Antimicrobial susceptibility and mortality outcomes of an adult inpatient sepsis pathway

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Introduction

- Several studies have shown reductions in time to initial antimicrobials and improved mortality following the introduction of sepsis pathways, but have not studied antimicrobial susceptibility.[1,2,3]

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Aims

- To determine whether compliance with the sepsis pathway led to: **(1) Higher likelihood the causative organism was susceptible to the antimicrobials used and (2) improved mortality**

Methods

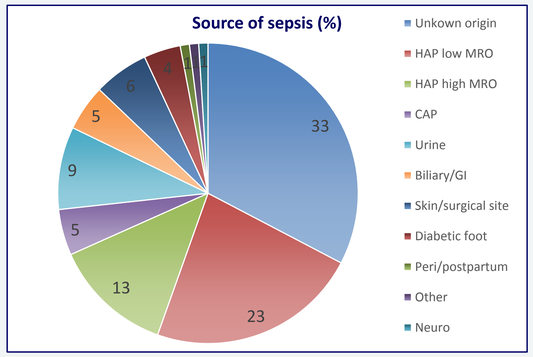
- Single-centre prospective observational study.
- **All inpatients (>18 years)** commenced on a sepsis pathway between **30th Nov 2015 – 28th Aug 2016.**

Study definitions:

- **Sepsis** - infection confirmed on microbiological/other grounds and/or no alternative cause for SIRS and treated with an appropriate course of antimicrobials.
- **Antimicrobials as per the sepsis pathway (APP)** - in accordance with the current sepsis pathway or documented advice from infectious diseases/microbiology
- **Mortality** - 30-day in-hospital all-cause mortality.

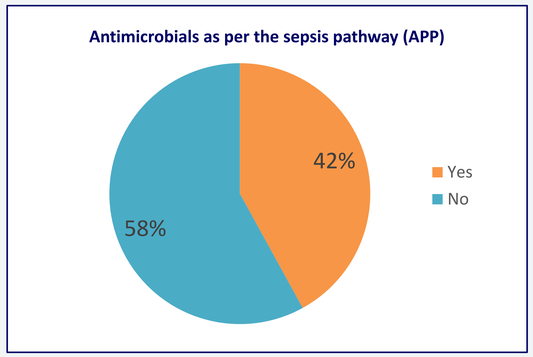
Results

- 114 patients, 3 excluded (inadequate documentation) → **111 patients.** Further 5 patients with CAP excluded for 'antimicrobials APP' analysis (prior to 1st August 2016) → **106 patients.**



CAP – community acquired pneumonia; HAP low/high MRO – Hospital acquired pneumonia low/high risk of multi-resistant organisms

- 63% male; median age 76 years (21-96 years).
- 82% had sepsis (18% had SIRS of another cause).



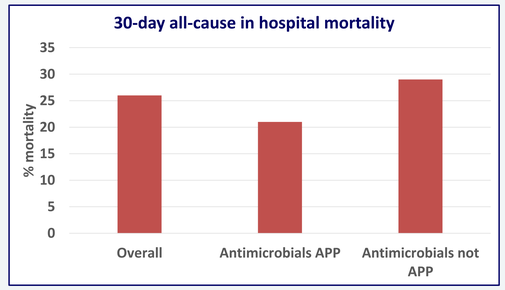
- **31% had antimicrobials APP and within 60 minutes** of sepsis identification.

Causative organism susceptibility

- Microbiology available in 30 cases (27%).
- When antimicrobials **APP** (n=15), causative organism susceptible **80% of the time** vs.**53% of the time** when **not APP.**

Mortality

- Only **6%** (n=6) of patients received **antimicrobials APP within 60 minutes** of sepsis identification and had **2 sets of blood cultures** taken (complete bundle). None of those patients died.



Conclusions

- First study to investigate outcomes for a general inpatient cohort, including susceptibility.
- Differences did not achieve statistical significance – most likely due to small sample size.
- Administration of antimicrobials according to a sepsis pathway may lead to: **(1) increased likelihood of susceptibility of the causative organism** to the prescribed agent and **(2) improved mortality**

Wollongong harbour and lighthouse

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Questions? Please contact Dr Kimberly Cipko, Infectious Diseases Advanced Trainee, Wollongong Hospital. kimberly.cipko@health.nsw.gov.au

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