

UAE National AMR Action Plan

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AMR and the SDGs

GLOBAL A failure to address the problem of antibiotic resistance could result in:



10m
deaths
by 2050

Costing
£66
trillion



AMR strikes hardest on the Poor-treatment of resistant infections is more expensive



Untreatable infections in animals threatens sustainable food production for our growing population.



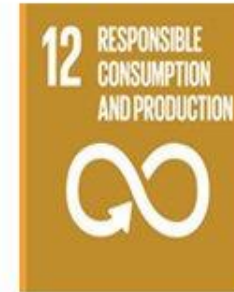
Antimicrobials are fundamental components of all health systems



Antibiotic residues from hospitals, Pharma companies and agriculture contaminates water



Cost of AMR is predicted to be US \$100 trillion by 2050



It's crucial to balance access, innovation, conservation of antimicrobials to contain AMR.



All of which require multi-stakeholder partnership

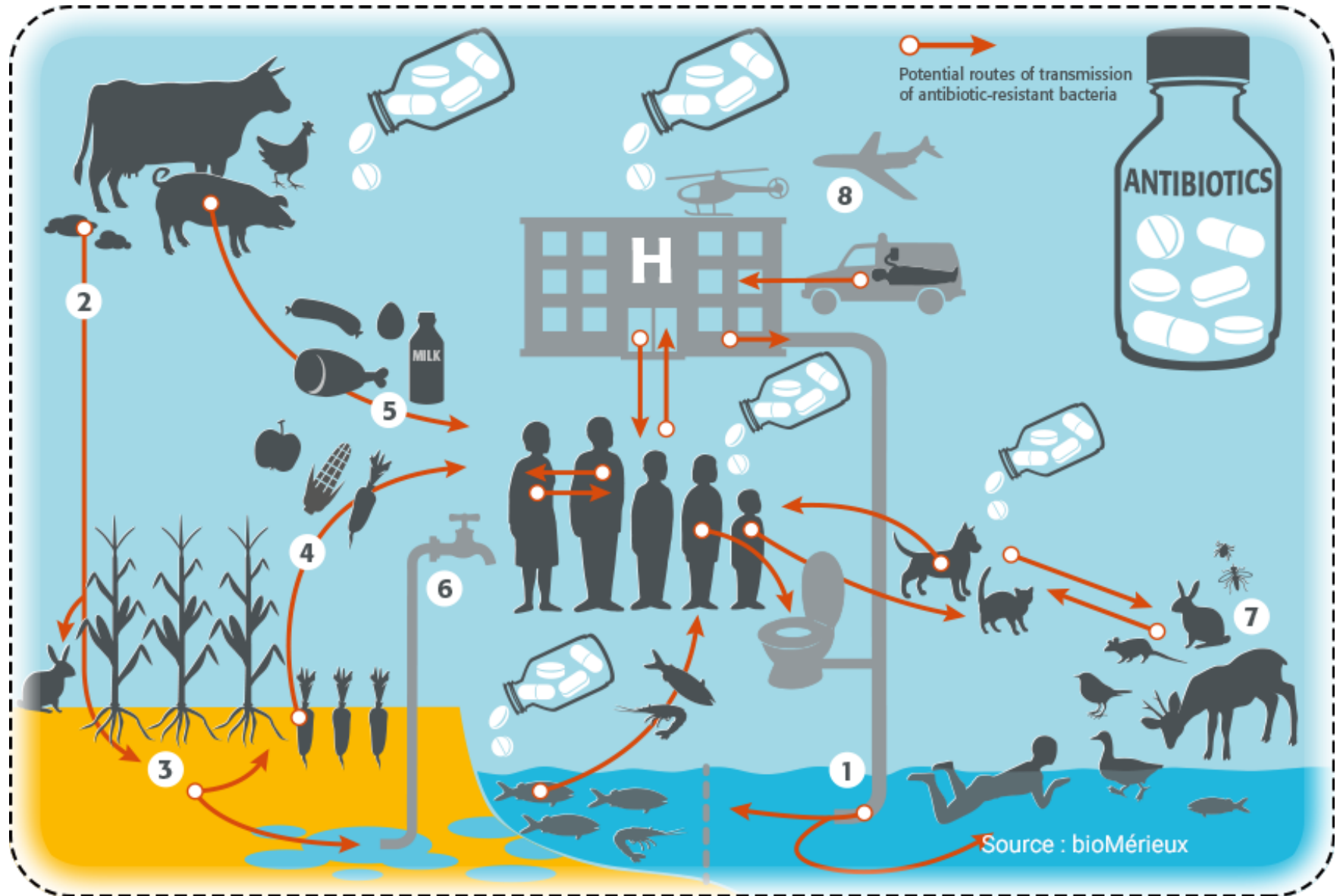


World Health Organization

Source: WHO

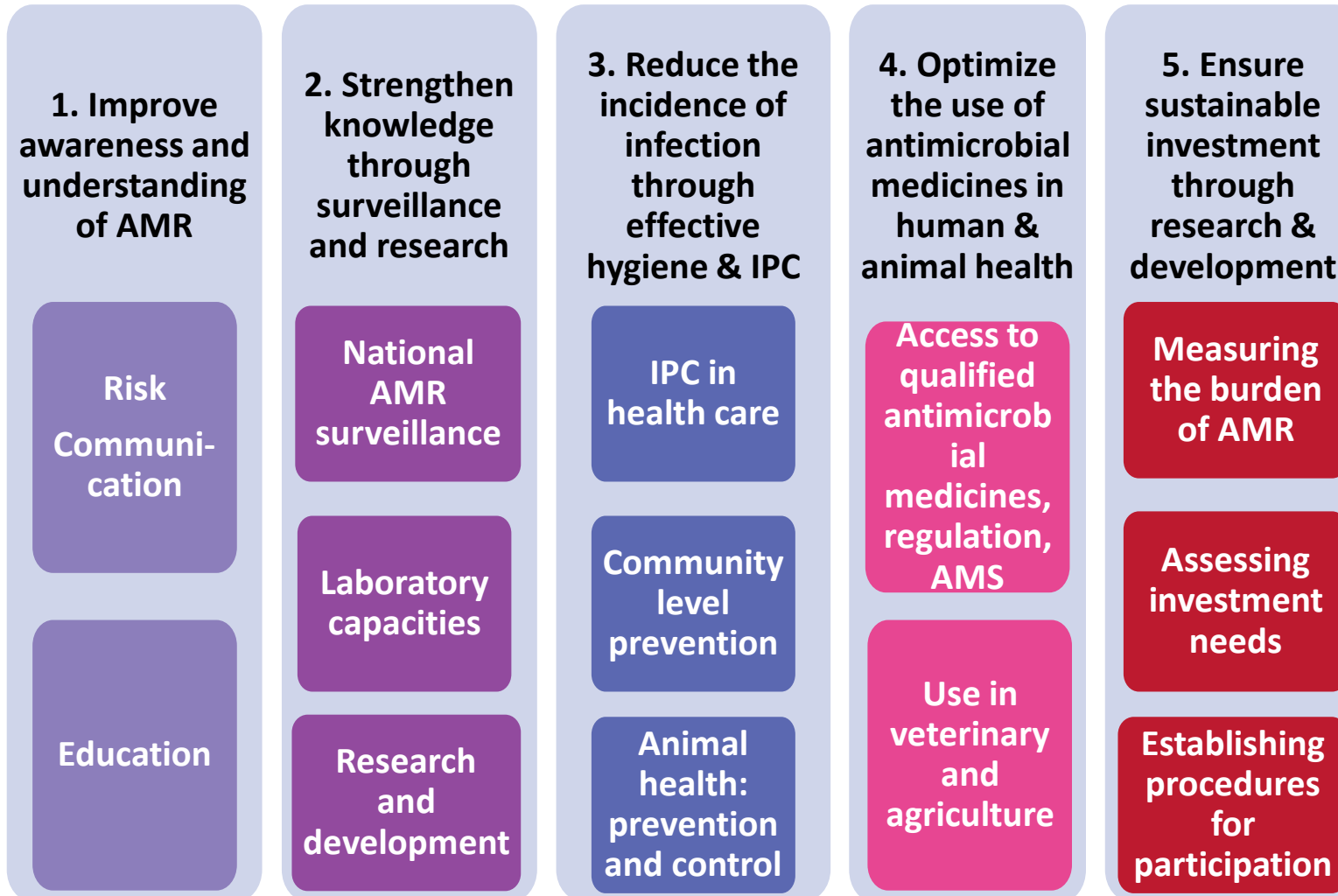
pathways of transmission of resistant bacteria between animals, humans and the environment

1. water sanitation systems
 - 2&3. use of animal manure on cultivated crops
 - 4&5. Uptake and spread of resistant bacteria can occur through the food chain
 6. water distribution infrastructure
 7. wildlife
 8. tourism, migration and food imports
- (HAIs)** At the healthcare facility level, resistant bacteria can spread by contact between patients or with healthcare staff, or through contaminated surfaces and medical devices



Global Action Plan: Priority areas

GLOBAL ACTION PLAN
ON ANTIMICROBIAL
RESISTANCE



- Strengthening surveillance and monitoring, and moving towards national 'One Health' surveillance systems
- Limiting the exposure of antimicrobial-resistant pathogens to the environment
- Fostering R&D of new antimicrobial therapies, diagnostics and vaccines

Relevant Stakeholders

- **Federal Ministries**
 - Ministry of Health and Prevention (MOHAP)
 - Ministry of Presidential Affairs (MOPA)
 - Ministry of Climate Change and Environment (MOCCE)
- **Regional Health Authorities**
 - Department of Health Abu Dhabi (DoH)
 - Dubai Health Authority (DHA)
- **Regional Animal/food authorities**
 - Abu Dhabi Food Control Authority
 - Dubai municipality
- **Universities**
 - United Arab Emirates University (UAEU)
 - Gulf Medical University (Ajman)
- **Private sector**



SWOT Analysis

- More than 60% of facilities have international accreditation
- Report to GLASS
- Test food for Pathogenic organism, imported food tested for AB residue
- Hospital standard mandate IPC and soon ASP
- No antibiotic dispensing without a prescription
- Many facilities with strong ASP&IPC
- Research and SDG encouraged



- No national reference lab
- Data mainly Abu Dhabi and Dubai
- Limited AMR surveillance in animal
- No national coordination for IPC nor ASP
- ASP is still fragmented in hospitals
- Need to audit implementation
- Population mainly expats
- Sustainability is a issue
- Different cultures and health background to deal with

Strategic Plan

- Mandate has been issued for national AMR committee that is multisectorial

- Political support achieved

- NAP AMR has been developed awaiting all sectors approvals

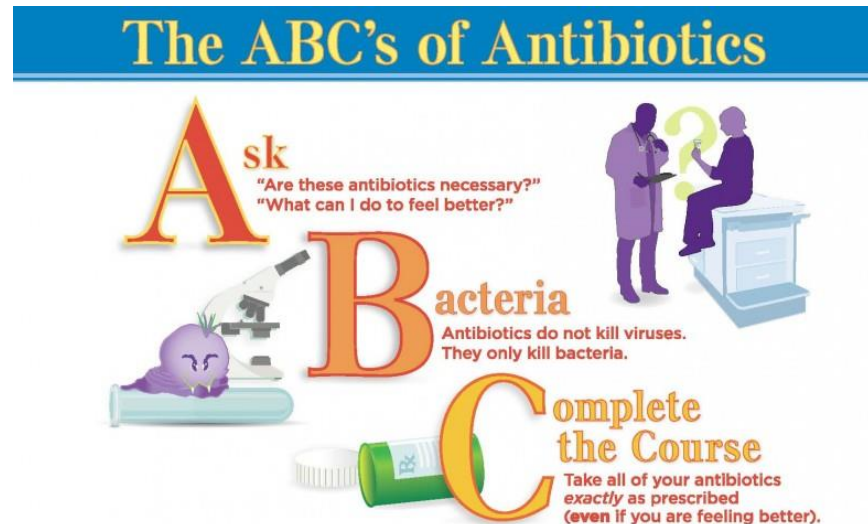
- Collaboration between human sector, food, animal and environment

