



Prophylactic Antimicrobial Use for Surgical Procedures in Egypt



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The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (Global-PPS):

Prophylactic Antimicrobial Use for Surgical Procedures in Egypt.

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Africa

Background



The pattern of antimicrobial use for surgical prophylaxis is **Not well** recognized in Egypt.



Background

The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (GLOBAL-PPS) is a **well-known and validated** project collecting data to monitor rates of antimicrobial prescribing in hospitalised patients.

G-PPS provide an easy and yet a very useful tool to assess AMC and AMR

Methods



Data entry

The screenshot shows the GLOBAL-PPS website interface. At the top, there are navigation tabs: HOME, Our project, DOCUMENTS, DISSEMINATION, PARTNERSHIPS, Supporting organisations, and CONTACT. Below the navigation is a banner featuring a world map and a female healthcare worker in scrubs holding a clipboard. The banner text reads "Global Point Prevalence Survey on Antimicrobial Consumption and Resistance".

Below the banner, there are three main sections:

- Data entry**: Represented by a bar chart icon. Text: "Data entry for data-entry, validation and reporting."
- Documents**: Represented by a download icon. Text: "Download here study protocol and other documents."
- Global Antimicrobial Stewardship**: Represented by a group of people icon. Text: "Learn how to use Point Prevalence Surveys (PPS) to measure antibiotic consumption and..."

On the right side, there is a "Latest news" section with a date badge for "15 06, 2018" and a headline: "Global-PPS in the Lancet Global Health Read the first overall Global-PPS results on antibiotic prescribing and resistance in adults, published in..."

Method



Ward Form

Please fill in one form for each ward included in the PPS

Date of survey
dd/mm/year
Person completing
Hospital name
Ward Name
Department Type
Place a tick against

Ward name/code

Hemato - I

Antimicrobial Name

Single Unit Dose

Doses/ day⁸

Diagnosis¹⁰ (see

Type of indication

Reason in Notes

Guideline Compliance

Is a stop/review drug

Treatment (E: Enteric)

The next section

MRSA (Yes or No)¹⁴

MRCoNS (Yes or No)¹⁵

VRE (Yes or No)¹⁶

ESBL-producing Enterobacteriaceae (Yes or No)¹⁷

3rd generation cephalosporins (Yes or No)¹⁸

Carbapenem-resistant Enterobacteriaceae (Yes or No)¹⁹

Carbapenem-resistant negative bacilli (Yes or No)²⁰

Targeted treatment organisms (Yes or No)²¹

Treatment based on

If yes, which bio

Appendix II - Diagnostic codes (what the clinician aims at treating)

Site	Codes	Examples
CNS	Proph CNS	Prophylaxis for CNS (neurosurgery, meningococcal)
	CNS	Infections of the Central Nervous System
EYE	Proph EYE	Prophylaxis for Eye operations
	EYE	Therapy for Eye infections e.g., Endophthalmitis
ENT	Proph ENT	Prophylaxis for Ear, Nose, Throat (Surgical or Medical prophylaxis)
	ENT	Therapy for Ear, Nose, Throat infections including mouth, sinuses
RESP	Proph RESP	Pulmonary surgery, prophylaxis for Respiratory pathogens e.g. TB
	LUNG	Lung abscess including aspergilloma
	URTI	Upper Respiratory Tract viral Infections including influenza but not COVID-19
	Bron	Acute Bronchitis or exacerbations of chronic bronchitis
CVS	Proph CVS	CardioVascular System infections: endocarditis, endovascular prosthesis or device e.g. pacemaker, vascular graft
	CVS	Surgery of the Gastro-Intestinal tract, liver or biliary tree, GI prophylaxis in neutropenic patients or hepatic failure
GI	Proph GI	GI infections (salmonellosis, Campylobacter, parasitic, C.difficile, etc.)
	IA	Intra-Abdominal sepsis including hepatobiliary, intra-abdominal abscess etc.
SSTBJ	Proph BJ	Prophylaxis for SST, for plastic or orthopaedic surgery (Bone or Joint)
	SST	Skin and Soft Tissue: Cellulitis, wound including surgical site infection, deep soft tissue not involving bone e.g., infected pressure or diabetic ulcer, abscess
UTI	Proph UTI	Bone/Joint Infections: Septic arthritis (including prosthetic joint), osteomyelitis
	Cys	Prophylaxis for urological surgery (SP) or recurrent Urinary Tract Infection (MP)
GUOB	Proph UOB	Lower UTI
	OBGY	Upper UTI including catheter related urinary tract infection, pyelonephritis
	OBGY	Prophylaxis for Obstetric or Gynaecological surgery
	GUM	Obstetric/Gynaecological infections, Sexual Transmitted Diseases (STD) in men
No defined site (NDS)	BAC	Genito-Urinary Males + Prostatitis, epididymo-orchitis, STD in men
	SEPSIS	Bacteraemia with no clear anatomic site and no shock
Neonatal	Malaria	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	HIV	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	PUO	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	PUO-HO	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	FN	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	LYMPH	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	Other	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	MP-GEN	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	UNK	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
	PROK	Sepsis, sepsis syndrome or septic shock with no clear anatomic site
Neonatal	MP-MAT	Drug is used as Medical Prophylaxis for MATERNAL risk factors e.g. maternal prolonged rupture of membranes
	NEO-MP	Drug is used as Medical Prophylaxis for NEWBORN risk factors e.g. VLBW (Very Low Birth Weight)

