

Key benefits of effective AMS program



- Improved patient care;
- Reduced risk of antimicrobial resistance;
- Decreased hospital stay;
- Minimised cost



AMS Challenges in Rural & Regional Areas



- Despite the recognised role of AMS programs, there remain challenges in the implementation and sustainability of these programs in rural and regional hospitals due to factors relating to:
 - Patient access to services.
 - Decreased availability of resources
 - Lack of infrastructure.
 - Lack of funding.
 - Limited on-site infectious diseases and Microbiology trained staff.



A bit about MBH



- Total beds: 170 beds
- Surg – Gen Surg+Uro+Ortho+Obs&Gynae
- ICU – 4 beds with 6 other HDU/CCU
- Medical including oncology, haematology

- Medical AMS – One hour per week
- Surgical AMS – Once weekly
- ICU AMS – Twice weekly



Effectiveness of AMS program at MBH



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ORIGINAL RESEARCH



The effectiveness of an antimicrobial stewardship program in an Australian rural hospital

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Aim(s)



Prescription of restricted antibiotics for medical, surgical and ICU patients undergoing AMS review.

- Patient demographics.
- Antibiotic indications.
- Review the appropriateness of restricted antibiotic prescription as per the National Antimicrobial Prescribing Survey (NAPS) criteria.
- AMS advice adherence rates (at 48hours)





Hospital NAPS appropriateness definitions

		If endorsed guidelines are present	If endorsed guidelines are absent
Appropriate	1 Optimal¹	Antimicrobial prescription follows either the Therapeutic Guidelines ² or endorsed local guidelines <i>optimally</i> , including antimicrobial choice, dosage, route and duration ³	The antimicrobial prescription has been reviewed and endorsed by an infectious diseases clinician or a clinical microbiologist OR The prescribed antimicrobial will cover the likely causative or cultured pathogens and there is not a narrower spectrum or more appropriate antimicrobial choice, dosage, route or duration ³ available
	2 Adequate	Antimicrobial prescription does not optimally follow the Therapeutic Guidelines ² or endorsed local guidelines, including antimicrobial choice, dosage, route or duration ³ , however, is a reasonable alternative choice for the likely causative or cultured pathogens OR For surgical prophylaxis, as above and duration ³ is less than 24 hours	Antimicrobial prescription including antimicrobial choice, dosage, route and duration ³ is not the most optimal, however, is a reasonable alternative choice for the likely causative or cultured pathogens OR For surgical prophylaxis, as above and duration ³ is less than 24 hours
Inappropriate	3 Suboptimal	There may be a mild or non-life-threatening allergy mismatch OR Antimicrobial prescription including antimicrobial choice, dosage, route and duration ³ , is an unreasonable choice for the likely causative or cultured pathogens, including: <ul style="list-style-type: none"> • spectrum excessively broad, unnecessary overlap in spectrum of activity, dosage excessively high or duration excessively long • failure to appropriately de-escalate with microbiological results 	
	4 Inadequate	Antimicrobial prescription including antimicrobial choice, dosage, route or duration ³ is unlikely to treat the likely causative or cultured pathogens OR The documented or presumed indication does not require any antimicrobial treatment OR There may be a severe or possibly life-threatening allergy mismatch, or the potential risk of toxicity due to drug interaction OR For surgical prophylaxis, the duration ³ is greater than 24 hours (except where local guidelines endorse this)	
	5 Not assessable	The indication is not documented and unable to be determined from the notes OR The notes are not comprehensive enough to assess appropriateness OR The patient is too complex, due to multiple co-morbidities, allergies or microbiology results, <i>etc.</i>	

Study Design



- Local observational retrospective study conducted over a 3-month period from March to May 2021.
- Teams of up to four data collectors comprising junior doctors and medical students were assigned to one of the three clinical areas (medicine, surgery and ICU)

Participants



Inclusion:

- Inpatients greater than or equal to 18 years of age who were prescribed restricted antibiotics.
- Patients admitted to the medical, surgical or ICU service from 1st March to 31st May 2021.

Exclusion:

- Paediatric patients.
- Patients who had not undergone AMS review.
- Patients not on restricted antibiotics.

Methods



- Inpatient list was provided by the pharmacist weekly for surgical and medical patients and twice-weekly for ICU patients.
- ID physician discussed each patient with the treating team and reviewed relevant microbiology investigations.
- AMS advice was given based on the information available, the notes of which were recorded.

