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Initial Impact of COVID-19 on Ambulatory Antibiotic Prescribing for Respiratory Viral Infections

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Abstract

Background: Between 15-50% of patients seen in ambulatory settings are prescribed an antibiotic. At least one third of this usage is considered unnecessary. In 2019, our institution implemented the MITIGATE Toolkit, endorsed by the Centers for Disease Control and Prevention to reduce inappropriate antibiotic prescribing for viral respiratory infections in emergency and urgent care settings. In February 2020 we identified our first hospitalized patient with SARS-CoV-2. In March, efforts to limit person-to-person contact led to shelter in place orders and substantial reorganization of our healthcare system. During this time we continued to track rates of unnecessary antibiotic prescribing.

Methods: This was a single center observational study. Electronic medical record data were accessed to determine antibiotic prescribing and diagnosis codes. We provided monthly individual feedback to urgent care prescribers (Sep 2019-Mar 2020), primary care, and ED providers (Jan 2020 – Mar 2020) notifying them of their specific rate of unnecessary antibiotic prescribing and labeling them as a top performer or not a top performer compared to their peers. The primary outcome was rate of inappropriate antibiotic prescribing.

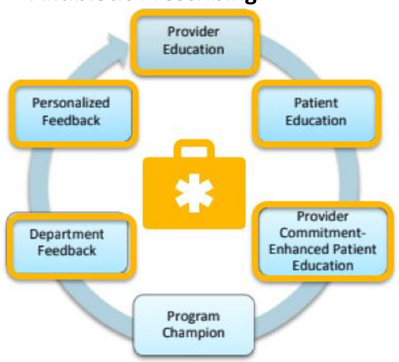
Results: Pre toolkit intervention, 14,398 patient visits met MITIGATE inclusion criteria and 12% received an antibiotic unnecessarily in Jan-April 2019. Post-toolkit intervention, 12,328 patient visits met inclusion criteria and 7% received an antibiotic unnecessarily in Jan-April 2020. In April 2020, patient visits dropped to 10-50% of what they were in March 2020 and April 2019. During this time the unnecessary antibiotic prescribing rate doubled in urgent care to 7.8% from 3.6% the previous month and stayed stable in primary care and the ED at 3.2% and 11.8% respectively in April compared to 4.6% and 10.4% in the previous month.

Conclusions: Rates of inappropriate antibiotic prescribing were reduced nearly in half from 2019 to 2020 across 3 ambulatory care settings. The increase in prescribing in April seen in urgent care and after providers stopped receiving their monthly feedback is concerning. Many factors may have contributed to this increase, but it raises concerns for increased inappropriate antibacterial usage as a side effect of the SARS-CoV-2 pandemic.

Background

- September 2019: Implemented MITIGATE toolkit to reduce inappropriate antibiotic prescribing for viral respiratory tract infections
- March 2020: Shelter-in-place = limit person-to-person contact = increases in telemedicine visits

Figure 1 : Multifaceted Intervention to Reduce Inappropriate Antibiotic Prescribing



May L, Yadav K, Gaona S, et al. MITIGATE Antimicrobial Stewardship Toolkit. 2018. Retrieved from: http://www.shea-online.org/images/priority topics/MITIGATE_TOOLKIT_final.pdf

Methods

- **Study Design:** Single center, observational investigation. Accessed electronic medical record to obtain diagnostic codes and antibiotic prescriptions.
- **Intervention:**
  -Medical providers received monthly individual feedback of unnecessary antibiotic prescribing
  -Urgent Care (Sep 2019 – Mar 2020)
  -Primary care (Jan 2020 – Mar 2020)
  -Emergency department (Jan 2020 – Mar 2020)
  -Labeled as top performer or not top performer compared to peers
  -No individual feedback provided after Mar 2020
- **Outcomes:**
  -Rate of inappropriate antibiotic prescribing

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Results

Figure 2 : Change in Antibiotic Prescribing for Viral Respiratory Tract Infections Within Urgent Care, Primary Care, and Emergency Department