- Budget to be allocated



AMR Education and awareness

- School
- Universities
- Healthcare workers
- Veterinarian, food and environment
- Public



1. Improve awareness and understanding of AMR

Risk Communication

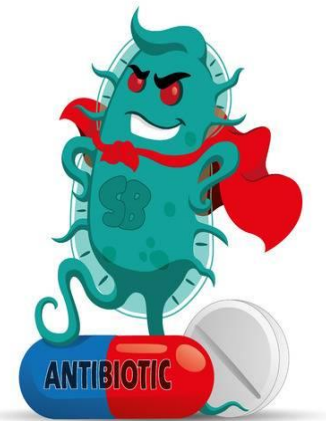
Education

Healthcare workers Education



ANTIBIOTIC
GUARDIAN

- Create a platform for broadcasting all the activities of the different axes of the AMR NAP- soon on MOHAP website
- Mandate for basic AMR education for all hospital staff in human, veterinary, food, agriculture and environment sectors upon employment and on yearly basis
- AMR Education will be requested for licensing and relicensing of health-related professions in human health, veterinary, food, agriculture and environment sectors



Awareness in Schools and Universities

- Ministry of Education to include AMR and Hygiene education in all school curricula
- Development of the core elements of AMR/Hygiene material to be included in **school** curricula
- Define the core components of educational material that should be included in different **university** curricula



WITH CARE



Antibiotic
resistance poses a
BIG THREAT
to global health

AMR for Public Awareness

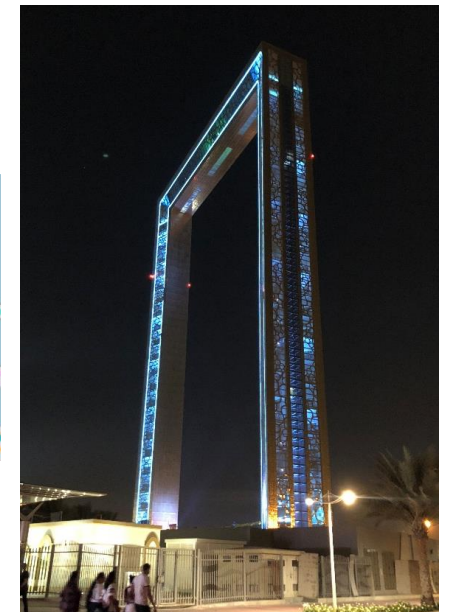
- media material for all communication channels:
 - TV/radio spots
 - Phone waiting time entertainment
 - SMS messages
 - Social media
- a year long schedule for broadcasting messages on national TV and Radio, social media (pop ups on Facebook, Instagram, etc.)
- Mandate from MOHAP to municipalities and from MOCCAIE to farmers' centers to do yearly mandatory session per each municipality or farmer center or ministry about AMR and hygiene
- Public figure associated with AMR awareness



2018 Awareness activities



- Big Screen - the Emirates Airline Dubai Rugby Sevens:
- numbers of people each day who viewed
19 000 on Thursday
39 000 for Friday
37 000 for Saturday
- Radio interview that was broadcasted every hour on the news updates
- 2 TV interviews for awareness in Public Programs
" sabah elkhair Dubai" on Dubai TV
and in News Update in Fujairah TV
- Dubai Frame was lit in Blue for WAAW
- MOHAP social media were broadcasting messages.



Social media campaign

Campaign main objective was to grab **quantitative data** about UAE residents and citizens and their percentage of awareness about Antibiotic Resistance

Also, provide audience with medical facts and advices to raise their awareness about the **seriousness of Antibiotic Resistance**

How we reached our audience?



**NO MISUSE
! ABUSE**

**افراط
تفريط**

Total Reach
~ 403.2 K

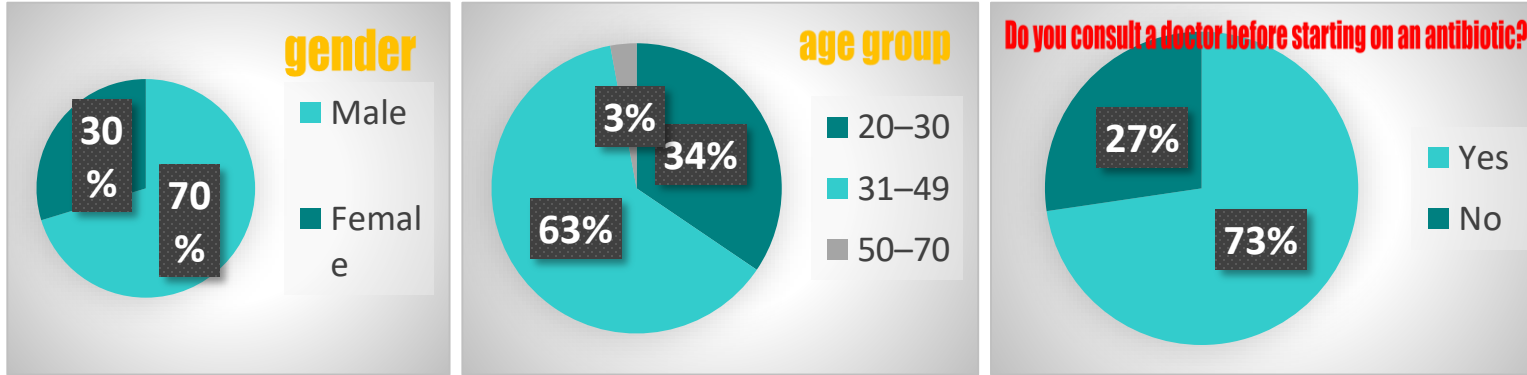
Total Clicks
~ 5.8 K

**Total Questionnaire
Responses**

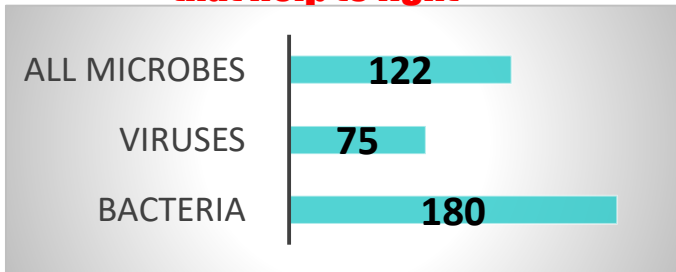
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Campaign Impact Overview

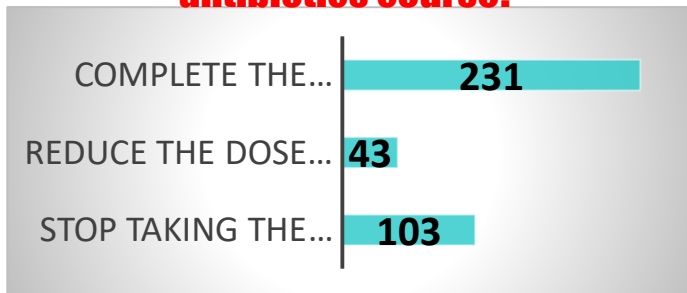
Social Media Campaign survey outcome



Antibiotics are powerful medicines that help to fight



If feel better after a few doses of the antibiotics course?



- About 52% have a false belief that antibiotics can treat viruses or all microbes
- 73% knew that they should consult the physician before taking an antibiotic
- 27% of the responders don't consult physicians
- 61% complete the full antibiotics course
- 11% reduce the course without getting back to physician
- 28% stop antibiotic course

Other activities

Radio Campaign



Total Spots

10 Spots

Weekly Reach

~ 246 K

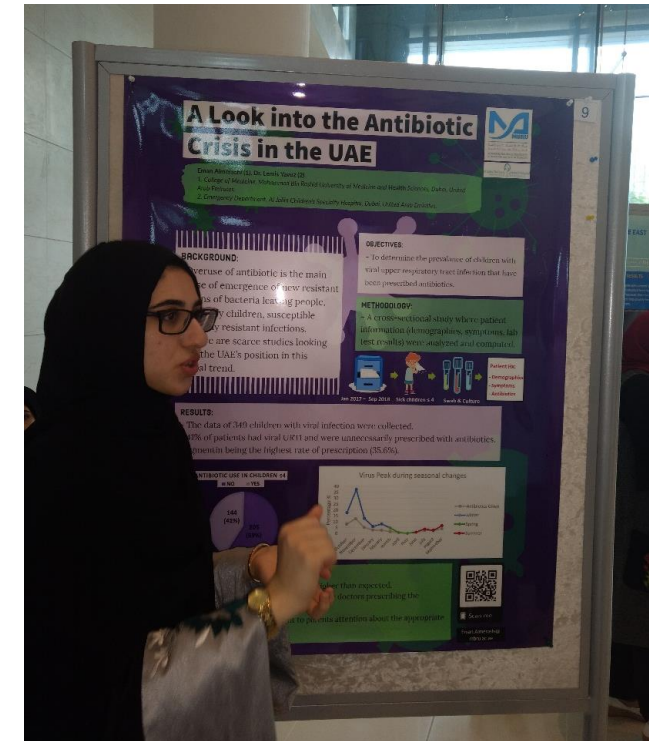
Weekend Reach

~ 154 K

Uni Aim	Fatma college of health sciences Raise awareness (AMR) and (ASP) efforts among higher education undergraduates and teaching faculty in health sciences field.
Target Audience	FCHS faculty staff members and pharmacy undergraduate students
Offered activities	
<ol style="list-style-type: none"> Video presentation about AMR. Oral presentations titled; (Antibiotic Resistance: a Race Against Time) (Antimicrobial Stewardship Program (ASP), Corniche Hospital Experience) 	
<ol style="list-style-type: none"> Antibiotics jeopardy game for undergraduate pharmacy students 	

MBRU

Research project on crisis of antibiotics usage in the UAE by 3rd Year MBBS student
 41% of viral infections in 349 children received AB
 Augmentin was the highest 35.6%



AMR surveillance

- Organization of manpower to carry on the activities of AMR surveillance axis in humans and animal
- Standardize AMR surveillance across all participating laboratories
- Stepwise capacity building plan for the hospitals that are not ready for inclusion in GLASS
- Generate local surveillance report that will direct professionals in putting local guidelines
- Generate a stratified surveillance report of data from:
 - Community vs. hospitals
 - Tertiary vs. primary care
 - Different Emirates
- Surveillance of the burden of AMR such as %HAI with MDROs