Results



- A total of 153 AMS reviews were included in this study.
 - 100 AMS entries were recorded for 79 unique patients in the medical or surgical ward.
 - 53 AMS entries were recorded for 23 individual patients in the ICU.





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Medical & Surgical Results



Patient Population



- Medical (29) and surgical (50) patients.
 - 58.2% of patients were male and 41.8% were female.
 - Average age of 70 years.
 - 11.5% of patients had a penicillin allergy .
 - Average length of hospital stay was 11 days (median 7 days),
 - Maximum length of stay by a single patient was 125 days.
 - Maximum number of AMS reviews from a single patient was four.
 - Maximum number of antibiotics prescribed to a patient during a single admission that underwent AMS review was four.



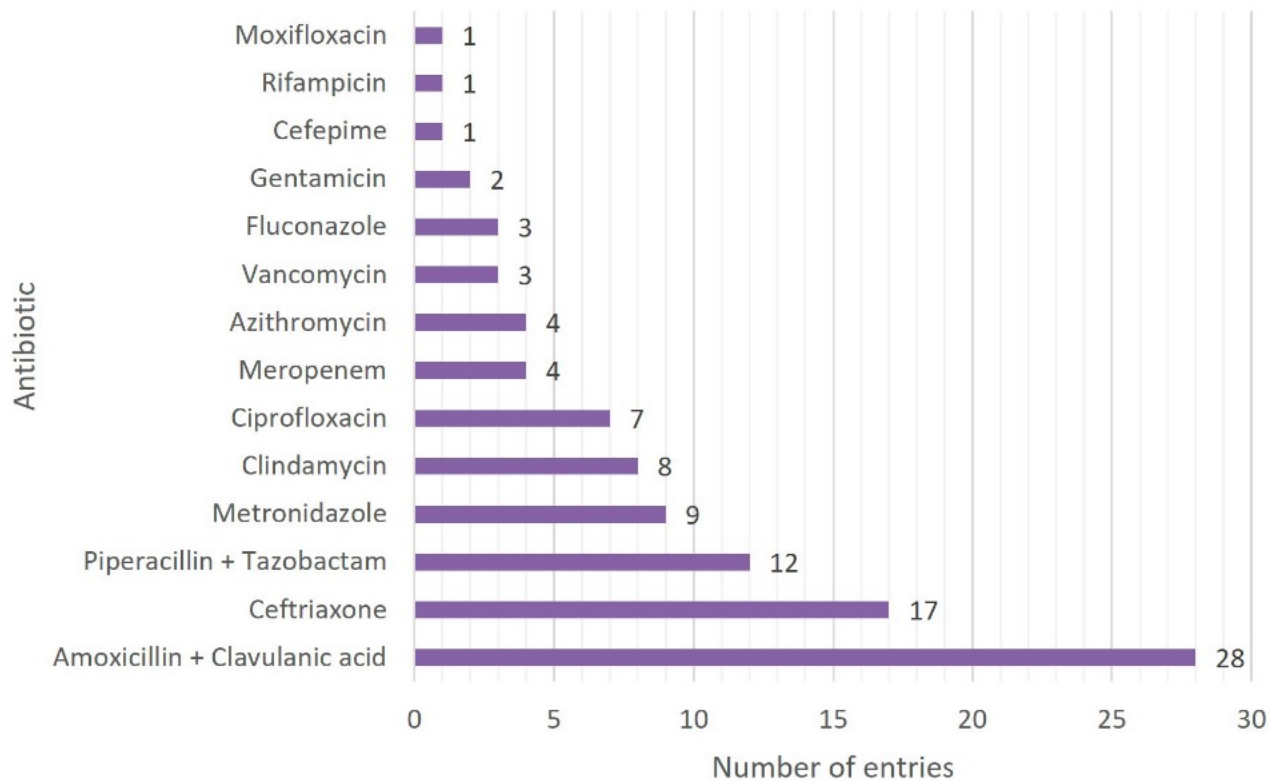
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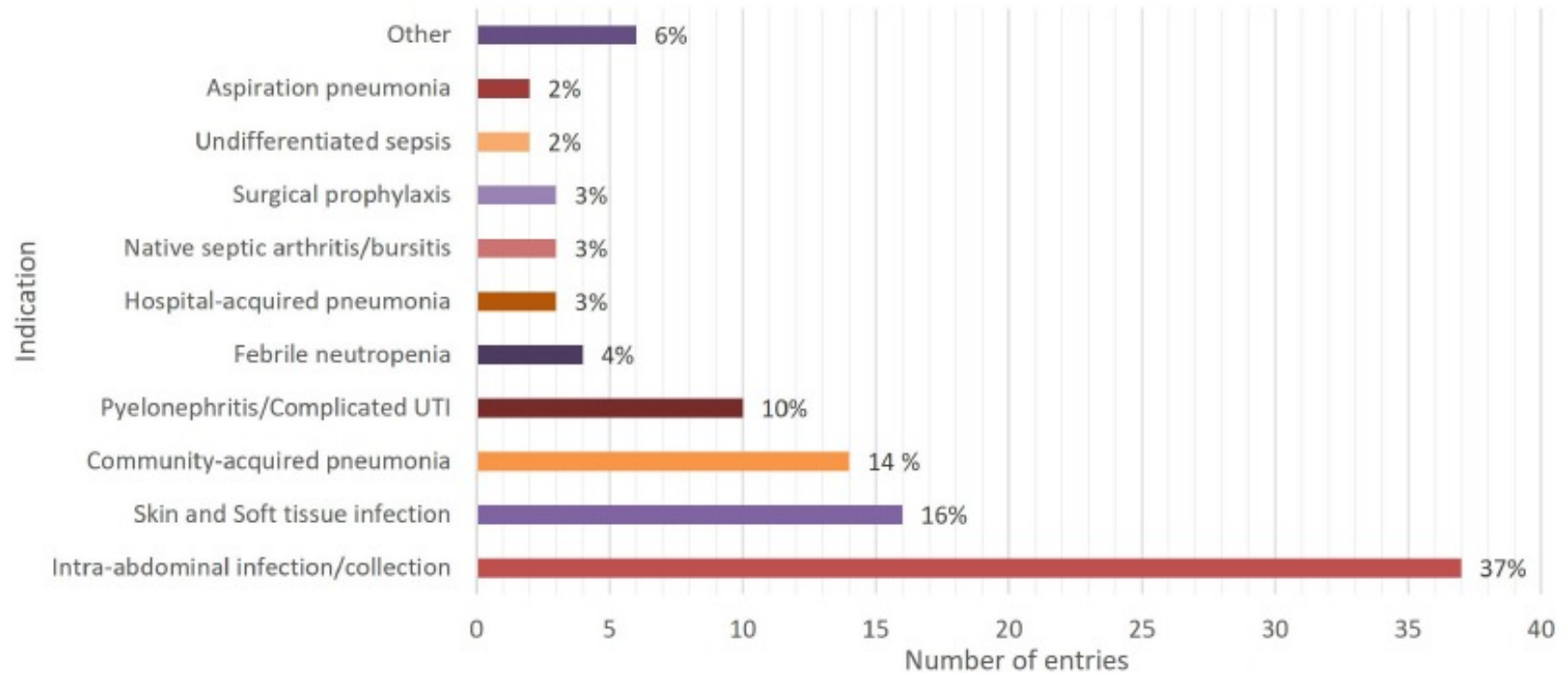
Type of Antimicrobials used in Medical & Surgical units



