Prophylactic Antimicrobial Use for Surgical Procedures in Egypt

Rational Drug Use Department
Hospital Pharmacy Administration
Central Administration for pharmaceutical Affairs – Ministry of Health

Aalaa Afdal M. Saber

BSc., MSc, BCPS, ASP pharmacist
MPA candidate – AUC

09-07-2018

Authors

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

Prophylactic Antimicrobial Use for Surgical Procedures in Egypt.

Aalaa Afdal[1], Raghda Shehab El-Din[1], Ann Versporten[2] Soaad Abdelalim[1], Safa Hassan Nada[1], Herman Goossens[2]

[1]Ministry Of Health, Cairo, Egypt;

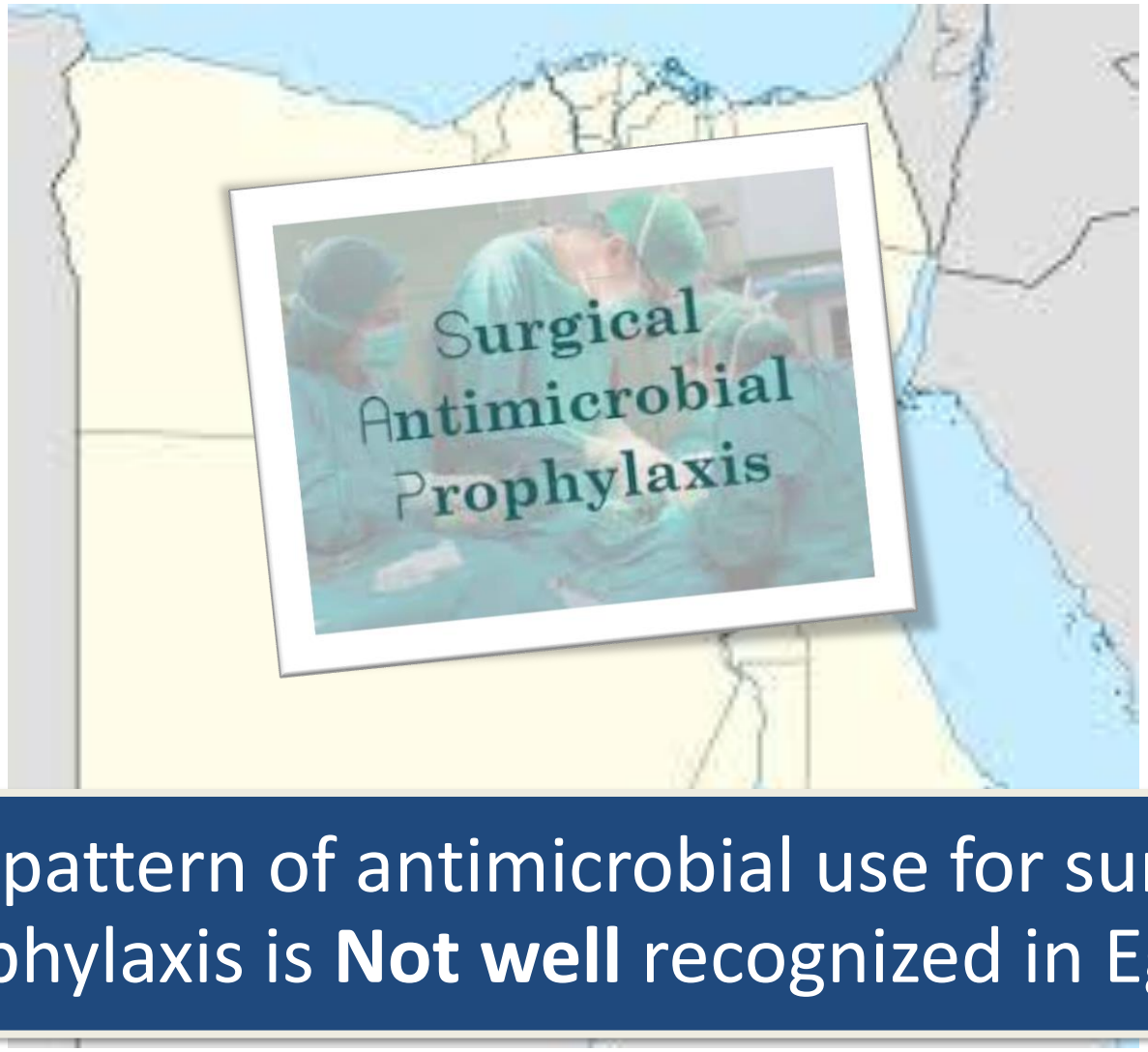
[2]Laboratory of Medical Microbiology, Vaccine and Infectious Diseases Institute, University of Antwerp, Antwerp, Belgium.

