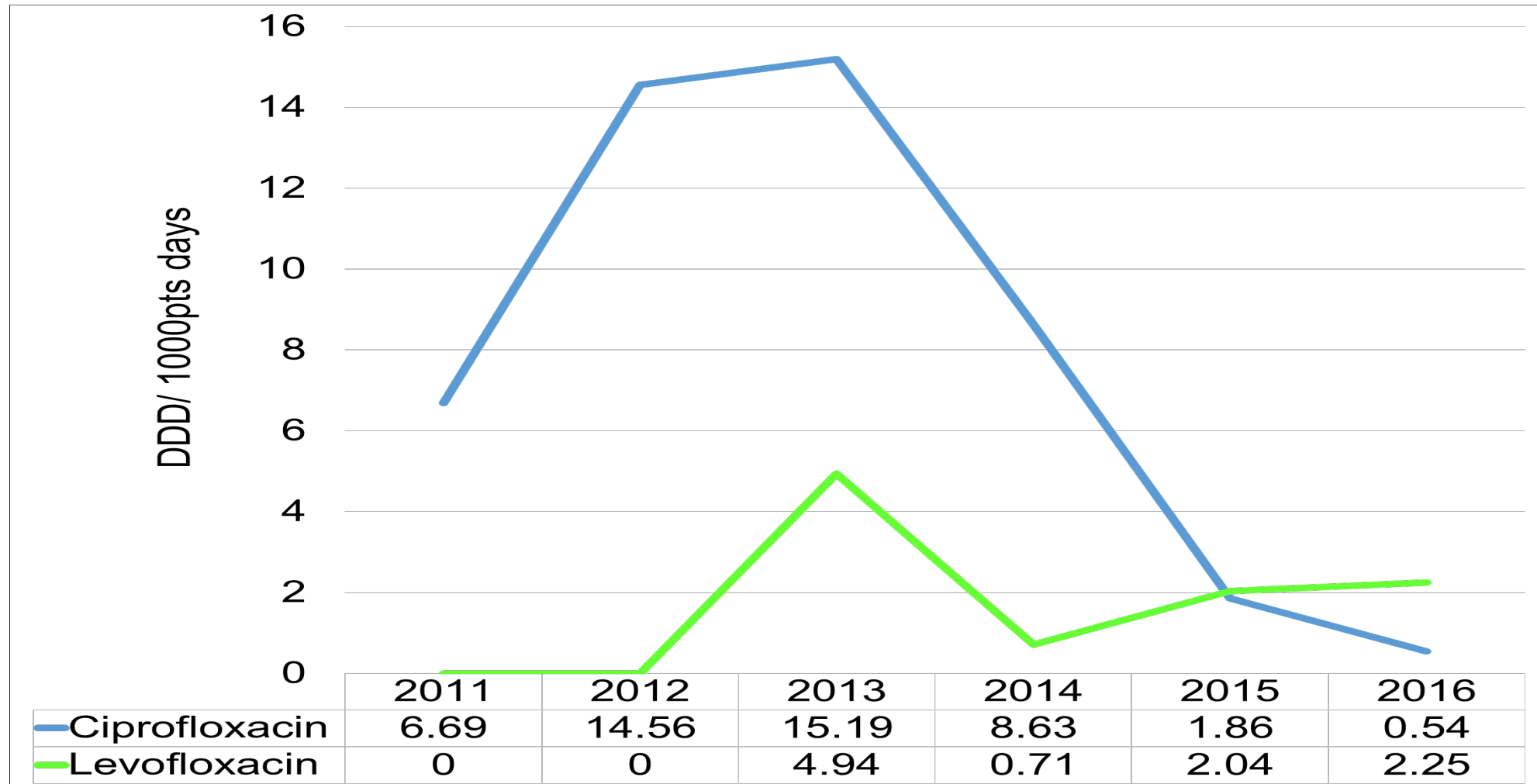


Quinolones Utilisation in HRPZ II 2014 – 2016 By Departments

Ophthalmology



Overall quinolones usage 2011-2016



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Source : Ms Hanan Hayati, Ms Nur Izzati Pharmacy Dept HRPZ II

