Reaching homeless youths for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* screening in Denver, Colorado

J M Van Leeuwen, C A Rietmeijer, T LeRoux, R White, J Petersen

**Background and rationale:** The availability of urine based testing for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) provides a unique opportunity to screen for these pathogens outside traditional clinical settings. The researchers investigated the feasibility of street based CT/GC screening in the context of an outreach programme among street/homeless adolescents in Denver.

**Objectives:** To describe the integration of urine based CT/GC screening into an existing outreach programme among street/homeless youths and the yield of CT/GC testing in this setting.

**Methods:** The Denver Department of Public Health (DPH) collaborated with outreach staff from Urban Peak (a community based organisation serving street/homeless youths in Denver) to offer urine based CT/GC testing to males and females in street settings. Tests were conducted on the street in areas where street/homeless youths congregate.

**Results:** Urban Peak outreach staff were trained by DPH staff to conduct CT testing, process urine specimens, and provide test results to participating youths. DPH remained responsible for treatment of people with CT or GC infection as well as CT/GC case reporting. CT testing started in January 2000; GC testing was added in July 2000. Throughout April 2002 a total of 414 CT and 302 GC tests were conducted, respectively 11.6% and 2.7% of which were positive. Among first testers, 13.0% were positive for CT and 3.7% for GC.

**Conclusions:** CT/GC urine testing can be incorporated into existing outreach programmes without considerable extra effort. Overall CT rates were high and suggest the need for ongoing screening in this manner.

**Learning objective:** To understand the role of CT/GC screening in the context of services provided to street/homeless youths in outreach settings.

In the United States, as many as 1.6 million youths are homeless each year. In Denver, approximately 250 youths under the age of 21 are sleeping on the streets of Denver every night. Homeless youths are characterised by high levels of substance abuse, mental illness, and physical and sexual abuse. There is also evidence that homeless youths are at high risk for sexually transmitted infections (STIs). A study of Los Angeles street youths found that 70% of youths sampled were sexually active with an average of 11.7 sexual partners during the last month. Bailey *et al.* reported similar findings in their study of substance use and risky sexual behaviour among homeless and runaway youths, arguing for more targeted prevention among this population, especially among young homeless women. In a study among homeless youths in a large city in the northwestern United States, Noell *et al.* found annualised chlamydia incidence rates of 7.4% among men and 12.1% among women. HSV-2 incidence rates were 11.7% and 25.4% respectively. Inconsistent condom use was the primary factor associated with incident STIs, especially among women with high numbers of partners.

Though a recognised healthcare concern among the general population of adolescents, STIs are not typically addressed with homeless and runaway youths. The 1997 Institute of Medicine report on “The Hidden Epidemic” identified a need to design and implement essential STD related services in innovative ways for adolescents and underserved populations. The report recommended “innovative methods and alternate venues for intervention because these groups are difficult to reach through traditional health care settings.” Based on several recent studies of STI rates among homeless and runaway youths, Kipke *et al.* and Bailey *et al.* concur with a need for more effective interventions aimed at targeting this high risk population.

Because homeless and runaway youths are difficult to reach for STI services, the availability of non-invasive, urine based, testing for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) provides a unique opportunity for screening this population in an outreach setting. We investigated the feasibility of street based CT/GC screening in the context of an outreach programme among street/homeless adolescents in Denver. The objective of this study was to describe the collaboration between the Denver Department of Public Health (DPH) and Urban Peak, a community based organisation serving street/homeless youths in Denver, to introduce CT/GC testing into an existing outreach programme in this population as well as report on the yield of urine based CT/GC testing in this setting.

**METHODS**

In response to the growing number of youths living on the streets of Denver, Colorado, Urban Peak (UP) began serving this population in 1988, providing a continuum of support around employment and education, health care, drug and alcohol treatment, mental health treatment, and housing. Urban Peak is currently the only licensed homeless and runaway youth shelter in Colorado serving young people between the ages of 15 and 20. The ultimate goal of the agency is to assist youths in permanently exiting the streets.

The UP outreach team is on the streets 7 days a week in the greater Denver area, building relationships with homeless and runaway youths through services such as condom and bleach
the day when the highest numbers of youths are at the park. A park that is a popular congregating location for homeless approximately 3 months. The urine based tests were offered at Wednesday afternoon from 2 pm until 4 pm for a period of obtain a CT/GC test. The collaboration took place every outreach counsellor for services or engaged DPH staff to their presence on the streets. Y ouths then accessed the ing an outreach session, the UP outreach team counsellors (both are reportable infections in the state of Colorado). Dur- Colorado Department of Public Health and Environment.

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Age (mean)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>122</td>
<td>14 (11.5)</td>
<td>69</td>
<td>14 (20.3)</td>
<td>88</td>
<td>3 (3.4)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>20</td>
<td>3 (15.0)</td>
<td>29</td>
<td>2 (6.9)</td>
<td>14</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Black</td>
<td>20</td>
<td>2 (10.0)</td>
<td>8</td>
<td>1 (12.5)</td>
<td>16</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Other</td>
<td>24</td>
<td>4 (16.7)</td>
<td>23</td>
<td>1 (4.3)</td>
<td>17</td>
<td>1 (5.9)</td>
</tr>
<tr>
<td>Sex partners (past 3 months)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤1</td>
<td>100</td>
<td>7 (7.0)</td>
<td>54</td>
<td>6 (11.1)</td>
<td>73</td>
<td>2 (2.7)</td>
</tr>
<tr>
<td>&gt;1</td>
<td>86</td>
<td>16 (18.6)</td>
<td>75</td>
<td>12 (16.0)</td>
<td>62</td>
<td>2 (3.2)</td>
</tr>
</tbody>
</table>

RESULTS

Initially, CT testing was only available once a week during the collaborative outreach between DPH and Urban Peak. During these sessions, every youth encountered during that session (approximately 40 youths per session) was offered a CT/GC test. After June 2000, every full time outreach counsellor from Urban Peak was trained to administer the test. At this time, the test was available and offered during every outreach session, 7 days a week.