2. Strengthen knowledge through surveillance and research

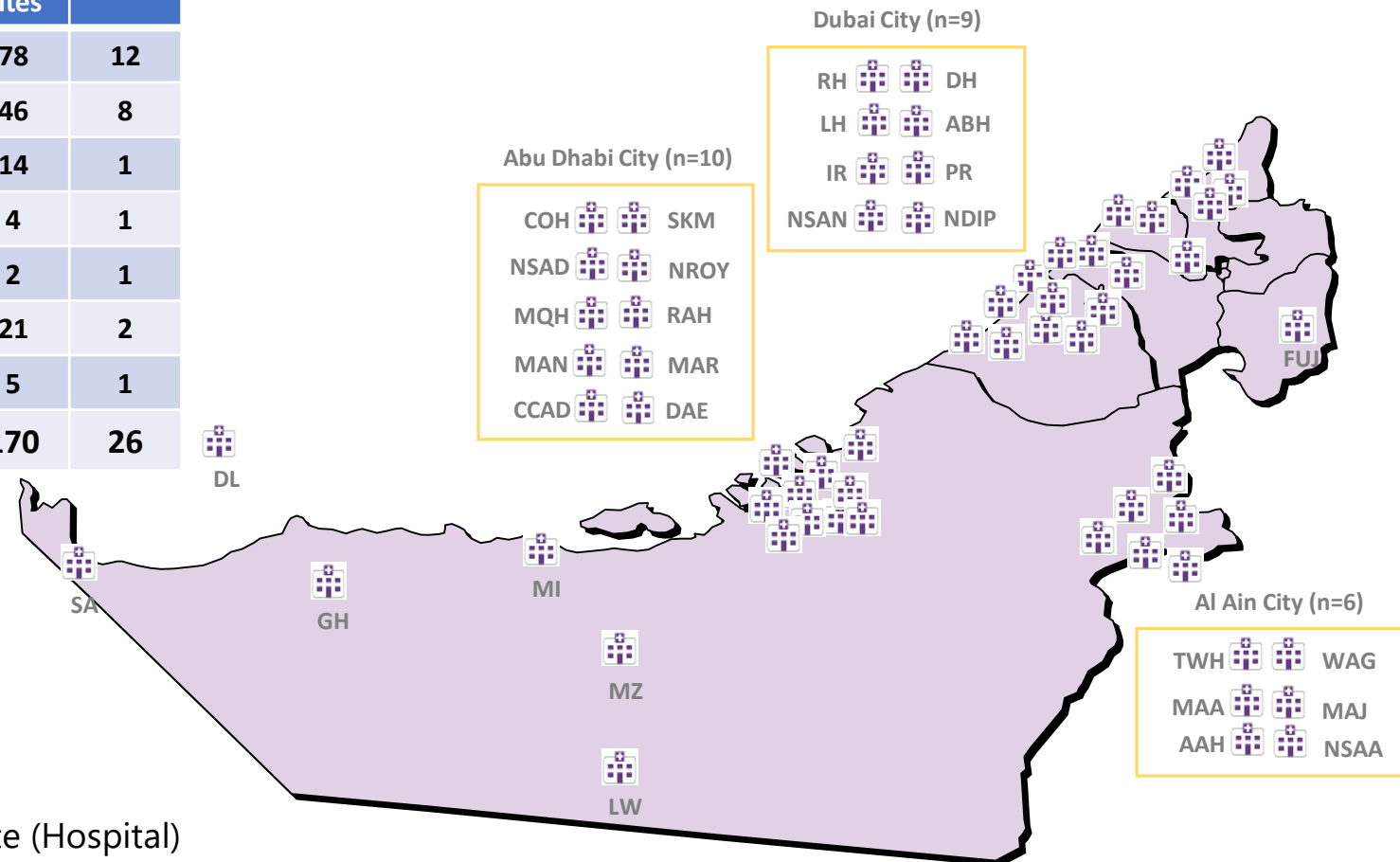
National AMR surveillance

Laboratory capacities

Laboratory capacities

UAE AMR Surveillance Sites: Geographical distribution

Emirate	Hospitals	Clinics	Total Sites	Labs
Abu Dhabi	25	53	78	12
Dubai	9	37	46	8
Sharjah	2	12	14	1
Ajman	4	--	4	1
Um Al Quwain	2	--	2	1
Ras Al Khaimah	5	16	21	2
Fujairah	1	4	5	1
Total	48	122	170	26



 Surveillance Site (Hospital)

- All seven Emirates are represented in the UAE National AMR Surveillance System
- Private sector, and some Emirates (Dubai, Sharjah, Ajman) are still underrepresented

UAE AMR Surveillance: Key Resistance Rates, 2017

Priority 1: CRITICAL*

Acinetobacter baumannii, carbapenem-resistant

Pseudomonas aeruginosa, carbapenem-resistant

*Enterobacteriaceae**, carbapenem-resistant, 3rd generation cephalosporin-resistant

Priority 2: HIGH*

Enterococcus faecium, vancomycin-resistant

Staphylococcus aureus, methicillin-resistant, vancomycin intermediate and resistant

Helicobacter pylori, clarithromycin-resistant

Campylobacter, fluoroquinolone-resistant

Salmonella spp., fluoroquinolone-resistant

Neisseria gonorrhoeae, 3rd generation cephalosporin-resistant, fluoroquinolone-resistant

Priority 3: MEDIUM*

Streptococcus pneumoniae, penicillin-non-susceptible

Haemophilus influenzae, ampicillin-resistant

Shigella spp., fluoroquinolone-resistant

United Arab Emirates (2017)**

Priority 1: CRITICAL

Organism	Antibiotic	N (isolates)	% Res
<i>A. baumannii</i>	IPM or MEM	1,218	35.9
<i>P. aeruginosa</i>	IPM or MEM	5,407	19.7
<i>Enterobacteriaceae</i>	IPM or MEM	30,075	4.8
<i>Enterobacteriaceae</i>	ESBL	16,917	31.3

Priority: 2 HIGH

Organism	Antibiotic	N (isolates)	% Res
<i>Enterococcus faecium</i>	Vancomycin	258	8.1
<i>S. aureus</i>	MRSA	10,105	36.0
<i>Salmonella spp.</i>	Fluoroquinolones (CIP)	624	18.9
<i>Neisseria gonorrhoeae</i>	3 rd gen. Cephalosp.	51	0
<i>Neisseria gonorrhoeae</i>	Fluoroquinolones (CIP)	73	74.0

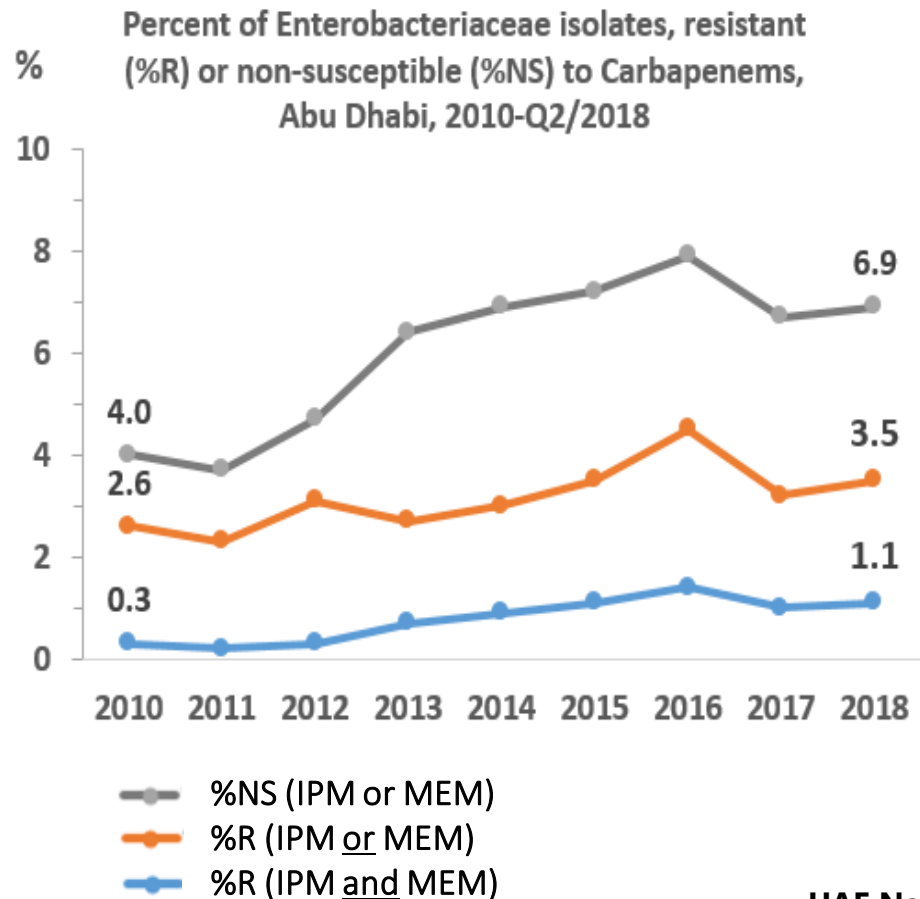
Priority 3: MEDIUM

Organism	Antibiotic	N (isolates)	% Res
<i>S. pneumoniae</i>	Penicillin G, non-susc. (I+R)	674	59.6
<i>H. influenzae</i>	Ampicillin	761	9.3
<i>Shigella spp.</i>	Fluoroquinolones	72	22.2

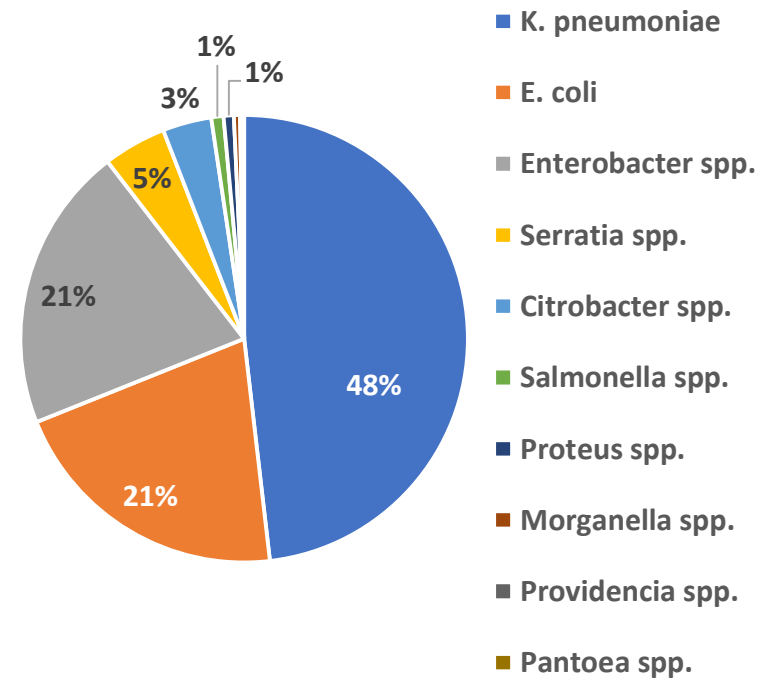
*WHO, 2017 [1]. **UAE National AMR Surveillance, 2017 (not published). %Res = percent of isolates fully resistant

Emergence of Carbapenem-resistant Enterobacteriaceae (CRE) Abu Dhabi, 2010-Q2/2018

