Poster #125

Comparison of Diagnosis and Prescribing Practices Between Virtual Visits and Office Visits for Adults Diagnosed with Uncomplicated Urinary Tract Infection Within a Primary Care Network

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Background

The overuse and misuse of antimicrobials has resulted in the global public health threat of antibiotic resistance[1]

As Escherichia coli (*E. coli*) is the number one cause of urinary tract infections (UTIs), the Infectious Diseases Society of America (IDSA) states that women with uncomplicated cystitis experiencing their first or second UTI in the outpatient setting can receive empiric treatment that has high probability to target E. coli[2]

Both the CDC and The Joint Commission have developed new standards to guide the implementation of antimicrobial stewardship initiatives and promote patient safety in ambulatory healthcare settings[3,4]

Very little data exist regarding the appropriate prescribing of antibiotics via virtual visits compared to office visits

Objectives

Primary
- Compare the appropriateness of antimicrobial therapy for uncomplicated UTIs between virtual visits and office visits

Secondary
- Compare appropriate treatment duration, and urinalysis and cultures ordered between virtual visits and office visits
- Additional secondary objectives include comparing patient outcomes between groups including 48-hour, 7-day, and 30-day re-visits, or development of *Clostridioides difficile* infection (*C. difficile*) within 30 days

Methods

Study Setting
- Mercy Health Physician Partners (MHPP) in Grand Rapids, MI

Study Design
- Retrospective cohort

Inclusion Criteria
- Adult female patients aged 18 to 65 years that were diagnosed with acute uncomplicated UTI via virtual visit or diagnosed with ICD N39.0 or N30.00 via office visit between the study period of January 1, 2018 to December 31, 2018

Exclusion Criteria
- Complicated UTI or pyelonephritis diagnosis, treated for UTI in the last 4 weeks, UTI symptoms > 1 week, renal stone in last 6 months, ≥ 4 UTIs in the last year, previous or current Foley catheter

Data Collected

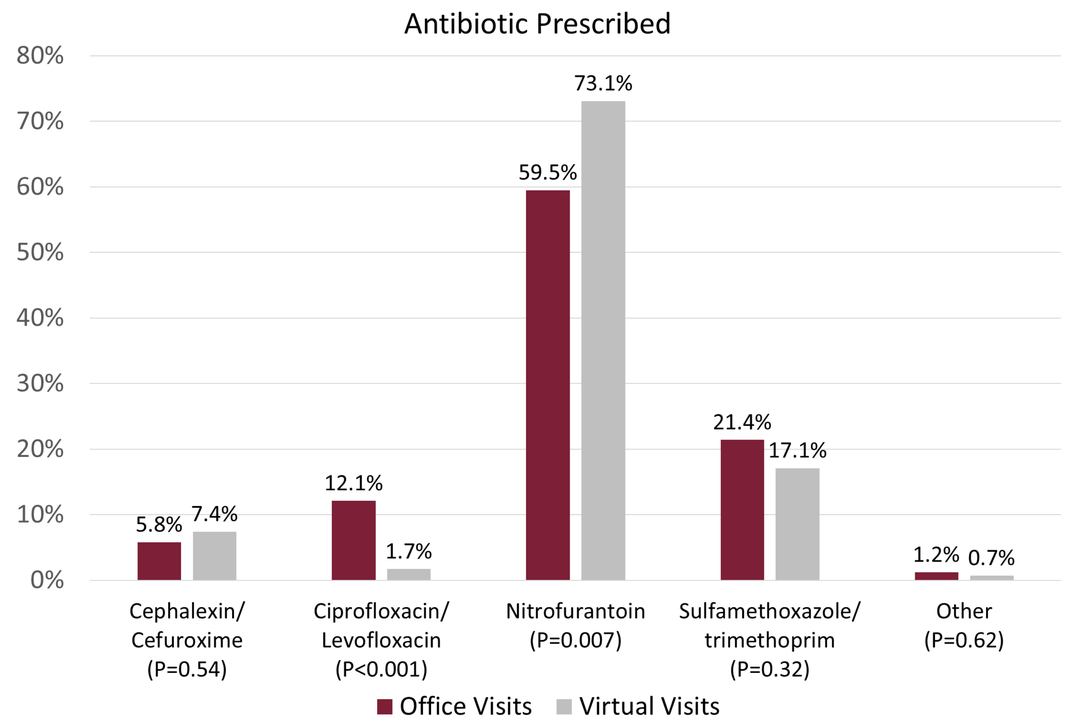
Patient Characteristics
- Demographics, office visit or virtual visit, antibiotic allergies with reaction severity, provider type

