Identifying Vulnerable Communities in Health Impact Assessments

April 22, 2015
IAIA Conference

Sarah Hartsig, M.S., Analyst
Kansas Health Institute
Acknowledgements

Thanks to:

- The Kansas Health Institute (KHI) for funding to support this initiative.

- Team members:
  - Tatiana Lin, M.A.
  - Shawna Chapman, Ph.D., M.P.H.
  - Sheena Smith, M.P.P.
  - Justin Tevie, Ph.D.
Kansas Health Institute (KHI)

- **Vision:** Healthier Kansans through effective policy.

- **Mission:** To improve the health of all Kansans by supporting effective policy making, engaging at the state and community levels, and providing non-partisan, actionable and evidence-based information.
  - State-level public health and health policy
  - Nonprofit, unaffiliated with academia, non-advocacy
Background
Objectives

- List key values in HIA
- Describe the need for a tool to identify vulnerable populations in HIA
- Illustrate the usage of the tool: a topic-tailored vulnerability score
- Discuss the application of the tool in HIA and other areas
Main Determinants of Health

Source: Dahlgren and Whitehead, 1991
Health Impact Assessment Values

- HIAs identify harms and benefits **before** decisions are made.

- HIAs identify **evidence-based strategies** to promote health and prevent disease.

- HIAs increase transparency, support inclusiveness, democracy, and community engagement in the policy decision-making process.

- HIAs advance equity and justice:
  - Focus on populations likely to be disproportionately affected (vulnerable populations).
Health Equity: Key Contributors

- Health Equity
- Income Inequality
- Personal Behaviors
- Access to Health Care
- Racism/Racial Disparity
- Built and Natural Environment
- Quality of Education
Defining the Need

- HIAs could benefit from a more intentional approach to addressing equity
  - Tools exist (Equity matrix: http://www.humanimpact.org/component/jdownloads/finish/9/294)
  - … but more are needed
- Decision-makers are faced with multiple decisions and tight timelines
- Making HIA findings relevant in a succinct way is a challenge for practitioners
Relatively simple quantitative tool to identify disproportionately affected communities across various topics

Needed elements:
- Zip code or county-level data
- Prioritized list of indicators

Demonstration case: Kansas’ Medical Marijuana HIA
# Potential Health Effects of Legalizing Medical Marijuana

## Health Impact Assessment

**Kansas Health Institute (KHI)**

## Decision Making Process Targeted

- **Kansas Legislation introduced in 2015.**
  - KHI presented neutral testimony on SB 9 and HB 2282
  - HB 2282 was passed out of committee
  - Stakeholders believe the bill still has a chance to be worked in the 2015 session

## Findings & Recommendations

### Legalization of Medical Marijuana may result in:
- Little to no overall consumer consumption
- Increased consumption among at-risk youth
- No increase in crime
- An increase accidental ingestion, primarily in children under 5 years of age

### Recommendations:
- Add questions to the state-added module of the BRFSS related to marijuana use
- Ensure that law enforcement prosecutes those that willingly share marijuana with unauthorized individuals
- Educate students about risks associated with marijuana use
- Implement protective packaging requirements to deter young children from ingesting marijuana

## Issues Addressed

In Kansas, three bills related to medical marijuana were introduced in the 2015 legislative session: Senate Bill 9/House Bill 2011, and House Bill 2282. The first two bills would legalize medical marijuana use for 12 defined symptoms and conditions. The third would allow only high-THC marijuana to be used for patients with epilepsy/seizures.

