Testing Interventions to Increase Hepatitis B Screening among Asians

Roshan Bastani, PhD

University of California, Los Angeles
Fielding School of Public Health & Jonsson Comprehensive Cancer Center

Training Institute for Dissemination and Implementation Research in Health (TIDIRH) – July 30, 2015
Importance of Screening for Hep B for Liver Cancer Control

- Chronic Hep B infection causes **80%** of liver cancers in Asians
- **66%** of Hep B-infected are unaware of their status

- Universal vaccination of infants worldwide—fairly recent
- Many adults not vaccinated, or vaccinated without screening

**Screening of at-risk populations will...**

- Identify those in need of treatment—reduce sequelae of chronic infection (e.g., cirrhosis, liver cancer)
- Prevent transmission of the virus
- Identify individuals who may benefit from vaccination
Geographic Prevalence of Hepatitis B

80% of liver cancer among Asians attributable to Hep B infection

- 67% of the US APIs immigrated from Hep B-endemic country
- 40,000 Hep B-infected immigrants enter US annually (>50% Asian)
- **Asians** comprise over 40% of the Hep B-infected population in the US
Hep B Disparities in U.S.
Multi-Site Collaboration: NCI P01 (2006-2012)

- Seattle - Chinese ESL Intervention -
- Sacramento - Hmong Lay Health Worker Intervention -
- San Francisco - Vietnamese Media Intervention -
- Los Angeles - Korean Church-Based Intervention -
A Cluster Randomized Trial to Reduce Liver Cancer Disparities among Koreans

Roshan Bastani, Ph.D.,
Beth A. Glenn, Ph.D., Vicky Taylor, M.D., M.P.H.*
Annette Maxwell, Dr.P.H., Weng Kee Wong, Ph.D.,
Angela Jo, M.D., M.S.H.S., Catherine M. Crespi, Ph.D.,
Alison K. Herrmann, M.S., Cindy Chang, M.S.,

University of California, Los Angeles (UCLA)
Fielding School of Public Health & Jonsson Comprehensive Cancer Center

*Fred Hutchinson Cancer Research Center, Seattle, WA

Funded by NCI P01CA109091
Rationale for Church-Based Intervention among Koreans in LA

- 3rd most populous Asian group
- LA has the largest concentration of Koreans in the US
- 2nd highest liver cancer rates among Asians
- Highest liver cancer incidence & mortality rates in LA
- Up to 12% chronically infected with Hep B
- Low Hep B serologic testing rates
- No liver cancer prevention efforts targeting Koreans
- 80%+ of Koreans attend church regularly
Primary Hypothesis:
• Intervention group will have higher Hepatitis B serologic testing rates at follow-up

Secondary Hypotheses:
• Intervention group will have higher knowledge at follow-up
• The effect of the intervention on Hepatitis B serologic testing will be mediated by knowledge
• Predict an interaction between acculturation & intervention
  – Intervention more effective in more acculturated subjects
**Study Design**

**Stratified Random Assignment of Churches (N=52)**

- **Intervention Churches (N=26)**
  - In-Person Baseline Interview
  - **Hepatitis B** Small Group Discussion
  - 6-Month Telephone Follow-up

- **Control Churches (N=26)**
  - In-Person Baseline Interview
  - **Diet/Physical Activity** Small Group Discussion
  - 6-Month Telephone Follow-up
Justification for Stratifying Churches by Size and Location

**SIZE**

Smaller churches → More close-knit

**LOCATION**

- Those attending Koreatown churches
  
  These factors may influence participation rates & intervention effectiveness

- Lower SES
- Less Acculturated
- Foreign-born
Small: 51-200 Members

Joyful Presbyterian Church
Koreatown, CA
Medium: 201-900 Members

Van Nuys United Methodist
Van Nuys, CA
Large: 900+ Members

Light of Love Mission Church
Pasadena, CA
Theory Guided Research

Advantages:

