AMS in COVID-19

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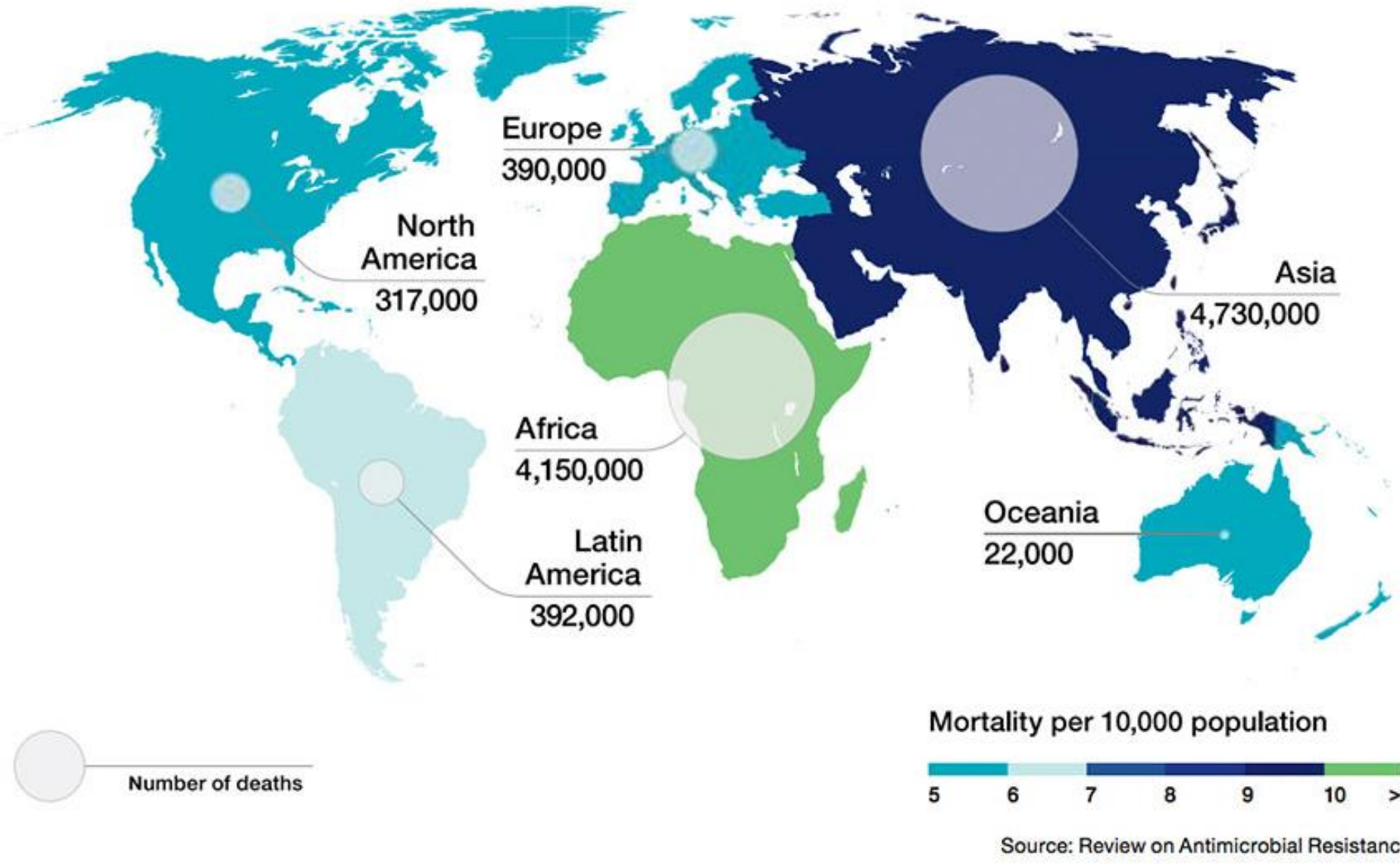
Disclosure

