

2019

# Acute Respiratory Tract Infections and How to Treat Them

Shivani Seth

Follow this and additional works at: <https://scholarworks.uvm.edu/fmclerk>



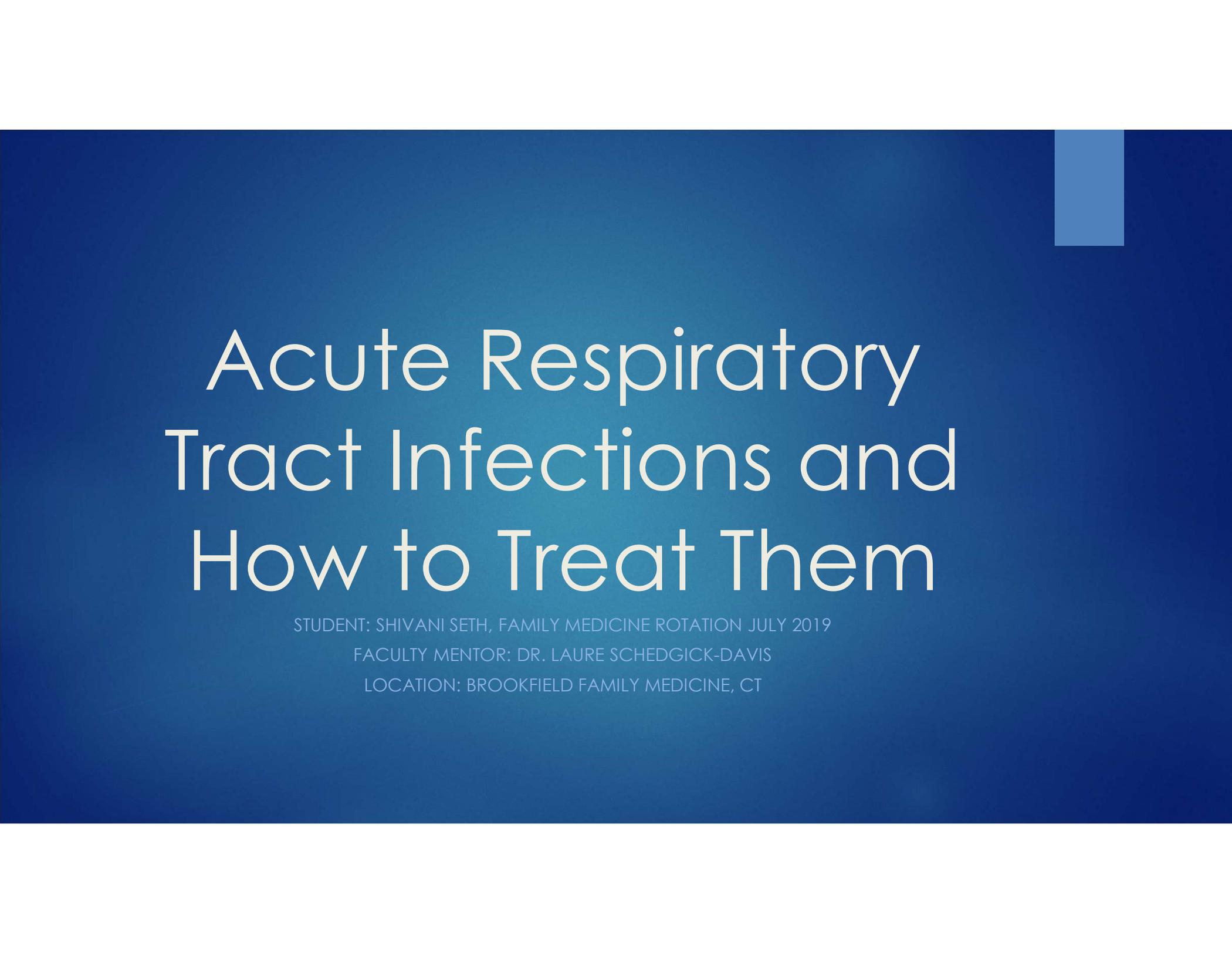
Part of the [Medical Education Commons](#), and the [Primary Care Commons](#)

---

## Recommended Citation

Seth, Shivani, "Acute Respiratory Tract Infections and How to Treat Them" (2019). *Family Medicine Clerkship Student Projects*. 498.  
<https://scholarworks.uvm.edu/fmclerk/498>

This Book is brought to you for free and open access by the Larner College of Medicine at ScholarWorks @ UVM. It has been accepted for inclusion in Family Medicine Clerkship Student Projects by an authorized administrator of ScholarWorks @ UVM. For more information, please contact [donna.omalley@uvm.edu](mailto:donna.omalley@uvm.edu).



