

Bugged for time!

Reviewing the timeliness of microbiology testing and documentation plan

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Introduction:

The Antimicrobial Stewardship Clinical Care Standard promotes judicious antimicrobial use^(1,2). Statements 4 and 7 stipulate that patients with a suspected infection should have appropriate samples taken for microbiology testing and that patients prescribed an antimicrobial should have regular clinical reviews of their therapy⁽²⁾. Currently, there is no standardised approach for review of these indicators across various Victorian Health organisations⁽³⁾.

Aim:

1. To determine the appropriateness of microbiology testing time in relation to administering the first antimicrobial dose at Mercy Health.
2. To determine the proportion of patients with an updated antimicrobial review plan within 48-hours of empirical therapy at Mercy Health.

Method:

A retrospective study was conducted on the general medical wards at Werribee Mercy Hospital in January 2022. A patient list was generated from Decision Point[®] Health Services Activity data, by filtering patients admitted for the management of infectious diseases. Electronically scanned medical records and online pathology platform were reviewed for data collection using Microsoft[®] Excel. Redcap[®] audit software was used to collate information and perform analysis.

Inclusion Criteria	Exclusion Criteria
✓ General Medical Inpatients	✗ Patients transferred to external hospitals/ discharged < 48 hours
✓ Patients identified on antimicrobial therapy for ≥ 48 hours	✗ Patients on long term prophylactic antibiotics prior to admission
✓ Antimicrobials newly commenced in hospital	✗ Purple pen/ pharmacist annotations on medication chart
	✗ Paediatric patients

Results:

- 70 patients met inclusion criteria and were included in this audit. Patient demographics are shown in figures 1 and 2.
- 51 patients had microbiology testing undertaken. All patients (100%) had samples collected before administering the first antibiotic dose.
- The most common type of microbiology sample collected was urine cultures (51%) followed by blood cultures (37%), as shown in figure 3.
- There were a total of 195 antimicrobial orders audited, however 15 of these orders were stat once-off doses and therefore excluded for the purpose of assessing quality statement 7.
- 75 out of 180 antimicrobial orders (42%) had an associated documented review plan within the first 48-hours, as seen in figure 4. The location of where this was documented is shown in figure 5.

Figure 1. Patient Gender (n = 70)

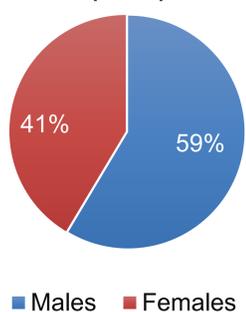


Figure 2. Patient Age (n = 70)

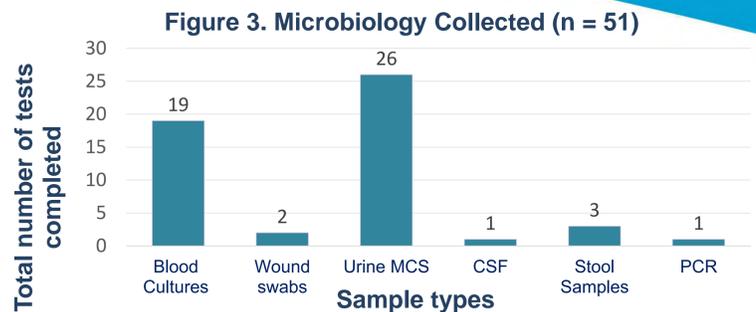
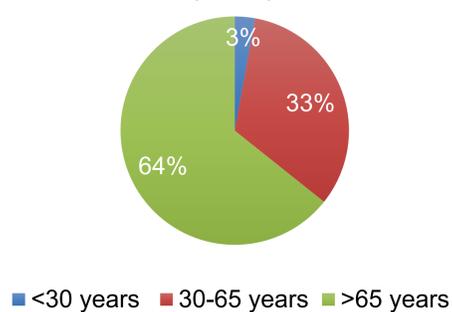


Figure 4. Documented review plan within 48-hours (n = 70)

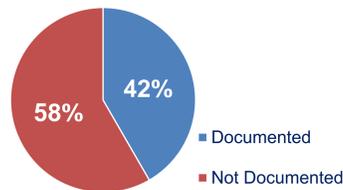
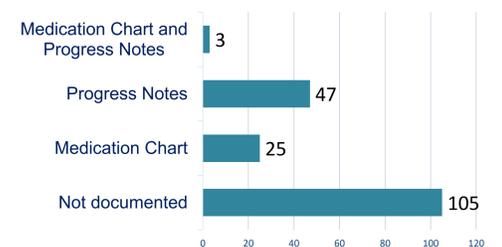


Figure 5. Location of documented review plan (n = 70)



Discussion:

- This audit showed that prescribers within the general medical unit were compliant with quality statement 4. Where appropriate, patients with microbiology samples undertaken had this collected in a timely manner, prior to the administration of first antimicrobial dose.
- Conversely, compliance rates with quality statement 7 was 42% (n=75). Though patients are reviewed on a regular basis during ward rounds, there were inconsistencies in documenting an updated treatment plan for empiric antimicrobial therapy within 48-hours. Compliance with quality statement 7 was seen in infections that required specialist Infectious Diseases review such as multidrug resistant organisms, cellulitis, hospital acquired pneumonia and helicobacter pylori infections.
- Potential barriers to timely documentation of antimicrobial therapy may include workload and time constraints, the use of paper-based medical records, inadequate expertise regarding certain infectious diseases and inadequate awareness of documentation procedures.
- Interventions are required to see improvement in addressing compliance concerns with quality statement 7. Possible interventions include:
 - Staff education sessions and presentations on the importance of conducting a review within 48-hours of commencing antimicrobial therapy
 - Sticker reminders in patients notes to document antimicrobial review plan
 - Formation of hospital guidelines on the treatment for different infectious diseases
- Additionally, transitioning to electronic medical records will enable prompt documentation and a positive impact on work-flow.

Limitations:

The audit was only conducted on general medical wards, therefore may not represent hospital-wide compliance to quality statement 4 and 7. Moreover, incomplete documentation and delays in upload of microbiology tests may have impacted audit results.

Conclusion:

Whilst this audit demonstrated that microbiology testing was conducted in a manner that met best practice target, there is room for improvement for documenting updated treatment plans. Project results will be shared with relevant stakeholders for targeted education. Further auditing in this area across various ward settings is recommended to ensure continued compliance to quality statement 4 and to compare pre and post-intervention results for quality statement 7.

References:

1. Australian Government Aged Care Quality and Safety Commission. Antimicrobial stewardship [Internet]. [updated 2021 October 26; cited 2022 May 17]. Available from: <https://www.agedcarequality.gov.au/antimicrobial-stewardship>
2. Australian Commission on Safety and Quality in Health Care. Antimicrobial Stewardship Clinical Care Standard [Internet]. 2020 [cited 2022 May 16]. Available from: <https://www.safetyandquality.gov.au/our-work/clinical-care-standards/antimicrobial-stewardship-clinical-care-standard>
3. Sahota RS, Rajan KK, Comont JM, Lee HH, Johnston NK, James M, et al. Increasing the documentation of 48-hour antimicrobial reviews. *BMJ Open Qual* [Internet]. 2020 Feb 6 [cited 2022 May 16];9(1):000805. Available from: https://guides.lib.monash.edu/ld.php?content_id=14570618 DOI: <https://doi.org/10.1136/bmjopen-2019-000805>