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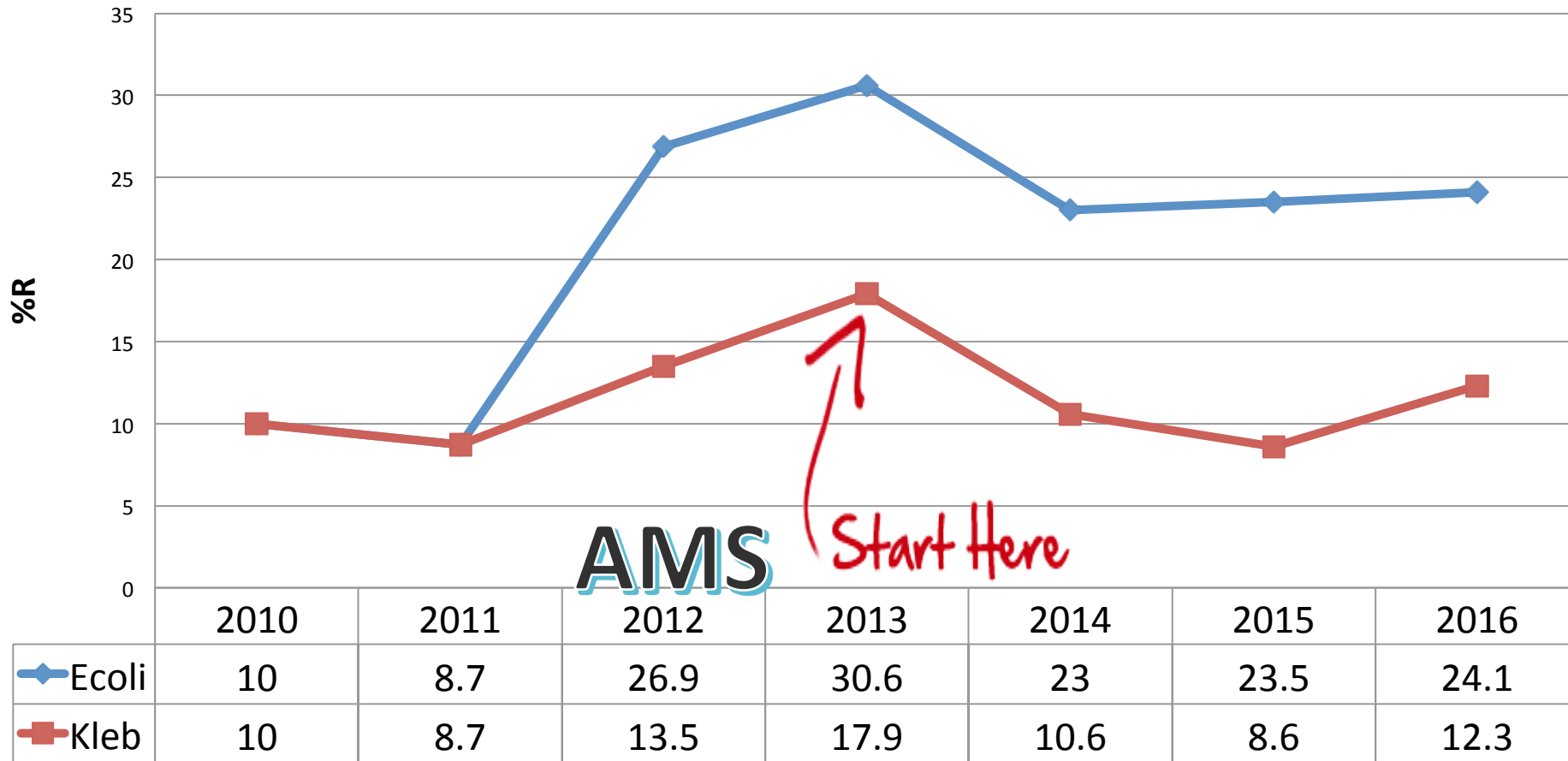
Outcome measures

