Unexpected Intramuscular Ceftriaxone Prescribing Patterns in a Multi-Campus Ambulatory Care Health System

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Background:
- Intravenous ceftriaxone (CTX) is commonly used due to its broad spectrum activity and convenient dosing.
- Intramuscular (IM) CTX has a more limited role and is primarily used to treat sexually transmitted infections (STIs).
- Orlando VA Medical Center is a multi-campus ambulatory care clinic with over 92,000 patients enrolled for care in central Florida.
- We noted an unexpectedly high number of IM CTX prescriptions in our ambulatory care system and initiated a quality improvement project to investigate.

Methods:
- In July 2013, a computer generated report was used to identify all IM CTX prescriptions ordered between June 2012 and June 2013 across the health-system. (N=556)
  - Exclusion criteria:
    - Orders that were discontinued
    - Orders with a missing clinic location
    - 453 prescriptions were included, and a minimum of 20% of orders from each campus were reviewed to identify indications for therapy.
- Based on these results, in August 2013, an intervention that included clinic stock adjustment and staff education was completed.
- A post-intervention review was conducted for IM CTX prescriptions to evaluate the impact of the education and intervention.

Baseline Data:

Quality Improvement Interventions:

Ceftriaxone Clinic Stock Adjustment

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<th>Medicine</th>
<th>Pre</th>
<th>Post</th>
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<td>2gm vials</td>
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Indications for IM Ceftriaxone

- Findings: 45% of IM CTX orders were written by 5 prescribers.
- 4 of those 5 prescribers were from Campus 2.
- The maximum number of IM CTX prescriptions issued by an individual prescriber was 50.
- Most of the orders were one time IM doses followed by a course of oral antibiotic.
- No trends were observed regarding antibiotic selection or duration.
- Multiple instances of inappropriate dose for indication (e.g. 1gm for GC) were noted.

Results:

Post-Intervention Chart Review

- Findings:
  - 82 IM CTX orders were written during the 6 month post-intervention period.
  - The maximum number of IM CTX orders issued by one prescriber during this period was 10.

Conclusions:
- Even with very familiar and frequently prescribed agents such as ceftriaxone, opportunity exists for improved antibiotic utilization.
- Prescriber and pharmacist education, and adjustment of CTX clinic stock can be successful antimicrobial stewardship strategies in the outpatient setting.
- As IM CTX requires intramuscular delivery, most often by nurses, improved prescribing practices may also reduce unnecessary utilization of nursing resources.
- Although this project was conducted in an ambulatory care environment, these interventions may also be applicable to settings such as urgent care and emergency departments.