Content

- Background
- Methods
- Results
- Conclusion
- Acknowledgments

Africa

Background



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

Background

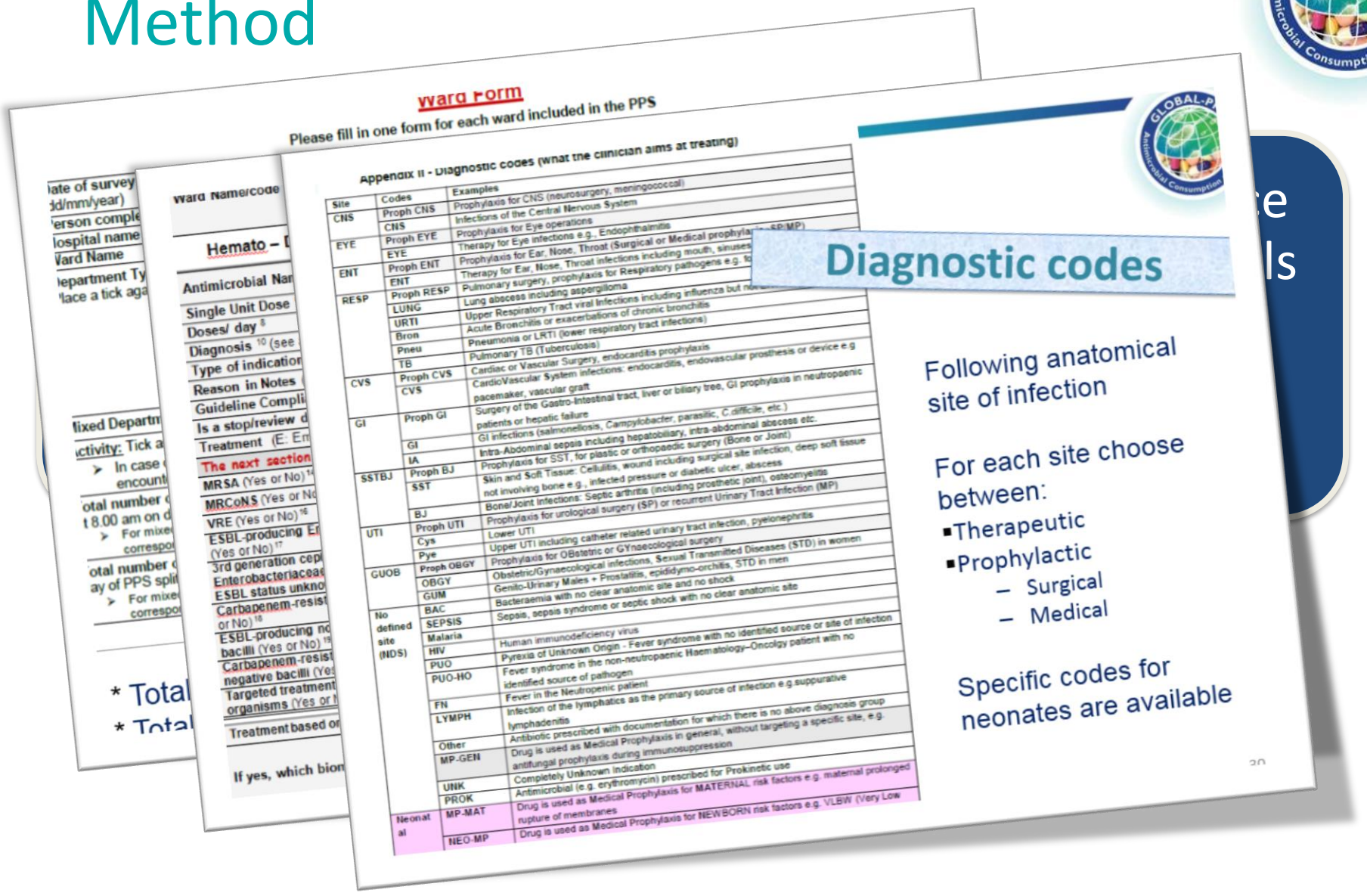
The Global Point Prevalence Survey of Antimicrobial Consumption and Resistance (GLOBAL-PPS) is a **well-known and validated** project collecting data to monitor rates of antimicrobial prescribing in hospitalised patients.

