Society of General Internal Medicine

View Abstract

CONTROL ID: 3171437

TITLE: A Streamlined Pathway for Community-Acquired Pneumonia with Rapid Conversion to Oral Therapy Improves Healthcare Value

ABSTRACT BODY:

Statement of Problem or Question (one sentence): How does the Initiation of a Clinical Care Pathway for Community Acquired Pneumonia (CAP) Effect Antibiotic administration and Hospital Costs?

Objectives of Program/Intervention (no more than three objectives): Develop and execute a standardized electronic health record (EHR) "best practice" pathway for the treatment of CAP.
Implement a stewardship team to reinforce best practices.
Determine how these interventions impact intravenous antibiotic administration, hospital length of stay (LOS), and costs for patients admitted to a medical floor.

Description of Program/Intervention, including organizational context (e.g. inpatient vs. outpatient, practice or community characteristics) : A standardized CAP order set for patients presenting to the emergency department (ED) was developed by a multidisciplinary team. A best practice alert (BPA) is triggered when orders for a chest radiograph and an antibiotic are placed. The BPA asks for confirmation of antibiotic use for pneumonia and if confirmed an order set is provided. The order set offers guidance on appropriate triage, diagnostic testing, risk assessment for drug resistant pathogens and antibiotic selection. Patients admitted to medical floors are given a single intravenous (IV) antibiotic dose, followed by automatic switch to oral antibiotics for a total duration of 5 days. Atypical coverage with azithromycin is discontinued after 24 hours unless *Legionella* urine antigen returns positive.
Pre-implementation training and education was provided to providers, nurses, respiratory therapists and pharmacists. The antimicrobial stewardship team performed prospective audit of patients on medicine floors and provided feedback on appropriate diagnostic testing and antibiotic use for patients with CAP.

Measures of success (discuss qualitative and/or quantitative metrics which will be used to evaluate program/intervention): The primary endpoints were LOS, days of IV antibiotic therapy, and relative mean cost adjusted for CURB65, age and Charlson comorbidity index using interrupted time series analysis. Secondary endpoints were mortality and 30 day readmission.

Findings to Date (it is not sufficient to state ☐findings will be discussed☐): The pre-implementation period was 9/1/2016 to 8/31/2017 and included 409 patients on acute medicine floors and MICU. Implementation date was 9/1/2017 followed by a one-month run in period for pathway education. The post-implementation period was 10/1/2017 to 8/31/2018 and included 457 patients. The preliminary data showed our intervention was associated with a 39% (95% confidence interval (CI): 2% to 62%, p= 0.04) reduction in monthly per visit costs. There was a non-significant reduction in both LOS (-1.8 days, 95% CI: -4.03 to 0.42, p =0.10) and IV antibiotic duration (-0.88 days, 95% CI: -2.05 to 0.28, p=0.18). There were no significant changes in 30-day readmission or mortality. Further analysis will be conducted.

Key Lessons for Dissemination (what can others take away for implementation to their practice or community?): The implementation of an EHR driven CAP care pathway in the ED supplemented by education and antimicrobial stewardship review appears to improve healthcare value by reducing costs. Our preliminary data suggests our efforts may not have been sustainable, possibly related to new providers and limited stewardship program resources, however further analysis is required.

Impact: Prior to the pathway our healthcare system was treating CAP with more broad-spectrum and varying durations of antibiotic therapy. This innovation was able to show that early transition from IV to narrow-spectrum oral antibiotics after 1 day is safe, effective and can possible lead to reduced hospital costs.

Additionally, our care pathway lends support to existing data suggesting macrolide therapy in addition to a beta-lactam is unnecessary for all cases of CAP.

PRESENTATION TYPE IP SHARED DETAILS PAGE URL:

AUTHORS (FIRST NAME INITIAL LAST NAME): C. Ciarkowski[1], E. S. Spivak[2], T. Timbrook[4], M. Sanford[3], C. Hopkins[5], N. Hatton[1], F. Thomas[3]

INSTITUTIONS (ALL): 1. Internal Medicine, University of Utah, Salt Lake, UT, United States.
2. Internal Medicine, Division of Infectious Diseases, University of Utah School of Medicine, Salt Lake City, UT, United States.
3. Value Engineering, University of Utah Hospitals and Clinics, Murray, UT, United States.
4. Antimicrobial Stewardship, University of Utah, SALT LAKE CITY, UT, United States.
5. Surgery, University of Utah , Salt Lake City, UT, United States.

SGIM MEMBERSHIP STATUS (IHD):

Claire Ciarkowski : Full Member

Emily Spivak : Non-Member

Tristan Timbrook : Non-Member

Matthew Sanford : Non-Member

Christy Hopkins : Non-Member

Nathan Hatton : Non-Member

Frank Thomas : Non-Member

PRESENTATION FORMAT: No Preference