# Acute Respiratory Tract Infections and How to Treat Them

STUDENT: SHIVANI SETH, FAMILY MEDICINE ROTATION JULY 2019

FACULTY MENTOR: DR. LAURE SCHEDGICK-DAVIS

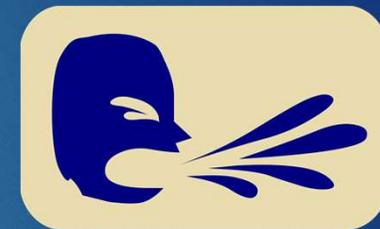
LOCATION: BROOKFIELD FAMILY MEDICINE, CT

# 2A: Project Identification

- ▶ Antibiotic overuse is critical issue in healthcare and primary care doctors are responsible for a significant portion of antibiotic prescriptions (6)
- ▶ Antibiotic overuse contributes to bacterial resistance
  - ▶ Resistant bacteria cause severe illness, increased mortality rates, risk of complications, and hospital admissions (1)
  - ▶ Antibiotics prescribed for ARTIs contributed to Strep Pneumonia resistance to azithromycin and amoxicillin
- ▶ Side effects from antibiotics lead to significant adverse events
  - ▶ 1/5 ed visits for adverse drug reactions are from antibiotics (4)
  - ▶ 250,000 people develop C diff often as consequence of receiving ab for resp or prophylaxis (2)

## 2B: Problem Identification

- ▶ Acute Respiratory Tract Infections (ARTIs) play a significant role in inappropriate antibiotic prescription practices
  - ▶ ARTIs are the most commonly treated acute problem in primary care (1)
  - ▶ ARTIs are the most common reason for antibiotic prescription in adults (3)
    - ▶ However, ARTIs are most often caused by viruses and antibiotics do not improve clinical outcome (4)
- ▶ Interventions that focus on antibiotic prescription for ARTIs can have an important impact on the larger problem (5)
- ▶ Providers feel pressured by patients to prescribe antibiotics even when they are not indicated (6)



goodfreephotos.com



pxhere.com

# 3: Public Health Cost

- ▶ Economic burden of antibiotic resistance in US is \$55 billion (7)
- ▶ Total cost for C. Difficile infections, an important consequence of antibiotic use, is \$1 billion (7)
- ▶ Total cost of antibiotic resistant S. Pneumoniae infections is \$96 billion (7)
- ▶ In Connecticut, 841 antibiotics are dispensed per 1,000 people
  - ▶ Higher than the national average which is 836 per 1,000 (8)
- ▶ Connecticut needed \$2,795,656 in funding from the CDC to fight antibiotic resistance (9)



Needpix.com

# 4: Community Perspective

*“Patients do pressure health care providers for antibiotics even when not indicated. It can be difficult for health care providers to not give into this pressure, but I feel that education as to why they are not appropriate can be helpful for some patients. There are patients who have strong beliefs that they need to have antibiotics, and this can be quite difficult. It is important that health care providers hold strong to their clinical judgement, do their best to educate patients and prescribe antibiotics only when indicated.”*

*-Laurie Schedgick-Davis, MD*

*“85-90% of URI are viral to start. Prescribing antibiotics early in course of viral URI will increase the likelihood of resistance and adverse effects to the antibiotic in the future. I find when patients receive an antibiotic for an URI they are less likely to use URI management medications which eventually leads patients to believe the antibiotic did not work and they frequently request a 2<sup>nd</sup> round.”*

*-Jessica Stellato, APRN*

*“Patients call and want an antibiotic for respiratory symptoms without even having to make an appointment. They just want a prescription called in for them.”*