The study analyzed five health issues related to this bill:
- Access to Marijuana
- Consumption of marijuana
- Marijuana-related crime
- Driving under the influence of marijuana
- Accidental ingestions

## Geographic Scope & Populations Impacted

### Geographic Scope
State of Kansas (entire state)

### Populations Impacted
Kansas residents, including:
- At-risk youth
- Children under 5
- Individuals with certain medical conditions
- Vulnerable populations, including low-income individuals

## Geographic Scope

State of Kansas (entire state)

## Populations Impacted

Kansas residents, including:
- At-risk youth
- Children under 5
- Individuals with certain medical conditions
- Vulnerable populations, including low-income individuals
Application of the Tool

- What communities in Kansas will be disproportionately affected by the legalization of medical marijuana?
- What characteristics are associated with marijuana use and related factors (i.e. crime)?
Methodology

- Regressions identified key indicators connected to marijuana use among youth and adults.

- Indicators included:
  - Property and violent crime
  - Poverty, income, unemployment
  - Educational attainment
  - Alcohol use
  - Disparities in poverty rates
Methodology

- 15 measures identified at the county level (see handout)
- Z-score distribution calculated for each measure
- Number of measures >1.5 SD tallied for each county
- Tally total = vulnerability index
# Methodology

<table>
<thead>
<tr>
<th>County</th>
<th>lifetime</th>
<th>current</th>
<th>age</th>
<th>poverty</th>
<th>HS</th>
<th>income</th>
<th>unemploy</th>
<th>offense</th>
<th>lifetimeAlcohol</th>
<th>Binge</th>
<th>Poverty_disparity</th>
<th>BW</th>
<th>Poverty_disparity_H</th>
<th>Sum Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen</td>
<td>-0.07385</td>
<td>0.40291</td>
<td>1.302</td>
<td>1.05854</td>
<td>0.344</td>
<td>0.95603</td>
<td>0.95903</td>
<td>0.79351</td>
<td>-0.20641</td>
<td>0.11199</td>
<td>0.41476</td>
<td>0.33037533</td>
<td>-0.763833981</td>
<td>0</td>
</tr>
<tr>
<td>Anderson</td>
<td>-0.007194</td>
<td>0.677444</td>
<td>-0.49</td>
<td>0.6451727</td>
<td>-0.03</td>
<td>0.397527</td>
<td>1.091867386</td>
<td>1.0212054</td>
<td>0.512878774</td>
<td>1.010468</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atchison</td>
<td>0.2763151</td>
<td>0.7406577</td>
<td>1.165</td>
<td>0.5735873</td>
<td>-0.27</td>
<td>0.2375238</td>
<td>1.484490933</td>
<td>0.02562919</td>
<td>0.37870432</td>
<td>1.376193</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barber</td>
<td>0.2496907</td>
<td>0.070596</td>
<td>-1.537</td>
<td>-0.786524</td>
<td>-0.82</td>
<td>0.049968</td>
<td>-0.760824974</td>
<td>0.7439475</td>
<td>1.67906601</td>
<td>1.398699</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barton</td>
<td>0.2609697</td>
<td>0.7334333</td>
<td>0.395</td>
<td>0.5497262</td>
<td>0.507</td>
<td>0.2002157</td>
<td>-0.27004554</td>
<td>-0.1156038</td>
<td>0.352443367</td>
<td>1.720114</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bourbon</td>
<td>-0.29754</td>
<td>-0.326745</td>
<td>1.72</td>
<td>1.2178515</td>
<td>0.01</td>
<td>1.9152408</td>
<td>0.871016616</td>
<td>0.49491958</td>
<td>0.511647816</td>
<td>-0.22948</td>
<td>1.004029184</td>
<td>1.895034521</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Brown</td>
<td>0.5314597</td>
<td>0.0904631</td>
<td>0.677</td>
<td>2.1007314</td>
<td>-0.3</td>
<td>0.6735407</td>
<td>0.11030852</td>
<td>0.9085479</td>
<td>0.368666754</td>
<td>-0.63117</td>
<td>-0.84757805</td>
<td>1.07189587</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Butler</td>
<td>0.5847086</td>
<td>0.7955533</td>
<td>0.005</td>
<td>-1.239895</td>
<td>-0.73</td>
<td>-1.84545</td>
<td>1.050505892</td>
<td>0.27705279</td>
<td>-1.53453831</td>
<td>-0.86668</td>
<td>-0.809943757</td>
<td>-0.395819374</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Chase</td>
<td>0.8184429</td>
<td>0.6124789</td>
<td>1.35</td>
<td>0.502003</td>