Type and average duration of antibiotics, medical and surgical



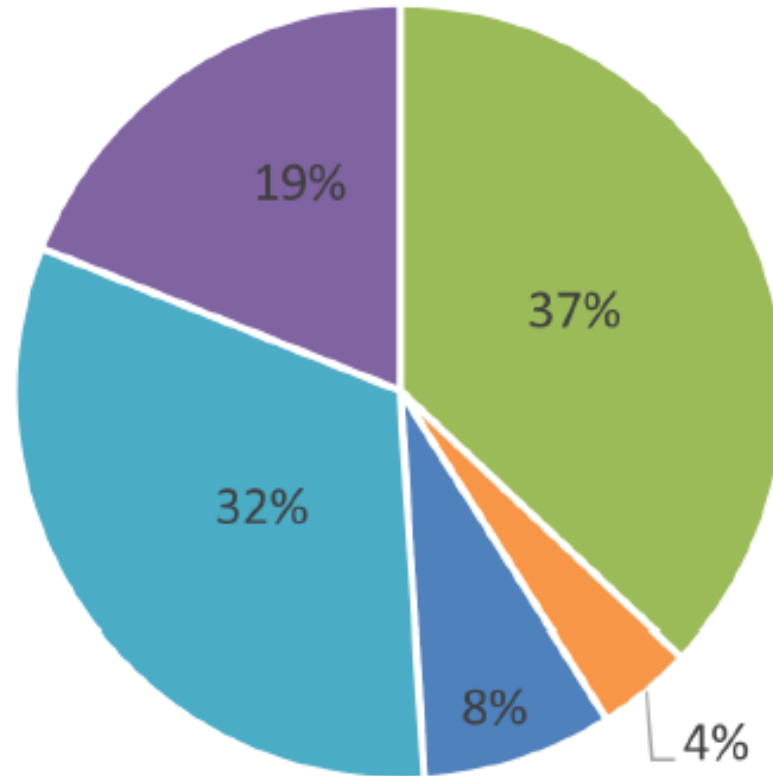
Indication for Antimicrobials



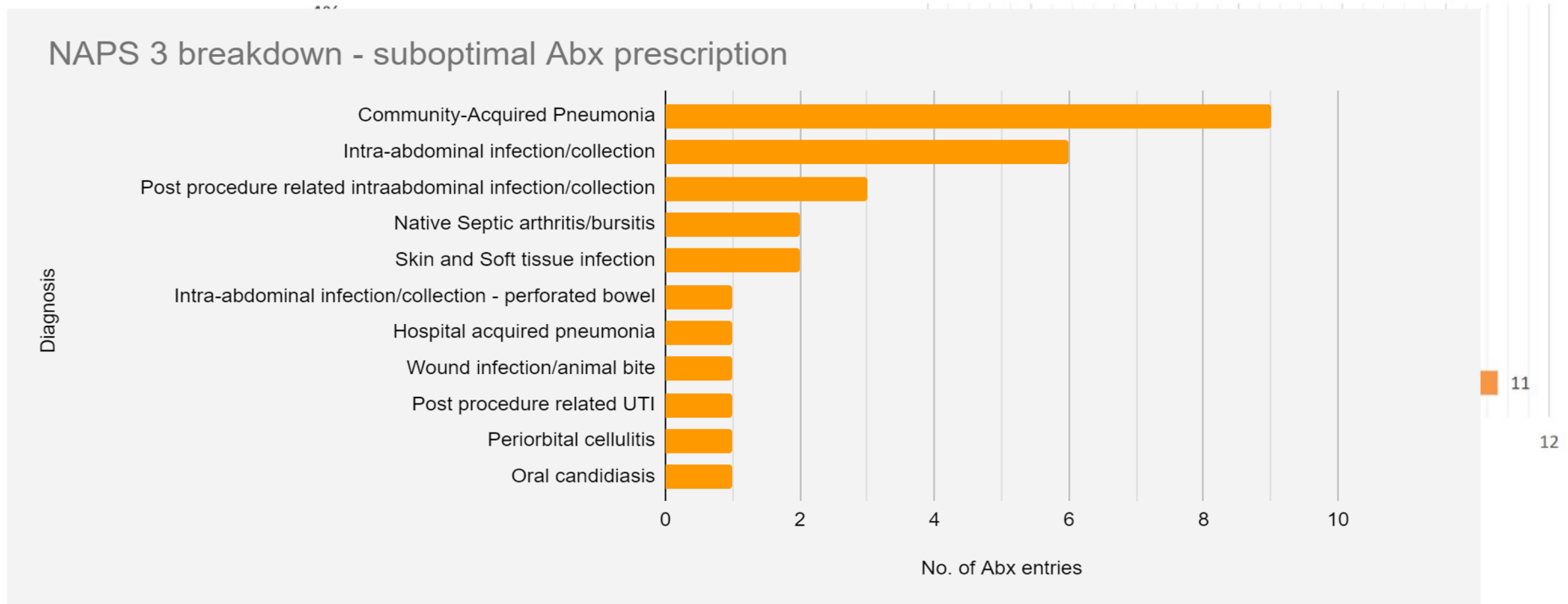
AMS Advice



- Continue current IV/PO Abx
- Switch to BS IV Abx
- Switch to NS IV Abx
- Switch to NS PO Abx
- Cease Abx



