Impact of a standardized penicillin allergy assessment to optimize penicillin allergy documentation and beta-lactam antibiotic use at an academic medical center

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Background

• Penicillin is the most common drug allergy documented within electronic health records (EHR). Although there is a low incidence of cross-reactivity between penicillins and cephalosporins, providers often prescribe alternative antibiotics, such as vancomycin, clindamycin, fluoroquinolones, and aztreonam.1

• Several studies have demonstrated that patients who receive these alternative agents have worse outcomes than patients who receive standard beta-lactam antibiotic therapy.1,2 Another study demonstrated that discrepancies between antibiotic allergy documentation in medical charts and antibiotic allergy history gleaned from in-depth patient interviews are common, potentially resulting in under-prescribing of standard beta-lactam therapy in otherwise clinically appropriate patient cases.3

• The 2016 Infectious Diseases Society of America (IDSA) Guidelines for Implementing an Antibiotic Stewardship Program recommend that institutional Antibiotic Stewardship Programs (ASPs) implement allergy assessments for patients with a documented penicillin allergy, despite the lack of strong supporting evidence for this recommendation.4

• In May 2015, Duke University Hospital (DUH) implemented a pilot program in which penicillin allergy assessments were completed for admitted patients with a documented penicillin allergy. The impact of completing these penicillin allergy assessments on allergy documentation and antibiotic prescribing patterns at DUH has yet to be characterized.

Objectives

Primary Objective:
• To determine whether use of a standardized penicillin allergy assessment impacts the clarification, characterization, or removal of penicillin allergy documentation within the EHR

Secondary Objectives:
• To determine whether the use of a penicillin allergy assessment optimizes the use of beta-lactam antibiotics and aztreonam
• To characterize the time spent completing penicillin allergy assessments

Endpoints

Primary Endpoint:
• Percentage of patients with a penicillin allergy reported in the EHR who had their penicillin allergy clarified, characterized, or removed from the EHR upon admission

Secondary Endpoints:
• Percentage of patients with a penicillin allergy reported in the EHR who appropriately received a beta-lactam antibiotic within 90 days of hospitalization
• Total number of days of therapy with aztreonam during hospitalization
• Time spent per patient performing and reviewing the allergy assessment

Methods

Study design: retrospective, single center, cohort study

Eligibility Criteria:

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<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
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<td>Admission to DUH from May 1, 2014 to April 30, 2016</td>
<td>ICU status</td>
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<td>Age ≥18 years</td>
<td>Nonverbal or non-English speaking patients</td>
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<td>Penicillin allergy reported in the EHR</td>
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Procedures:
• Impact of the penicillin allergy assessment on clarification, characterization, or removal of penicillin allergy in the EHR will be retrospectively assessed:
  - Pre-intervention period: May 1, 2014 – April 30, 2015
    • Patient list will be compiled via Duke Enterprise Data Unified Content Explorer (DEDUCE)
  - Post-intervention period: May 1, 2015 – April 30, 2016
    • Verdict documentation of completion of the penicillin allergy assessment for patients with reported penicillin allergy will be collected via MaestroCare

Sample size calculation: A random sample of 100 patients will be chosen for assessment during each time period (thus, 200 patients in total will be assessed)

Statistical Analysis:
• For the primary analysis, Chi-squared test/Fisher’s exact test will be used to determine if there is a difference between the two cohorts.
• Significance of the tests will be assessed at an α of 0.05.

Results

Research data collection has not yet occurred; thus, results are unavailable at this time.

Conclusions

To be determined

References


Disclosures

No authors have any financial disclosures that may conflict with the subject matter of this presentation.