<td>-0.27</td>
<td>0.6125525</td>
<td>-0.190426825</td>
<td>-0.00082777</td>
<td>0.452972137</td>
<td>0.549093</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chautauq</td>
<td>0.9238195</td>
<td>0.4092931</td>
<td>0.605</td>
<td>0.6451727</td>
<td>0.391</td>
<td>1.4194338</td>
<td>1.202292759</td>
<td>0.29261635</td>
<td>1.022905829</td>
<td>0.527993</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td>1.836238904</td>
<td></td>
</tr>
<tr>
<td>Cherokee</td>
<td>-0.301464</td>
<td>-0.583211</td>
<td>0.278</td>
<td>1.2417131</td>
<td>-0.381</td>
<td>1.0370481</td>
<td>1.410874018</td>
<td>0.34227944</td>
<td>1.07382547</td>
<td>-0.84827</td>
<td>0.704557735</td>
<td>-0.946753681</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cheyenne</td>
<td>-1.981885</td>
<td>-1.763495</td>
<td>1.268</td>
<td>-0.71494</td>
<td>-0.21</td>
<td>1.1140536</td>
<td>1.407349662</td>
<td>-1.0721207</td>
<td>1.132091829</td>
<td>-1.87805</td>
<td>-0.704557735</td>
<td>-0.946753681</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Clark</td>
<td>-0.511657</td>
<td>-0.735826</td>
<td>1.33</td>
<td>0.9792353</td>
<td>-0.34</td>
<td>0.3850997</td>
<td>-0.908508803</td>
<td>0.06944452</td>
<td>0.800933016</td>
<td>1.050474</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td>1.65982502</td>
<td></td>
</tr>
<tr>
<td>Clay</td>
<td>0.330797</td>
<td>-0.088341</td>
<td>-0.269</td>
<td>-0.070676</td>
<td>0.159</td>
<td>0.217256</td>
<td>-0.503165771</td>
<td>0.36271299</td>
<td>0.159133424</td>
<td>0.390144</td>
<td>#VALUE!</td>
<td>-0.852938381</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cloud</td>
<td>-0.858512</td>
<td>-0.65186</td>
<td>0.115</td>
<td>0.812204</td>
<td>-0.09</td>
<td>0.9034946</td>
<td>-0.638310115</td>
<td>0.18293941</td>
<td>-2.100456598</td>
<td>-1.00453</td>
<td>1.877144791</td>
<td>0.091968903</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Coffey</td>
<td>-1.7801</td>
<td>-1.535927</td>
<td>-1.153</td>
<td>-0.643555</td>
<td>-0.71</td>
<td>-0.98713</td>
<td>0.502932607</td>
<td>1.3407259</td>
<td>-1.009723276</td>
<td>-1.69238</td>
<td>1.293813243</td>
<td>#VALUE!</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Comanche</td>
<td>-0.535198</td>
<td>-1.717439</td>
<td>0.25</td>
<td>-1.525235</td>
<td>-0.32</td>
<td>0.8014536</td>
<td>-0.883519632</td>
<td>-0.1951456</td>
<td>1.15942199</td>
<td>0.068728</td>
<td>#VALUE!</td>
<td>0.745253547</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Cowley</td>
<td>0.7125508</td>
<td>0.7234989</td>
<td>0.519</td>
<td>1.131298</td>
<td>0.129</td>
<td>0.666093</td>
<td>0.662433538</td>
<td>1.38569802</td>
<td>-0.253567925</td>
<td>-0.52839</td>
<td>-0.546503703</td>
<td>0.346749914</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Crawford</td>
<td>1.1553118</td>
<td>1.4712237</td>
<td>0.399</td>
<td>3.821152</td>
<td>-0.07</td>
<td>1.415514</td>
<td>1.251370702</td>
<td>0.07199668</td>
<td>-0.554772388</td>
<td>-0.00381</td>
<td>-0.490052263</td>
<td>0.39247984</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Decatur</td>
<td>0.5740588</td>
<td>0.6295828</td>
<td>-0.072</td>
<td>-0.111399</td>
<td>-0.77</td>
<td>1.022509</td>
<td>-0.834441888</td>
<td>-1.1053688</td>
<td>0.484566733</td>
<td>0.335988</td>
<td>#VALUE!</td>
<td>#VALUE!</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Dickinson</td>
<td>0.1379798</td>
<td>-0.022413</td>
<td>0.283</td>
<td>-0.28543</td>
<td>-0.45</td>
<td>-0.308426</td>
<td>0.147116978</td>
<td>0.21525176</td>
<td>0.773021294</td>
<td>0.53995</td>
<td>#VALUE!</td>
<td>-0.718104056</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Doniphan</td>
<td>0.1357368</td>
<td>0.4805799</td>
<td>0.427</td>
<td>0.000909</td>
<td>-0.23</td>
<td>0.1171629</td>
<td>1.631724763</td>
<td>1.65121436</td>
<td>1.10373857</td>
<td>0.5294</td>
<td>0.710481696</td>
<td>-0.286936191</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Max vulnerability index score was 9 (Wyandotte County)