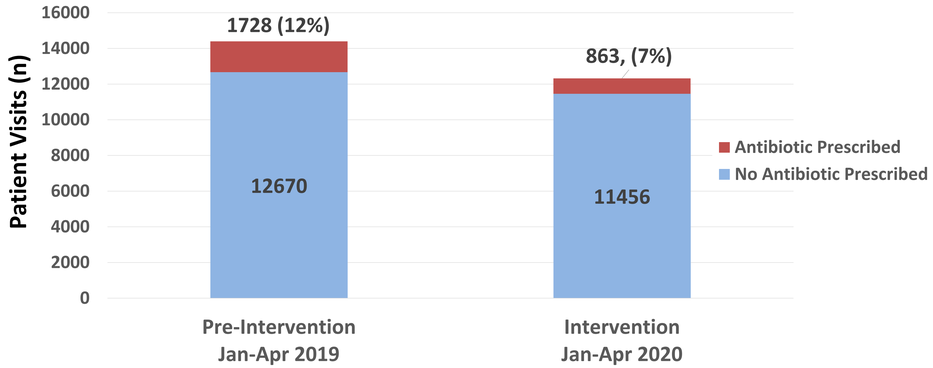
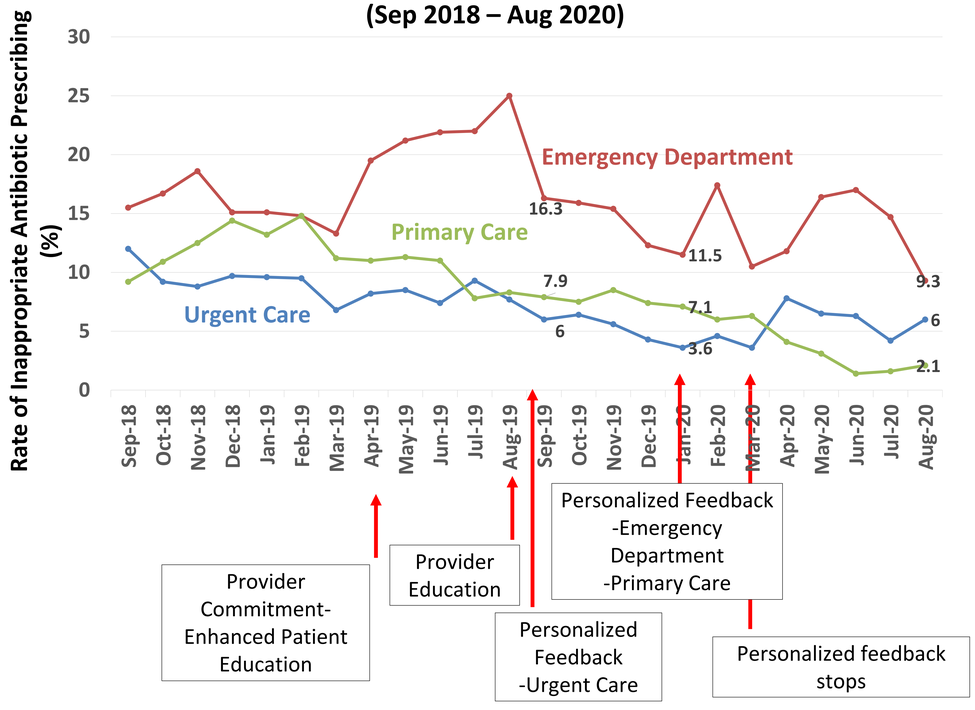
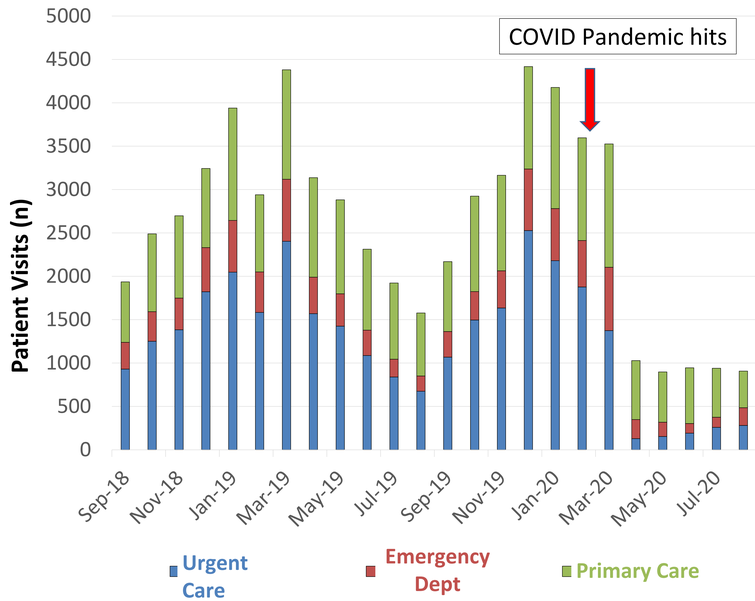


Figure 3 : Antimicrobial Prescribing for Viral Respiratory Tract Infections (Sep 2018 – Aug 2020)



Results

Figure 4: Total Patient Visits for Respiratory Infections



Conclusions

- Rates of inappropriate antibiotic prescribing decreased with the MITIGATE toolkit, increases were seen in the initial months of the pandemic in urgent care and ED settings but not in primary care.
- The pandemic led to suspension of individual prescribing feedback and raises concerns for sustainability without ongoing programmatic involvement

Disclosure

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Conflicts of Interest:
All authors have no relevant conflicts of interest