Diagnostic codes

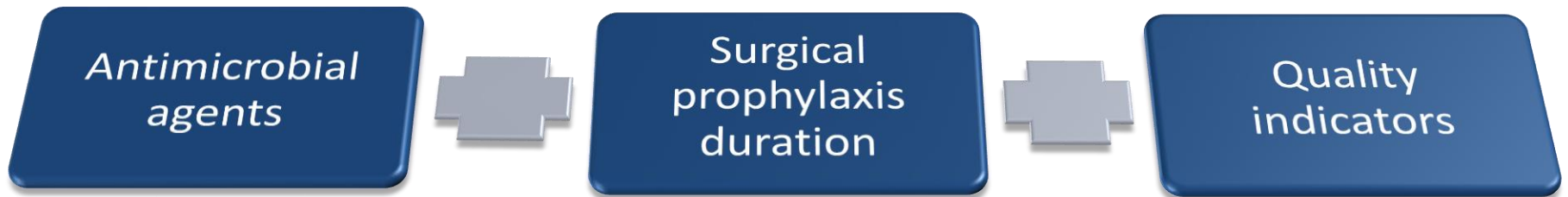
Following anatomical site of infection

For each site choose between:

- Therapeutic
- Prophylactic
 - Surgical
 - Medical

Specific codes for neonates are available

Methods



Results

14 Hospitals

**276
patients**

**418
Antimicrobials**

Methods

Surgical
procedures
surveyed

UTI prophylaxis for adults and children

Plastic and orthopedic surgery in adults and children

GI prophylaxis in adults and children

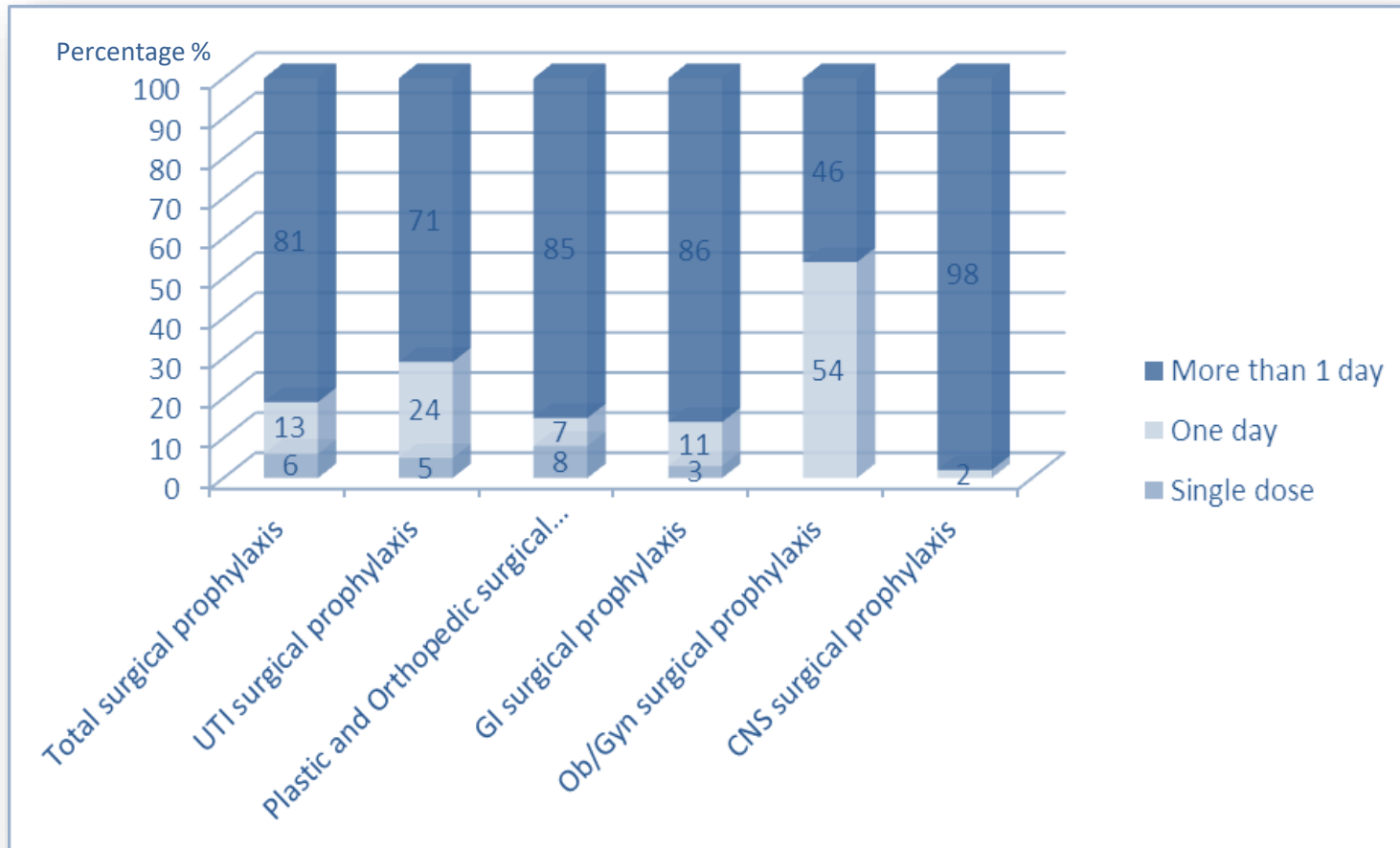
Obstetric or gynecological prophylaxis in adult wards