Did the process
implemented reduce the
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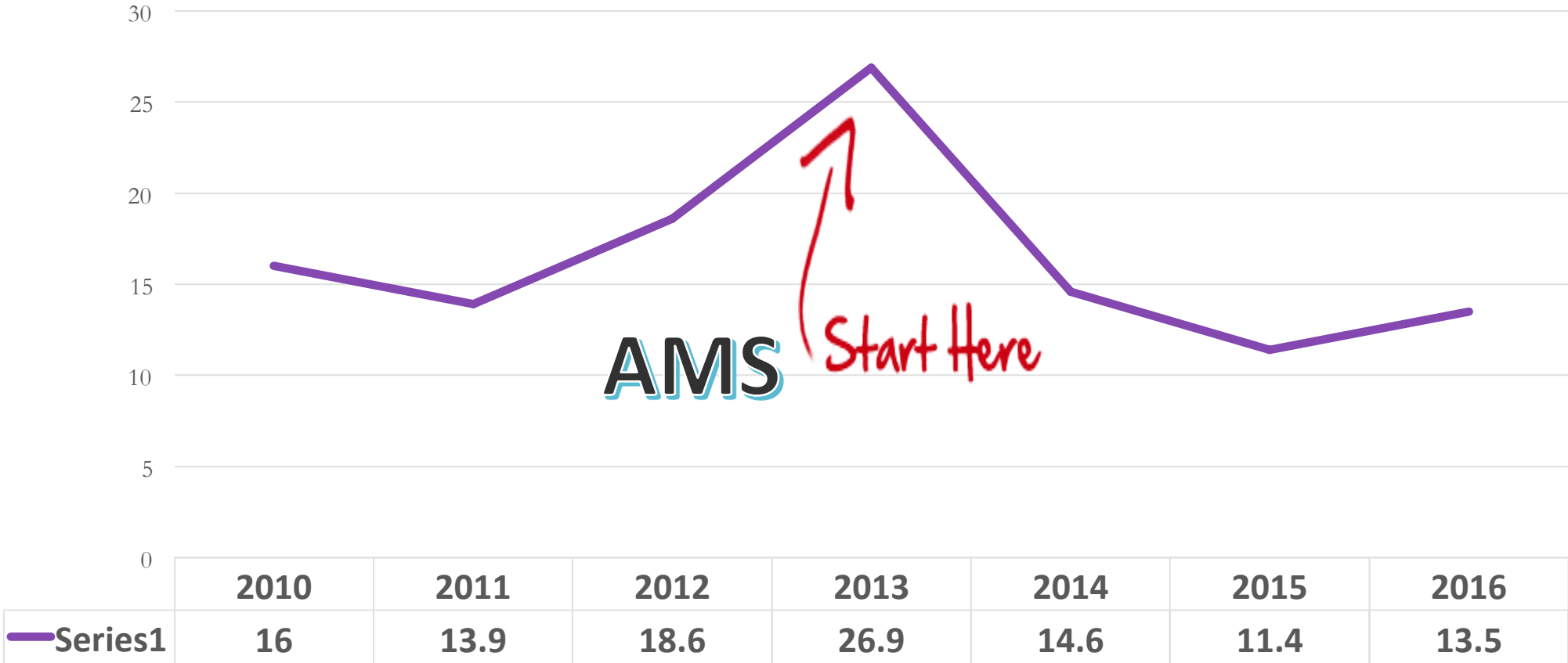


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Resistant Trend of E coli and Klebsiella sp towards Ciprofloxacin since 2010 - 2016



MRSA trend 2010 -2016



Formulary restrictions

Advantages

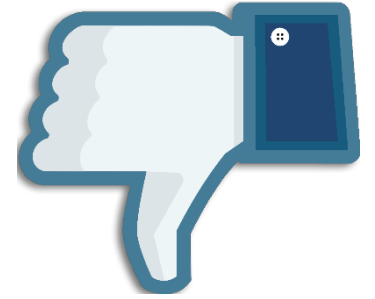


- Sends message that some antimicrobials require greater caution when prescribing.
- Provides guidelines for appropriate use antimicrobials.
- Cost savings
- Immediate and significant reductions in antimicrobial use, particularly if used with preauthorization.
- Decreased resistance rates in the restricted antibiotics in the short term
- Potential opportunity to provide prescriber education and/or recommendations for use of alternative agents or specialist consultation (if applicable).