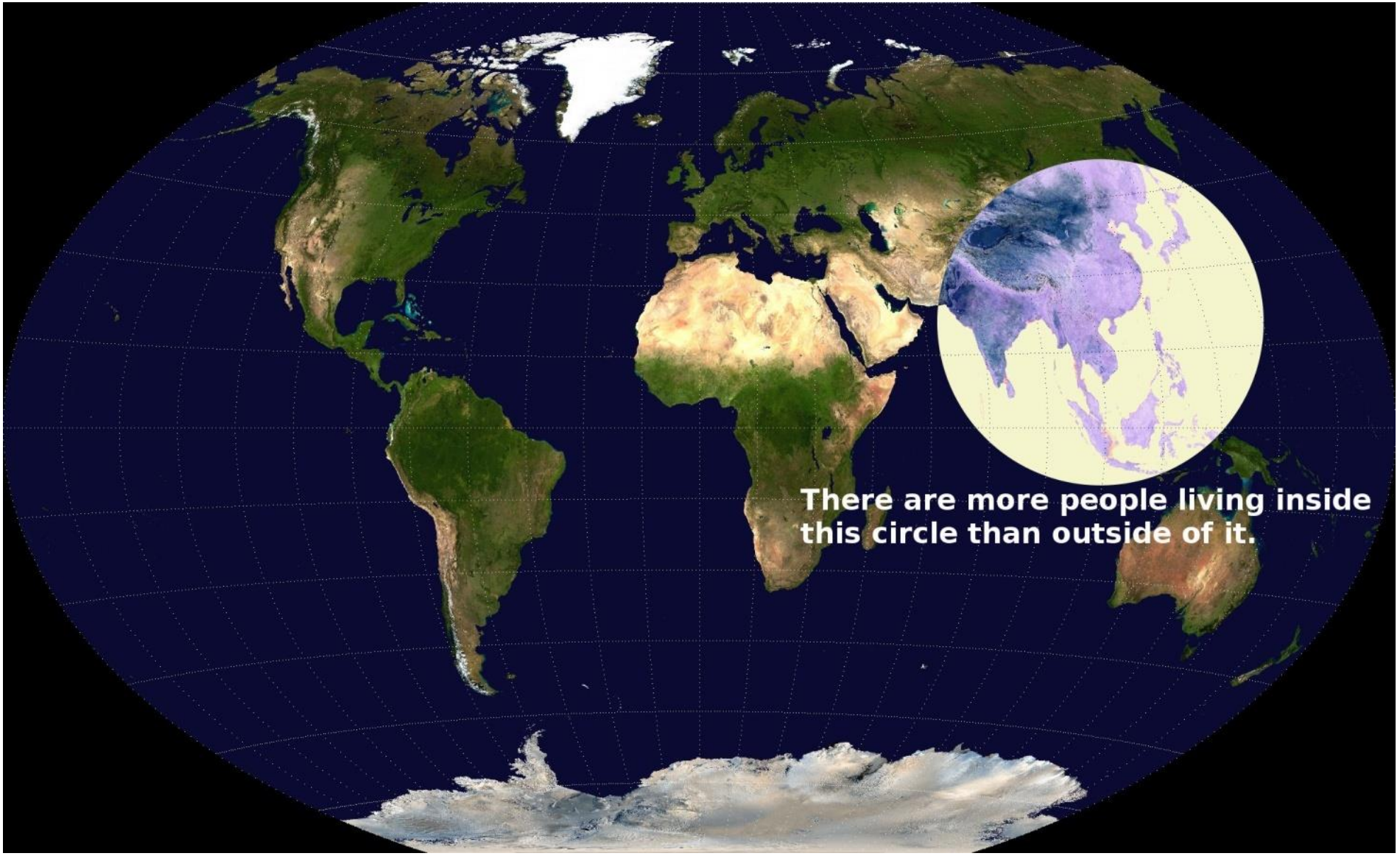
- Advisory boards, speaker fees, travel grant, research grants
- Pfizer, MSD, Sanofi, Abott, Gilead, Mylan, Cipla, Glenmark, Lupin….

- No Conflict of Interest

Deaths attributable to AMR every year by 2050



Source: Review on Antimicrobial Resistance

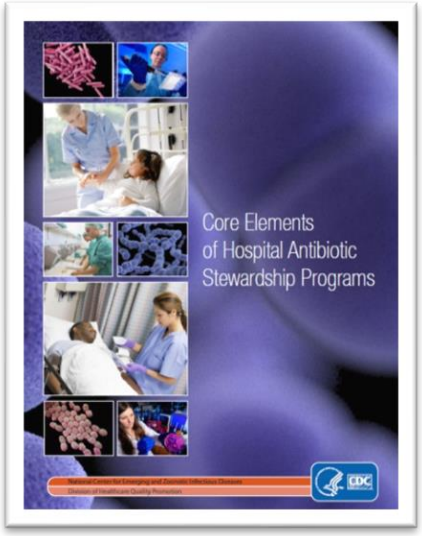

There are more people living inside
this circle than outside of it.

