Social Determinants of Health Action Tool

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IMPAQ is a global policy research and analytics firm delivering evidence that shapes the world. We bring clear answers to the most important questions in health care, economic development, and human services through cutting-edge research, analytics, and technical support.
IMPAQ’s Social Determinants of Health (SDoH) Action Tool offers three unique dashboard views for users to explore SDoH and health outcomes within communities of their choice.

The Health Outcome Dashboard allows a user to explore a selected health outcome such as diabetes and learn about how evidence-based SDoH contribute to the health outcomes in a community.

The SDoH Drilldown Dashboard allows a user to explore an SDoH and how it affects communities within a county differently.

The Community Comparison Dashboard allows a user to explore how two communities compare on SDoH measures such as walkability or teenage birth rate.
What are Social Determinants of Health?

<table>
<thead>
<tr>
<th>Economic Stability</th>
<th>Neighborhood &amp; Physical Environment</th>
<th>Education</th>
<th>Food</th>
<th>Community &amp; Social Context</th>
<th>Health Care System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment</td>
<td>Housing</td>
<td>Literacy</td>
<td>Hunger</td>
<td>Social integration</td>
<td>Health coverage</td>
</tr>
<tr>
<td>Income</td>
<td>Transportation</td>
<td>Language</td>
<td>Access to healthy options</td>
<td>Support systems</td>
<td>Provider engagement</td>
</tr>
<tr>
<td>Expenses</td>
<td>Safety</td>
<td>Early childhood education</td>
<td>Community engagement</td>
<td></td>
<td>Provider linguistic &amp; cultural competency</td>
</tr>
<tr>
<td>Debt</td>
<td>Parks</td>
<td>Vocational training</td>
<td>Discrimination</td>
<td></td>
<td>Quality of care</td>
</tr>
<tr>
<td>Medical bills</td>
<td>Playgrounds</td>
<td>Higher education</td>
<td>Stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support</td>
<td>ZIP code / geography</td>
<td></td>
<td></td>
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</tbody>
</table>

**Health Outcomes**
Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations
The Importance of SDoH: Social Determinants Explain…

up to 80% of health outcomes, such as life expectancy or the risk of readmission after being discharged from the hospital.

up to 85% of the utilization and costs for healthcare services in the country.

AHRQ Challenge
Linking the SDoH Data
Developing the SDoH Action Tool

- **Research**
  - Exploring Evidence-based Relationships

- **Design**
  - User-friendly design and content

- **Testing**
  - Multiple testing rounds by diverse test users

- **Dissemination**
  - Webinars, conferences, and IMPAQ’s website

- **Continuous Improvement**
  - Incorporate end-user feedback and new evidence-based insights
Target Audiences

We conducted user testing with 9 users across 4 stakeholders:

Our target audiences are health plans, local community workers, community-based organizations (CBOs), health care providers, health care improvement organizations, and policymakers who want to make an impact in their communities by improving health outcomes by focusing on SDoH.

1. Gathered interested test users
2. Demonstrated the tool to users in guided webinar and distributed a user testing guide
3. Collected first round user testing feedback through a validated survey
4. Updated tool based on feedback
5. Collected additional feedback
6. Incorporated additional feedback and updated the tool
SDoH Action Tool’s Data

Health Outcomes

- Diabetes
- Hypertension
- Chronic Kidney Disease
- COVID-19 and Asthma (coming soon)

Example SDoH Variables

- Neighborhood Walkability
- Food Access
- Public Transit Access
- Health Insurance Access
- Gini Index (Income disparity within a community)
## Key Data Sources

<table>
<thead>
<tr>
<th>Free Publicly Accessible Data</th>
<th>SDoH Target</th>
<th>SDoH Variable Examples</th>
<th>Aggregation Level</th>
<th>Last Release Date</th>
<th>Updates</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SDoH Data</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>American Community Survey (ACS)</strong></td>
<td>Education, Demographics, Community and Social Context</td>
<td>Educational Attainment, Median Household Income, Poverty Rate, Population Level, Unemployment Rate</td>
<td>Census Tract</td>
<td>2018</td>
<td>Annually</td>
</tr>
<tr>
<td><strong>Opportunity Atlas</strong></td>
<td>Social Mobility Data</td>
<td>Teenage Birth Rate</td>
<td>Census Tract</td>
<td>2018</td>
<td>Annually</td>
</tr>
<tr>
<td><strong>Food Access Research Atlas</strong></td>
<td>Food Insecurity</td>
<td>Food Accessibility for SNAP Households, Food Accessibility for Households without a Vehicle</td>
<td>Census Tract</td>
<td>2017</td>
<td>Based on Census/ACS Updates</td>
</tr>
<tr>
<td><strong>National Walkability Index</strong></td>
<td>Neighborhood Walkability</td>
<td>Neighborhood Walkability</td>
<td>Census Tract</td>
<td>2015</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>Health Outcome Data</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mapping Medicare Disparities (MMD) Tool</strong></td>
<td>-</td>
<td>-</td>
<td>County¹</td>
<td>2019</td>
<td>Annually</td>
</tr>
</tbody>
</table>

¹ We used the smallest aggregate level data available due to lack of health outcome data at the census tract level.
### Design Considerations

<table>
<thead>
<tr>
<th>Completeness</th>
<th>Interpretability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes variables that are <strong>at least 95% complete</strong> at the census tract level (for SDoH measures) or county level (for health outcomes).</td>
<td>All variables have been <strong>normalized for comparability</strong>. For example variables are shown as percentages, rates, or indices.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scalability</th>
<th>Intuitiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users to aggregate SDoH and health outcome data to the <strong>state and national levels</strong> for comparisons.</td>
<td>Emoticons and colors are combined for <strong>quick readability</strong>.</td>
</tr>
</tbody>
</table>
Incorporating User Feedback

Real-world user feedback

“[It] would be helpful if [the] data could be downloaded.”