CNS prophylaxis in adults and children

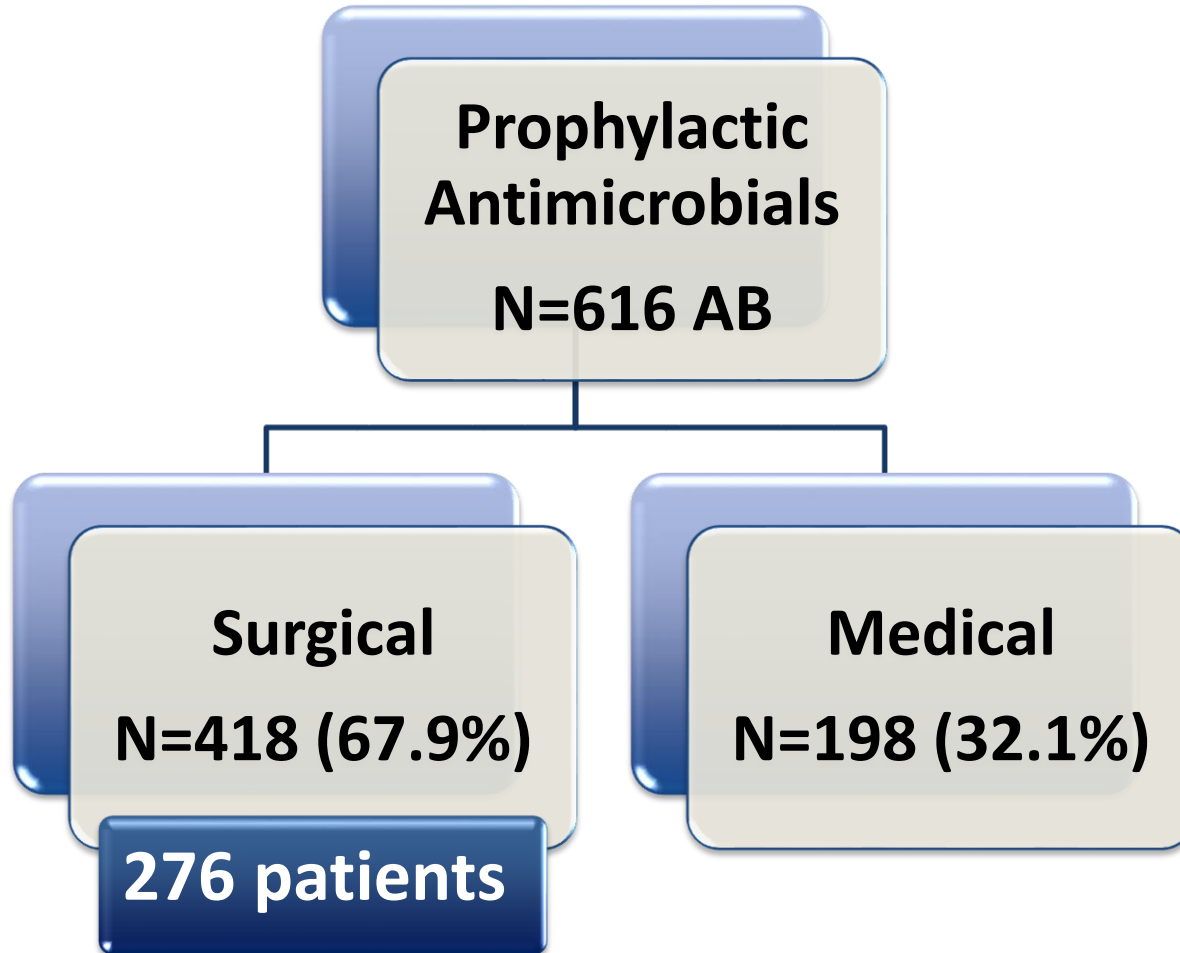


Results

The duration of surgical prophylactic antimicrobial use of different surgeries in Egypt