What is Antimicrobial Stewardship?

"Coordinated interventions designed to improve and measure the **appropriate use of antimicrobial agents** by promoting the selection of the optimal antimicrobial drug regimen including dosing, duration of therapy, and route of administration"

The Society for Healthcare Epidemiology of America (SHEA), The Infectious Diseases Society of America (IDSA) and the Pediatric Infectious Diseases Society (PIDS)

Policy Statement on Antimicrobial Stewardship, April 2012



CDC's 7 Core Elements of Antibiotic Stewardship

Leadership commitment
Demonstrate support and commitment to safe and appropriate antibiotic use in your facility

Accountability
Identify physician, nursing and pharmacy leads responsible for promoting and overseeing antibiotic stewardship activities in your facility

Drug expertise
Establish access to consultant pharmacists or other individuals with experience or training in antibiotic stewardship for your facility

Action
Implement **at least one** policy or practice to improve antibiotic use

Tracking
Monitor **at least one process** measure of antibiotic use and **at least one outcome** from antibiotic use in your facility

Reporting
Provide regular feedback on antibiotic use and resistance to prescribing clinicians, nursing staff and other relevant staff

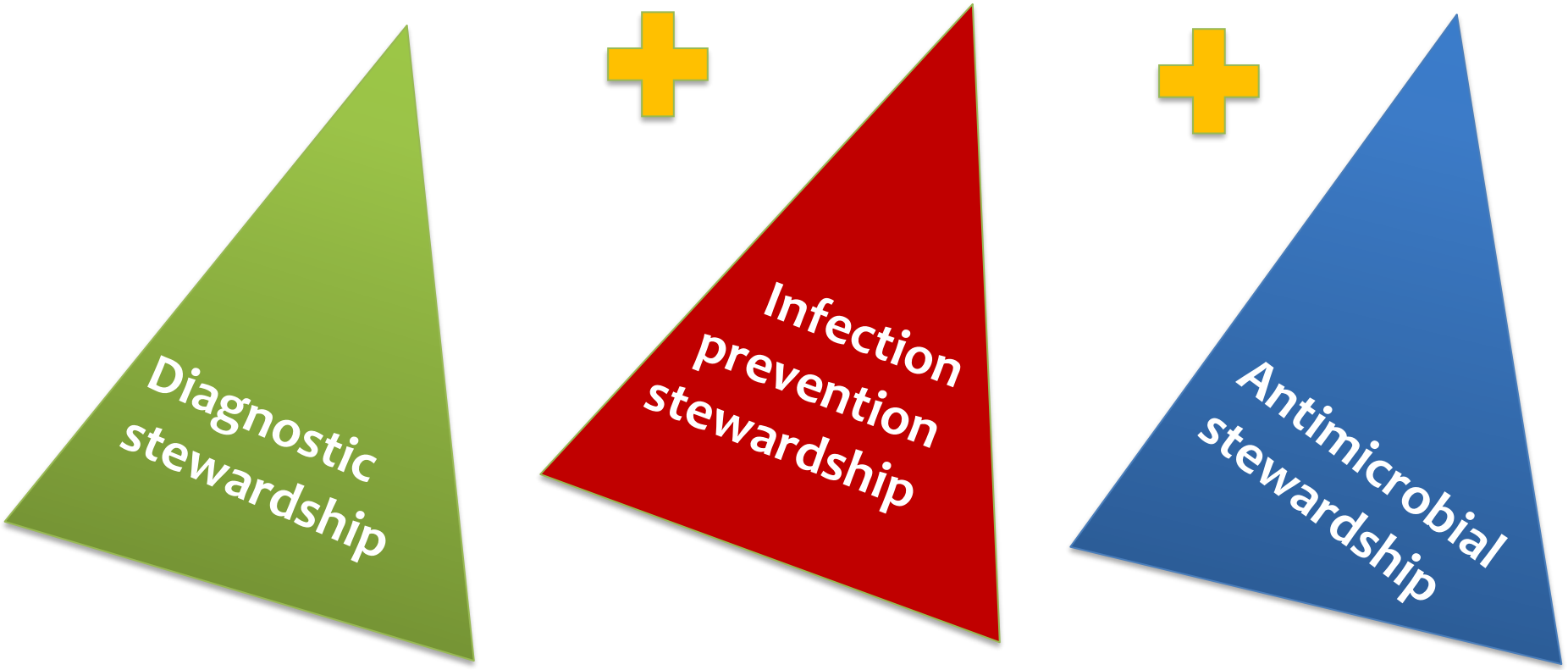
Education
Provide resources to clinicians, nursing staff, residents and families about antibiotic resistance and opportunities for improving antibiotic use