% CRE



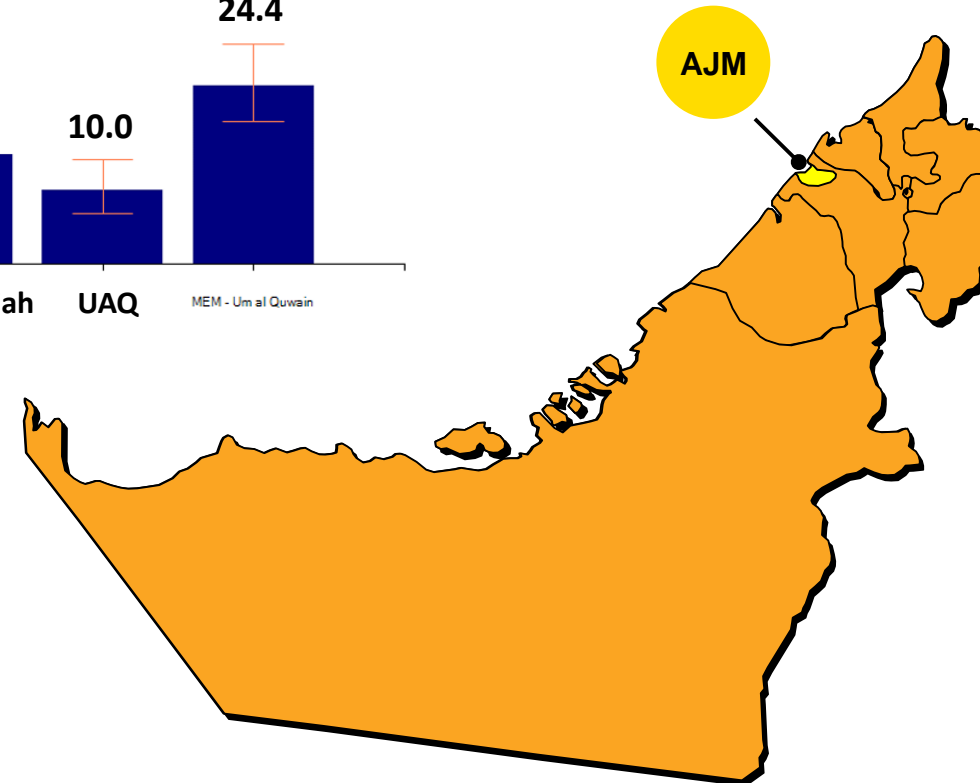
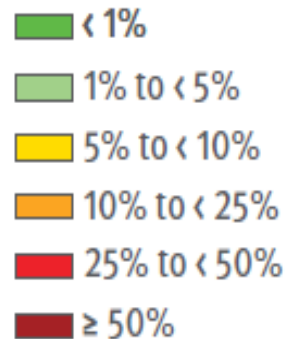
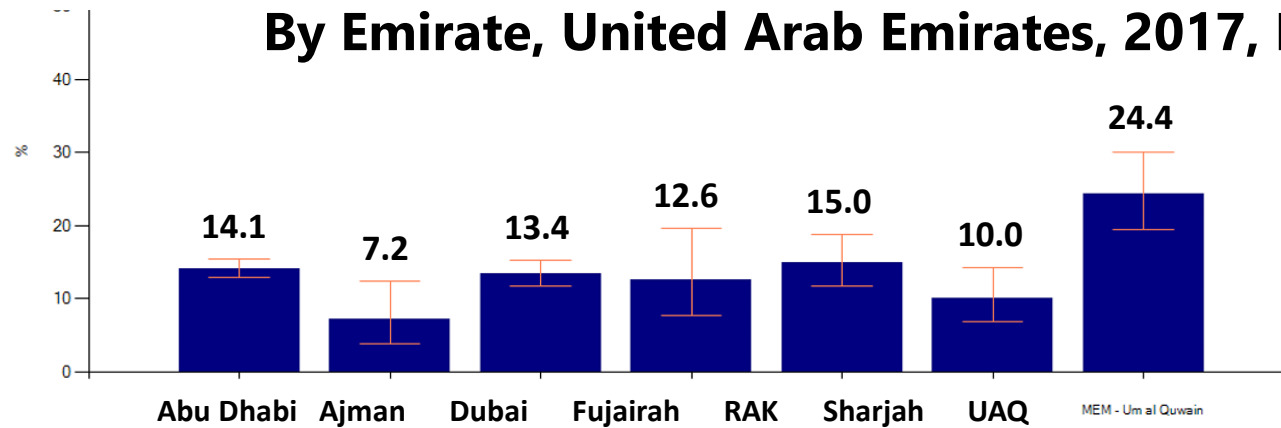
CRE, by species



P. aeruginosa: Resistance to Carbapenems By Emirate

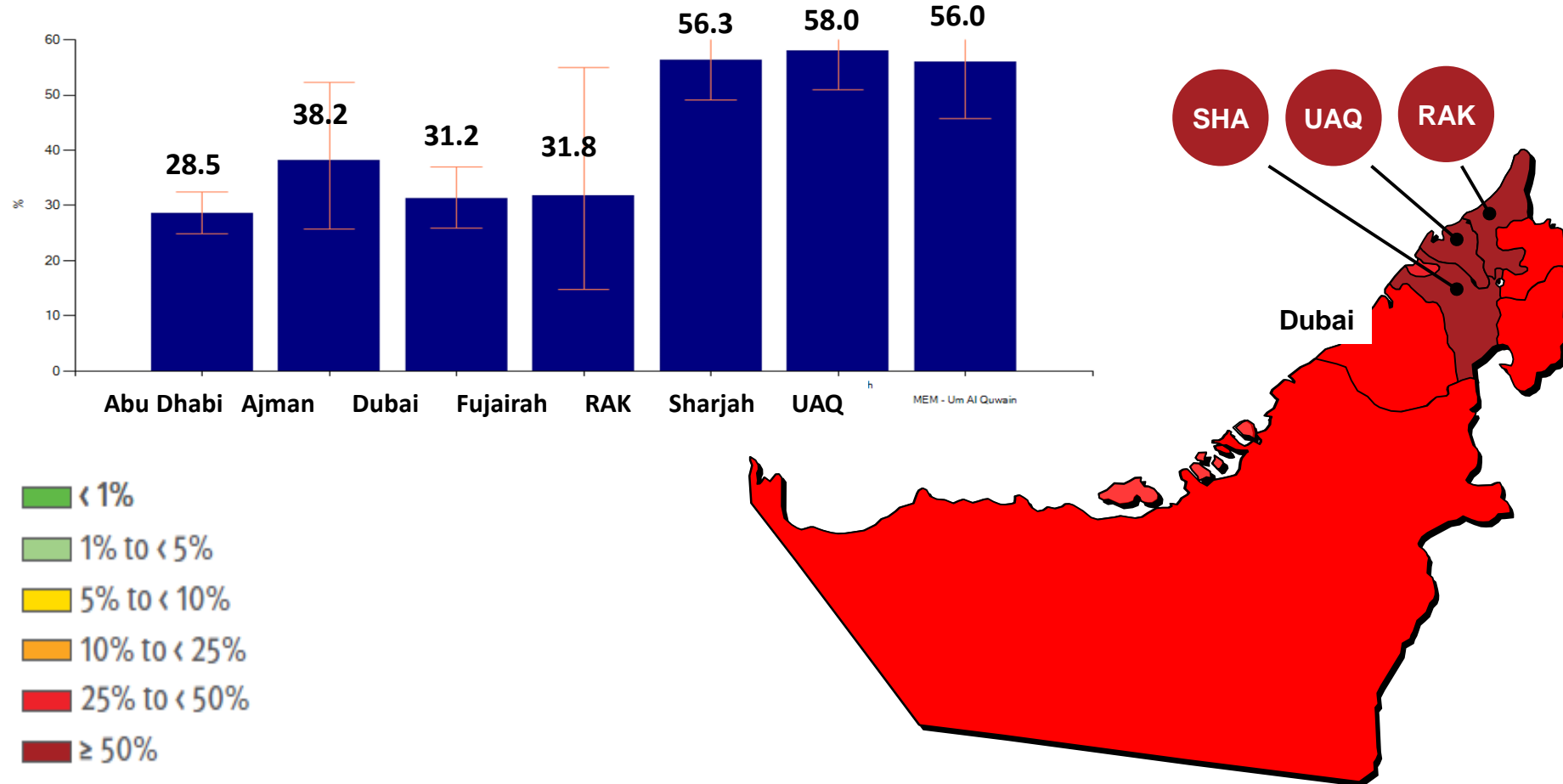
P. aeruginosa, percent of isolates with resistance to Carbapenems (%R, Meropenem)

By Emirate, United Arab Emirates, 2017, N=5,879



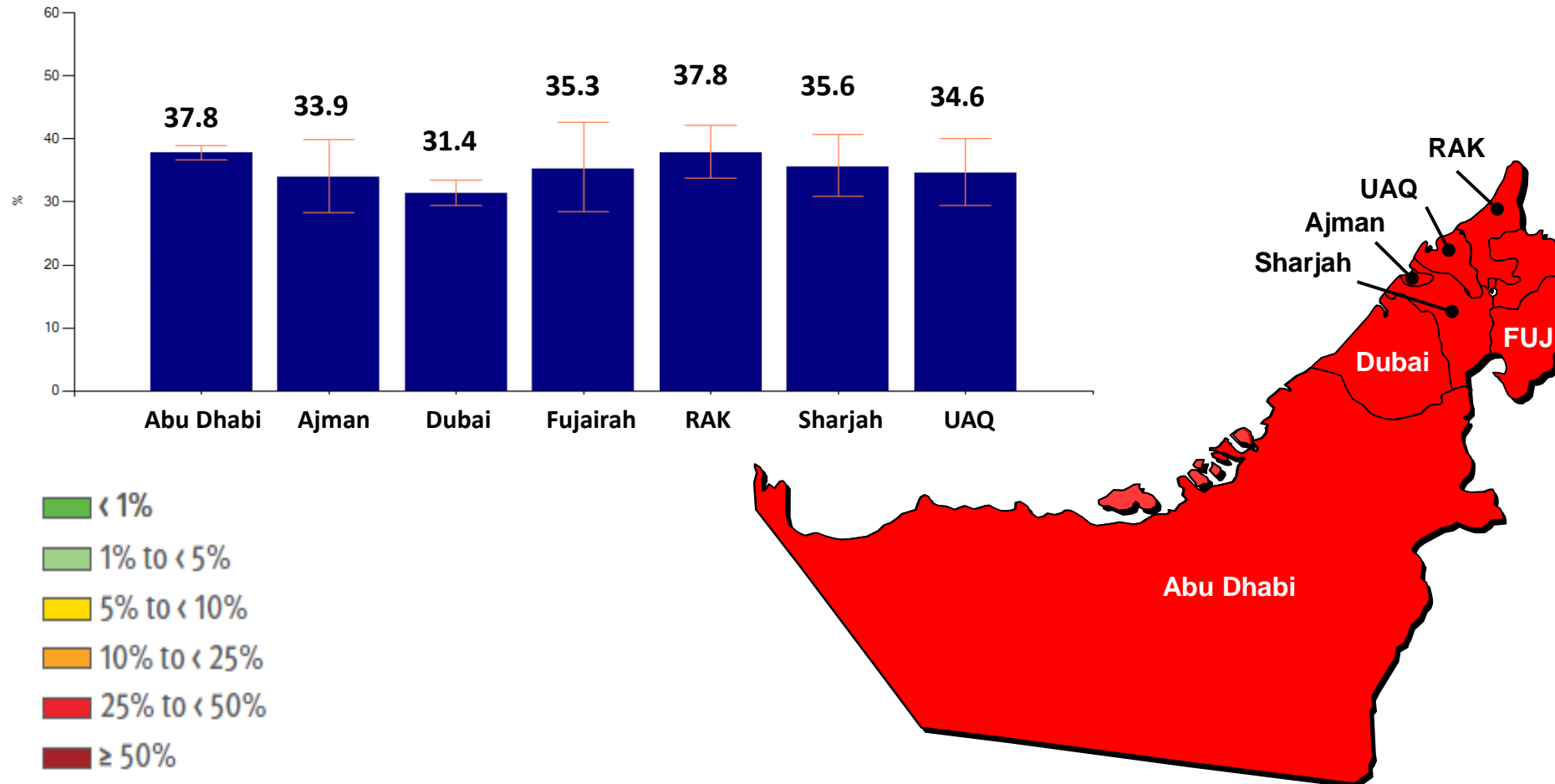
A. baumannii: Resistance to Carbapenems By Emirate

A. baumannii, percent of isolates with resistance to Carbapenems (%R, Meropenem) By Emirate, United Arab Emirates, 2017, N=1,440



Staph. aureus: Resistance to Oxacillin (%MRSA) By Emirate

Staph. aureus, percent of isolates with resistance to Oxacillin (%MRSA) By Emirate, United Arab Emirates, 2017, N=9,864



National reference laboratory



- Currently there is no NRL-AMR
- evaluation of the current situation for establishing reference lab(s) in the country to be guided by WHO EMRO
- Building laboratory capacity for all related sectors
- Proposed functions and required methods have been identified
- ADFCA has proposed to act as NRL for animal/food sector for AMR
- Collaboration between NAP steering committee, MOHAP and universities regarding research in AMR surveillance