Patient Responses
- Symptoms, onset of symptoms, over-the-counter (OTC) medications or remedies tried before visit

Prescribing Characteristics
- Antibiotic prescribed (dose and duration), urinalysis and culture ordered, supportive care ordered

Patient Outcomes
- Revisit within 48 hours, 7 days, or 30 days; *C. difficile* within 30 days of visit

Virtual visits were associated with significantly improved antimicrobial prescribing for uncomplicated UTIs compared to office visits



Primary Outcomes

	Office Visits (n=175)	Virtual Visits (n=175)	p-value
Antibiotic prescribed	173 (98.9)	175 (100)	0.499
First-line antibiotic prescribed	104 (59.4)	131 (74.9)	**0.002**
	Office Visits (n=67)	**Virtual Visits (n=47)**	**p-value**
Eligible for nitrofurantoin but received an alternative antibiotic	64 (95.5)	42 (89.4)	0.271

All values reported as n, (%)

Patient Characteristics

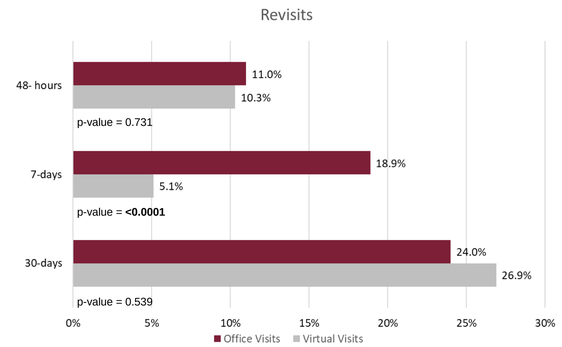
	Office Visits (n=175)	Virtual Visits (n=175)	P-value
Age, median [IQR]	46 [33-55]	37 [29-46]	**< 0.001**
Physician provider, n (%)	86 (49.1)	71 (40.6)	0.107
Antibiotic allergy, n (%)	57 (32.6)	66 (37.7)	0.314

Secondary Outcomes

	Office Visits (n=175)	Virtual Visits (n=175)	p-value
Appropriate duration prescribed	93 (53.1)	175 (100)	**< 0.0001**
Supportive care prescribed	46 (26.3)	52 (29.7)	0.475
Urinalysis ordered	170 (97.1)	0 (0)	**< 0.0001**
Urine culture ordered	128 (73.1)	0 (0)	**< 0.0001**
***C. difficile* within 30 days**	0 (0)	0 (0)	1.0

All values reported as n, (%)

Patient Outcomes



Discussion & Conclusions

- First-line antibiotic therapy was more likely to be prescribed to patients treated via virtual visits than office visits
  - Opportunities to improve nitrofurantoin prescribing exist in both visit settings
  - Appropriate duration of therapy was also more likely to be prescribed at virtual visits
- Virtual visits were less likely to use diagnostic resources
- Similar or less care revisits may yield significant cost savings with virtual visits compared to office visits for uncomplicated UTI

References

1. Centers for Disease Control and Prevention. Antibiotic/antimicrobial resistance – biggest threats & data.
2. Gupta K, et al. Clin Infect Dis. 2011 Mar 1;52(5):e103-20.
3. The Joint Commission. R3 report issue 23: Antimicrobial stewardship in ambulatory health care.
4. Centers for Disease Control and Prevention. Antibiotic prescribing and use in hospitals and long-term care – core elements of antibiotic stewardship.