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Shortening the Duration of Antimicrobial Therapy in Uncomplicated Skin and Soft Tissue Infections

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Background and Aim

Background:

Skin and soft tissue infections (SSTIs) are common occurrences in children. The "Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America" states the "recommended duration of antimicrobial therapy is 5 days, but treatment should be extended if the infection has not improved within this time period (strong recommendation, high quality evidence)." Short course antimicrobial therapy for SSTIs may be beneficial to prevent development of resistant bacteria, increase cost-effectiveness of therapy and reduce side effects of antimicrobial therapy.

Problem:

Children treated for SSTIs at Children's Mercy Kansas Hospital ED (CMK ED) often receive longer duration antimicrobial therapy (7-14 days) with variable recommendations for follow-up. Initially, 4% of children treated for SSTIs at CMK ED received prescriptions for 5 days or less.

Aim Statement:

Increase the percentage of pediatric patients seen in the CMK ED receiving outpatient antibiotic prescriptions for uncomplicated SSTIs for durations of 5 days or less from 4% to 25% by January 2018, to 50% by July 2018, with an end goal of 80% by January 2019.

Barriers and Limitations

Barriers:

Challenges included a transition to ICD-10 and multiple updates to the electronic medical record (EMR), which impacted data collection and review. Due to this challenge, it took longer than anticipated for some interventions.

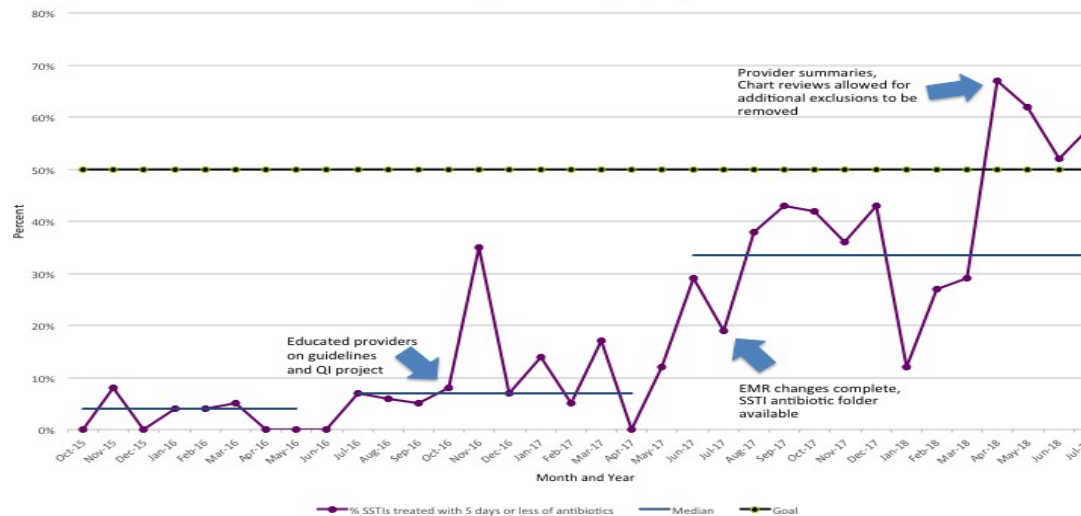
Limitations:

Failure analysis is limited to patients seen at Children's Mercy facilities and does not consider patients seen by primary care providers or admitted at other hospitals in the area.

Methods

1. Educated providers regarding recommendations including exclusion/inclusion criteria because there were knowledge gaps identified in a preliminary survey of providers. Information was posted in an easily visible place in the workroom and presented regularly at staff meetings.
2. Completed chart reviews regularly to evaluate missed opportunities to prescribe shorter duration of antibiotics for uncomplicated SSTIs.
3. System modifications completed to help promote compliance with shorter duration therapy for SSTIs. Developed an antibiotic shortcut folder within the EMR with pre-filled treatment durations for shorter courses of antibiotics, as this intervention worked well in the past.
4. Distributed monthly summaries to individual providers to show performance regarding treatment of SSTIs and highlight success in meeting the project goals. Providers requested this data for review.
5. Ensured failure rates for short course antibiotic treatment did not exceed that of the previously prescribed longer duration antibiotics. Collected data on patients returning within 28 days of initial visit to any Children's Mercy location and admitted for IV antibiotics. Baseline failure rate was 1%.

Percentage of Patients Treated for Uncomplicated Skin and Soft Tissue Infections as an Outpatient Receiving ≤ 5 Days of Oral Antibiotics by Month Children's Mercy Kansas Emergency Department



Results and Analysis

Providers were initially introduced to the project in October 2016. The changes to the antibiotic prescription orders in the EMR were completed in July 2017. Providers started receiving individual feedback on performance in August 2018 (given data from April 2018 and monthly updates). The prescribing rate of short course antibiotics increased to greater than 25% by August 2017 and greater than 50% by April 2018. The rate was 58% in the most recent month (July 2018). Six patients have returned for admission for IV antibiotics within 28 days of initial visit, but all were prescribed longer duration of antibiotics at diagnosis (7 days of antibiotic or more). There were 4 failures in the baseline data. Overall, there has been an improvement in the prescribing trends of providers at CMK ED for uncomplicated SSTIs. Data collection and interventions continue and it is anticipated that compliance with the recommendations will continue to improve as providers review summaries of prescribing practices.

Conclusion

Since initiation of this project, there has been marked improvement and now 58% of pediatric patients diagnosed with uncomplicated SSTIs are being prescribed antibiotics for 5 days or less, consistent with current practice guidelines. This has greatly enhanced antibiotic stewardship by reducing unnecessarily long durations of treatment.

Future Goals

1. Continue to make changes to reach goal of 80% by January 2019.
2. Monitor progress and assess sustainability.
3. Propagation to Adele Hall ED and CMH Urgent Cares if interested.
4. Use the knowledge gained in future QI projects.
5. Ensure new staff are educated on guidelines and project goals.