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

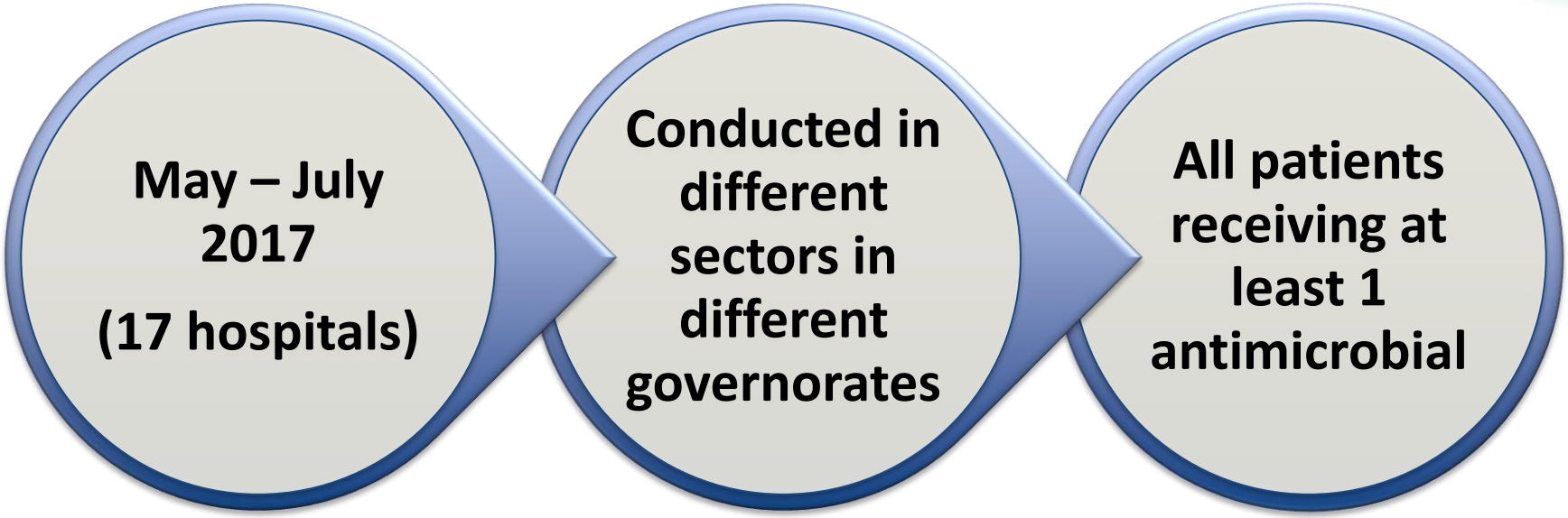
Methods

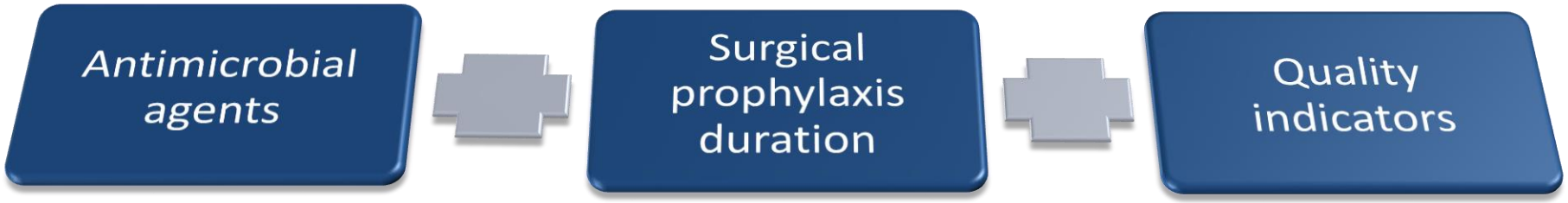

Data entry
Global Point Prevalence Survey on Antimicrobial Consumption and Resistance
Data entry
for data-entry, validation and reporting.
Documents
Download here study protocol and other documents.
Global Antimicrobial Stewardship
Learn how to use Point Prevalence Surveys (PPS) to measure antibiotic consumption and
Latest news
15
06, 2018
Global-PPS in the Lancet Global Health
Read the first overall Global-PPS results on antibio
prescribing and resistance in adults, published in t

Method

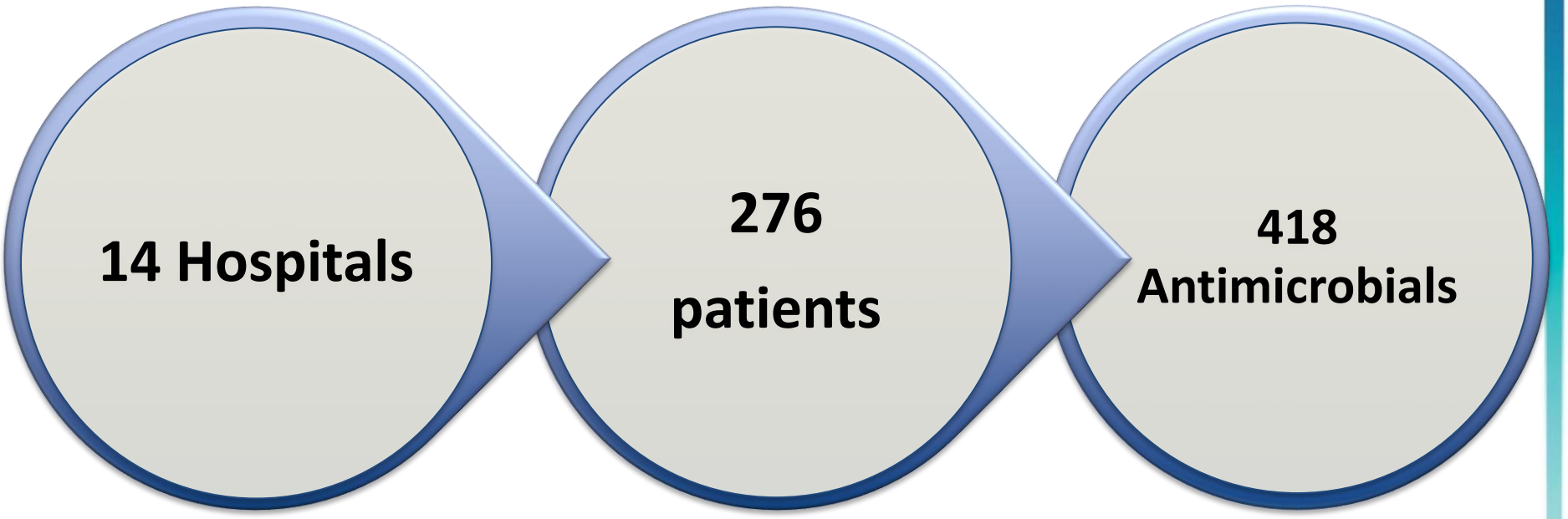

Ward Form
Please fill in one form for each ward included in the PPS
Appendix II - Diagnostic codes (what the clinician aims at treating)
Diagnostic codes
Following anatomical site of infection
For each site choose between:
Therapeutic
Prophylactic
Surgical
Medical
Specific codes for neonates are available

Methods


May – July 2017
(17 hospitals)
Conducted in different sectors in different governorates
All patients receiving at least 1 antimicrobial