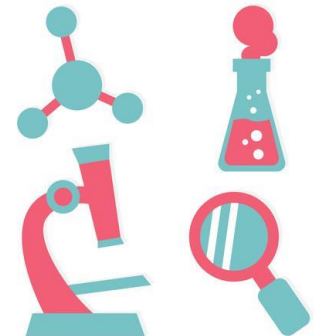
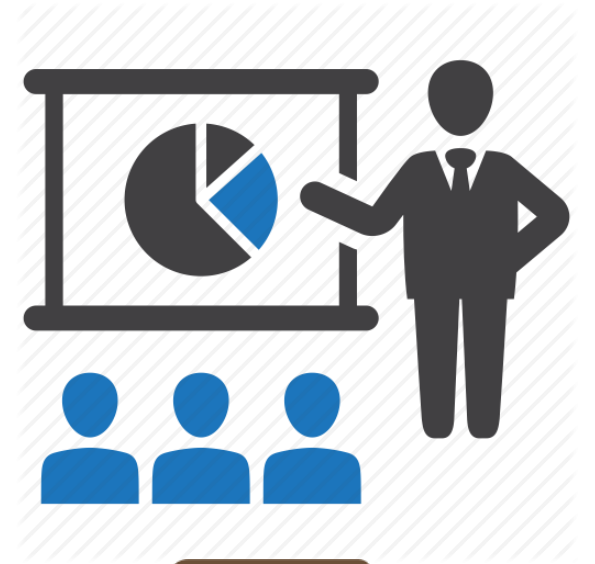
Infection prevention and control

- Establish IPC/AMR Department in MOHAP to oversee all activities in all Emirates in all fields (human, veterinary, food and environment)
- Assigned focal points in different sectors of the country:
 - climate change and environment
 - human sector including the MOHAP, DoH, DHA and private
- Establish /adopt national IPC guidelines
- Capacity building for the personnel in charge of IPC at hospital/emirate/national levels



Infection prevention and control

- Mandate that all healthcare staff have basic IPC training as **pre-requisite for work**
- Mandate from Ministry of Higher Education to include **IPC in undergraduate training** of nurses, physicians, veterinary care providers, and food handlers
- Universities to provide **IPC diplomas or master's** programs and include IPC in research agenda
- **licensing** authorities to include IPC prerequisites (inclusive programs, on line training) for licensing & relicensing of health professionals



Infection prevention and control

- Mandate already published for IPC program for licensing and relicensing of hospitals
- IPC for in long term care facilities (LTCF)
- Adopt/adapt international or regional guidelines
- Conduct surveillance of HAI:
 - Process indicators:
 - Hand Hygiene
 - Bundles for SSI, CAUTI, CLABSI and VAP
 - Outcome indicators:
 - SSI, CAUTI, CLABSI and VAP



Infection prevention and control in animal/food/environment

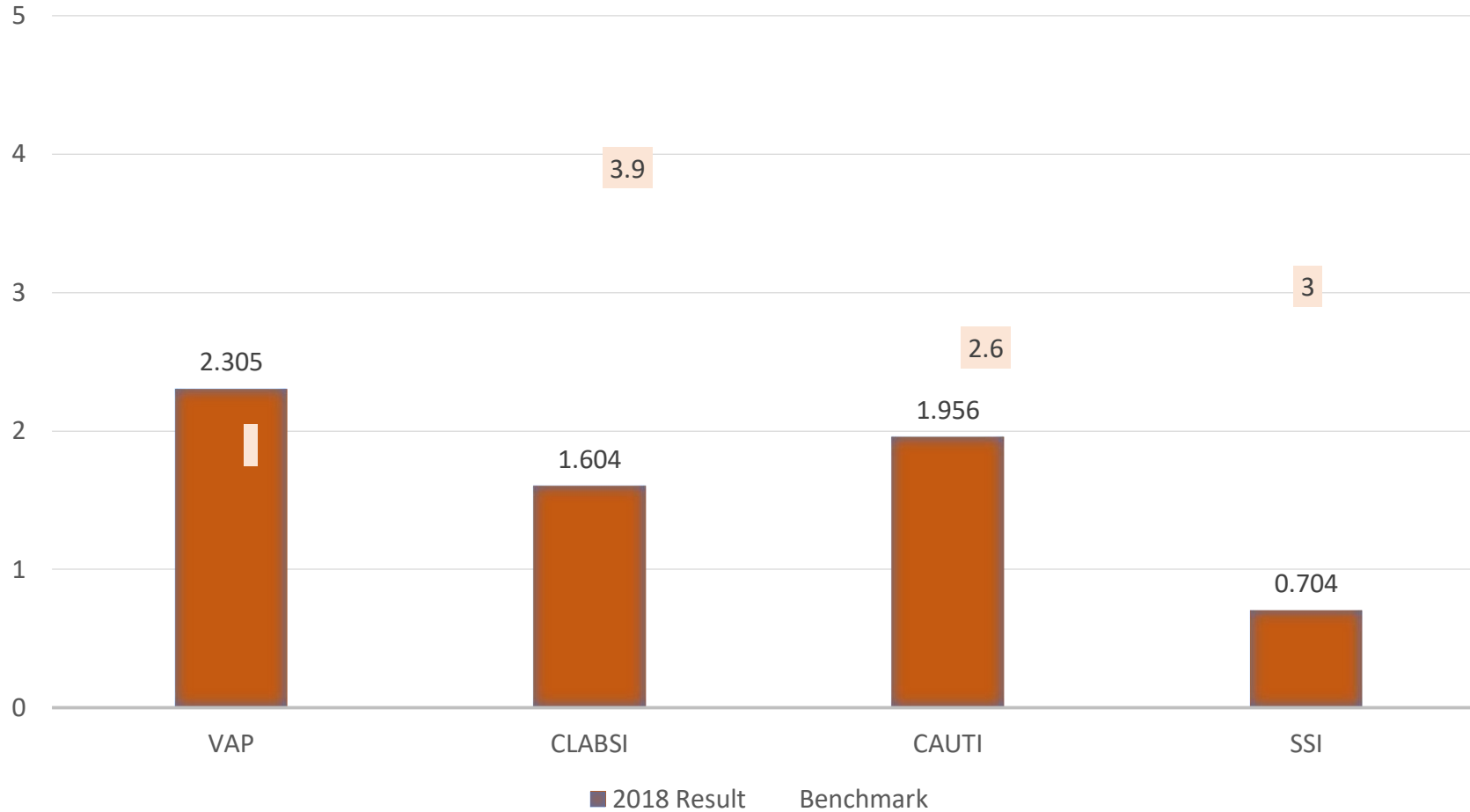
- Establish inter-ministerial communication regarding AMR and IPC
- Review and adaptation of biosafety legislation in veterinary world agriculture and food safety to cover all aspects of IPC
- Present a detailed report about the applied biosafety
- Monitoring of the application of biosafety laws and the identified gaps if any



IPC Programs at Designated Hospitals

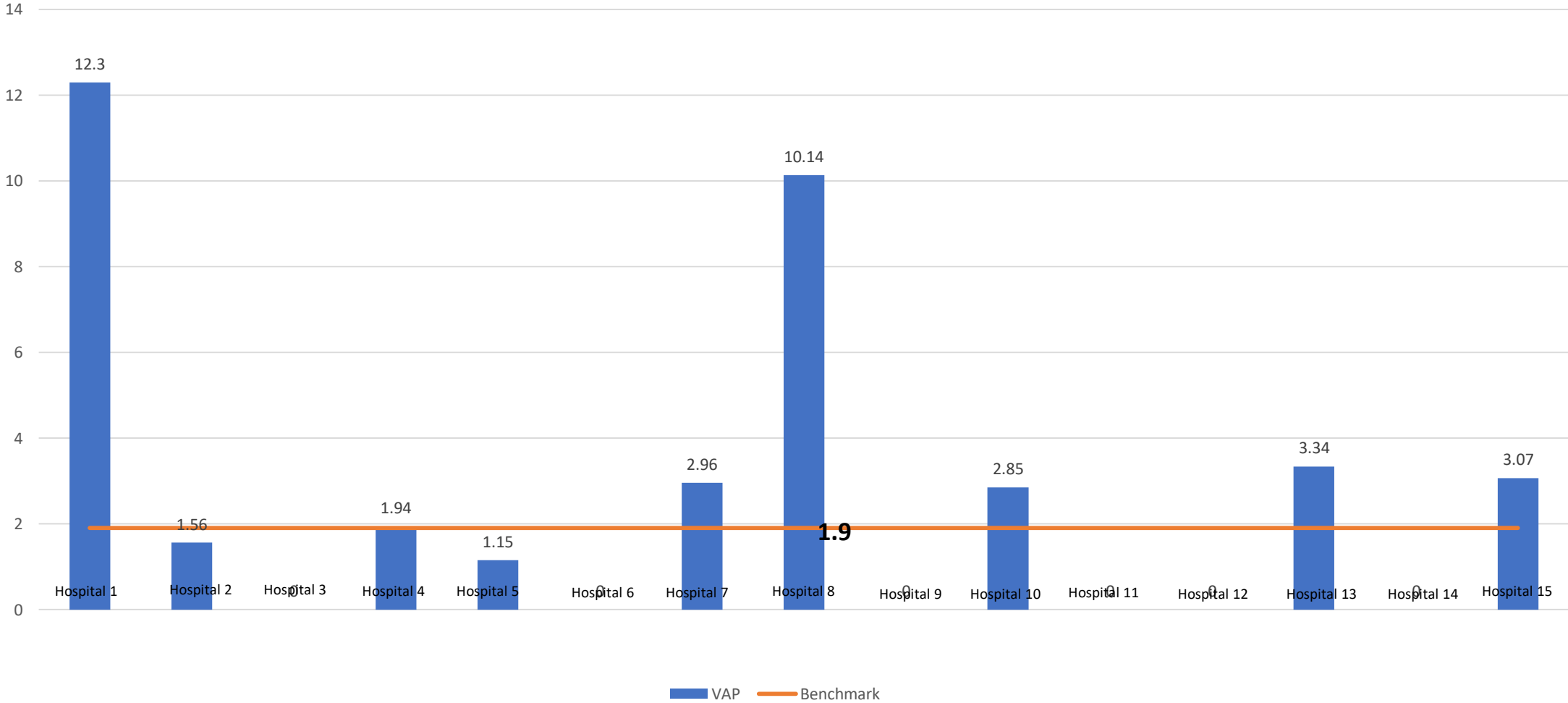
Component	MOHAP	HAAD	DHA
Availability of functioning IPC policy& SOPs	√√	√√	√√
Availability of isolation units at tertiary hospitals.	√√	√√	√√
Availability of guidelines for the protection of HCW from HAI	√√	√√	√√
Availability of surveillance within high risk groups to detect cluster of HAI	√√	√√	√√
Availability of designated IPC professionals in all tertiary hospitals.	√√	√√	√√
Availability of system to regularly evaluate the effectiveness of IPC program	√√	√√	√√