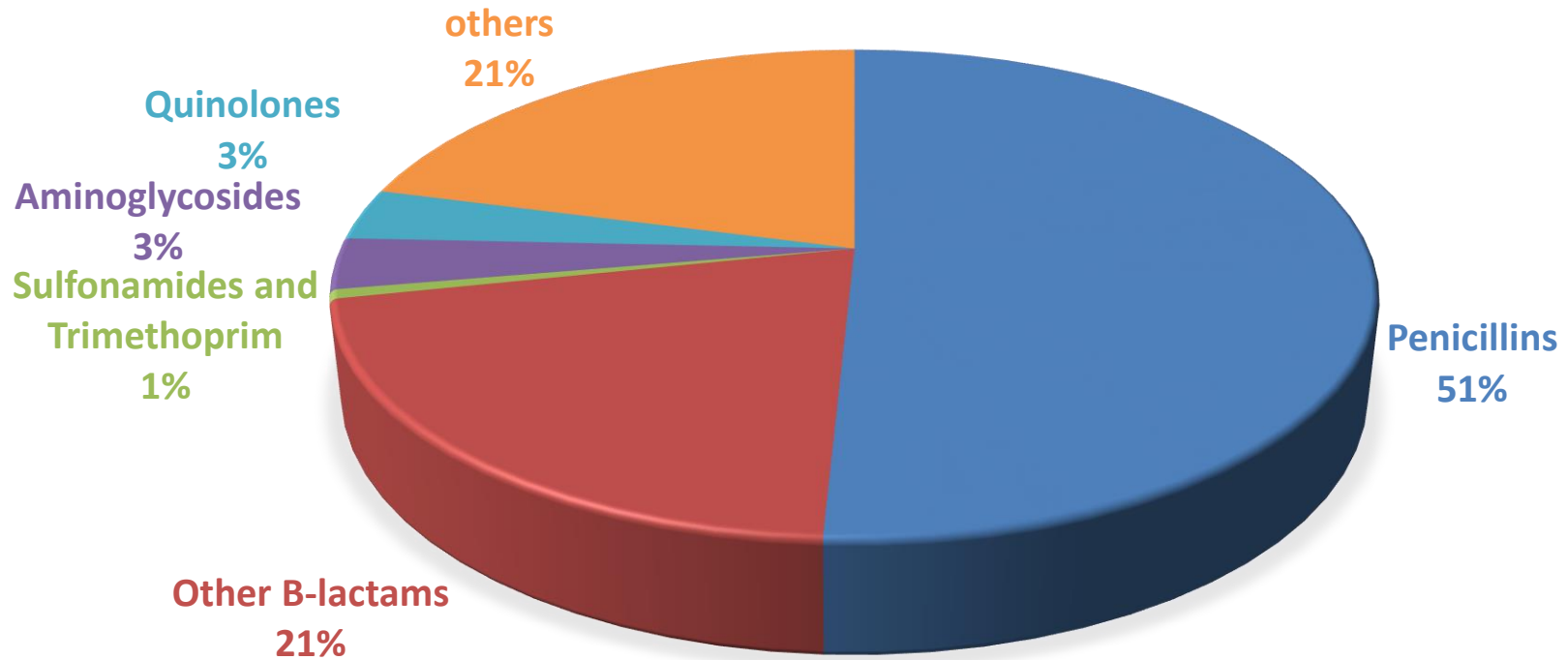


Results



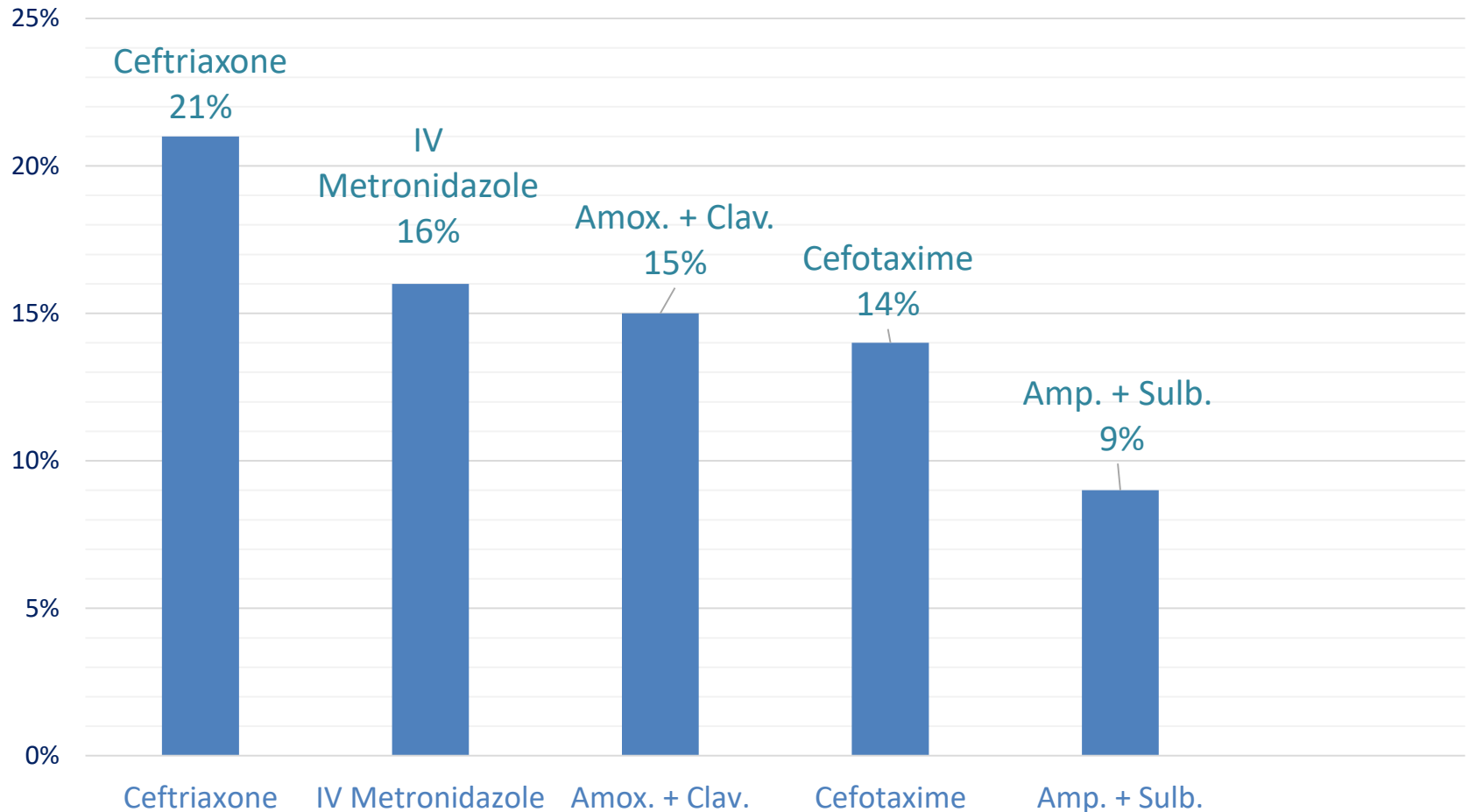
Results

Overall proportional antibiotic use for surgical patients



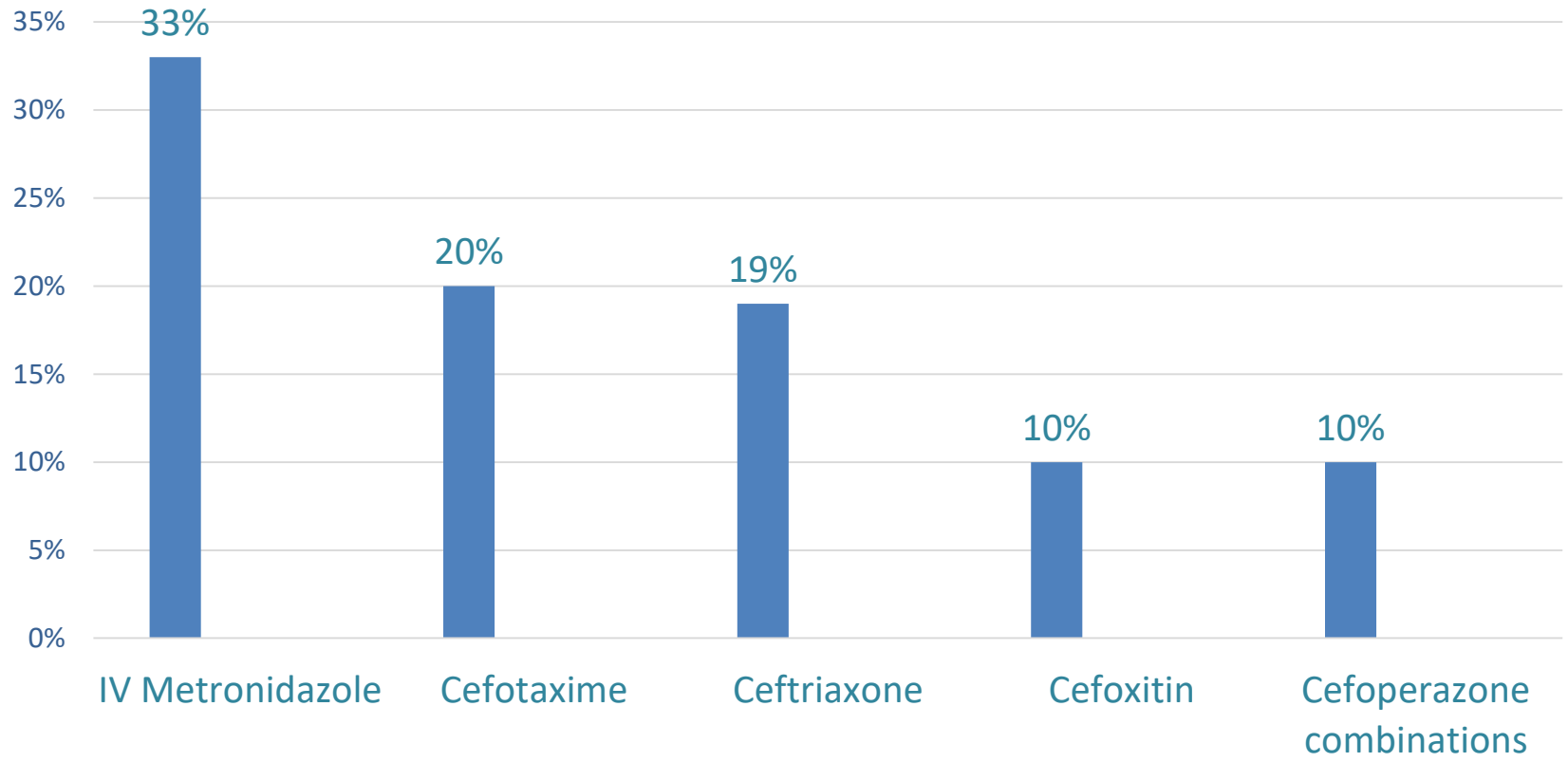
Results

Top 5 antimicrobials for surgical prophylaxis



Results

Top antimicrobials used for GI surgical prophylaxis



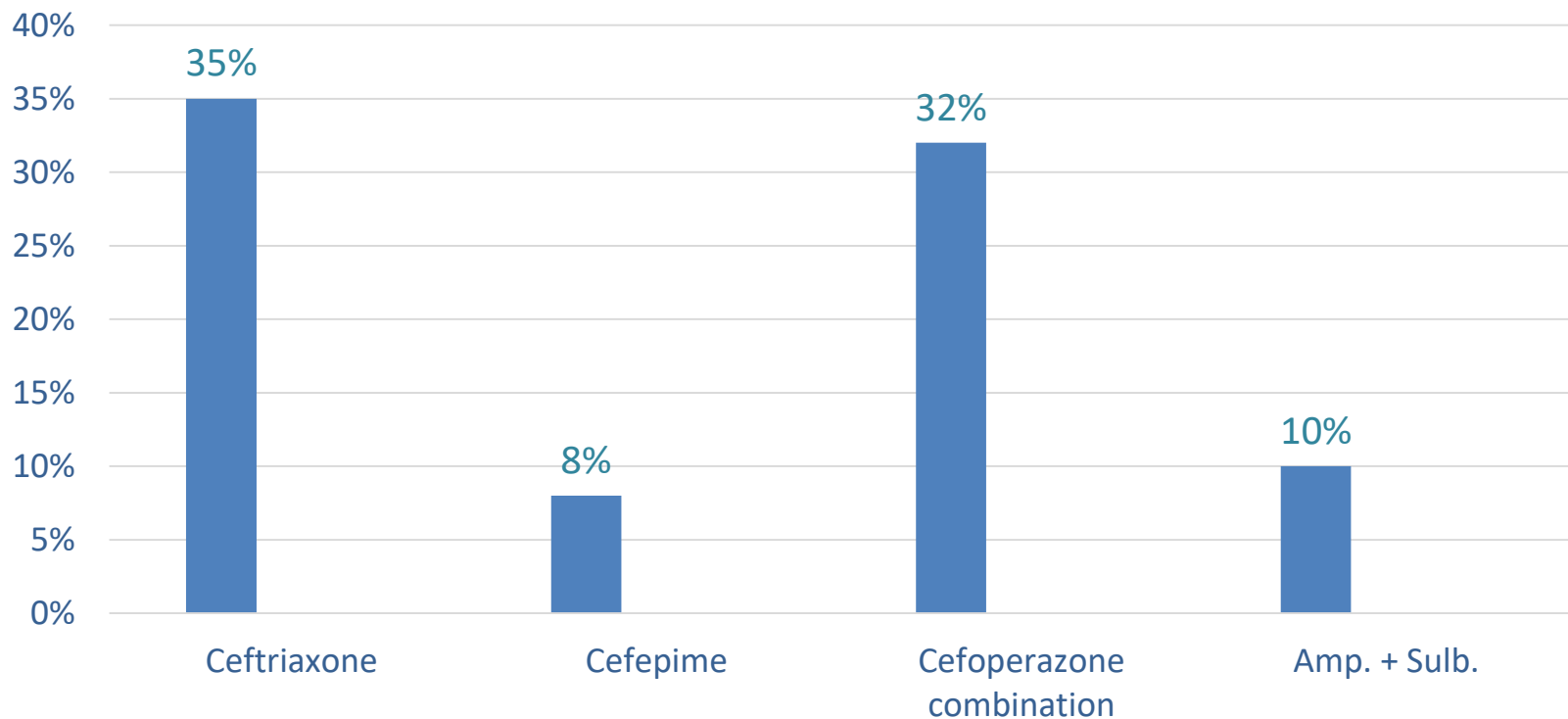
Results

Table 2.
Recommendations for Surgical Antimicrobial Prophylaxis

Type of Procedure	Recommended Agents ^{a,b}	Alternative Agents in Pts With β -Lactam Allergy	Strength of Evidence ^c
Cardiac			
Coronary artery bypass	Cefazolin, cefuroxime	Clindamycin, ^d vancomycin ^d	A
Cardiac device insertion procedures (e.g., pacemaker implantation)	Cefazolin, cefuroxime	Clindamycin, vancomycin	A