Antimicrobial agents
Surgical prophylaxis duration
Quality indicators

Results



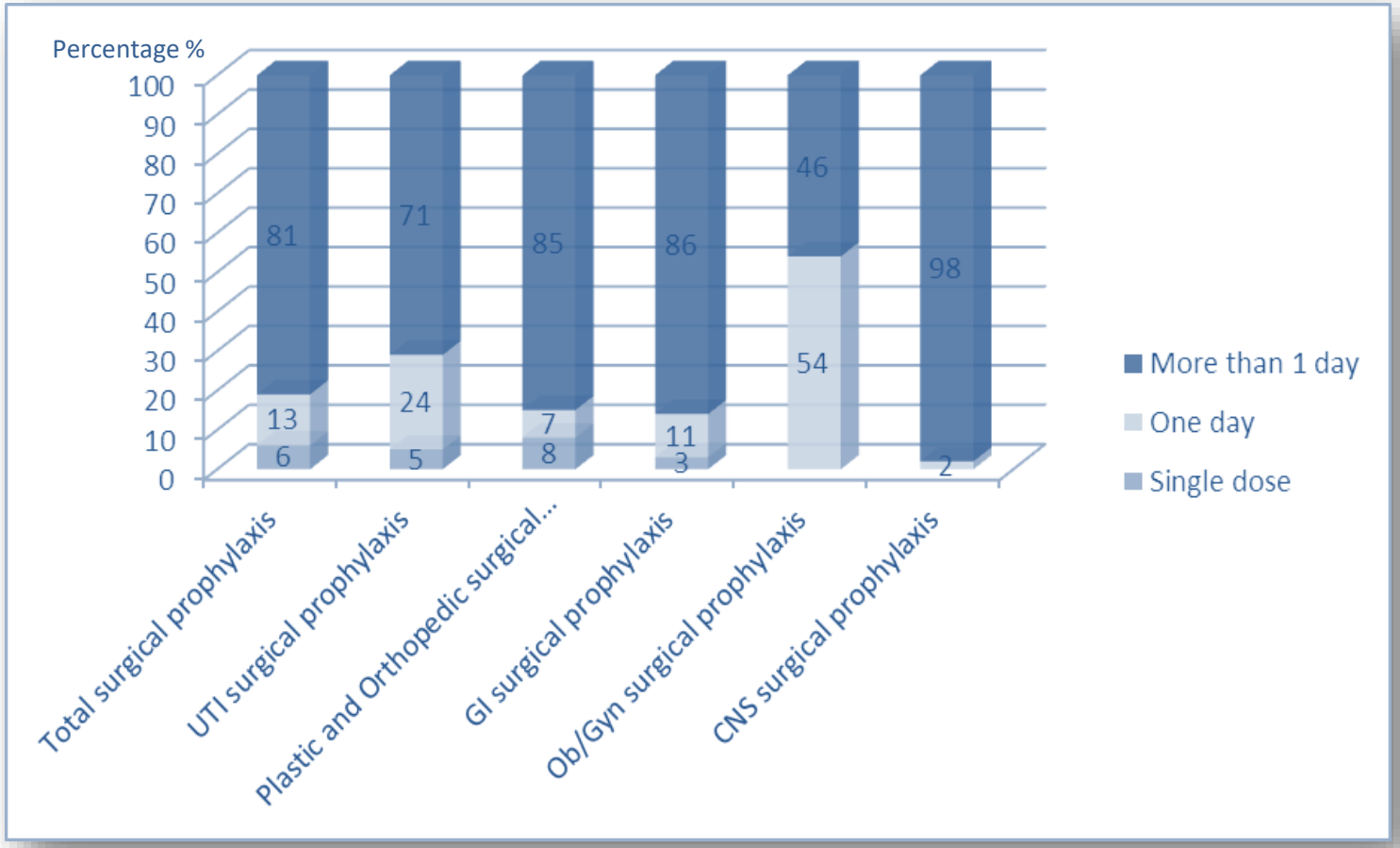
Methods

Surgical procedures surveyed

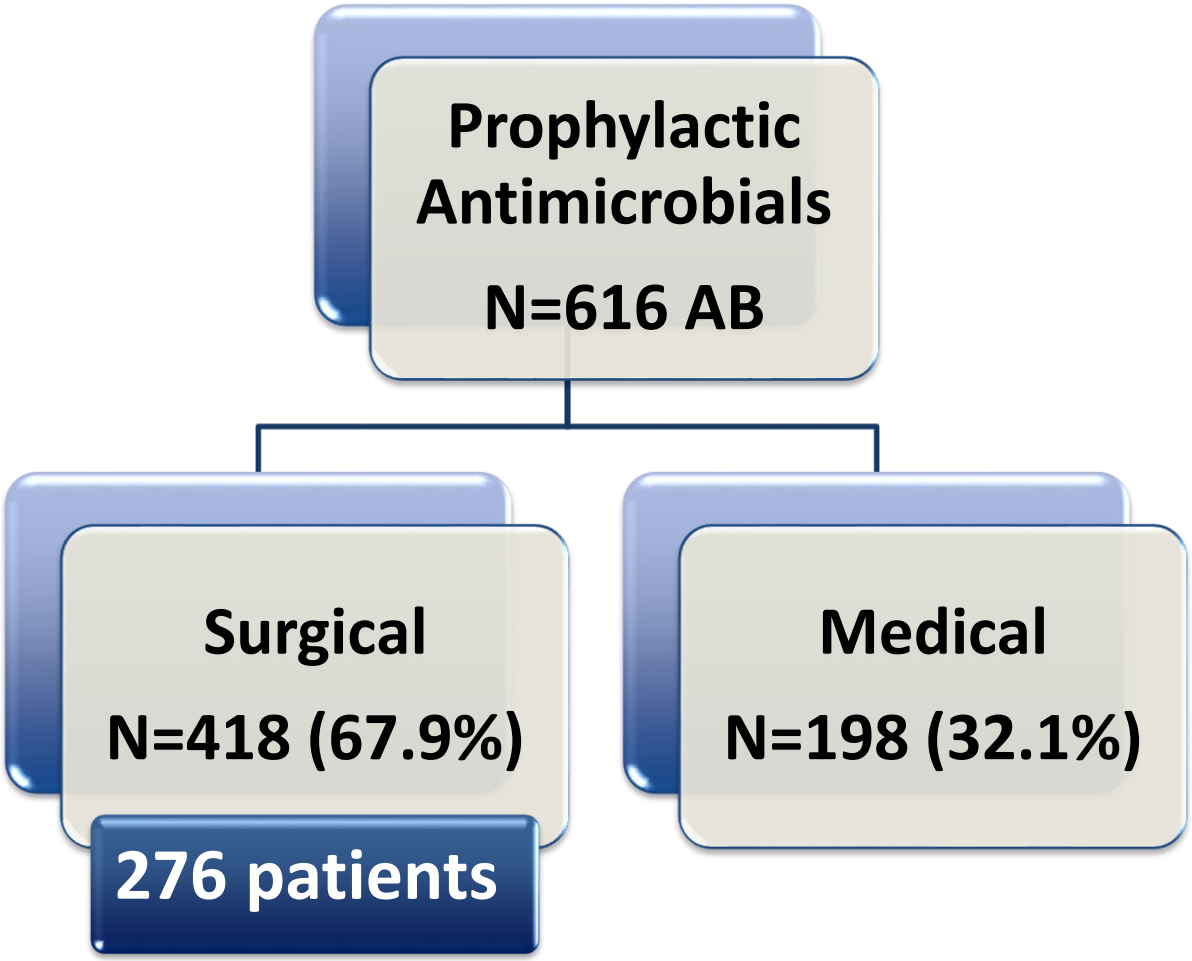
- **UTI** prophylaxis for adults and children
- **Plastic and orthopedic** surgery in adults and children
- **GI** prophylaxis in adults and children
- **Obstetric or gynecological** prophylaxis in adult wards
- **CNS** prophylaxis in adults and children

