Hepatitis B Control Across Clinical and Non-Clinical Settings

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**Burden of HBV Disease**

It is estimated that up to **2.2 million persons** in the United States are chronically infected with HBV.

Foreign-born Asian and African individuals in the U.S. are *disproportionately* affected by chronic HBV.

- Foreign-born Asian individuals make-up nearly 60% of the chronically infected, despite the fact that they make up <5% of the U.S. population
- Foreign-born African individuals account for nearly 25% of the chronically infected, despite the fact that they make up <0.5% of the population

1. CDC. MMWR 2008;57(No. RR-08)  2. Knowdley. Hepatology 2012;56(2)422
In the U.S., an estimated 1900 people die each year from HBV-related disease\(^1\)

HBV is responsible for 75-80\% of virus-associated HCC (compared to 10-20\% for HCV) \(^2\)

25\% with chronic hepatitis B will die early from complications of the disease\(^3\)

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Chronic HBV Infection is Undertreated

- Number of chronic HBV infections: 1.4–2 M
- Number aware of their infection: 400 000–600 000
- Number potentially eligible for treatment: 350 000–500 000
- Number entering into care: 200 000–300 000
- Number of annual HBV prescriptions: 50 000

Hepatitis Education and Prevention Program (HEPP)

In 2012, AHC awarded CDC Cooperative Grant to conduct HBV surveillance and screening in Chicago Metropolitan area.

<table>
<thead>
<tr>
<th>Country of Origin</th>
<th># Screened</th>
<th># Positive</th>
<th>Carrier Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>59</td>
<td>8</td>
<td>13.60%</td>
</tr>
<tr>
<td>Africa</td>
<td>131</td>
<td>14</td>
<td>10.7%</td>
</tr>
<tr>
<td>Laos</td>
<td>144</td>
<td>12</td>
<td>8.30%</td>
</tr>
<tr>
<td>Cambodia</td>
<td>51</td>
<td>4</td>
<td>7.80%</td>
</tr>
<tr>
<td>Nepal</td>
<td>28</td>
<td>2</td>
<td>7.10%</td>
</tr>
<tr>
<td>Tibet</td>
<td>18</td>
<td>2</td>
<td>7.10%</td>
</tr>
<tr>
<td>Other</td>
<td>84</td>
<td>6</td>
<td>7.10%</td>
</tr>
<tr>
<td>Philippines</td>
<td>114</td>
<td>5</td>
<td>4.40%</td>
</tr>
<tr>
<td>Korea</td>
<td>239</td>
<td>9</td>
<td>3.80%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>170</td>
<td>6</td>
<td>3.50%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>52</td>
<td>1</td>
<td>1.90%</td>
</tr>
<tr>
<td>India</td>
<td>29</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>Burma</td>
<td>22</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>USA</td>
<td>17</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1158</strong></td>
<td><strong>69</strong></td>
<td><strong>6.00%</strong></td>
</tr>
</tbody>
</table>

**Screenings**
- Screenings performed: 1174
- Screenings available for analysis: 1158 (98.6%)
- HBsAg +: 69 (6%)
- Anti-HBc +: 444 (18%)
The question: Can non clinical settings be as effective as clinical setting in reaching, screening and linking Asian immigrants to care?

SCREENINGS IN NONCLINICAL SETTINGS
Health fairs and other events hosted by community- and faith- based organizations created opportunities for language-concordant outreach and lessened perceived stigma and financial concerns.

SCREENINGS IN CLINICAL SETTINGS
Community health centers, federally qualified health centers (FQHCs), free clinics, small group physician practices, and hospitals provided direct access to primary care physicians and preventive services.

OUR HYPOTHESIS
Nonclinical settings may be more effective in HBV control, and facilitate outreach of hard to reach populations in potentially larger numbers than clinical settings.
**Methods**

**Health center sites**
Hepatitis Patient Navigators (HPNs) will be assigned at each location

- Notify individuals of results
- Vaccinate susceptible patients at risk
- *Case Management for HBsAg+ patients – refer for additional lab testing, refer and schedule specialty care, assist with access and navigate barriers

**Community Sites**
Community-Health Workers (CHWs)

- Provide culturally relevant education
- Encourage screening at Health Centers or Free events
- Notify patients of screening results
- *Refer patients to local providers and PCP sites for vaccination and care of chronically infected

**CHWs and HPNs work together** to ensure patients schedule and make appointments**
Methods

CHWs and HPNs will have joint:
- Reciprocal site and facility visits
- Cultural competency training
- HBV education and training
- Medical Process and Linkage-to-care training
Results

- Twice as many Asian Americans were screened in NCS vs CS
- No significant differences in % positivity, sex, insurance, years in the US or education
The question: Can non-clinical screenings be as effective as clinical screenings in reaching, screening, and linking Asian immigrants to care?

