# Assessing the IV to oral stepdown from intravenous azithromycin in community acquired pneumonia

Northern Health

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## BACKGROUND

Azithromycin, a broad-spectrum macrolide, is recommended by Therapeutic Guidelines for oral use in moderate community-acquired pneumonia (CAP), with intravenous therapy reserved for severe cases.[1] Early IV to oral switch supports antimicrobial stewardship (AMS) by reducing therapy duration and hospital length of stay.[2] However, IV therapy is often prolonged, increasing treatment risks, costs and antimicrobial resistance.[3,4]

## AIM

To assess the proportion of patients switched to oral azithromycin by day two, measure the average duration of IV therapy and evaluate total course duration of atypical antibiotics.

## METHOD

Patient numbers with 500 mg IV azithromycin prescriptions were collected via EMR for March 2025. Included were patients ≥18 years with presumed CAP on admission.

Data collected included doses of IV and oral azithromycin and other atypical coverage agents to assess total atypical course duration. CAP severity was retrospectively scored using SMART-COP[1,5,6] to evaluate appropriate IV to oral step-down suitability.

For mild to moderate CAP, patients receiving 4 to 6 days of doxycycline after IV to oral switch (total 5 to 7 days) were assessed as correct. Those stepped down to oral azithromycin were assessed as correct with 3 days total therapy. Mild to moderate CAP cases not stepped down were assessed as too long. For severe CAP (SMARTCOP score 5 or above), correct azithromycin duration was 3 to 5 days.

## RESULTS

47 patients who received IV azithromycin for CAP were reviewed. As per Figure 1, 63% (n=29) were transitioned to oral atypical cover within 24 hours; all had SMARTCOP scores below 5 (mean 1.63). Additional IV azithromycin was given in 34% (n=16), 66% (n=12) of whom also had scores below 5. All four patients with severe CAP received further IV doses per guidelines.

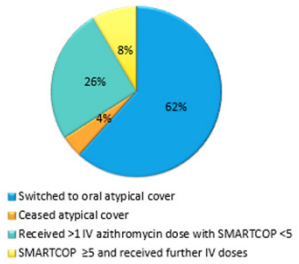


Figure 1: Proportion of patient care at 24 hours following the first IV azithromycin dose

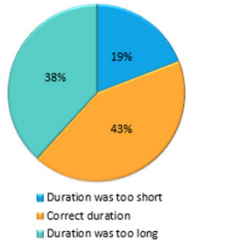


Figure 2: The duration of therapy covering atypical pathogens

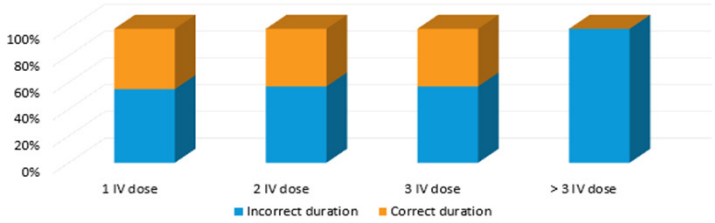


Figure 3: Proportion of patients receiving the correct duration of atypical antibiotic coverage per 500mg IV azithromycin dose

The average IV azithromycin duration was 1.57 days. Patients with severe CAP received longer courses than those with mild to moderate disease (2.75 vs 1.46 days). Overall, 42% (n=20) received the correct atypical duration, 38% (n=18) were too long, and 19% (n=9) too short (Figure 2). Correct duration was more common in severe CAP (75%) than mild to moderate (40%). All prolonged courses occurred in mild to moderate CAP (SMARTCOP ≤3). Among patients given 1 IV azithromycin dose, 45% had correct duration (Figure 3).

## DISCUSSION

It was somewhat unexpected that 70 percent of the cohort (n=33) were either changed to oral azithromycin at 24 hours or remained on IV therapy for what was later assessed as severe CAP. This highlights the importance of antimicrobial stewardship in reviewing prolonged IV use and supporting timely stepdown when appropriate. Despite this, only a minority received the correct duration, including those on extended IV therapy. This suggests a need for broader stewardship involvement after stepdown, particularly for conditions like CAP where extended courses are common.

Notably, of the 85 patients initially identified with a respiratory condition, 44 percent received IV azithromycin without indication, highlighting an area for audit and further research.

## CONCLUSION

Most patients received the appropriate azithromycin formulation within 24 hours. However, only 43% of patients received the correct duration of atypical antimicrobial coverage, regardless of whether they were managed appropriately at 24 hours. These results were consistent across all patient subgroups and the different number of IV azithromycin doses received. While reassuring that clinicians consider IV to oral switch in their practice, the timeliness and overall duration of atypical coverage can be improved upon, in keeping with AMS tenets.

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