Formulary restrictions

Disadvantages



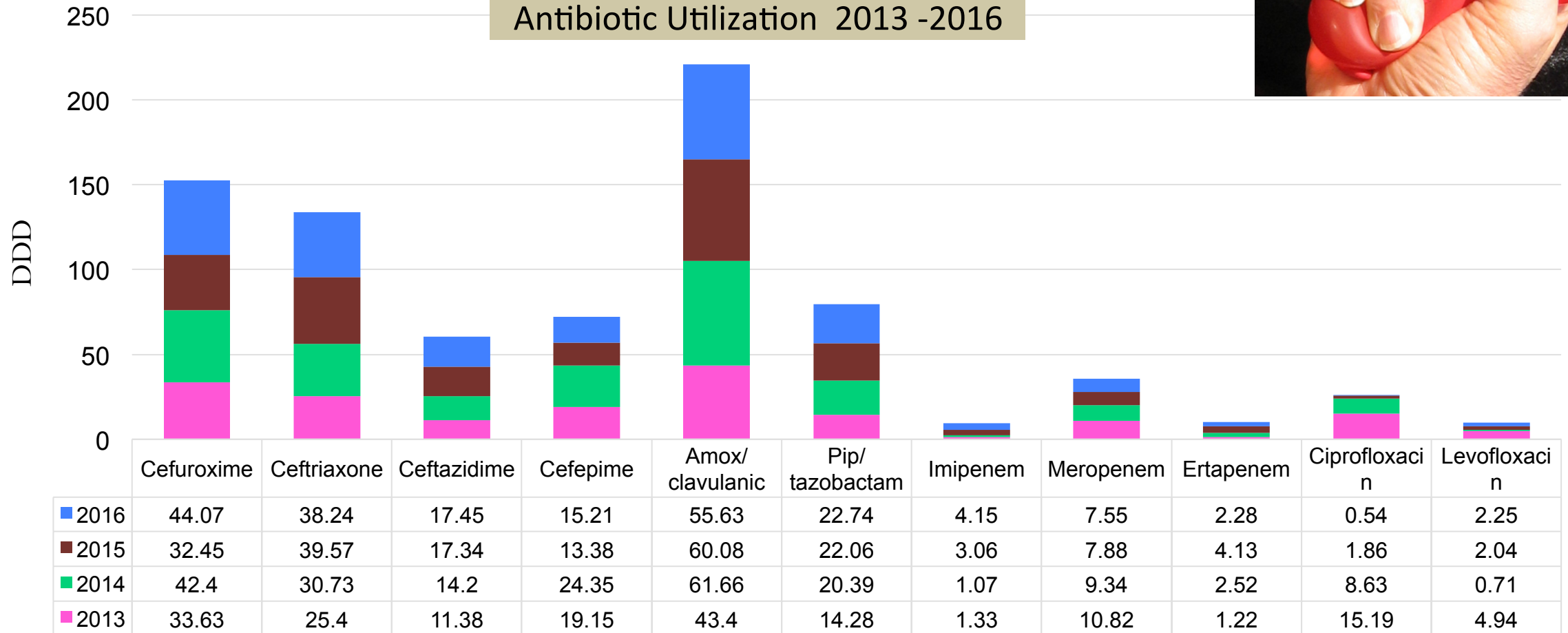
- Requires enforcement to be effective; prescribers may circumvent restrictions if there is no enforcement.
- Can lead to “squeezing the balloon,” with an increase in the use of and resistance to antimicrobial agents that are not restricted.
- Prescribers may see prescribing restrictions as a loss of autonomy.
- Delays in initiation of treatment may be a concern with preauthorization types of enforcement; this can be avoided by allowing a first dose or 24 to 72 hours of therapy before restriction is enforced.