Obtained from:
https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html

ASP team - Roles and Responsibilities

- Physician leader with ID training
- Co-led by Pharmacist leader with ID training
- Clinicians and HODs: Prescriber led
- Infection preventionists or hospital epidemiologists – Monitor, audit, analyze and report facility wide data
- Quality management staff
- Microbiology lab: Antibiograms
- IT staff: integrate ASP protocols into existing workflow
- Nurses: ensure pre-antibiotic cultures

Integrated approach



Courtesy Dr Balaji V, CMC

Diagnosis

- Standardizing Microbiology Labs
- POC tests
- Rapid tests
- Reporting cultures (restricting antibiotics)

- Investing in Diagnostics

Processes & Protocols

- Compile hospital data on HAI
- List the pathogens
- Antimicrobial susceptibility (most susceptible to least susceptible) – Antibiogram
- Create a Hospital Antibiotic Policy
- No antibiotics based on Western Guidelines

MICROBIOLOGY DEPARTMENT

ANTIBIOTIC SUSCEPTIBILITY PATTERN (%)

(Oct to Dec - 2016)

Antibiotics (%) / Organisms	Penicillin	Erythromycin	Clindamycin	Vancomycin	Oxacillin	Amikacin	Cefotaxime	Ceftazidime	Ciprofloxacin	Cefipime	Cefaperazone+ Sulbactum	Piperacillin+ Tazobactum	Imipenem	Meropenem	Ertapenem	Doripenem	Colistin	Tigecycline
Staphylococcus	8.7	59.1 %	96.3	-	73.7	-	-	-	-	-		-	-	-	-	-	-	
Enterococci	73.2	-	-	98.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E.coli	-	-	-	-	-	93.7	32.7	-	30.1	47.7	80.2	71.2	92.3	92.3	91.8	92.3	100	99.8
Klebsiella	-	-	-	-	-	68.2	42.5	-	47.0	51.4	59.4	55.5	68.2	68.2	66.3	68.2	99.1	82.0
Pseudomonas aeruginosa	-	-	-	-	-	82.8	-	79.5	66.9	82.1	76.4	89.4	78.8	78.8	-	84.1	100	-
Acinetobacter	-	-	-	-	-	33.5	-	23.7	28.9	31.6	33.3	30.3	31.6	31.6	-	31.6	100	86.6