• Systematic approach to building knowledge base
• Comparability across studies, populations, health behaviors
• Development of testable hypotheses
• Examination of complex connections and pathways leading to outcome
• Systematic Approach to intervention development
Use of the Health Behavior Framework in intervention development

**Individual Factors**
- Knowledge
- Communication & rapport with provider
- Health Beliefs
- Social Support/norms
- Cultural Factors

- Encourage communication with MD: Role play, Scripts, List of questions
- Enhance perceived susceptibility by informing about increased Hep B risk for Koreans
- Encourage discussion of Hep B with family/friends
- Frame testing & vaccination as another way to keep body healthy as in “han yak” or “bo yak”

- Facts about Hepatitis B and liver cancer; Rationale for testing before vaccination
Use of the Health Behavior Framework in intervention development

Individual Variables

Physician & Health Care System Variables
- Provider characteristics
- Health care setting
- Structural factors
- Availability of Services
- Capacity

CME workshops for Vietnamese Physicians
Mailings to members of the Vietnamese Physician Association of Northern California
Establishment of a clinic specific for Hmong, staffed by bilingual Hmong
Examples of Barriers and Supports:

- Lack of insurance → provide list of clinics
- Not a priority → your health is important for you and your family
- Display culturally significant icons for Happiness, Prosperity, Longevity above a Hep B vaccination symbol (Vietnamese)
- Have a well-known Hmong hip-hop artist influence peer norms and attitudes (Hmong)
Conducting Baseline Interviews
Small Group Session

- 8-10 participants
- 1 hr, interactive discussion
- PowerPoint to simplify complex information

Small group format:
- Establish social norms
- Reduce stigma
- Ensure active participation
- Systematic vs Heuristic Information Processing
Hepatitis B Discussion Guide
Hepatitis B Group Session

What causes liver cancer?

- Alcohol, toxins, chemicals, fatty diet, obesity, other viruses: 20%
- Hepatitis B: 80%
How common is Hepatitis B?

12 times

Americans

Koreans
Why not get tested now?

- Too expensive or no insurance
- Belief that traditional medicine prevents hepatitis B & liver cancer
- No time
- No symptoms
- No recommendation from doctor
- Afraid to shame or burden family
Study Recruitment (N = 52 Churches)

1866 Subjects Screened for Eligibility
18-64 yrs, Korean, live in LA, no HepB test or don’t know results

1196 (64%) Subjects Eligible to Participate
Majority (96%) ineligible due to prior Hep B testing

1123 Subjects Enrolled and Completed In-Person Baseline

Hepatitis B Group
N = 543 (n = 26 Churches)
(93%) Attended Session

Nutrition/Physical Activity Group
N = 580 (n = 26 Churches)
(90%) Attended Session

6 Month Telephone Follow-Up
86% Retention (N=961)

34.6% Hep B Test Rate
### Sample Characteristics (N=1123)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean)</td>
<td>46 years</td>
</tr>
<tr>
<td>Gender</td>
<td>65% female</td>
</tr>
<tr>
<td>Marital Status</td>
<td>75% Married</td>
</tr>
<tr>
<td>Korean Born</td>
<td>97%</td>
</tr>
<tr>
<td>Time in US (foreign-born, N = 1066)</td>
<td>17 years</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>HS or Less</td>
<td>30%</td>
</tr>
<tr>
<td>Some College</td>
<td>16%</td>
</tr>
<tr>
<td>College Grad &amp; Higher</td>
<td>53%</td>
</tr>
<tr>
<td>Household Income</td>
<td></td>
</tr>
<tr>
<td>&lt; $30 K</td>
<td>20%</td>
</tr>
<tr>
<td>$30K - $50K</td>
<td>22%</td>
</tr>
<tr>
<td>$50K - $80K</td>
<td>20%</td>
</tr>
<tr>
<td>&gt;$80K</td>
<td>19%</td>
</tr>
<tr>
<td>Uninsured</td>
<td>58%</td>
</tr>
<tr>
<td>Have Usual Source of Care</td>
<td>49%</td>
</tr>
</tbody>
</table>
## Intervention Effect (N = 1123)