Next highest: 5

Scores categorized as:

- “Low” (0, 1, or 2)
- “High” (3, 4, or 5)
- “Very high” (6+)

13 Counties (12%) scored greater than 3
## Results

<table>
<thead>
<tr>
<th>County</th>
<th>Vulnerability Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Douglas</td>
<td>5</td>
</tr>
<tr>
<td>Ford</td>
<td>5</td>
</tr>
<tr>
<td>Labette</td>
<td>4</td>
</tr>
<tr>
<td>Lyon</td>
<td>3</td>
</tr>
<tr>
<td>Montgomery</td>
<td>3</td>
</tr>
<tr>
<td>Morton</td>
<td>3</td>
</tr>
<tr>
<td>Saline</td>
<td>4</td>
</tr>
<tr>
<td>Sedgwick</td>
<td>3</td>
</tr>
<tr>
<td>Seward</td>
<td>3</td>
</tr>
<tr>
<td>Shawnee</td>
<td>3</td>
</tr>
<tr>
<td>Stanton</td>
<td>3</td>
</tr>
<tr>
<td>Woodson</td>
<td>4</td>
</tr>
<tr>
<td>Wyandotte</td>
<td>9</td>
</tr>
</tbody>
</table>
Conclusions

- Combining components of health equity with topic-specific measures helps to identify vulnerable communities.
- The tool can be used to succinctly communicate results with decision-makers.
- Relatively simple methodology makes the tool widely useful.
Other Uses for the Tool

- **Use in screening:** identify projects with bigger potential for impact
- **Use in recommendations:** target interventions to communities which may be impacted most
- **Assist in community engagement:** engage representatives from vulnerable communities to serve on advisory panel
- **Use outside of HIA:** funders can use the tool to target funding opportunities
Limitations

- Most useful when granular data are available
- Need many data points
- Some important indicators may have been left out (due to lack of data or lack of identification)
- All indicators given equal weight - but weights could be developed, if desired
Questions?

- **Questions for you:**
  - What are your thoughts about this tool?
  - What are some opportunities and limitations?

- **Questions for me?**
References


Contact

Sarah Hartsig, M.S.
shartsig@khi.org
785-233-5443

Links

• Kansas Casino HIA
• Wichita, KS Transit HIA
• Kansas Liquor HIA
• Kansas Corporate Farming HIA
• Kansas Medical Marijuana HIA (coming soon)