ESBL : **E.coli : 67.3%**

Klebsiella : 57.5%

MRSA : 26.3%

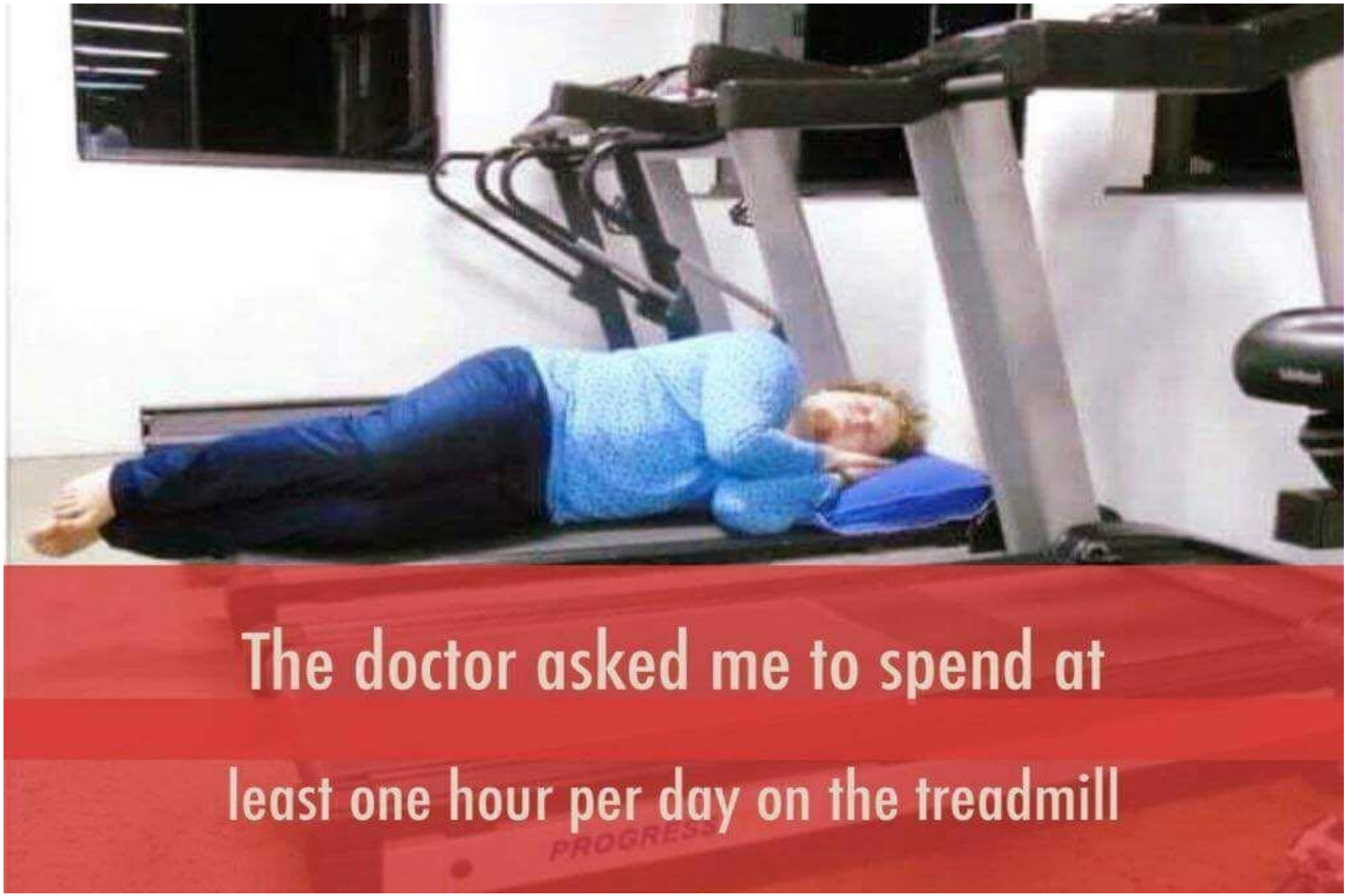
VRE : 1.8%

Carbapenamase: **E.coli : 7.7%**

Klebsiella : 31.8%

H. Thirunavukkarasu

Choosing & interpreting diagnostic tests



Awareness about diagnostic tests

- Timing
- Choice of samples – Urine, ET secretions, Ulcer swabs, Mantoux & TB Gold tests
- Serological tests
- Blood cultures
- Follow-up cultures