“Non-public health users may struggle to understand how to find their census.”

“[There needs to be a] narrative to explain how [the associated SDoH variables] have been determined [and how] it is linked to evidence-based research.”

“Have a ‘how to navigate Tableau’ guide, for example, how to reset a map if you accidentally zoom in or out.”

Updates made to the SDoH Action Tool

Updated the SDoH Action Tool so any user can download the data and Tableau workbook.

Added a ZIP Code filter and geographic layer so a user can search through the SDoH Action Tool by ZIP Code to easily navigate the 3 dashboards.

Included a link on the overview landing page to supporting evidence-based literature.

Included “how-to” instructions for Tableau functionalities in the user guide available on the overview landing page that we are adapting from our user testing guide.
SDoH Dashboard Action Tool

Overview

Health starts in our homes, schools, workplaces, neighborhoods, and communities. Healthy People 2020, a government initiative, made it a goal to improve health by creating social and physical environments that promote good health for all. IMPAQ Health has joined in this goal by focusing on social determinants of health (SDoH).

SDoH are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. IMPAQ understands that to improve community health outcomes, a key piece of the puzzle is understanding and addressing SDoH, yet resources for finding and using evidence-based SDoH information are limited. To address this gap, IMPAQ designed the SDoH Dashboard Action Tool, a data visualization tool that helps organizations and individuals better understand and find solutions based on which SDoH factors—such as food insecurity, neighborhood walkability, and teen birth rates—are affecting population health at the local level.

The SDoH Dashboard Action Tool recently won major recognition from the Agency for Healthcare Research and Quality (AHRQ) in its Visualization Resources Community-Level SDoH Innovation Challenge. Insights from this award-winning tool help users make informed decisions to improve health care access, quality, and equity. IMPAQ’s SDoH Dashboard Action Tool allows nuanced geographical analyses across a broad array of SDoH variables that empower users to identify population-level challenges and interventions to address these challenges. The SDoH Dashboard Action Tool can be a resource to help academic researchers, community-based organizations (CBOs), and policymakers understand, prioritize, and act on disparities.
Use Case Walk-through

Begin your exploration with Dashboard 1: The Health Outcome Dashboard

Select the state of interest

Select the health outcome of interest

Filters

State
Virginia

Health Outcome
Diabetes Hospitalization
View demographic information about the population in the selected state.
Select a Point of Reference to understand how the census tract/communities in that county compare to county, state, or national averages on certain SDOH measures.
Continue your exploration with Dashboard 2: The SDoH Drilldown Dashboard

Filters
- State: Delaware
- County: Kent County
- ZIP Code: (All)
- Choose SDoH to Explore: Neighborhood Walkability
- Point of Reference: County

View the selected SDoH for a specific ZIP Code of interest

Select an SDoH measure of interest to drill down on it further
View the county’s demographic information and corresponding map that displays census tract/community performance on the SDoH measure.

Hover your mouse over the map to learn more about each census tract/community.
Select an SDoH to explore and a Point of Reference

Select 2 states, counties, and ZIP Codes of interest to compare

Continue your exploration with Dashboard 3: The Community Comparison Dashboard
Compare the two geographies’ performance on the selected SDoH.
View and compare the two geographies' demographic information

**173,145**
Population
- 24% Black Population
- 7% Hispanic Population
- 37% Population without High School Diploma
- 11% Families Below Poverty

**215,551**
Population
- 10% Black Population
- 8% Hispanic Population
- 32% Population without High School Diploma
- 7% Families Below Poverty
Limitations and Challenges

➢ Data timeliness
  ➢ Data reporting can have multi-year lag in updates

➢ Data availability at the census tract level across the Nation
  ➢ Health outcome data is primarily available at the county level

➢ SDoH can exert influence at a more granular level than census tract
  ➢ Data availability decreases at more granular levels

➢ Our knowledge of SDoH is evolving and on-going research and maintenance of the tool is required to keep the tool relevant
"For those who aren't used to working with [SDoH] data, this could be a useful tool and a way to get information for talking with stakeholders/decision makers."

- Researcher

"Nonprofits can use [this tool to] conduct a Health Needs Assessment."

- Nonprofit Organization

"The ability to look at data at a sub-county level and to understand how different neighborhoods are disproportionately impacted is incredibly valuable [to our organization]."

- Health Care Provider

"Community Health Worker[s] will benefit from the tool [because] it can help [them when] writing annual reports [and with] retrospective analyses."

- Healthcare Collaborative Organization

"An often-cited gap is availability of granular data for local areas, so I imagine many will welcome this tool."

- Researcher
Thank You!

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