### Participants Screened for Hepatitis B During the Study Period

Intent–to-treat Analyses of all Randomized Subjects

<table>
<thead>
<tr>
<th>Churches</th>
<th>Test Rate: Intervention Group</th>
<th>Test Rate: Control Group</th>
<th>Difference: I vs C</th>
<th>Odds Ratio</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL</td>
<td>19% (104/543)</td>
<td>6% (33/580)</td>
<td>13%</td>
<td>4.9</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Small</td>
<td>17% (36/206)</td>
<td>4% (9/218)</td>
<td>13%</td>
<td>5.3</td>
<td>&lt;.004</td>
</tr>
<tr>
<td>Medium</td>
<td>19% (30/161)</td>
<td>4% (7/191)</td>
<td>15%</td>
<td>6.4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Large*</td>
<td>22% (38/176)</td>
<td>10% (17/171)</td>
<td>12%</td>
<td>3.1</td>
<td>.152</td>
</tr>
<tr>
<td>Koreatown*</td>
<td>20% (50/247)</td>
<td>11% (23/213)</td>
<td>9%</td>
<td>2.4</td>
<td>.105</td>
</tr>
<tr>
<td>Non-Koreatown</td>
<td>18% (54/296)</td>
<td>3% (10/367)</td>
<td>16%</td>
<td>8.6</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

* Hep B screening events held at several Koreatown churches during study period

### Results omitting pairs of churches where Hep B free screening held

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<th>Churches</th>
<th>Test Rate: Intervention Group</th>
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<th>Difference: I vs C</th>
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<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>15%</td>
<td>3%</td>
<td>12%</td>
<td>5.1</td>
<td>.026</td>
</tr>
<tr>
<td>Koreatown</td>
<td>16%</td>
<td>6%</td>
<td>10%</td>
<td>2.9</td>
<td>.025</td>
</tr>
</tbody>
</table>
# Health Behavior Framework Variables at 6 month follow-up

<table>
<thead>
<tr>
<th></th>
<th>Intervention (N=242)</th>
<th>Control (N=232)</th>
<th>Intervention vs. Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge, Mean ± SD</td>
<td>6.9 ± 1.2</td>
<td>6.3 ± 1.6</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Perceived Severity, Mean ± SD</td>
<td>2.5 ± 0.9</td>
<td>2.2 ± 0.9</td>
<td>p &lt; .005</td>
</tr>
<tr>
<td>Perceived Susceptibility</td>
<td>85.5 %</td>
<td>67.1 %</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Provider communication/recommendation</td>
<td>16.9 %</td>
<td>2.2 %</td>
<td>p &lt; .001</td>
</tr>
</tbody>
</table>
Intervention Effect: Mediation Analysis
(N=474)

**Total Effect**: Log odds ratio = 1.54 (OR = 4.66)  
P < 0.001

**Indirect Effect**: Log odds ratio = 0.54, p = .001

**Direct Effect**: Log odds ratio = 1.00, p < .013

**Mediator**: Provider communication/recommendation

0.54/1.54 = 35% of total effect size

Outcome: Hep B Testing
Body Mass Index
(% of the sample, n=541)

![Bar chart showing Body Mass Index categories: Under, Normal, Over, Obese. Standard cutoff and Asian-specific (WHO) classifications are indicated.](chart)
BMI using Asian-Specific Cutoffs by Gender (% of Sample, n=541)

BMI Cutoffs (kg/m²):
- < 23 = Under/Normal
- > 23 = Overwt/Obese
Discussion

- Hep B screening rates very low among Koreans
- Efforts to increase Hep B screening rates needed
- Obesity is an issue, esp among Korean males
- Churches are a viable setting for intervention
- Small group Hep B intervention was effective
- Population-level impact:
  - 19% Hep B screening rate in intervention group
  - how do we reach the other 81%?
- **Future Intervention research**: Combined intervention for Hep B, obesity and alcohol; developing a project within the Kaiser system for all Asians
THANK YOU