Empiric antibiotic selection

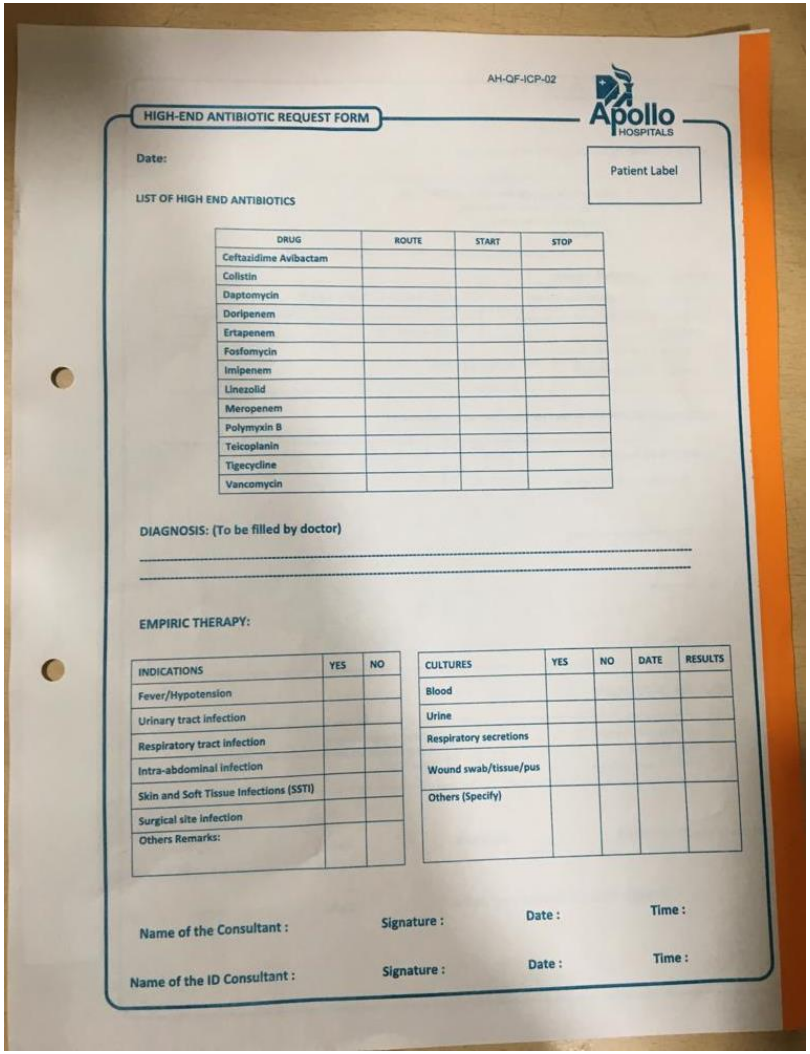
- No magic bullet
- Each ID problem has two components:
  - What is the syndrome?
  - What is the microbial etiology?
- Decide the syndrome - then choice becomes easier
- Know your local sensitivities

Empiric therapy for nosocomial infections

Fever in a Hospitalized patient

- Always decide on the syndrome before looking at the culture report
- Distinguish colonization from infection
- **Know local patterns of resistance**
- Start empiric antibiotics only
  - if source clear
  - patient in severe sepsis
- Follow Hospital Antibiotic Policy

Formulary Restriction: Autonomy



AH-QF-ICP-02

Apollo HOSPITALS

HIGH-END ANTIBIOTIC REQUEST FORM

Date:

Patient Label

LIST OF HIGH END ANTIBIOTICS

DRUG	ROUTE	START	STOP
Ceftazidime Avibactam			
Colistin			
Daptomycin			
Doripenem			
Ertapenem			
Fosfomycin			
Imipenem			
Linezolid			
Meropenem			
Polymyxin B			
Teicoplanin			
Tigecycline			
Vancomycin			

DIAGNOSIS: (To be filled by doctor)

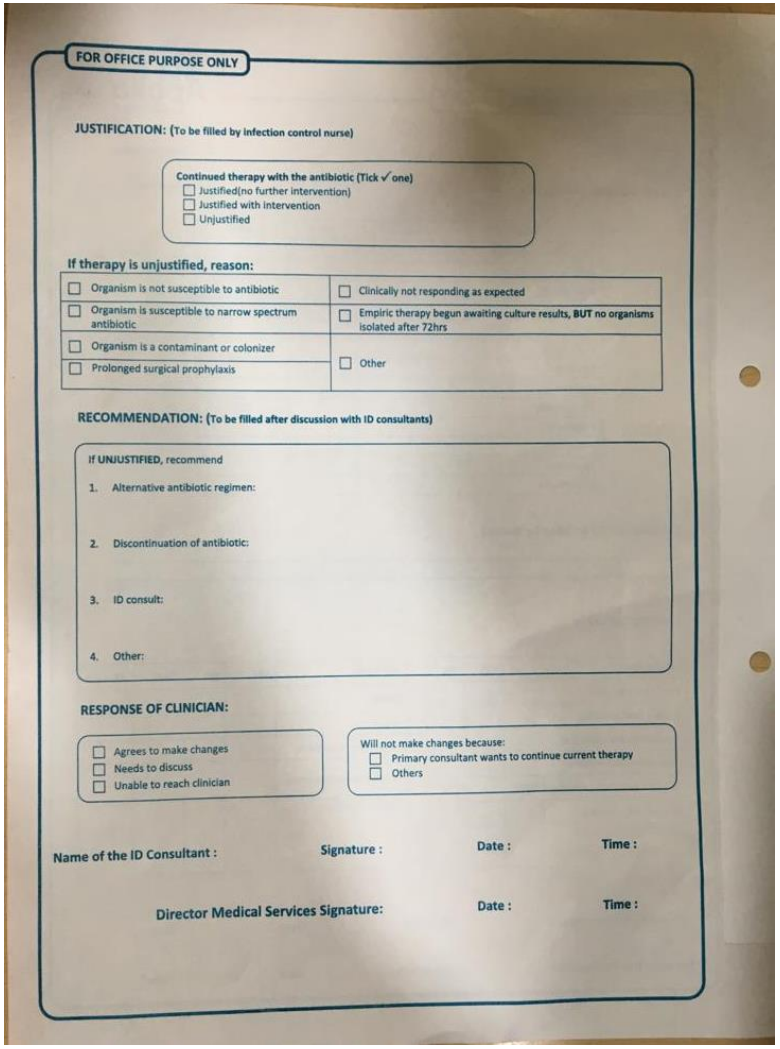
EMPIRIC THERAPY:

INDICATIONS	YES	NO
Fever/Hypotension		
Urinary tract infection		
Respiratory tract infection		
Intra-abdominal infection		
Skin and Soft Tissue Infections (SSTI)		
Surgical site infection		
Others Remarks:		

CULTURES	YES	NO	DATE	RESULTS
Blood				
Urine				
Respiratory secretions				
Wound swab/tissue/pus				
Others (Specify)				

Name of the Consultant : Signature : Date : Time :

Name of the ID Consultant : Signature : Date : Time :



FOR OFFICE PURPOSE ONLY

JUSTIFICATION: (To be filled by infection control nurse)

Continued therapy with the antibiotic (Tick ✓ one)
- ☐ Justified(no further intervention)
- ☐ Justified with intervention
- ☐ Unjustified

If therapy is unjustified, reason:

☐ Organism is not susceptible to antibiotic	☐ Clinically not responding as expected
☐ Organism is susceptible to narrow spectrum antibiotic	☐ Empiric therapy begun awaiting culture results, **BUT** no organisms isolated after 72hrs
☐ Organism is a contaminant or colonizer	☐ Other
☐ Prolonged surgical prophylaxis	

RECOMMENDATION: (To be filled after discussion with ID consultants)

If **UNJUSTIFIED**, recommend

1. Alternative antibiotic regimen:
2. Discontinuation of antibiotic:
3. ID consult:
4. Other:

RESPONSE OF CLINICIAN:

