# Treatment Patterns for Sexually Transmitted Infections among Superusers of an Urban Emergency Department

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## Background
- Sexually Transmitted Infections (STIs) remain prevalent in urban populations and are often diagnosed in emergency departments (EDs).
- St. Louis, Missouri has some of the highest per capita rates of STIs in the US. Approximately 20% of STI cases are diagnosed in EDs.
- With decreased public health funding and limited access to health insurance options, EDs continue to play a role in the care for STIs.

## Results
- Approximately 183,000 ED patient visits occurred during the study period. Of these, 6,518 visits (3.6%) resulted in STI testing for 5,431 patients.
- ED STI prevalence rates were high. (Fig 1.)
- 758 patients (14%) were tested more than once in the ED during the study period and defined as “superusers”.
- Superusers were more likely to be female, African American, and younger in age compared to those who were tested in the ED only once (single users) (p<0.001).
- Superusers were more likely than single users to have a positive test for GC (p<0.001) and Ct (p<0.001) (Fig 2.)
- Superusers received adequate treatment for STIs at 55% of visits compared to 62% of single users (χ² = 27.86, p < .001) and were overtreated at 40% of visits vs. 32% of visits for single users (χ² = 36.09, p < .001). (Fig 3.)
- GC positive visits were adequately treated 75% of the time compared to 52% of Ct positive visits (p<0.01). (Fig 4.)
- GC positive visits were undertreated at half the rate of Ct positive visits (25% vs. 48%) (p<0.01). (Fig 4.)

## Conclusions
- There was a significant burden of STI-related diagnoses, especially GC, in the urban ED setting by both patient volume and high prevalence of STIs.
- ED superusers were more likely to be young, African American female patients.
- This may reflect that superusers were more highly tested population of patients.
- But ED superusers were more likely to have a positive test than those patients tested only once and may represent a higher risk population.
- Superusers had higher rates of overtreatment for both GC and Ct which may reflect provider perception of superusers as higher risk patients.
- GC was adequately treated at a higher rate than Ct infection alone, likely secondary to increased symptomatology with GC infection.

## Methods
- We conducted a retrospective study of all ED patients evaluated for *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (Ct) infection by nucleic acid amplification testing between July 1, 2012 and June 30, 2014.
- We defined patients as “single users” if they were tested once in the study period and “superusers” if they were tested more than once in the study period.
- Patient records were examined for demographic characteristics, diagnoses, medications administered, and testing results.
- Adequate treatment was defined as any of the following treatments by disease status: ceftriaxone and azithromycin and/or doxycycline for GC, Ct or dual infection; azithromycin or doxycycline for Ct, and ceftriaxone alone for GC.
- Descriptive statistics were performed. All tests of significance were via Chi square, Fishers exact tests.
- This study was approved by the WU IRB.

## Limitations
- Only ED visits related to STIs were examined in this study. Superusers may come to the ED more frequently for all medical care and therefore be tested for STIs more often than single users.
- ED superusers for other medical problems are usually defined by a greater number of visits within a year. We used a less rigorous definition of a superuser for STI care.

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**Fig 1: Prevalence of GC & Ct in Study Population**

<table>
<thead>
<tr>
<th></th>
<th>Gonorrhea</th>
<th>Chlamydia</th>
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<tbody>
<tr>
<td>GC</td>
<td>6.6%</td>
<td>11.8%</td>
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**Fig. 2: Infection Prevalence by User Status**

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>GC</td>
<td>5.7%</td>
<td>21%</td>
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<tr>
<td>Ct</td>
<td>13.1%</td>
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**Fig 3 Adequacy of Treatment by User Status**

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<th>Under</th>
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<tbody>
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<td>50%</td>
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<tr>
<td>Ct</td>
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<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>GC &amp; Ct</td>
<td>30%</td>
<td>30%</td>
<td>40%</td>
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**Fig 4 Adequacy of Treatment by Disease Status**

<table>
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<tr>
<td>Adequate</td>
<td>70%</td>
<td>60%</td>
<td>50%</td>
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</tbody>
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