Results

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

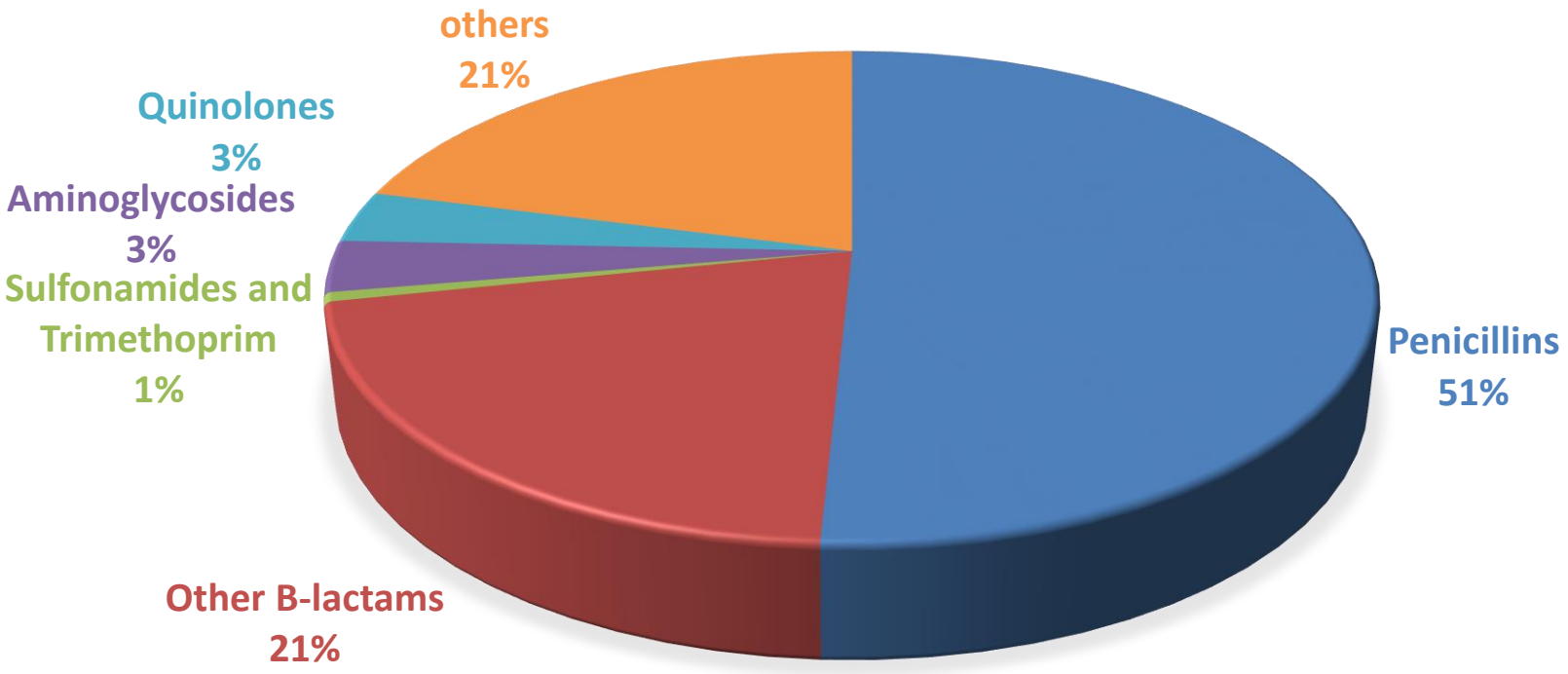


Results


Prophylactic Antimicrobials
N=616 AB
Surgical
N=418 (67.9%)
276 patients
Medical
N=198 (32.1%)

