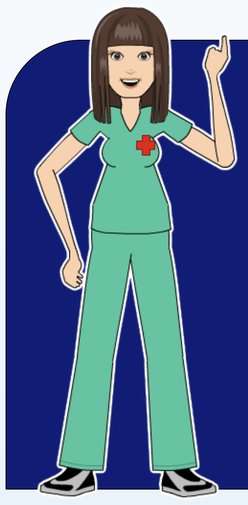

# Azithromycin treatment in respiratory infections: Promoting judicious prescribing through pharmacist-facilitated education initiative

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## Background

- Azithromycin is a macrolide antibiotic used in respiratory infections.
- Due to its long intracellular half-life and excellent tissue penetration, oral azithromycin has similar efficacy to its parenteral form (when absorption can be assured), thus making it a cost-effective, ideal route choice.
- Prolonged treatment duration is associated with an increased risk of serious adverse effects such as torsades de pointes, ototoxicity and prolonged QT interval

## Aim

To assess the impact of pharmacist-facilitated education on azithromycin intravenous-to-oral conversion and treatment duration in respiratory patients

## Methodology

- A pre- and post-educational intervention study was conducted in the respiratory wards of Blacktown Hospital between March and June 2017.
- Data on patients admitted to the respiratory wards and treated with azithromycin was retrospectively collected over a 6-week period between March to April 2017. Patient and dosing information was obtained from electronic medical records.
- The intervention phase was coordinated by the respiratory pharmacist and antimicrobial stewardship pharmacist in May 2017 for one week.
- Junior doctors on the wards were given a questionnaire to assess their knowledge on the adverse effects, pharmacokinetic profile and optimal treatment duration of azithromycin, and were provided with immediate informative feedback
- Post-intervention patient data collection was collected over a 4-week period in June 2017
- The primary outcomes were mean treatment duration, mean length of hospital stay and proportion of clinically stable patients converted from IV-to-oral therapy pre- and post-intervention. Criteria for IV-to-oral switch is as defined in local district guideline for community-acquired pneumonia

## Results

- A total of 104 respiratory patients were included and evaluated in our study.
- 37 junior doctors were approached and interviewed during the intervention phase.
- In the pre-intervention group, percentage of IV-to-oral switch in clinically stable patients was 11.5%.
- In the post-intervention group (following initiation of pharmacist education to junior doctors), percentage of IV-to-oral switch in clinically stable patients increased to 21%.
- Post-intervention mean length of hospital stay decreased by 11.5%.
- Mean duration of treatment remained unchanged.

**Figure 1: Number of correct responses by junior doctors to azithromycin questionnaire (n=37 responses)**

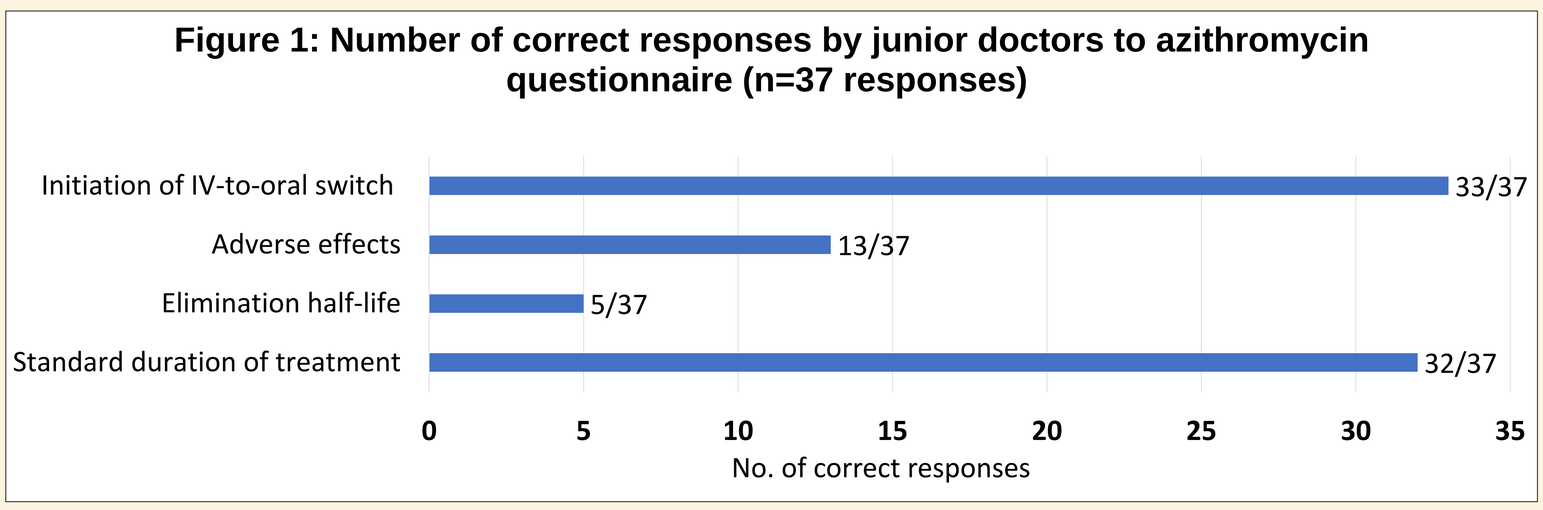


**Table 1: Patient Demographics and Project Outcomes Pre- and Post-Intervention (n=104 patients)**

| **Patient Demographics** | Pre-Intervention (n=52) | Post-Intervention (n=52) |
|---|---|---|
| Age in years [mean (SD)] | 67.5 (16.7) | 70.2 (15.9) |
| Male Gender [n (%)] | 23 (44.2%) | 22(42.3%) |
| **Project Outcomes** | Pre-Intervention (n=52) | Post-Intervention (n=52) |
| No. of patients on IV azithromycin only | 27 | 23 |
| No. of patients switched from IV to oral azithromycin | 6 | 11 |
| Mean duration of azithromycin treatment in days | 3.7 | 3.4 |
| Mean length of hospital stay in days | 8.7 | 7.7 |

## Discussion

Limitations to the reported findings include:

- Data was collected from a small sample size at a single institution
- Education and intervention were aimed only at junior doctors. However, respiratory consultants also played an important role in deciding whether to switch patients from IV to oral azithromycin therapy
- The impact of IV-to-oral azithromycin formulation switch on other clinical parameters such as down-trending rate of inflammatory markers and patient relapse/re-admission rates were beyond the scope of this study, yet would be useful outcome measures for future investigations

## Conclusion

- Pharmacist-led education improved azithromycin IV-to-oral conversion, thus potentially resulting in lower drug and intravenous administration costs as well as reduced burden for nursing staff, lower risk of cannula-related infections and reduced length of hospital stay.
- Clinical and financial outcomes may be improved through collaboration with respiratory consultants and emergency physicians underpinned by the support of nurses and junior doctors and the implementation of clear guidelines outlining the criteria of IV-to-oral antimicrobial switch.

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