<table>
<thead>
<tr>
<th>Site type</th>
<th>Name of screening site</th>
<th>Designation</th>
<th>Frequency (n)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical settings</td>
<td>Asian Human Services</td>
<td>FQHC</td>
<td>53</td>
<td>7.0</td>
</tr>
<tr>
<td></td>
<td>Heartland Health Centers</td>
<td>FQHC</td>
<td>101</td>
<td>13.3</td>
</tr>
<tr>
<td></td>
<td>Korean American Family Clinic</td>
<td>CHC</td>
<td>75</td>
<td>9.9</td>
</tr>
<tr>
<td>Nonclinical settings</td>
<td>Quang Minh Viet Temple</td>
<td>FBO</td>
<td>43</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>African United Community Methodist Church</td>
<td>FBO</td>
<td>39</td>
<td>5.1</td>
</tr>
<tr>
<td></td>
<td>Cambodian Association of Illinois</td>
<td>CBO</td>
<td>28</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Chinese American Service League</td>
<td>CBO</td>
<td>57</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td>Chicago Mongolian Mission Church</td>
<td>FBO</td>
<td>43</td>
<td>5.7</td>
</tr>
<tr>
<td></td>
<td>Ethiopian Community Association of Chicago</td>
<td>CBO</td>
<td>44</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>Filipino Community Health Fair</td>
<td>Health fair</td>
<td>42</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>Hanul Family Alliance</td>
<td>CBO</td>
<td>48</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>Lao American Organization of Elgin</td>
<td>CBO</td>
<td>144</td>
<td>19.0</td>
</tr>
<tr>
<td></td>
<td>Tibetan Alliance of Chicago</td>
<td>CBO</td>
<td>41</td>
<td>5.4</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td>758</td>
<td>100</td>
</tr>
</tbody>
</table>

**Table 1** Screening sites and participant counts

**Abbreviations:** CBO, community-based organization; CHC, community health clinic; FBO, faith-based organization; FQHC, federally qualified health center.
## Participant Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Number (n=758)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site Type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Settings</td>
<td>229</td>
<td>30.2</td>
</tr>
<tr>
<td>Non-Clinical Settings</td>
<td>529</td>
<td>69.8</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>285</td>
<td>37.6</td>
</tr>
<tr>
<td>Female</td>
<td>470</td>
<td>62.0</td>
</tr>
<tr>
<td>Not indicated</td>
<td>3</td>
<td>.4</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>620</td>
<td>81.8</td>
</tr>
<tr>
<td>Other</td>
<td>93</td>
<td>12.2</td>
</tr>
<tr>
<td>Not indicated</td>
<td>45</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 30 years</td>
<td>67</td>
<td>8.8</td>
</tr>
<tr>
<td>30-39 years</td>
<td>104</td>
<td>13.7</td>
</tr>
<tr>
<td>40-49 years</td>
<td>186</td>
<td>24.5</td>
</tr>
<tr>
<td>50-59 years</td>
<td>181</td>
<td>23.9</td>
</tr>
<tr>
<td>60-69 years</td>
<td>169</td>
<td>22.3</td>
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<tr>
<td>70 years or older</td>
<td>50</td>
<td>6.6</td>
</tr>
<tr>
<td>Not indicated</td>
<td>1</td>
<td>.1</td>
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<tr>
<td><strong>Residence Years in United States</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 10 years</td>
<td>108</td>
<td>14.2</td>
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<tr>
<td>10-19 years</td>
<td>101</td>
<td>13.3</td>
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<tr>
<td>20-29 years</td>
<td>78</td>
<td>10.3</td>
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<tr>
<td>30 or more years</td>
<td>120</td>
<td>15.8</td>
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<tr>
<td>Not indicated</td>
<td>351</td>
<td>46.3</td>
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<tr>
<td><strong>Insurance status</strong></td>
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<tr>
<td>Yes</td>
<td>271</td>
<td>35.8</td>
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<tr>
<td>No</td>
<td>400</td>
<td>52.8</td>
</tr>
<tr>
<td>Not indicated</td>
<td>87</td>
<td>11.5</td>
</tr>
<tr>
<td><strong>English as Primary Language</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>74</td>
<td>9.8</td>
</tr>
<tr>
<td>No</td>
<td>684</td>
<td>90.2</td>
</tr>
</tbody>
</table>
## Linkage-to-Care Results

<table>
<thead>
<tr>
<th>Type of setting</th>
<th>Number of Positive Individuals</th>
<th>Post-test counselling provided (Y=Yes; N=No)</th>
<th>Referred to Medical care (Y=Yes; N=No)</th>
<th>Source of Care When Referred to Medical Care Indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Clinical setting</td>
<td>16</td>
<td>16</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Non-Clinical setting</td>
<td>39</td>
<td>39</td>
<td>0</td>
<td>30</td>
</tr>
</tbody>
</table>

There was not a significant association between test result and screening site type ($\chi^2=.02$, df=1, $p>.05$, $\Phi_C=.005$). Individuals who ended up testing positive for the disease were as likely to participate in clinical as in non-clinical settings.
Conclusions

- We found no significant associations between a number of demographic factors and between sites. Screening rates were higher in non-clinical sites. Most importantly, in our cohort, referral rates were significantly higher in NCS.

- Non-clinical settings have the capacity to reach a larger segment of underserved foreign-born populations who tend to be uninsured and have limited English proficiency.

- This program demonstrated the merits of using a community-based patient navigation model for linkage-to-care, providing infected individuals with access to culturally competent medical care for HBV.
ACKNOWLEDGEMENTS

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