NAPS Appropriateness



NAPS Appropriateness Rating

1. Optimal
2. Adequate
3. Suboptimal
4. Inadequate



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ICU Results

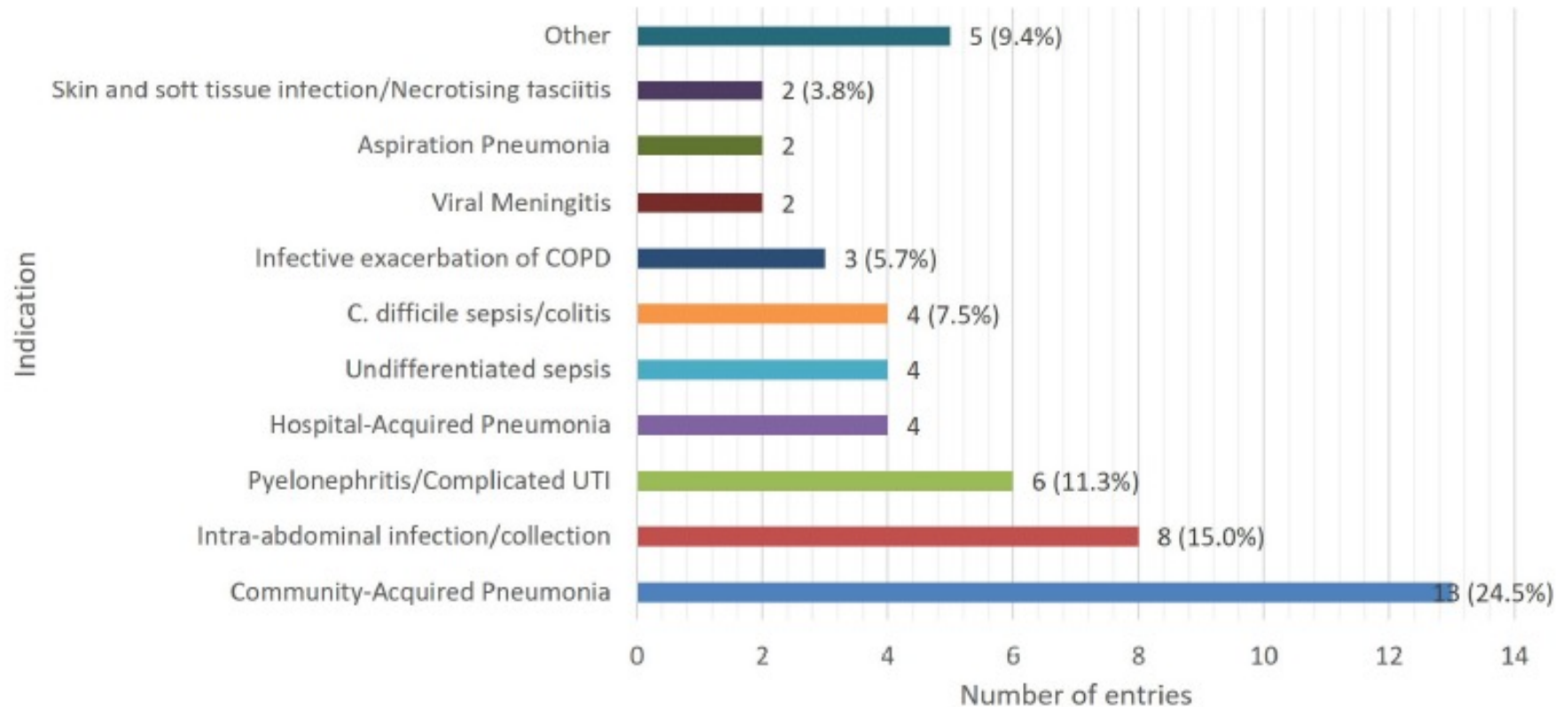


Patient Population



- 52.2% were male and 47.8% were female.
- Average age of 73 years.
- ICU patients consisted of 19 medical (82.6%) and 4 surgical (17.4%) patients.

