Evaluation of a Protocol to Optimize the Duration of Pneumonia Therapy at Hospital Discharge

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Abstract (amended)

Background: The majority of antimicrobial stewardship efforts focus on inpatient antibiotic use, however, most antibiotic use occurs in outpatient settings. Antibiotics initiated during hospitalization are often completed after discharge. Medication reconciliation processes seldom focus on the duration of antibiotic therapy (DAT) prescribed. ISDA guidelines recommend limiting DAT for uncomplicated pneumonia cases. A 2013 National VA Medication Utilization Evaluation identified a mean (SD) DAT for uncomplicated pneumonia of 10.4 (±6.2) days, with 6.2 (±4.1) days prescribed at discharge. As a strategy proposed by the VA Antimicrobial Stewardship Task Force, we developed a medication reconciliation-based protocol designed to minimize uncomplicated pneumonia DAT upon discharge.

Methods: A single-center interrupted time-series (ITS) study was conducted to assess if implementation of the protocol is associated with a reduction in uncomplicated pneumonia DAT. The protocol is used by pharmacists to stratify pneumonia cases and recommend appropriate DAT to providers based on clinical criteria: uncomplicated (5-8 days), moderately complicated (8-14 days), or complicated (>14 days). Retrospective chart abstraction of DAT and 30-day readmission rates was performed, aggregated by month.

Results: Analysis includes 18 months pre- and 9 months post-implementation data for uncomplicated cases (n=560). ITS parameters: mean monthly DAT slope (pre) <0.01 (P=0.95); Δ level -0.37 (P=0.49); Δ slope -0.2 (P=0.03). Mean DAT decreased (12.6%) from 9.5 (±2.3) to 8.3 (±2.3) days pre and post-intervention, and mean DAT prescribed at discharge decreased (19.2%) from 5.2 (±3.0) to 4.2 (±3.0) days, respectively. Mean monthly 30-day readmission rates decreased from 19.3% to 14.5% post implementation.

Conclusion: Mean monthly Δ DAT slope and 30 day readmission rates indicate an association with protocol implementation. The medication reconciliation-driven protocol to minimize DAT for patients with uncomplicated pneumonia upon hospital discharge reduced DAT and appears safe.

Objective:

Evaluate whether a pharmacy-based triage tool can optimize total duration of antimicrobial therapy for patients with uncomplicated pneumonia upon hospital discharge.

Tool Development/Data Collection

- Develop literature-based triage tool
- Train discharge pharmacists to utilize tool
- Create electronic note template for discharge pharmacists/improve and clarify tool
- Collect pre/post-implementation data

Analysis

- Single-center concurrent/retrospective chart review
- Interrupted time-series analysis (18 months pre-implementation and 9 months post-implementation)

Methods

- Collect pre/post-discharge data
- Generate antimicrobial use and microbiology data
- Use American Thoracic Society's pneumonia criteria
- Consider current antimicrobial guidelines
- Determine the total duration of therapy if needed.

Conclusion

The pharmacy-based triage tool helped to optimize total duration of antimicrobial therapy for patients with pneumonia upon hospital discharge without negatively impacting 30-day readmission rates. Further analysis of cases excluded due to prolonged admission in the pre-intervention period, and their potential impact on the endpoints of interest are ongoing.

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