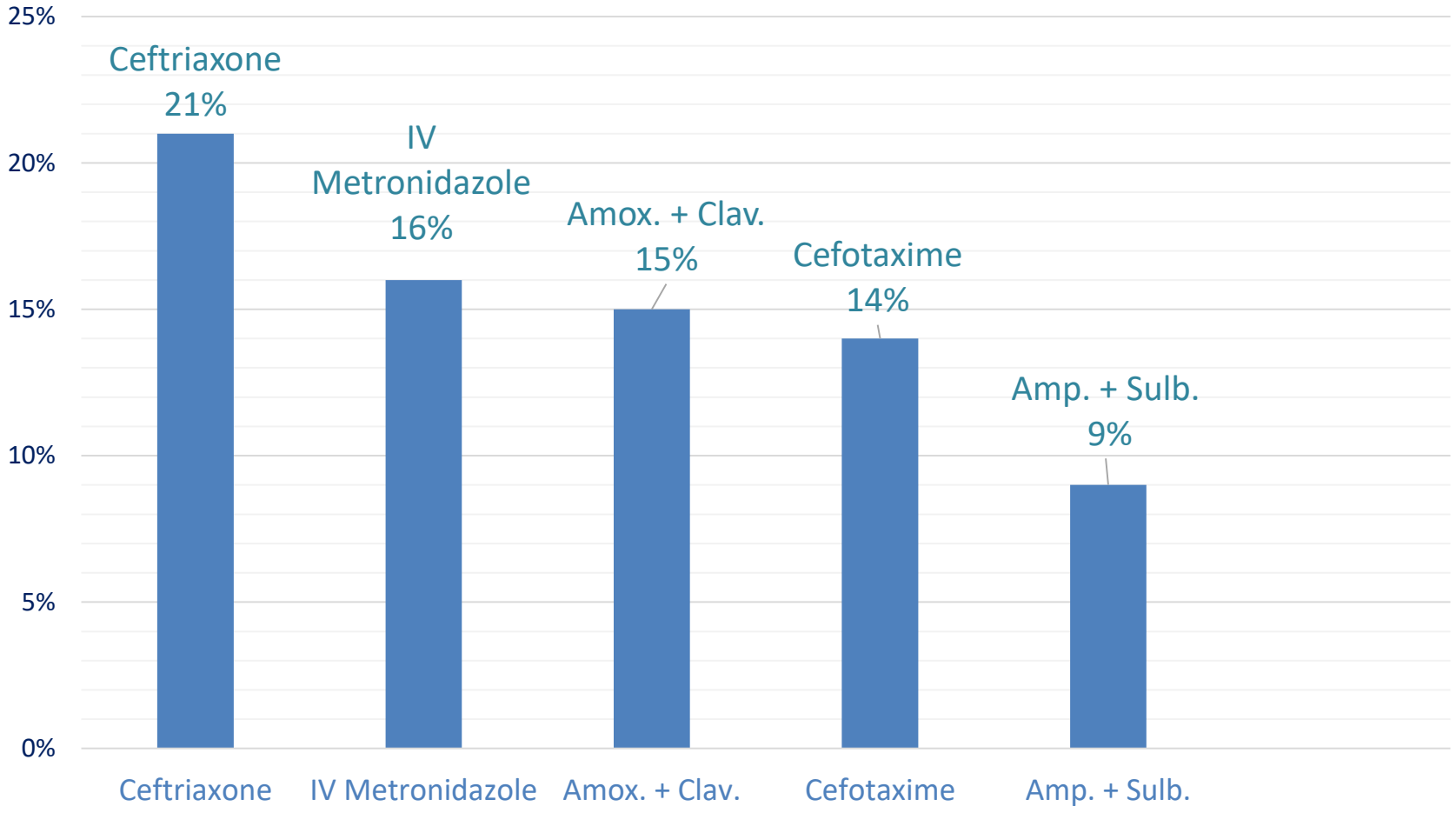
Results

Overall proportional antibiotic use for surgical patients

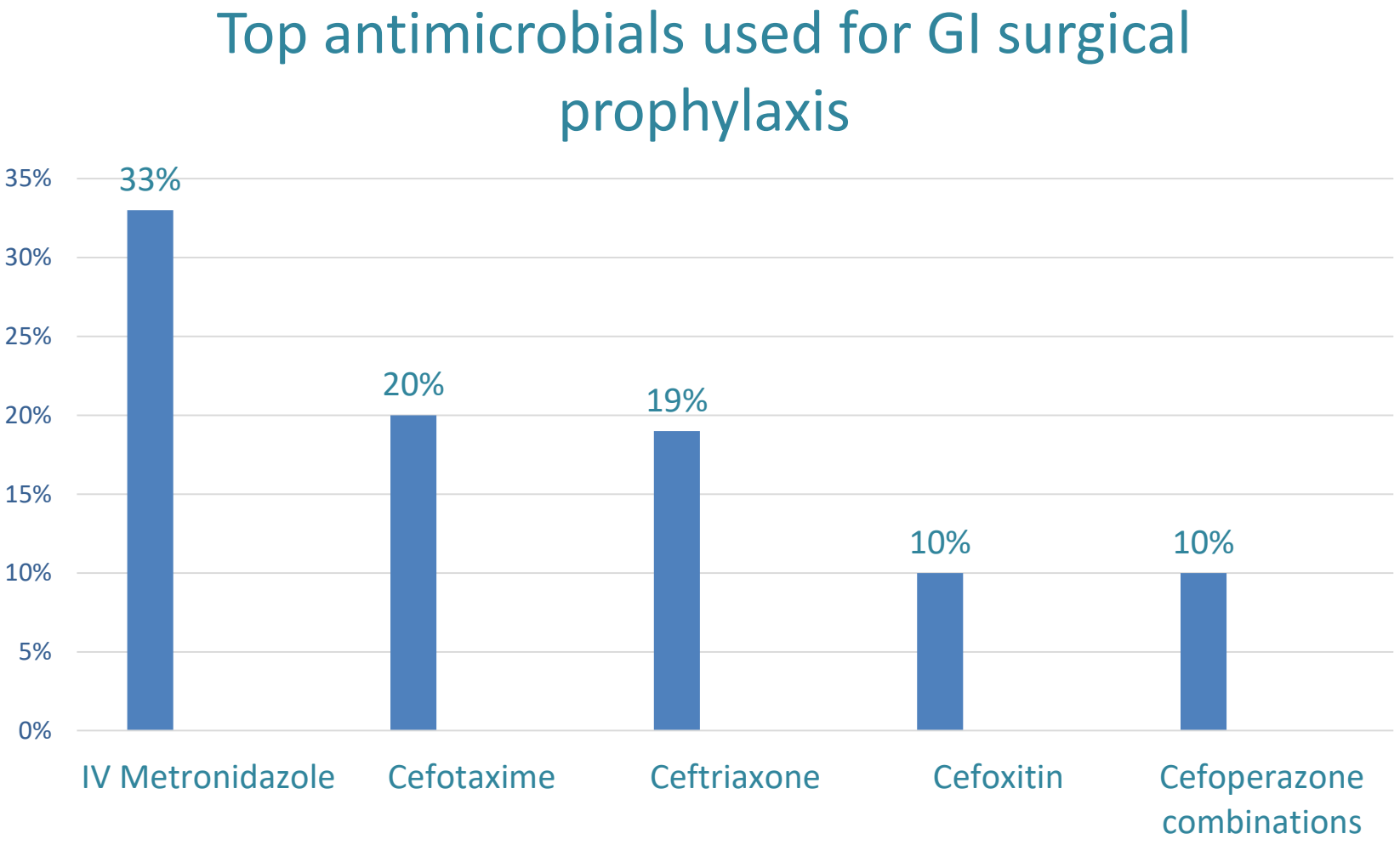


Results

Top 5 antimicrobials for surgical prophylaxis



Results


Top antimicrobials used for GI surgical prophylaxis
35%
30%
25%
20%
15%
10%
5%
0%
33%
20%
19%
10%
10%
IV Metronidazole
Cefotaxime
Ceftriaxone
Cefoxitin
Cefoperazone combinations