Healthcare associated Infections 2018

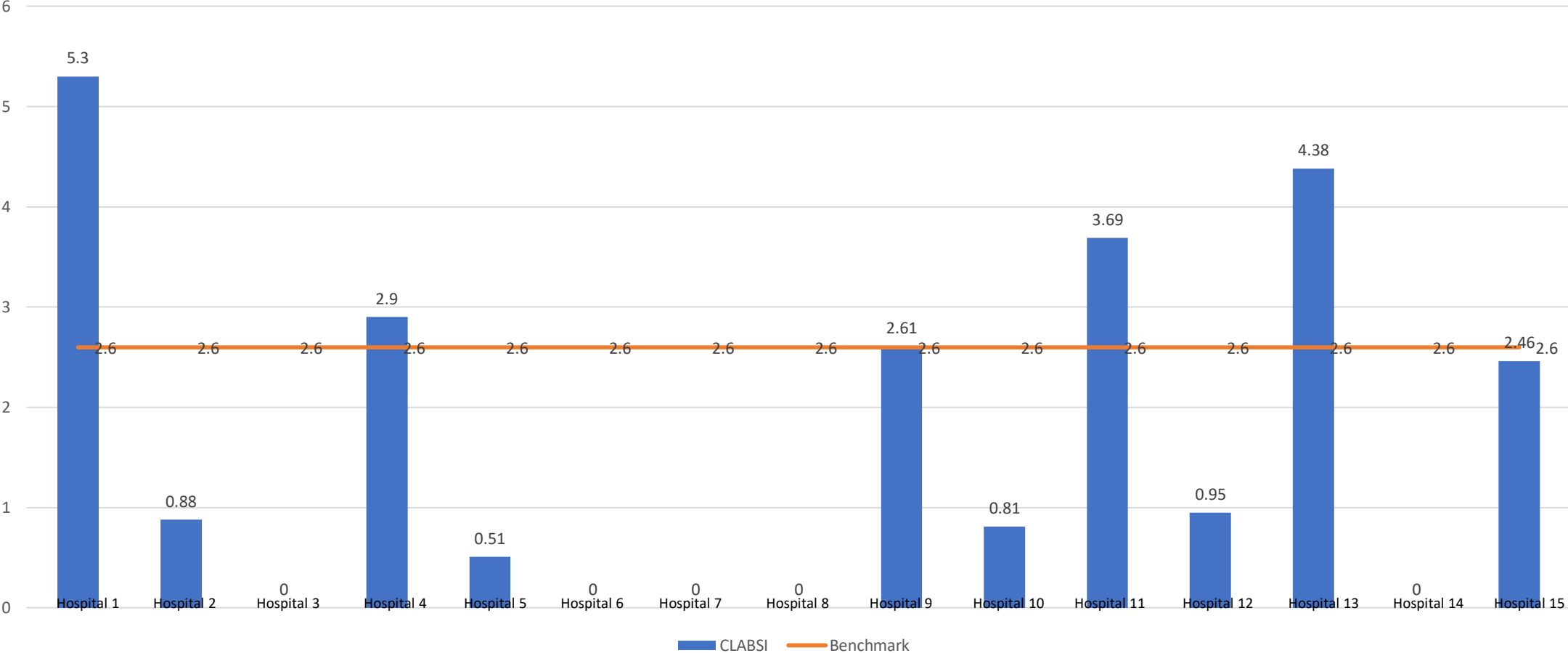


Indicator	2018 Result	Benchmark
VAP	2.305	1.9
CLABSI	1.604	3.9
CAUTI	1.956	2.6
SSI	0.704	3

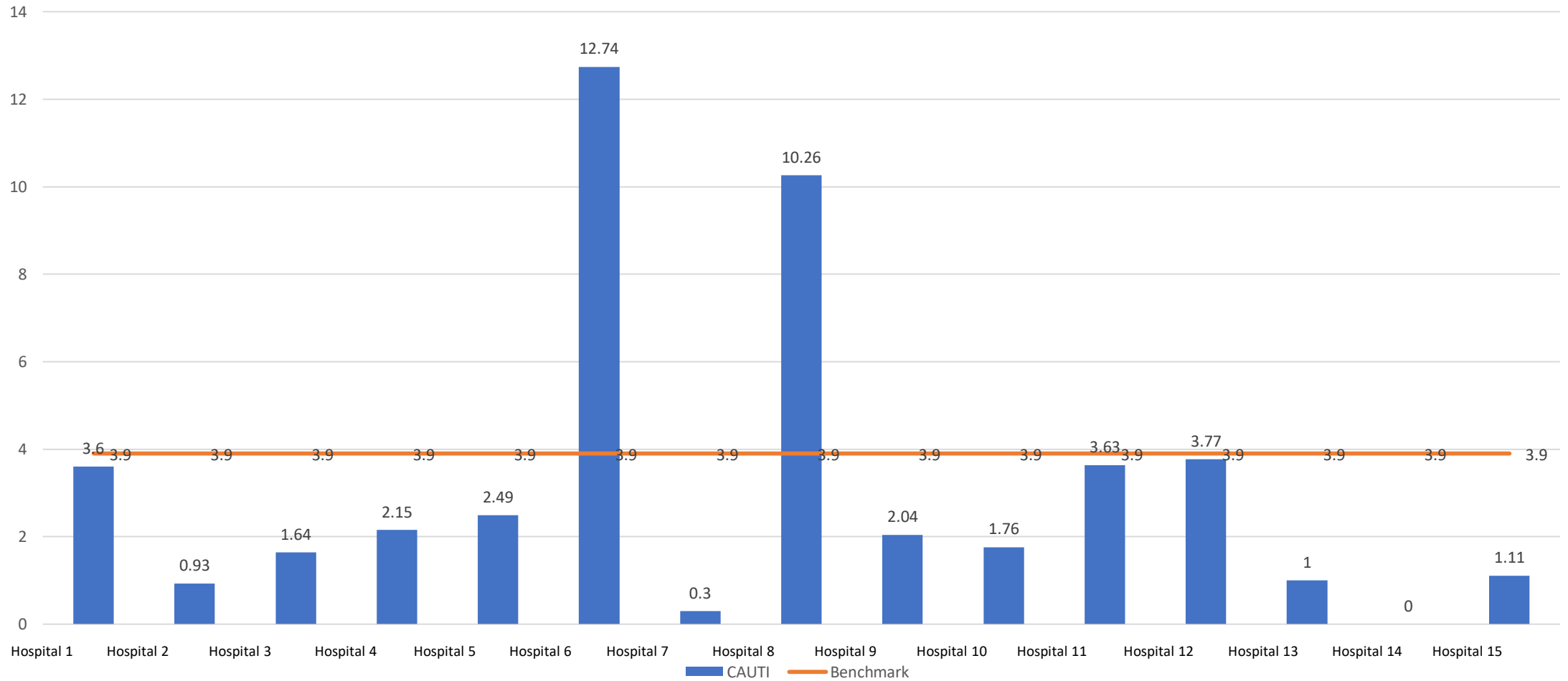
Ventilator Associated Pneumonia(VAP)



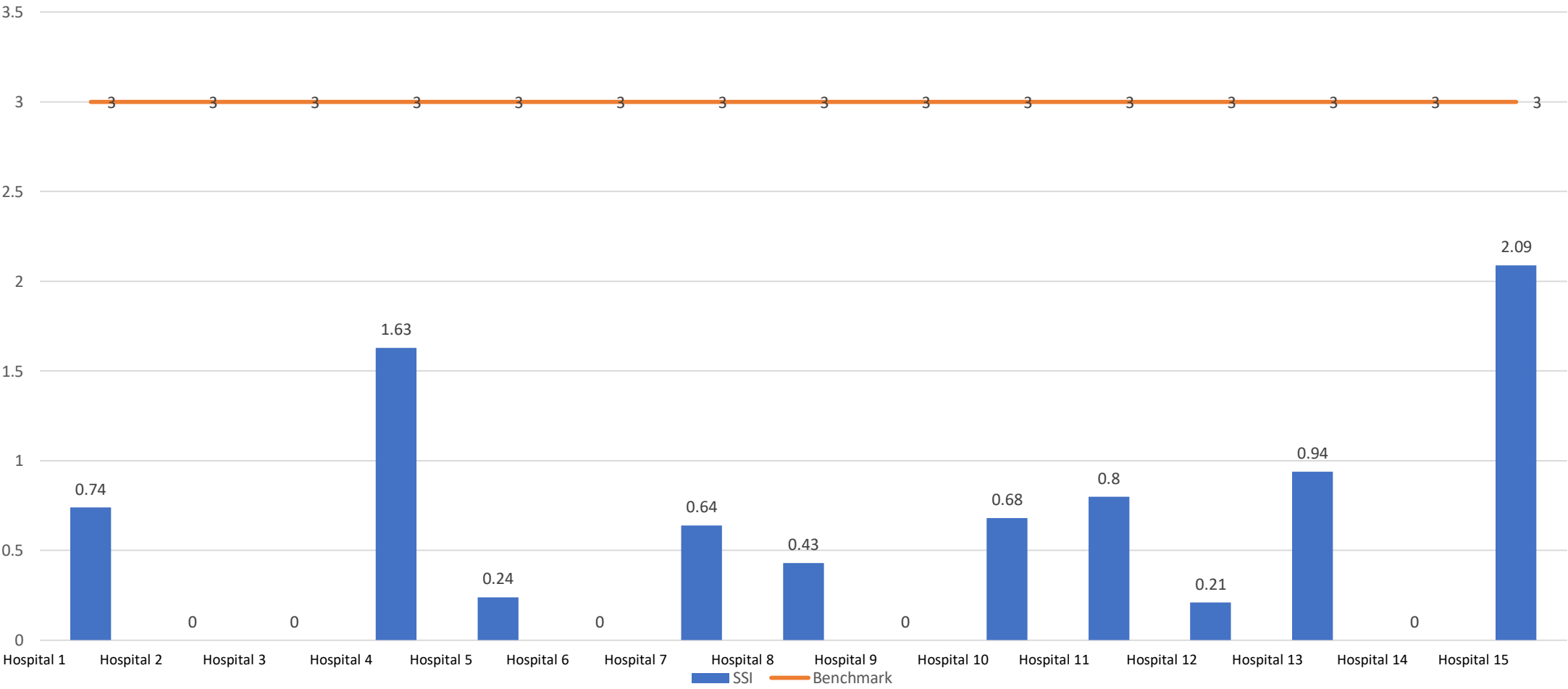
Central Line Associated Blood Stream Infection (CLABSI)



Urinary Catheter Associated Infection(CAUTI)



Surgical Site Infection(SSI)



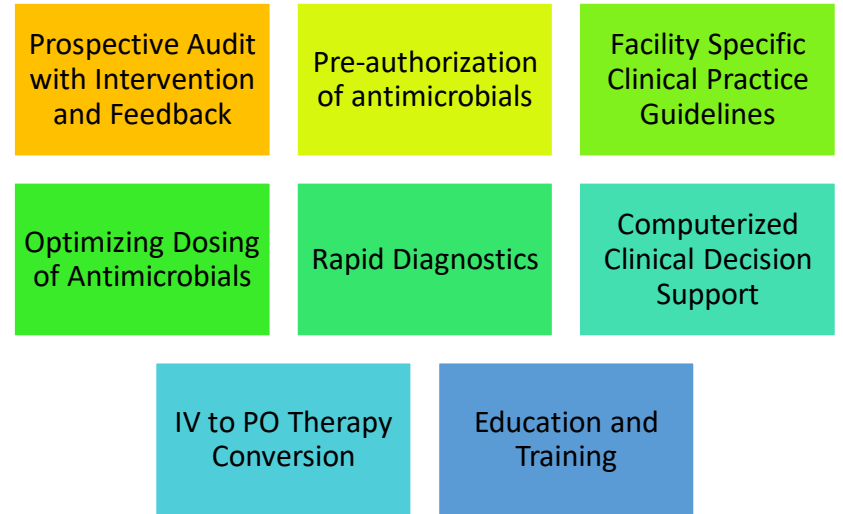
Antibiotic Stewardship

- National sub-committee represents different healthcare sectors including MOHAP, DoH, Abu Dhabi, DHA and private healthcare facilities, in addition to the veterinary, agriculture and environment
- ASP mandated (Abu Dhabi) – March 2016
- Promote self-governance by requiring strong commitment from hospital leadership offering support to ASP activities
- Legislation of ASP to be a requirement in licensing standards of hospitals