Between January 2000 and April 2002, 414 CT and 302 GC tests were performed, of which 11.6% and 2.6% were positive. Of those tested, respectively 315 and 217 tested for the first time; among these 41 (13.0%) tested positive for CT and eight (3.7%) tested positive for GC. Demographic and behavioural characteristics of those tested for the first time are provided in table 1. Overall we did not find significant associations between testing positive for CT or GC and sex, age, or race/ethnicity. Y ouths who reported more than one sex partner in the previous three months were more likely to be diagnosed with both CT or GC, but this difference was only statistically significant for CT among males. Restricting testing to those youths who reported more than one sex partner, however, would have missed 13/41 (31.7%) CT cases and 3/8 (37.5%) GC cases.

Treatment was documented for 30 of 49 (61.2%) CT/GC infections.

No formal assessment was made of the proportion of youths encountered during outreach who were offered or who accepted CT/GC testing. Because of the transient nature of this population and the high volume of youths receiving outreach services during each session (approximately 50 youths), any formal and accurate assessment on refusal rates is difficult to make during street encounters. Observations during two full outreach sessions, however, suggested that of people encountered, approximately 70% were offered urine testing, and that of those, 20% accepted the test. Reasons for the UP outreach team counsellor not offering the test included the client being under the influence of alcohol or incoherent. During two additional outreach sessions, a brief survey was conducted to study reasons for not accepting the test. Of 10 refusers, two indicated they had never had sex, one said he was not currently sexually active, two refused because they had tested within the last 2 months, and five were not interested in receiving the test at that time.

DISCUSSION

The inclusion of urine based testing for CT and GC as part of outreach services provided to high risk, street/homeless
youths in Denver, was shown to be a mutually beneficial collaboration between a community-based agency and a public health department. For Urban Peak, the added service was yet another tool to assist the outreach counselor in building relationships with youths on the streets. It was estimated that less than 5% of the counselors’ time was spent distributing this urine-based test; therefore the benefits of providing this service far outweighed the cost in time and resources it required of the UP outreach team to distribute the test. For Denver Public Health, the collaboration identified a means to effectively screen for CT/GC on the streets among a high-risk population without overextending its own human resources. Rather than being available to the youths on the streets once a week (as was the case initially), the test is now available to the youths 7 days a week in multiple locations throughout the Denver metropolitan area. Still, the greatest benefit of the collaboration was received by the youths themselves. Through the outreach effort, high prevalence rates for CT and to a lesser extent for GC were demonstrated, strongly supporting the need for ongoing screening in this population.

While successful overall, a number of problem areas were also identified. Firstly, acceptance rates appeared to be low, potentially decreasing the cost effectiveness of this approach. However, because CT/GC testing is available via the UP outreach team during every session, 7 days a week, youths have multiple opportunities to test during any given week; consequently, while the majority of youths refuse the test during a given outreach session, over a period of time many of these youths take advantage of the opportunity to test as their relationship with the UP outreach team develops. From observations and outreach reports, the UP outreach team estimates that they serve a population of approximately 1200 homeless youths. If it is accepted that 20% of these youths have not been sexually active, the population at risk for STD can be estimated at approximately 1000. Thus, with 315 unduplicated tests performed during the 2 years of the project, we estimate that approximately 30% of this population was reached.

Secondly, for almost 40% of diagnosed CT/GC infections, treatment was not documented. While this rate is not unexpected in such a transient population, it does reduce the overall utility of the screening program. Extra effort must therefore be devoted to enhance the return rates for results and treatment—for example, by educating youths about the importance of receiving results and treatment when they are tested and to provide the counselor with adequate contact information, including cell phone numbers and email addresses.

In summary, offering urine-based testing for CT/GC to street/homeless youths in Denver was shown to be a successful collaboration between a health department and a local community-based organization. The high CT and GC prevalence rates in this population demonstrated through this collaboration warrants continuation and expansion of these services.

ACKNOWLEDGEMENT
Supported in part by CDC cooperative agreement U30/CCU817944-02.

Parts of this manuscript have been presented at the National STD Prevention Conference in Milwaukee, Wisconsin, USA, 2000.

Authors’ affiliations
J M Van Leeuwen, R White, J Petersen, Urban Peak, Denver, Colorado, USA
C A Rietmeijer, T LeRoux, Denver Public Health Department, Denver Health Medical Center, Denver, Colorado, USA

REFERENCES
Reaching homeless youths for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* screening in Denver, Colorado

J M Van Leeuwen, C A Rietmeijer, T LeRoux, R White and J Petersen

*Sex Transm Infect* 2002 78: 357-359
doi: 10.1136/sti.78.5.357

Updated information and services can be found at:
http://sti.bmj.com/content/78/5/357

These include:

**References**
This article cites 3 articles, 1 of which you can access for free at:
http://sti.bmj.com/content/78/5/357#BIBL

**Email alerting service**
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Topic Collections**
Articles on similar topics can be found in the following collections

- Screening (epidemiology) (984)
- Screening (public health) (984)
- Chlamydia (841)
- Ophthalmology (680)

**Notes**

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/