Stop the Spread: Geographically Tracking the Syphilis Outbreak in Houston/Harris County, TX

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Introduction

• Purpose of this project was to identify the prevalence of syphilis infections by zip code

• Identifying these geographical areas will assist the S.E.A.C. and Legacy Community Health Services in deploying resources to these communities in efforts to provide education and screening to these high-risk populations

• Legacy can use this information to explore the social/sexual networks of these high-risk populations in efforts to identify trends regarding sexual behavior
Background

- Syphilis is a sexually transmitted disease caused by the bacterium *Treponema pallidum*, and can cause serious long-term complications and/or death if not properly treated.
- Three stages:
  - Primary
  - Secondary
  - Late/latent syphilis
In 2012, the Houston Department of Health and Human Services (HDHHS) declared a syphilis outbreak in Houston/Harris County after observing a 97% increase in the number of primary and secondary syphilis infections compared to the same time period in 2011.

- Men who have sex with men (MSM) and who use social networks to find sex partners drive the majority of new syphilis cases.
- More than 1/3 of Houstonians with a new syphilis infection also have HIV.
Methodology

- Performed inquiry of Centricity EMR system
- Searched for active patients with syphilis by:
  - Zip code
  - Sex
  - Race & ethnicity
  - HIV co-infection
- Calculated prevalence according to 2010 census data
## Results

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Syphilis Cases</td>
<td>1282</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1165</td>
<td>91%</td>
</tr>
<tr>
<td>Male, HIV+</td>
<td>1023</td>
<td>88%</td>
</tr>
<tr>
<td>Female</td>
<td>117</td>
<td>9%</td>
</tr>
<tr>
<td>Female, HIV+</td>
<td>45</td>
<td>38%</td>
</tr>
<tr>
<td>White, Not Hispanic/Latino</td>
<td>317</td>
<td>25%</td>
</tr>
<tr>
<td>Black, Not Hispanic/Latino</td>
<td>530</td>
<td>41%</td>
</tr>
<tr>
<td>White, Hispanic/Latino</td>
<td>373</td>
<td>29%</td>
</tr>
<tr>
<td>Other Race/Ethnicity</td>
<td>62</td>
<td>5%</td>
</tr>
</tbody>
</table>
### Geographic Locations of ≥29 Syphilis Cases per Zip Code

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>Syphilis Cases</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>77006</td>
<td>98</td>
<td>0.50%</td>
</tr>
<tr>
<td>77063</td>
<td>45</td>
<td>0.13%</td>
</tr>
<tr>
<td>77004</td>
<td>39</td>
<td>0.12%</td>
</tr>
<tr>
<td>77036</td>
<td>39</td>
<td>0.05%</td>
</tr>
<tr>
<td>77057</td>
<td>38</td>
<td>0.10%</td>
</tr>
<tr>
<td>77008</td>
<td>34</td>
<td>0.11%</td>
</tr>
<tr>
<td>77019</td>
<td>32</td>
<td>0.17%</td>
</tr>
<tr>
<td>77088</td>
<td>32</td>
<td>0.06%</td>
</tr>
<tr>
<td>77009</td>
<td>29</td>
<td>0.08%</td>
</tr>
<tr>
<td>77020</td>
<td>29</td>
<td>0.11%</td>
</tr>
</tbody>
</table>
Discussion

- Highest number of cases (98) among HIV+ White males in 77006 zip code (Montrose)
  - Majority of STD testing centers in this zip code
- Highest percentage of syphilis in Houston is among HIV+ Black males (41%)
  - 67-97% in some zip codes (3rd Ward, 5th Ward, Southwest)
  - No STD testing centers in these areas
- Individuals with syphilis but not HIV are a very vulnerable population
  - Aggressive prevention measures needed to prevent HIV
Recommendations

• Expand community STD testing centers to other high-risk communities

• Continue to provide prevention initiatives
  • Encourage safer sex practices
  • Promote awareness re. syphilis and other STDs

• Encourage more aggressive preventive measures (e.g. PrEP) for high-risk communities

• Explore social/sexual networks that play a role in syphilis outbreak
Conclusion

• Syphilis infections pose a serious health threat to Houston/Harris County

• Greatest risk among
  • MSM
  • Black males
  • HIV co-infection

• It is recommended that Legacy re-assess outreach initiatives to ensure high-risk populations are effectively targeted
Acknowledgements

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