Results

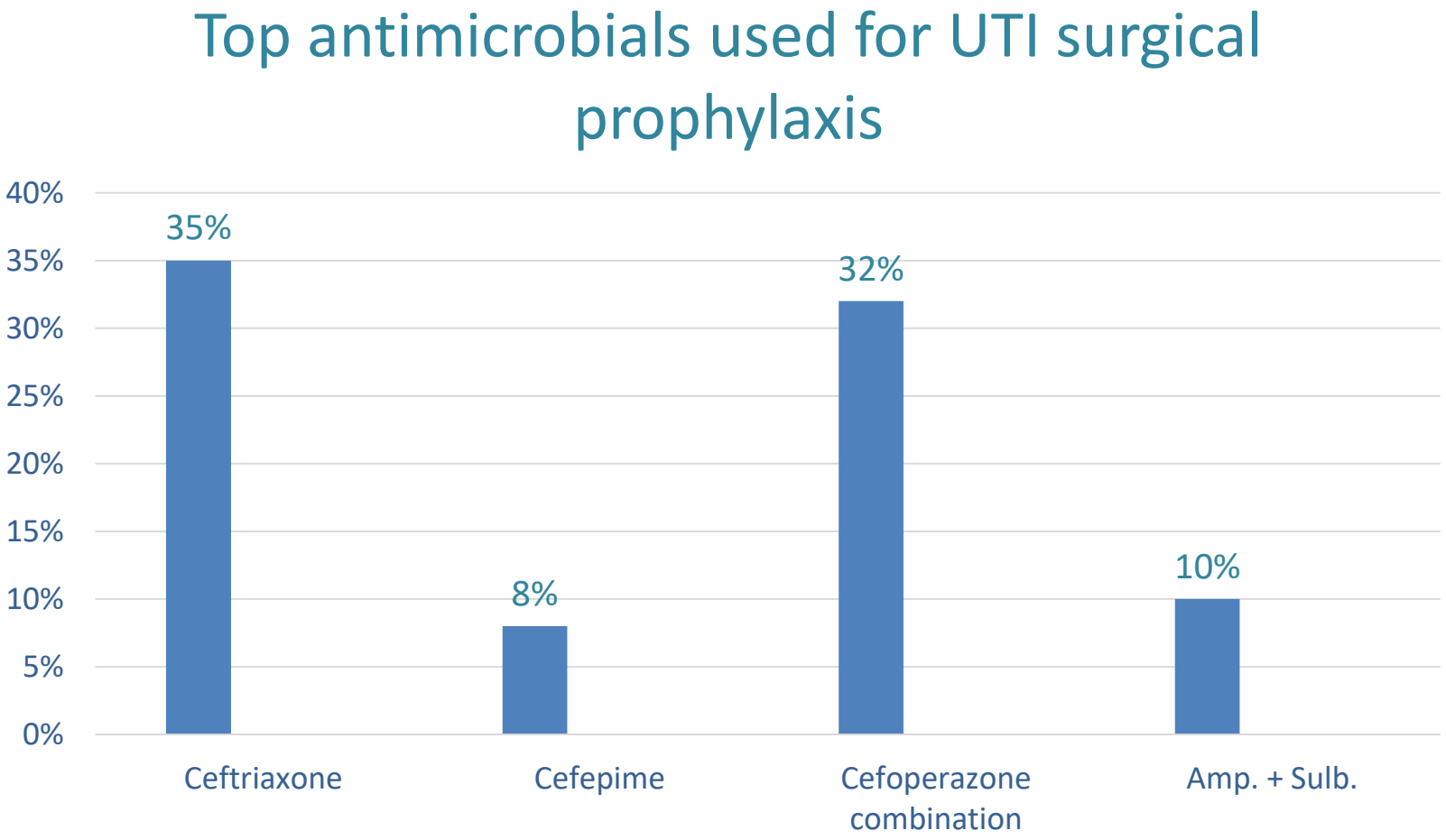
Table 2.
Recommendations for Surgical Antimicrobial Prophylaxis

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
Gastroduodenal[e]			
Procedures involving entry into lumen of gastrointestinal tract (bariatric, pancreaticoduodenectomy[f])	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,[k] ampicillin–sulbactam[h]	Clindamycin or vancomycin + aminoglycoside[g] or aztreonam or fluoroquinolone[h,i] Metronidazole + aminoglycoside[g] or fluoroquinolone[h,i]	A
Laparoscopic procedure			
Elective, low-risk[j]	None	None	A
Elective, high-risk[j]	Cefazolin, cefoxitin, cefotetan, ceftriaxone,[k] ampicillin–sulbactam[h]	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

Am J Health-Syst Pharm—Vol 70 Feb 1,

ASHP REPORT Antimicrobial pr

Results


Top antimicrobials used for UTI surgical prophylaxis
40%
35%
30%
25%
20%
15%
10%
5%
0%
35%
8%
32%
10%
Ceftriaxone
Cefepime
Cefoperazone combination
Amp. + Sulb.

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 prosthesis])	Clindamycin,[d] vancomycin[d]	A
Involving implanted prosthesis	Cefazolin ± aminoglycoside, cefazolin ± aztreonam, ampicillin–sulbactam	Clindamycin ± aminoglycoside or aztreonam, vancomycin ± 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 prosthesis])	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[p]	Cefazolin	Clindamycin,[d] vancomycin[d]	A
Heart, lung, heart–lung transplantation[q]			
Heart transplantation[r]	Cefazolin	Clindamycin,[d] vancomycin[d]	A (based on cardiac procedures)
Lung and heart–lung transplantation[r,s]	Cefazolin	Clindamycin,[d] vancomycin[d]	A (based on cardiac procedures)
Liver transplantation[q,t]	Piperacillin–tazobactam, cefotaxime + ampicillin	Clindamycin or vancomycin + aminoglycosides or aztreonam or	B

Am J Health-Syst Pharm—V

ASHP REPORT Antimic

Results

Summary for quality indicators in surgical wards:

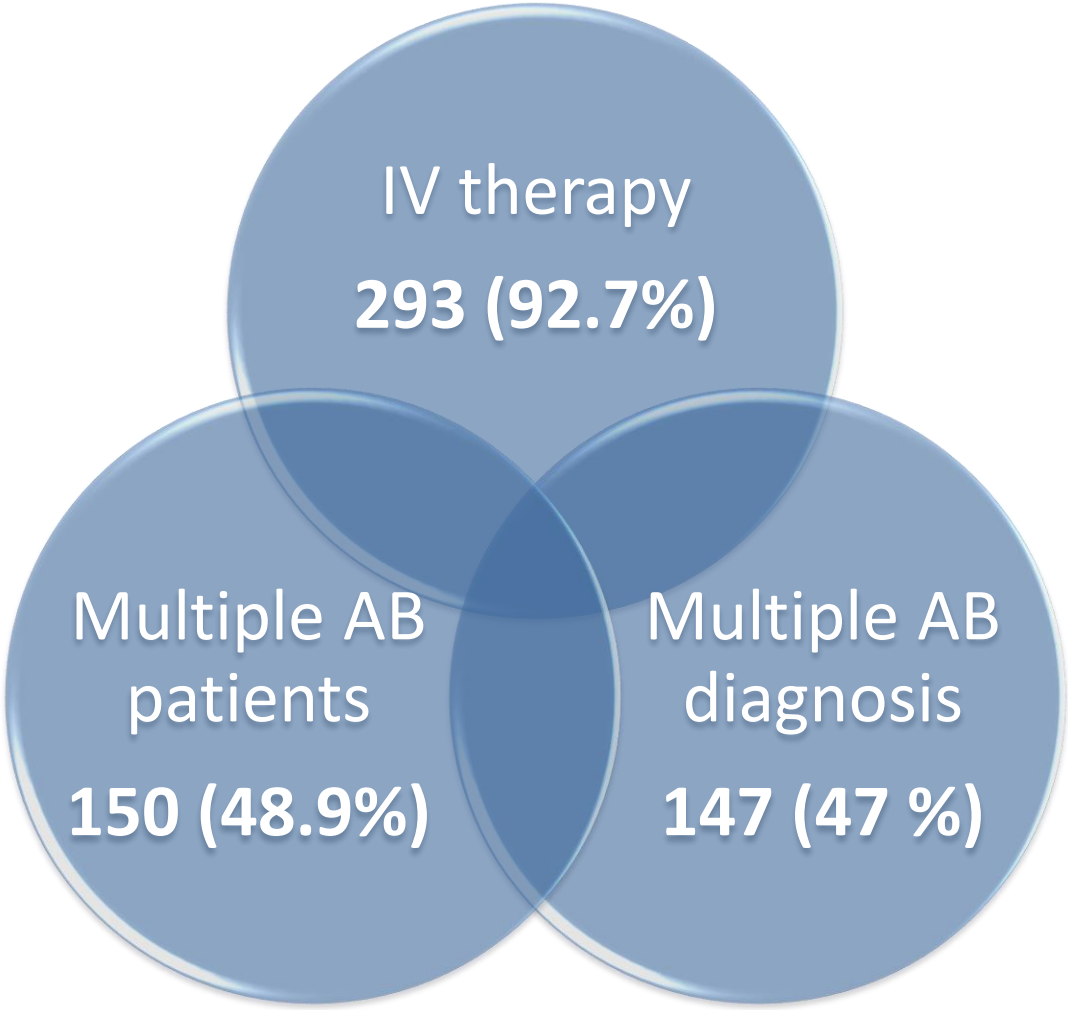
Indicator	N	%
Reasons in notes	232 (213 A - 19 P)	55.5
Guidelines missing	72 (68 A - 4 P)	15.2
Guidelines compliant	107 (99 A - 8 P)	41.5
Stop/review date documentation	82 (76 A - 6P)	17.3

- **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

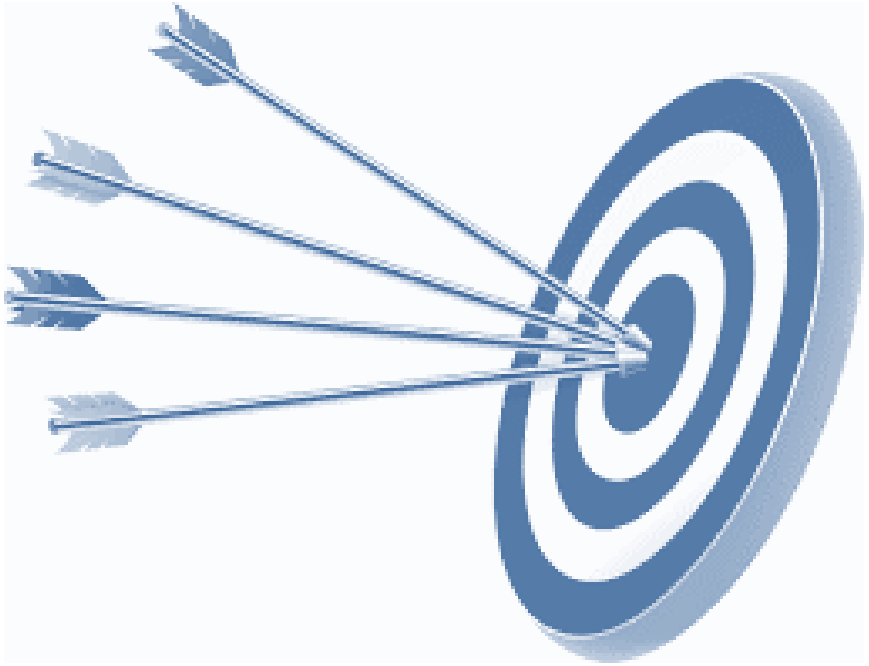
The **Global-PPS tool** allowed us to assess different areas where surgical prophylactic antimicrobial use were irrationally prescribed.

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.



Acknowledgements

1. Head of Hospital Pharmacy Administration.
2. Rational drug use department team.
3. Laboratory of Medical Microbiology, Vaccine and Infectious Diseases Institute, University of Antwerp, Antwerp, Belgium;
4. All healthcare professionals who helped us to conduct the survey and collect data.

Sponsor:

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

Disclosures

"BioMérieux is the sole private sponsor of the GLOBAL Point Prevalence Survey. The Global-PPS is also funded by a personal Methusalem grant to Herman Goossens of the Flemish government. The funder has no role in study design, data collection, data analysis, data interpretation, or writing the report.
Data are strictly confidential and stored anonymous at the coordinating center of the University of Antwerp."


Thank you