Ventricular assist devices	Cefazolin, cefuroxime	Clindamycin, vancomycin	C
Thoracic			
Noncardiac procedures, including lobectomy, pneumonectomy, lung resection, and thoracotomy	Cefazolin, ampicillin-sulbactam	Clindamycin, ^d vancomycin ^d	A
Video-assisted thoracoscopic surgery	Cefazolin, ampicillin-sulbactam	Clindamycin, ^d vancomycin ^d	C
Gastrointestinal^e			
Procedures involving entry into lumen of gastrointestinal tract (bariatric, pancreaticoduodenectomy)	Cefazolin	Clindamycin or vancomycin + aminoglycoside ^g or aztreonam or fluoroquinolone ^{h,i}	A
Procedures without entry into gastrointestinal tract (antireflux, highly selective vagotomy) for high-risk patients	Cefazolin	Clindamycin or vancomycin + aminoglycoside ^g or aztreonam or fluoroquinolone ^{h,i}	A
Biliary tract			
Open procedure	Cefazolin, cefoxitin, cefotetan, ceftriaxone, ^a ampicillin-sulbactam ^b	Clindamycin or vancomycin + aminoglycoside ^g or aztreonam or fluoroquinolone ^{h,i} Metronidazole + aminoglycoside ^g or fluoroquinolone ^{h,i}	A
Laparoscopic procedure			
Elective, low-risk ^f	None	None	A
Elective, high-risk ^f	Cefazolin, cefoxitin, cefotetan, ceftriaxone, ^a ampicillin-sulbactam ^b	Clindamycin or vancomycin + aminoglycoside ^g or aztreonam or fluoroquinolone ^{h,i} Metronidazole + aminoglycoside ^g or fluoroquinolone ^{h,i}	A
Appendectomy for uncomplicated appendicitis	Cefoxitin, cefotetan, cefazolin + metronidazole	Clindamycin + aminoglycoside ^g or aztreonam or fluoroquinolone ^{h,i} Metronidazole + aminoglycoside ^g or	A