Antibiotic Stewardship - hospitals

- Surgical antibiotic prophylaxis
- Mandate to hospitals to report to national AMR committee the KPI results of surgical antibiotic prophylaxis
- Develop national guidelines for common infections
- Surveillance of antibiotics use in humans
- Audit of baseline situation of ASP in hospitals and follow up



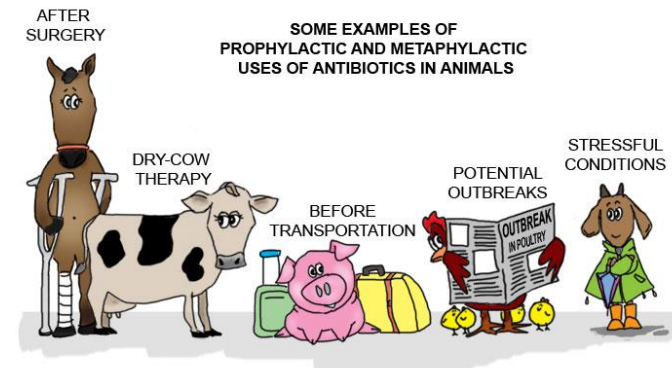
Antibiotic Stewardship – outpatient clinics

- outpatient clinics should participate in ASP activities related to outpatients
- provide outpatient clinics with National Guidelines for common outpatient ID
- ABX consumption or point prevalence

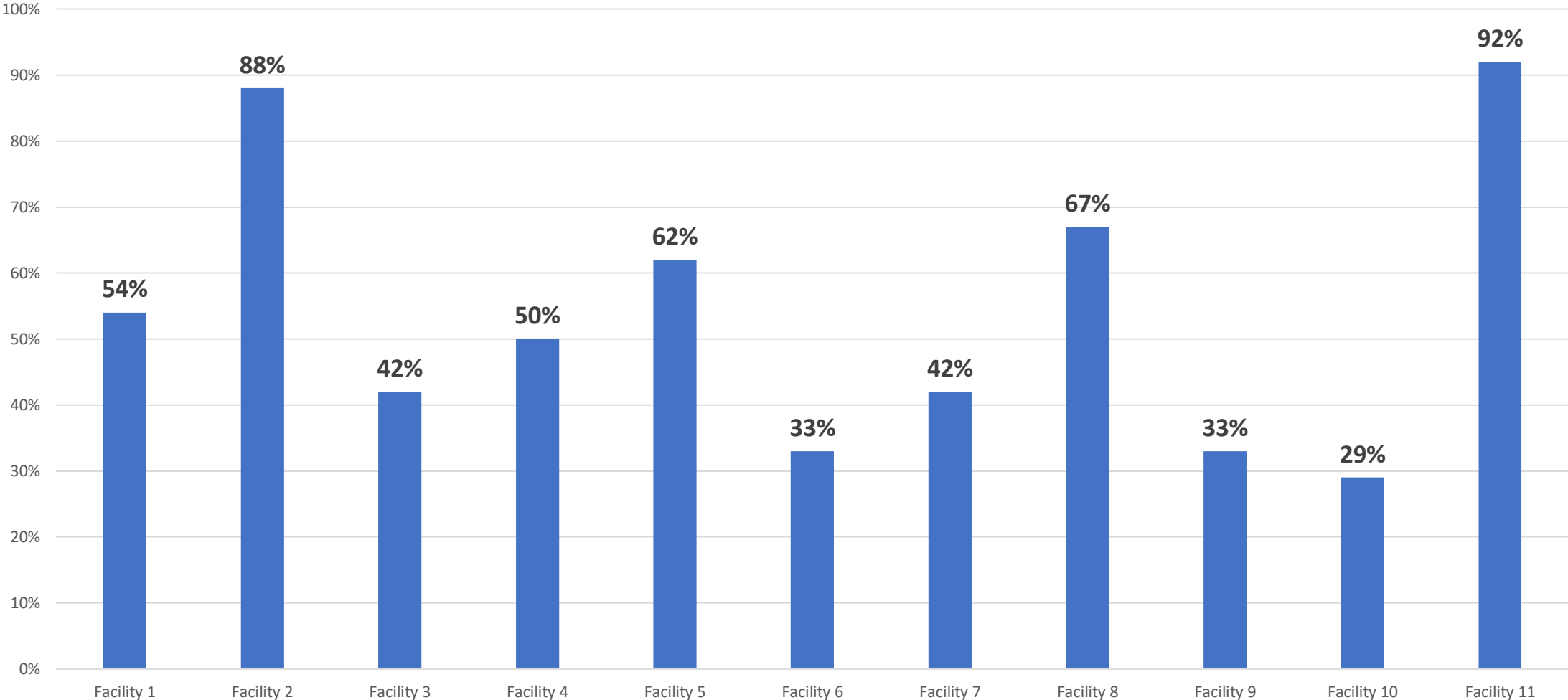


Antibiotic Stewardship – Animal/food sectors

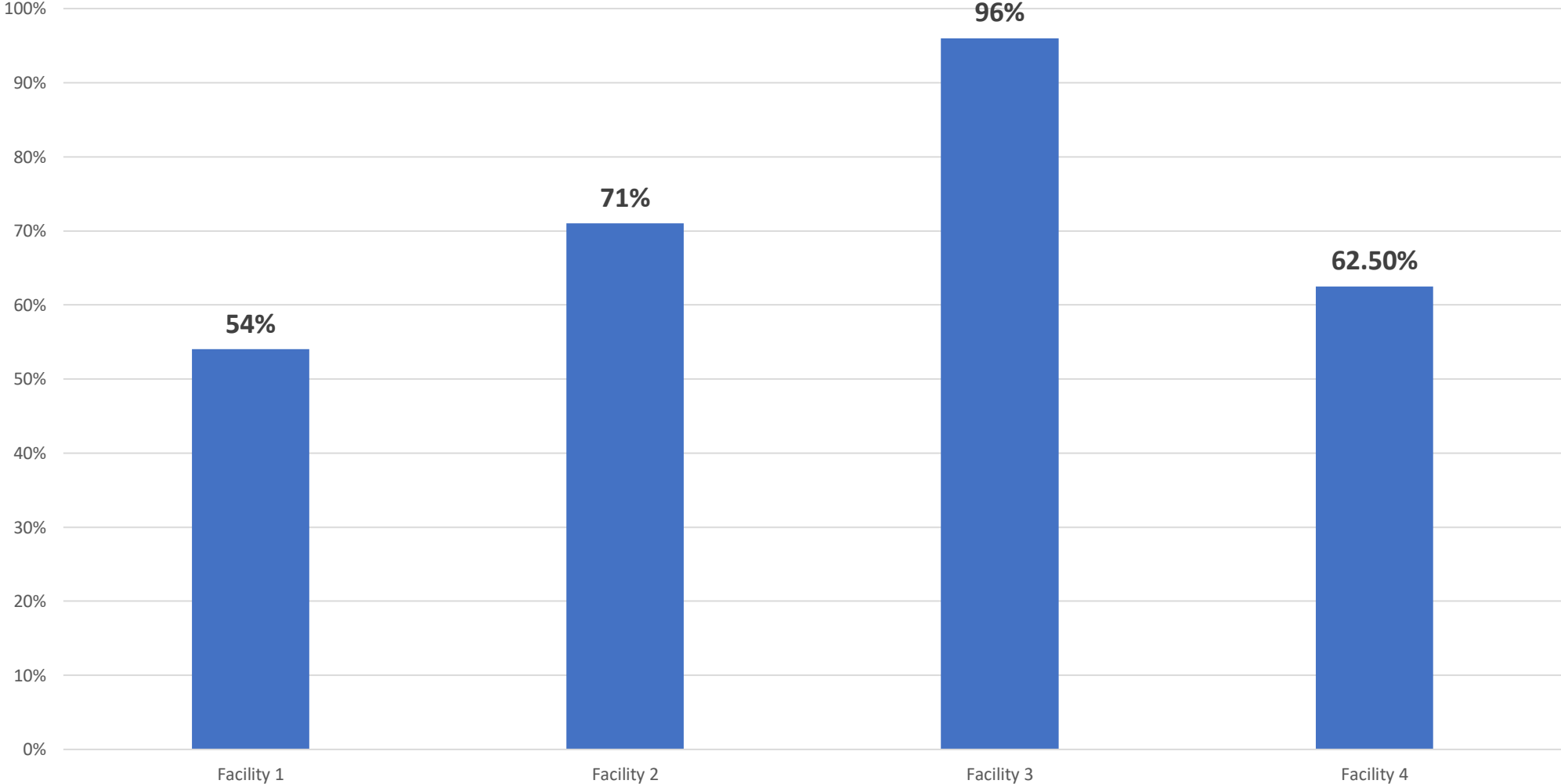
- Laws for antibiotic use in animals
- Quantify and trend antibiotic use in the veterinary practice
- Improve the awareness of veterinarians and farmers on the use of antibiotic
- Submit a yearly list of educational activities about antibiotic use in animals and agriculture through the country and use of alternatives
- Encourage research about alternatives to antibiotic in animals
- To present the results of antibiotic residue in food to ASP committee



ASP survey in Government Facilities

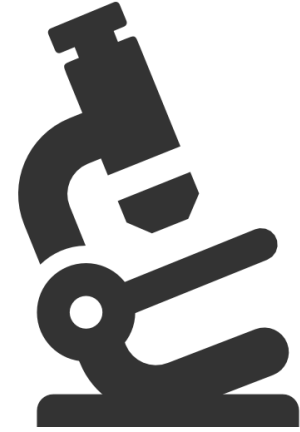


ASP survey in Private Facilities



Research

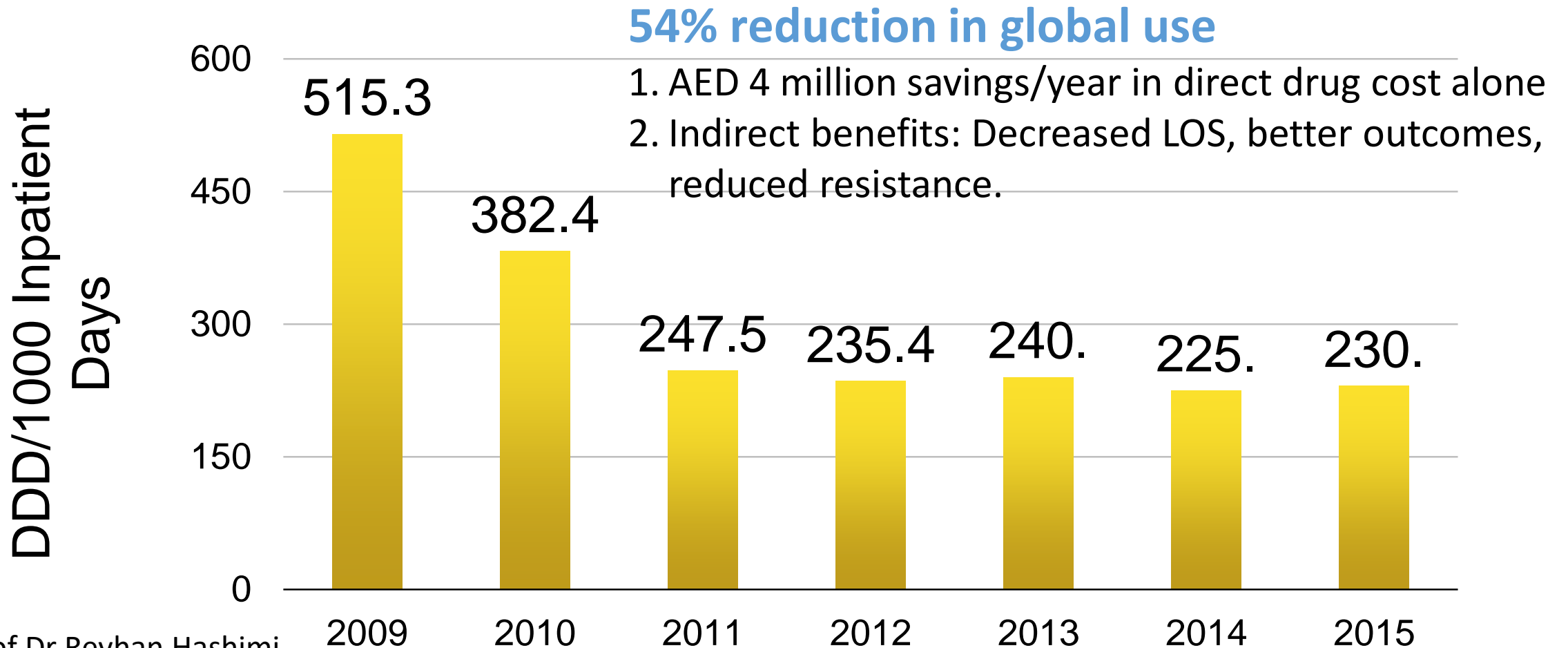
- Include IPC and ASP research in national research agenda
- Encourage Literature review of the impact of early diagnosis in ID and ASP on expenditure of antibiotics, length of hospitals stay and other hospital-related economics
- Conduct local studies on clinical and economic impact of ASP