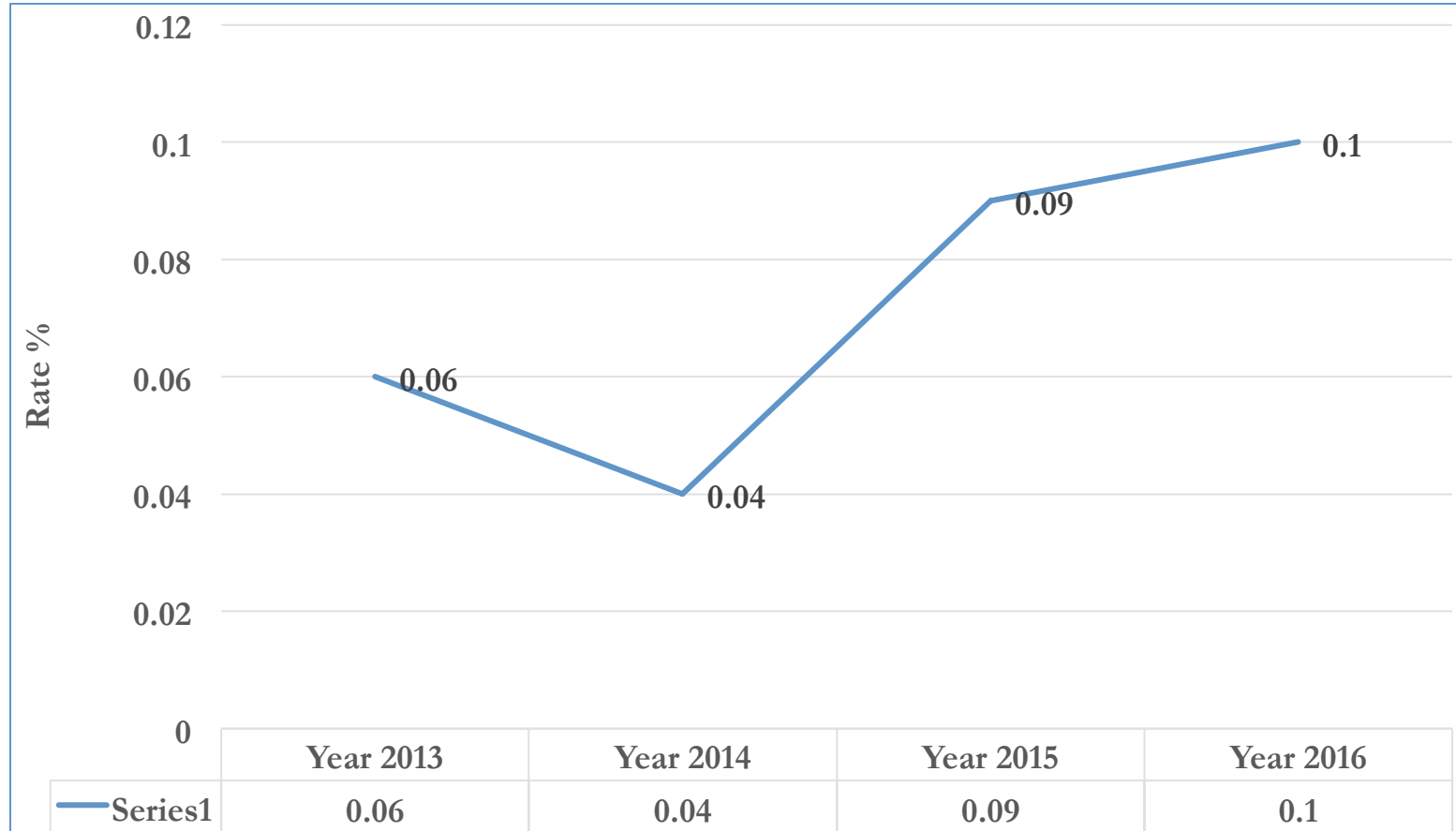
Are we “squeezing the balloon” ?



Antibiotic Utilization 2013 -2016



ESBL Rate 2013-2016



Conclusion

- Formulary restriction and preauthorization protocol has resulted in significant reduction of quinolones usage
- Decreasing trend of resistance of E. coli and Klebsiella sp isolates to quinolones was observed – sustainability ?
- Risk of trading resistance profiles with compensatory increase in the usage of other groups of antibiotics i.e ESBL