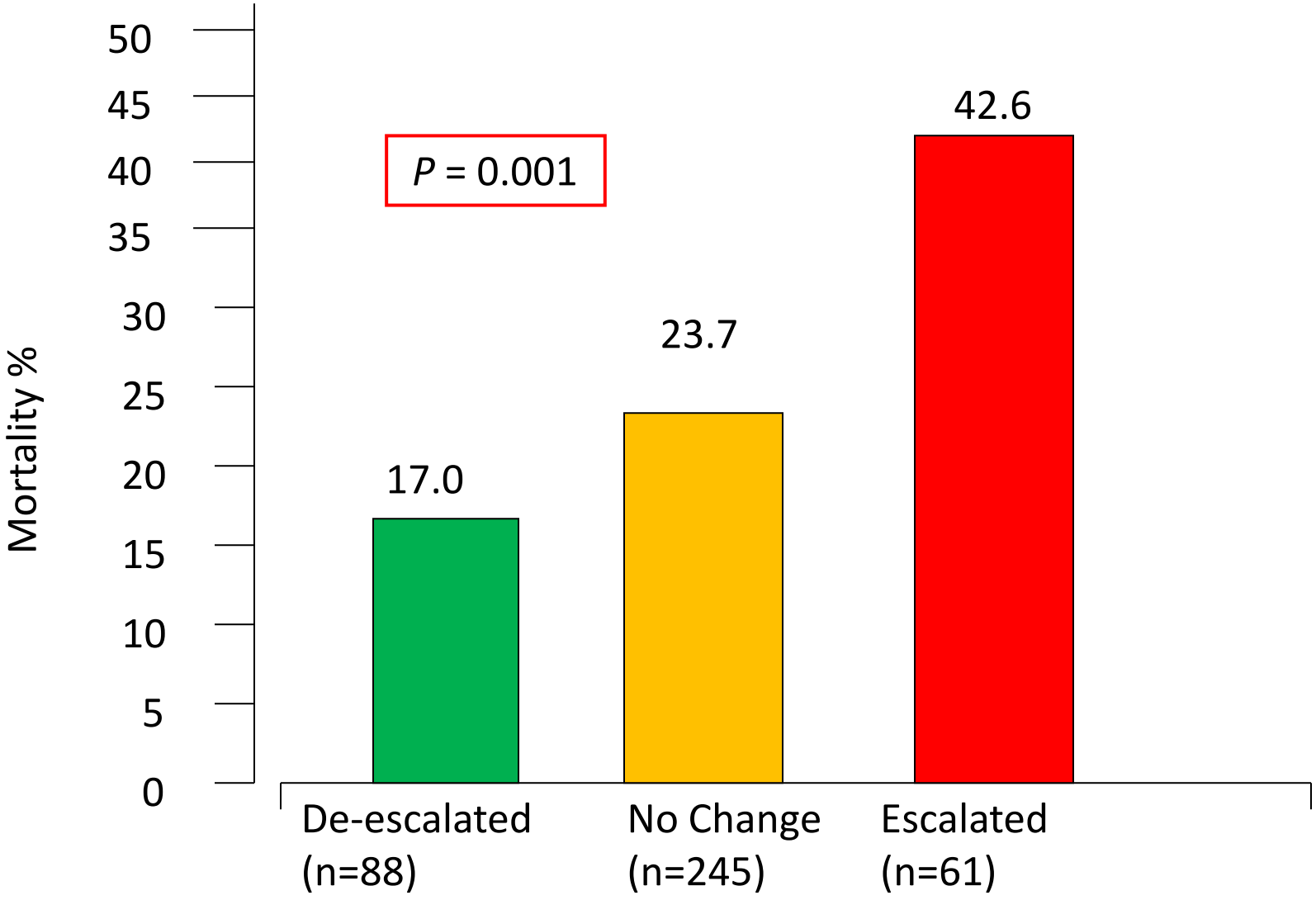
- ☐ Agrees to make changes
- ☐ Needs to discuss
- ☐ Unable to reach clinician

Will not make changes because:
- ☐ Primary consultant wants to continue current therapy
- ☐ Others

Name of the ID Consultant : Signature : Date : Time :

Director Medical Services Signature: Date : Time :

Low Hanging Fruits: De-escalation



Kollef MH et al. Chest 2006;129:1210-1218

Antibiotic course: shorter the better

- CAP: 5 days
- VAP: 7-8 days
- Non-fermenter VAP: 10-14 days
- AECOPD: 5d
- Sinusitis: 5d
- Cellulitis: 5d
- Pyelonephritis: 14 days (7 days if cipro sensitive)
- Pneumococcal meningitis: 10 days

Clinical Infectious Diseases *2011;**52,** Issue**10**: 1232-1240*
Lancet 2012 Jun 21; [e-pub ahead of print]. (http://viajwat.ch/KDlsAF)
Slide Courtesy Dr Ram Gopalakrishnan

Prophylactic Therapy

- Surgical prophylaxis - Choice
  Timing
  Duration
- ICU
- COVID
- PUO

Facilitation – Antibiotic nurse

- Audit use of antibiotics
- Monitor high-end antibiotic use
- Monitor justifications
- Inform consultants on high-end antibiotic restrictions after 72h
- Dialogue with consultants
- Monitor surgical antimicrobial prophylaxis
- Feedback to doctors on antibiotic use and compliance

Interact

Adopting Infection Control

Innovate

- Limit surgical prophylaxis to 24 hrs
- Avoid “prophylactic” antibiotics
- Send cultures before starting antibiotics
- Avoid empiric antibiotics for fever in the hemodynamically stable patient
- Use biomarkers to guide therapy
- Select empiric therapy based on guidelines
- Avoid combination therapy
- De-escalate
- Limit duration of therapy