ASP IN Tawam Hospital

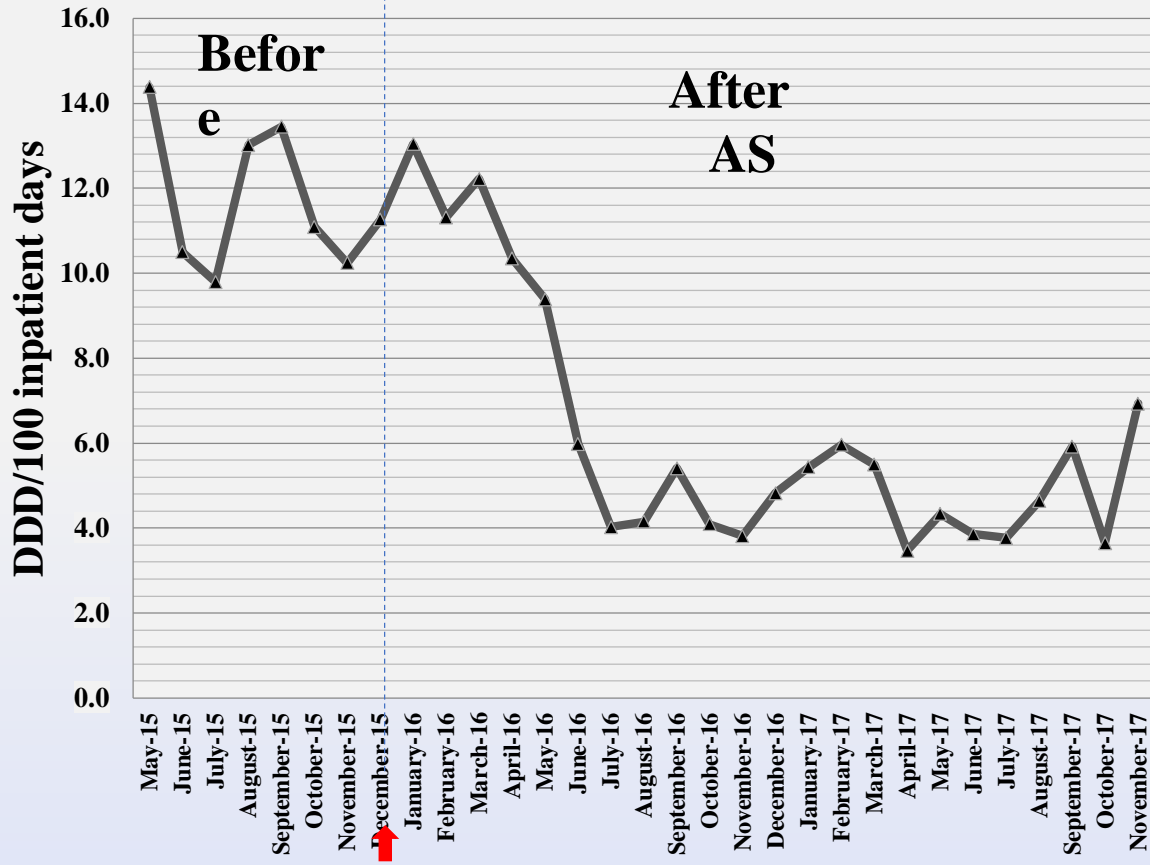
Carbapenem use fell by 57.7%
3rd&4th gen cephalosporin use by 74.8%
fluoroquinolone use by 90.5%

Trend In Inpatient Antibiotic Consumption 2009-2015

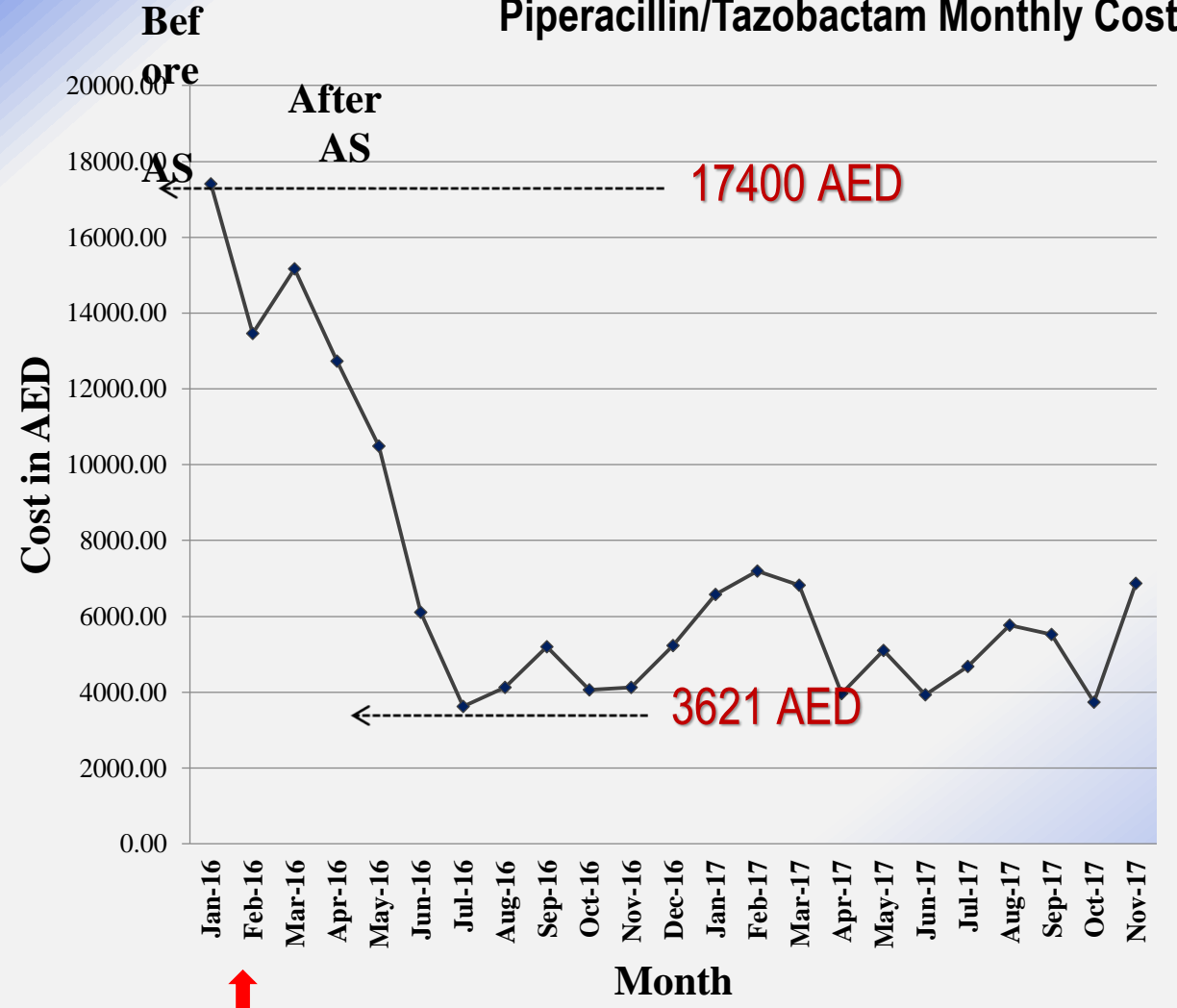


ASP in Al Baraha Hospital Dubai

Piperacillin/ Tazobactam General Consumption



Piperacillin/Tazobactam Monthly Cost



ASP in Sheikh Khalifa Medical City

- **Results: Among 386 patients analyzed, 206 were admitted in the preintervention and 180 in the postintervention period**
- Reduce 18% in total antimicrobial cost (P , 0.0001)
- 40% decrease in ICU length of stay (P 5 0.1)
- 33% decrease in overall hospital length of stay (P 5 0.03)
- 34% decrease in mortality (0.04) from preintervention to postintervention period
- Among those not seen by ID, there was a 39% decrease in cost among those not seen by ID(P , 0.0001)



Remember....

Antibiotics are a limited, precious resource

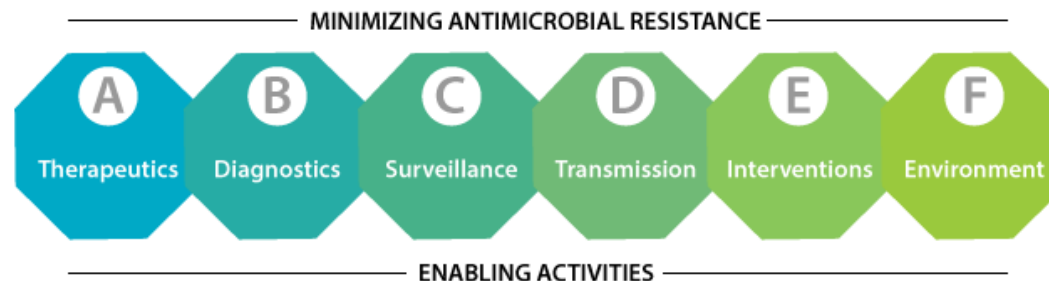
- Antibiotic resistance is happening now, and it's happening here
- Antibiotic Resistance threatens to return us to the pre-antibiotic era
- We all have a role to play in preserving the effectiveness of antibiotics
- **If we don't all take action today**

there may be no cure tomorrow...



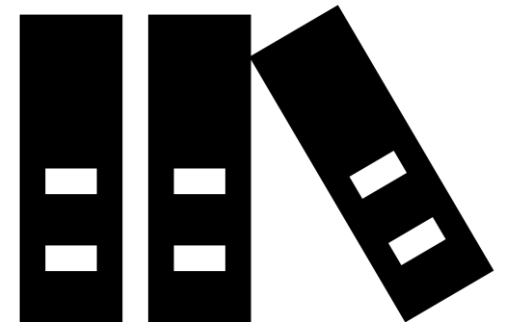
Summary

- AMR is a problem in UAE as part of global problem
- National AMR committee has drafted a plan
- The Plan is based on WHO GAP AMR and has one health approach
- The plan is in its final stages of being a combined ministerial decree
- Together will fight AMR



References

- WHO Global Action Plan on AMR
- CDC Core Elements of Hospital Antibiotic Stewardship Programs
- guidelines on core components of infection prevention and control
- AD AMR Surveillance System, AD public healthcare facilities (SEHA), 2010-2016



Thank You

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