Results

Top antimicrobials used for UTI surgical prophylaxis



Results

Table 2 (continued)

Type of Procedure	Recommended Agents ^{a,b}	Alternative Agents in Pts With β -Lactam Allergy	Strength of Evidence ^c
Hip fracture repair	Cefazolin	Clindamycin, ^d vancomycin ^d	A
Implantation of internal fixation devices (e.g., nails, screws, plates, wires)	Cefazolin	Clindamycin, ^d vancomycin ^d	C
Total joint replacement	Cefazolin	Clindamycin, ^d vancomycin ^d	A
Urologic			
Lower tract instrumentation with risk factors for infection (includes transrectal prostate biopsy)	Fluoroquinolone, ^{h,i} trimethoprim-sulfamethoxazole, cefazolin	Aminoglycoside ^g with or without clindamycin	A
Clean without entry into urinary tract	Cefazolin (the addition of a single dose of an aminoglycoside may be recommended for placement of prosthetic material [e.g., penile prostheses])	Clindamycin, ^d vancomycin ^d	A
Involving implanted prosthesis	Cefazolin \pm aminoglycoside, cefazolin \pm aztreonam, ampicillin-sulbactam	Clindamycin \pm aminoglycoside or aztreonam, vancomycin \pm aminoglycoside or aztreonam	A
Clean with entry into urinary tract	Cefazolin (the addition of a single dose of an aminoglycoside may be recommended for placement of prosthetic material [e.g., penile prostheses])	Fluoroquinolone, ^{h,i} aminoglycoside ^g with or without clindamycin	A
Clean-contaminated	Cefazolin + metronidazole, cefoxitin	Fluoroquinolone, ^{h,i} aminoglycoside ^g + metronidazole or clindamycin	A
Vascular ^g	Cefazolin	Clindamycin, ^d vancomycin ^d	A
Heart, lung, heart-lung transplantation ^g			
Heart transplantation ^g	Cefazolin	Clindamycin, ^d vancomycin ^d	A (based on cardiac procedures)
Lung and heart-lung transplantation ^g	Cefazolin	Clindamycin, ^d vancomycin ^d	A (based on cardiac procedures)
Liver transplantation ^g	Piperacillin-tazobactam, cefotaxime + ampicillin	Clindamycin or vancomycin + aminoglycosides or aztreonam or	B

Results

Summary for quality indicators in surgical wards:

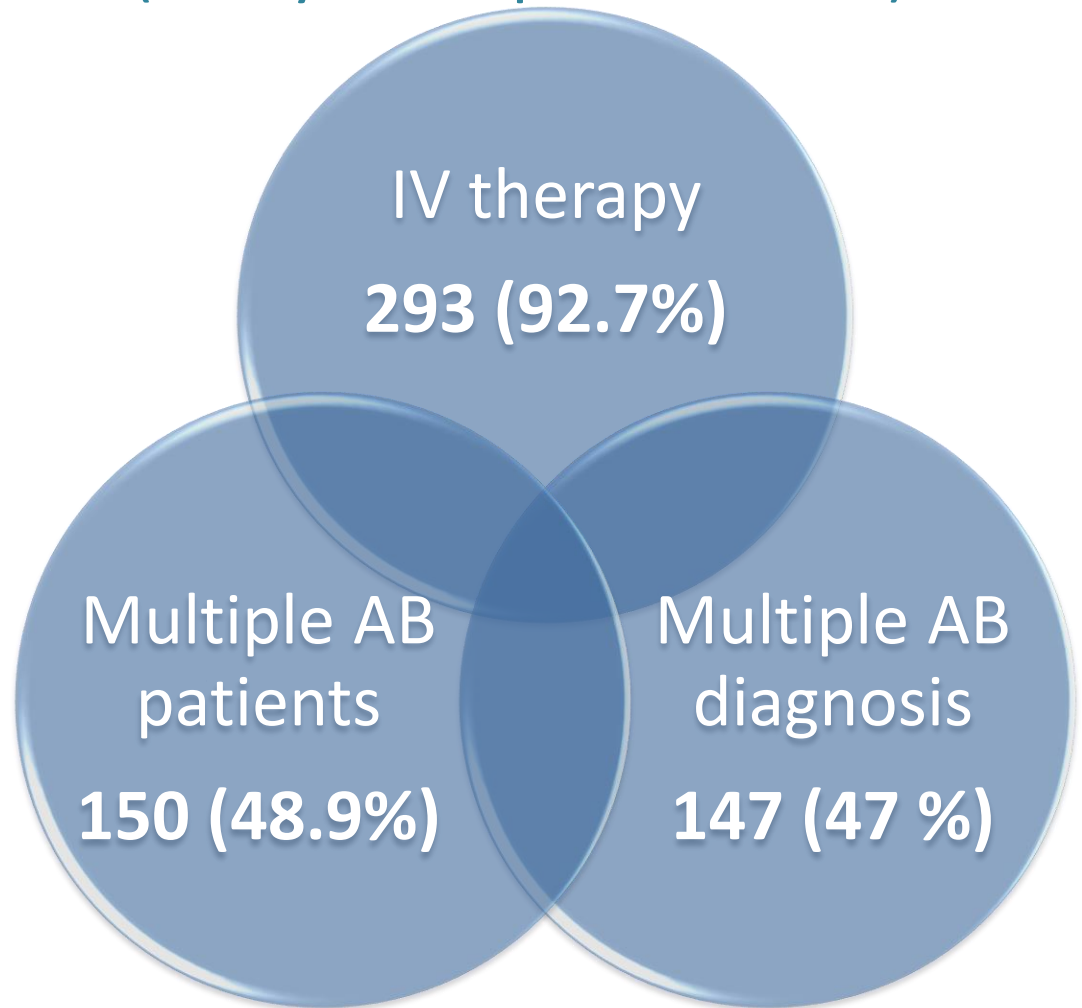
Indicator	N	%
Reasons in notes	232 (213 A - 19 P)	55.5
Guidelines missing	72 (68 A - 4 P)	15.2
Guidelines compliant	107 (99 A - 8 P)	41.5
Stop/review date documentation	82 (76 A - 6P)	17.3