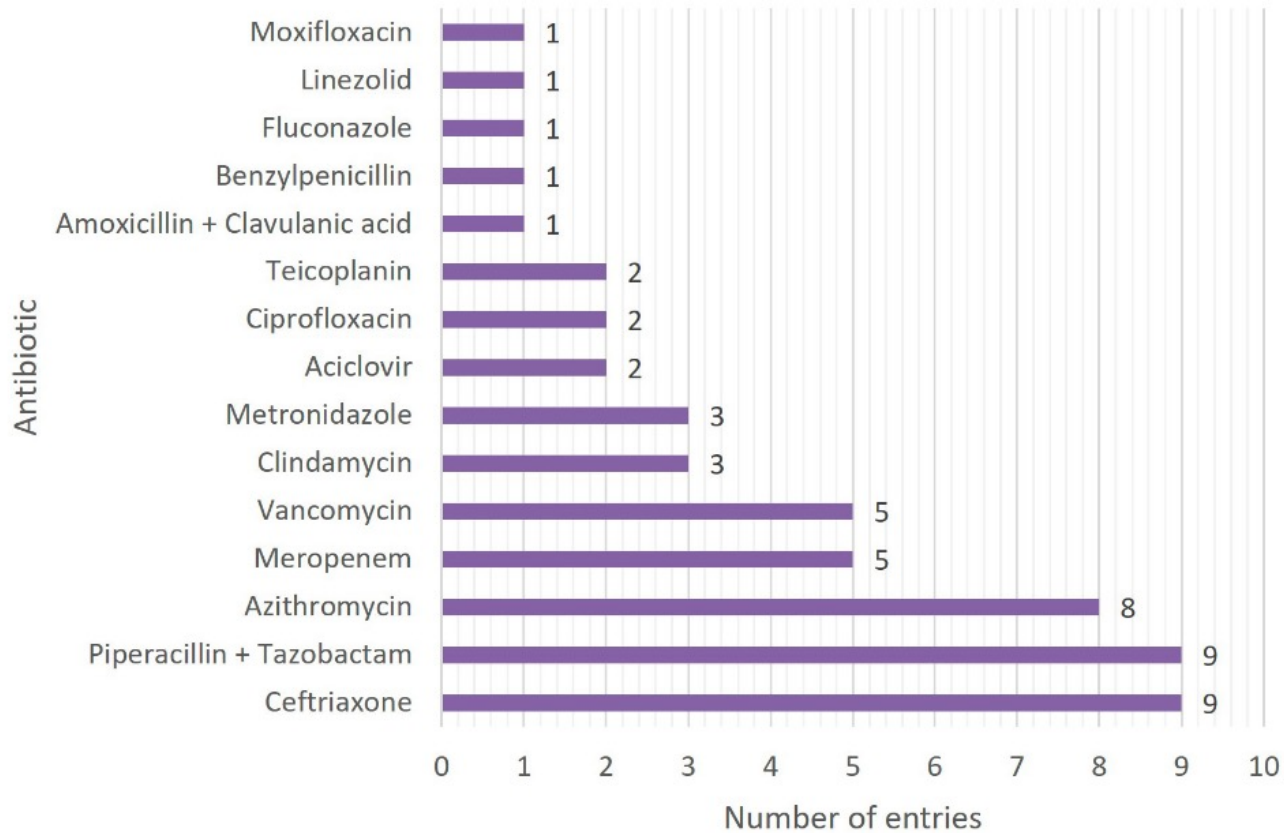
Indication for Antimicrobials



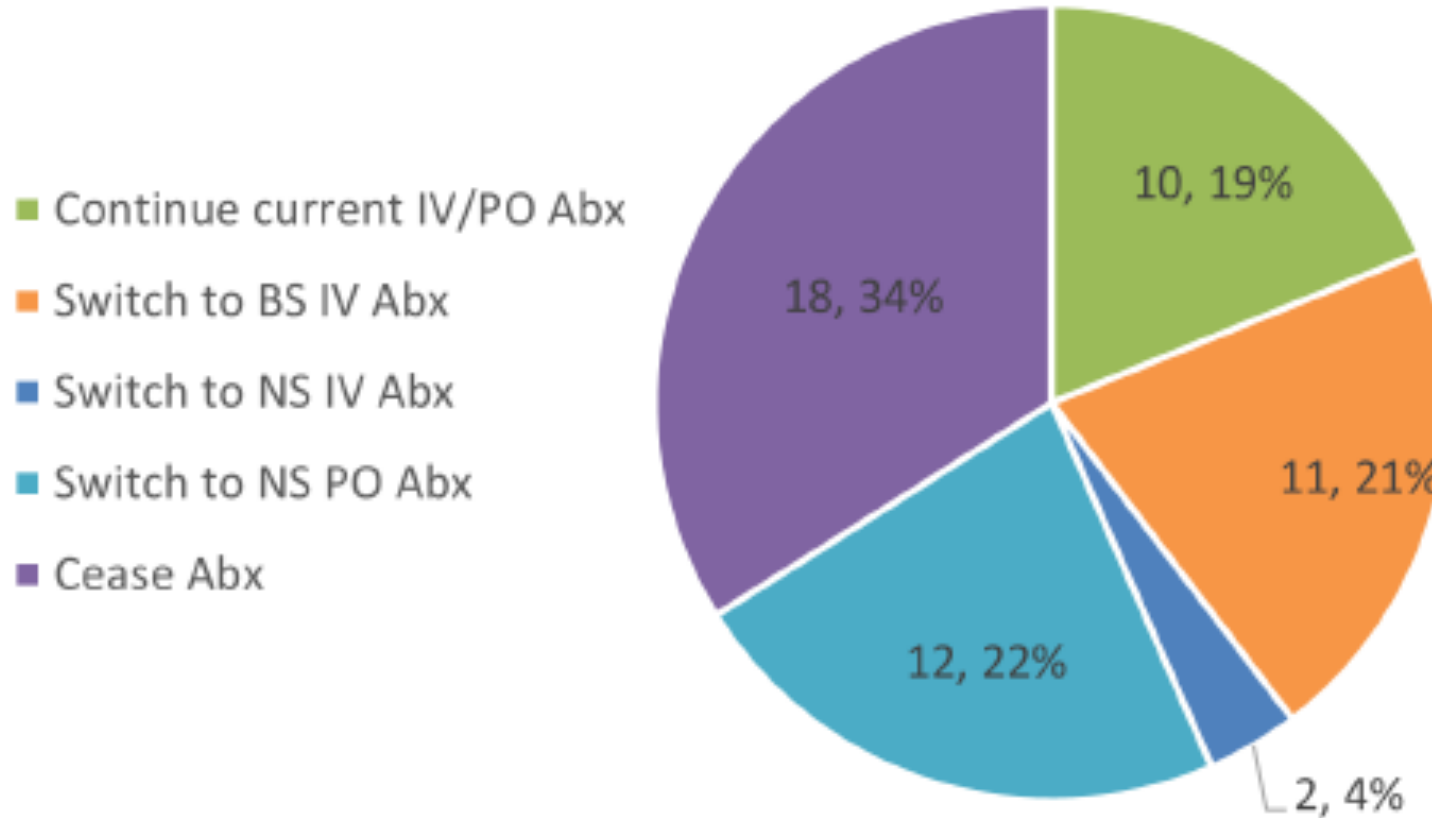
Type of Antimicrobials use in ICU



Type and average duration of antibiotic prescribed, ICU



AMS Advice



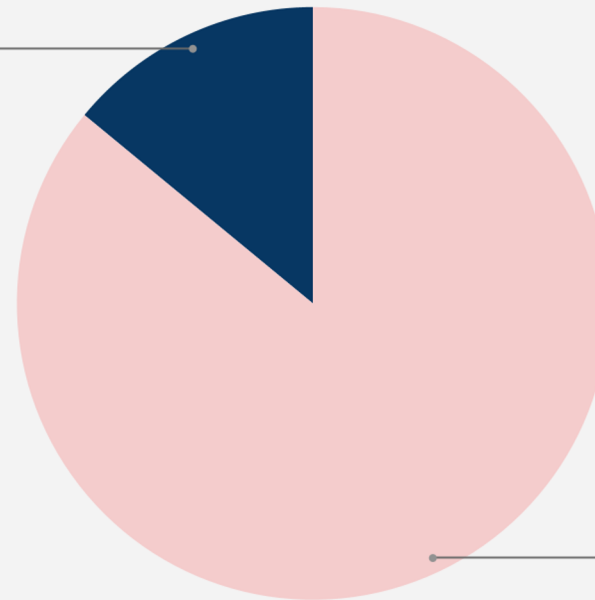


Results - AMS Adherence

Overall adherence rate to AMS advice was 84.5% (within 48hrs).

AMS followed in 48h:

No
14.0%



Yes
86.0%

Conclusions



- MBH has a good AMS advice adherence rate of 84.5% over the 3-month period for medical & surgical, ICU patients
- 70% of restricted antibiotic prescription was appropriate (NAPS 1 or 2)
- 60% of prescribed antibiotics were stepped down or ceased after AMS advice
 - Average length of hospital stay likely decreased for these patients

Future implications

- Further detailed analysis of other outcomes
- Pilot for future audits at MBH





Questions



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