*-Triage Nurse*

# 5: Intervention and Methodology

- ▶ The goal of this project was to educate patients on how rarely antibiotic therapy is indicated for ARTIs and emphasize the consequences of unnecessary antibiotic use
- ▶ Developed patient education brochure that providers can hand out when pertinent to patient care
  - ▶ Defined what ARTIs are and emphasized viral etiology
  - ▶ Classified most common ARTIs and elaborated on specific symptoms (bronchitis, acute rhinosinusitis, pharyngitis, common cold)
  - ▶ Reviewed appropriate supportive treatment for viral etiology
  - ▶ Identified specific symptoms and patterns within each class of ARTIs that could be a sign of bacterial infection
  - ▶ Explained the dangers of antibiotic overuse and drug resistance

## 6: Response

- ▶ Providers had a positive response to the brochure and particularly liked the emphasis on how long viral ARTIs can last
  - ▶ Patients are commonly under the misconception that viral illness are short and that symptoms lasting longer than 1 week indicate a bacterial infection
- ▶ Providers appreciated the emphasis placed on side effects of antibiotics
  - ▶ this is more directly related to the patient and so it can be a stronger motivator compared to the broader public health consequences

# 7: Evaluation of Effectiveness and Limitations

- ▶ Evaluation of Effectiveness
  - ▶ Compare percentage of ARTIs that result in antibiotic prescription before and after implementation of brochure via a chart review
  - ▶ Survey providers to assess if patients were less likely to ask for antibiotics for their current and future ARTIs after being provided with the brochure
- ▶ Limitations
  - ▶ Brochure is only effective if patients are willing to and have the time to read it
  - ▶ Brochure addresses patients' misconception of antibiotic indications for ARTIs but not the providers' misconceptions

# 8: Recommendations for Future Interventions

- ▶ Hold educational session for providers on when antibiotics are indicated for ARTIs
  - ▶ Specific focus on bronchitis and sinusitis as these were the most common diagnoses in patient's notes that lead to unnecessary antibiotic prescription
  - ▶ Expand upon which antibiotics should be used when necessary, with a specific focus on azithromycin and its lack of effectiveness in sinusitis
- ▶ Create quick "cheat sheet" cards for providers to reference that explain when to provide antibiotics and up to date information on which antibiotic is most effective for specific type of ARTI

# 9: References

1. Llor, C. et al., (2016) *Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem*. Sage Journals **5**(6):229-241
2. *Antibiotic/Antimicrobial resistance: biggest threats and data (2018)* Centers for Disease Control [https://www-cdc-gov.ezproxy.uvm.edu/drugresistance/biggest\\_threats.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdrugresistance%2Fthreat-report-2013%2Findex.html](https://www-cdc-gov.ezproxy.uvm.edu/drugresistance/biggest_threats.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdrugresistance%2Fthreat-report-2013%2Findex.html)
3. Shapira D.J. et al., (2014) *Antibiotic Prescribing for adults in ambulatory care in the USA, 2007-09*. Journal of Antimicrobial Chemotherapy **69**(1):234-240
4. Harris H.M. et al., (2016) *Appropriate antibiotic use for acute respiratory tract infection in adults: advice for high-value care from the American college of physicians and the centers for disease control and prevention*. Annals of Internal Medicine **164**(6): 425-433
5. Gonzalez R. et al., (2001) *Excessive antibiotic use for acute respiratory infections in the united states*. Clinical Infectious Disease **33**(6):757-762
6. Scott J.G. et al., (2001) *Antibiotic use in acute respiratory infections and the ways patients pressure physicians for a prescription*. Journal of Family Practice **50**(10):853-858
7. *Antibiotic resistance threats in the united states (2013)* Centers for Disease Control. <https://www.cdc.gov/drugresistance/pdf/ar-threats-2013-508.pdf>
8. *Patient safety atlas: antibiotic resistance data (2015)* Centers for Disease Control. <https://gis.cdc.gov/grasp/PSA/AUMapView.html>
9. *Antibiotic resistance investment map (2018)* Centers for Disease Control. <https://wwwn.cdc.gov/arinvestments/>

# 10: Consent

**Thank you for agreeing to be interviewed. This project is a requirement for the Family Medicine clerkship. It will be stored on the Dana Library ScholarWorks website. Your name will be attached to your interview and you may be cited directly or indirectly in subsequent unpublished or published work. The interviewer affirms that he/she has explained the nature and purpose of this project. The interviewee affirms that he/she has consented to this interview.**



Consented

Name: Laurie Schedgick-Davis

Name: Jessica Stellato

Scanned with  
CamScanner