- **For reason in notes and stop/review date documented:** Count at antibacterial level. **(418 antimicrobials)**
- **For guidelines missing:** Count on NA (= no local guidelines for the specific indication) at patient level and diagnosis over total scores for this indicator.
- **For guideline compliance:** Count at patient level and diagnosis for compliance = yes or no only. **(276 patients)**
- **For combination therapy with >1 antibiotic:** if 1 antibiotic by diagnosis is not compliant, this combination therapy as a whole for this diagnosis will be counted as non-compliant.

Results

Key prescription patterns (Analyses at patient level).

- **Multiple ATB diagnosis** is defined as receiving > 1 antibiotic (J01) for a single identified reason to treat (=diagnose code) at patient level.
- **Multiple ATB patient** is defined as receiving > 1 antibiotic (J01) at patient level.





Conclusion

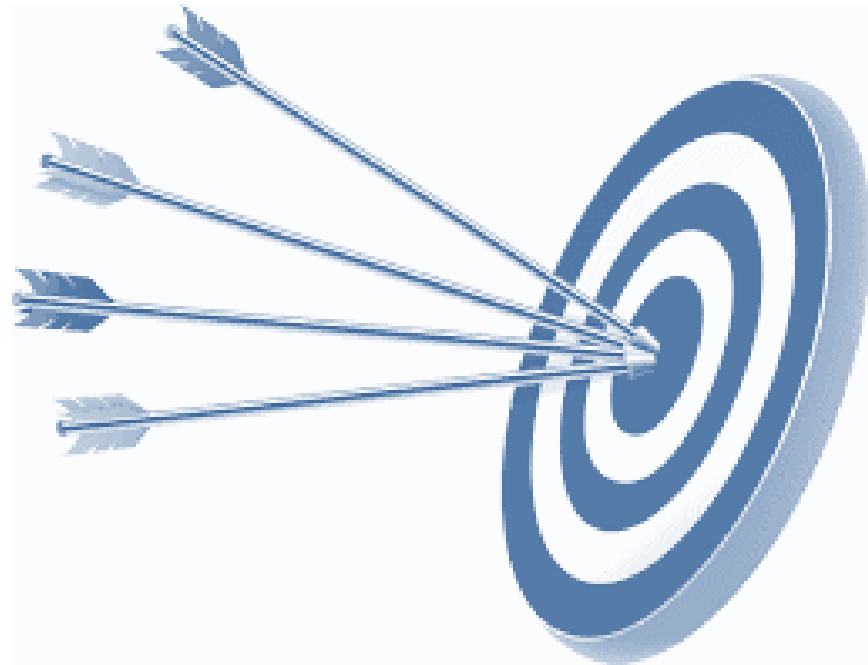
The **Global-PPS tool** allowed us to assess different areas where surgical prophylactic antimicrobial use were irrationally prescribed.

The **duration** of surgical prophylactic antimicrobial use of more than one day and **multiple antimicrobial agents** prescribing are the top identified priority problems for surgical prophylaxis in Egypt.

Implementation of **antimicrobial stewardship program** is highly recommended in order to rationalize the use of antimicrobials in Egypt, especially for surgical prophylaxis.

Conclusion

- The Global-PPS tool was very **beneficial** to set targets and we recommend to conduct it **periodically** in order to follow up interventions that have been taken.





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Sponsor:

BioMérieux is the sole sponsor of the GLOBAL Point Prevalence Survey.



Disclosures



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Thank you