A data driven approach to mitigate health and economic inequities of the covid-19 pandemic and recession

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Study Team

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Funding

UC Office of the President
COVID Emergency Funding Mechanism
Present *novel data model* for timely, contextualized understanding of structural and social determinants of health as experienced by residents in their communities.

Consider ways in which this data model could *inform program and policy recommendations*.
Address circumstances of the pandemic-induced recession

Community-driven efforts

Equity framework

Structural determinants of health

Racial, ethnic, class, and gender oppression

Built environment

Economic stability

Health care

Social context

Social Determinants of Health

Adapted from Health People 2020
Structural and social determinants of health

- **Structural determinants of health**: Racial, ethnic, class, and gender oppression

- **Social Determinants of Health**
  - Crowding
  - Parks
  - Air

- Employment
- Food
- Housing
- Poverty

- School/closures
- College access

- Insurance
- Care access
- Caretaking

- Activism
- Premature death
- Social support

**Address circumstances of the pandemic-induced recession**

**Community-driven efforts**

**Equity framework**

Adapted from Health People 2020
Project goals

**Develop data model to mitigate adverse structural and social determinants**
- Mixed-methods data collection
- Interdisciplinary data analysis
- Data integration

**Develop tools to support communities beyond the pandemic**
- Ongoing community engagement
- Monitor social determinants
- Seek partnerships
Data model and activities

Sustained community engagement

Data collection

**Streetwyze**
- Neighborhood reports

**Surveys**
- Structured data on resident circumstances

Existing data

**Public resources**
- Existing/available safety net

**Neighborhood Data**
- Built and social environment

1. Describe on-the-ground impact, needs, & assets

2. Identify gaps in resources & neighborhoods in need

3. Establish domain-specific indicators and tracking
## Mixed data types

<table>
<thead>
<tr>
<th>Description</th>
<th>Neighborhood reports</th>
<th>Surveys</th>
<th>Geospatial data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Text media via Streetwyze of reviews, lived experiences, &amp; interactions with neighborhood environments</td>
<td>Assess sociodemographics, employment, food, housing, childcare, healthcare, COVID experience, transportation, &amp; well-being</td>
<td>Geocoded reports Participant residence Secondary neighborhood data Public resource directories</td>
</tr>
<tr>
<td><strong>Impact</strong></td>
<td>Personal stories, “hidden” resources, &amp; solutions to challenges</td>
<td>Assess changes in circumstances before and after the start of the pandemic and throughout the study</td>
<td>Link neighborhood characteristics to participants text reports and survey responses</td>
</tr>
</tbody>
</table>
Streetwyze

Mobile, mapping, and SMS platform that collects RTD on how people are experiencing the spaces and places in which people live, learn, work, play, pray, and turns these into actionable analytics.

Addresses 2 Questions:

1. How can we have more inclusive community engagement processes
2. How can we use data to make better and more community-informed decisions?
   (Democratizing data, Decision making processes)
Streetwyze
Participatory Mapping Tool

Map
Rate
Good, Bad, Fix (Solution)
Star rating
Review
Qualitative text, audio, or video
Share
The Streetwyze platform
Participant outreach

- Existing Streetwyze users
- Recruitment fliers and postcards
- Weekly social media postings
- Attending parenting support groups at Roots
- Spanish-language materials
- Sustained interaction
Recruitment and Retention

70 participants

236 Streetwyze reports

51 baseline surveys (Jan 2021 - Oct 2021)

Follow-up surveys (Mar 2021 - Dec 2021)

40 (78%) - 1 follow up survey

22 (43%) - 2 follow up surveys

11 (22%) - 3 follow up surveys

5 (10%) - 4 follow up surveys
## Baseline survey - Participant population

<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>% of study population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: under 45</td>
<td>75%</td>
</tr>
<tr>
<td>Person of color*</td>
<td>87%</td>
</tr>
<tr>
<td>Female</td>
<td>73%</td>
</tr>
<tr>
<td>Less than 1 year of savings</td>
<td>90%</td>
</tr>
<tr>
<td>Received income support</td>
<td>75%</td>
</tr>
</tbody>
</table>

*Includes American Indian/Alaska Native, Asian American, Black, Hispanic/Latino, and Middle Eastern/North African*
Baseline survey – Pre/post pandemic changes

<table>
<thead>
<tr>
<th>Change in circumstances pre/post pandemic</th>
<th>% of study population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain</strong></td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>69%</td>
</tr>
<tr>
<td>Housing</td>
<td>49%</td>
</tr>
<tr>
<td>Health Insurance</td>
<td>14%</td>
</tr>
<tr>
<td>Food insecurity</td>
<td>12%</td>
</tr>
<tr>
<td>Transportation</td>
<td>61%</td>
</tr>
</tbody>
</table>
## Baseline survey – Well being

<table>
<thead>
<tr>
<th>Well-being</th>
<th>% of study population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good physical health</td>
<td>78%</td>
</tr>
<tr>
<td>Good mental health</td>
<td>59%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stressors</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 stressors</td>
<td>7.7</td>
</tr>
<tr>
<td>Discriminatory experiences</td>
<td>202.5/year</td>
</tr>
</tbody>
</table>
### Baseline survey – Experiences with COVID

<table>
<thead>
<tr>
<th>COVID-19 illness</th>
<th>% of study population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self or someone in household</td>
<td></td>
</tr>
<tr>
<td>Had symptoms</td>
<td>37%</td>
</tr>
<tr>
<td>Was hospitalized</td>
<td>8%</td>
</tr>
<tr>
<td>Was in the ICU</td>
<td>6%</td>
</tr>
<tr>
<td>Died</td>
<td>4%</td>
</tr>
</tbody>
</table>
## Analyzing Streetwyze neighborhood reports

<table>
<thead>
<tr>
<th>Infection control</th>
<th>Resources</th>
<th>Access</th>
<th>Infrastructure</th>
<th>Well-being</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand sanitation</td>
<td>Transportation</td>
<td>Price</td>
<td>Programs and services</td>
<td>Coping</td>
</tr>
<tr>
<td>Social distancing</td>
<td>Food</td>
<td>Service</td>
<td>Networks</td>
<td>Racial equity</td>
</tr>
<tr>
<td>COVID testing</td>
<td>Health</td>
<td>Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masking &amp; physical barriers</td>
<td>Childcare/schools</td>
<td>Convenience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface sanitation</td>
<td>Eldercare</td>
<td>Availability of goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outdoor space</td>
<td>Orderliness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
“They have implemented a delivery program for prescription medicine, making it more convenient for me and my parents.”
“Could not recommend this place more to people part of the LGBTQIA2S+ community and supporters. I rely on this place a lot to get dinner for my family.”
Goals of data integration

- Data “check” for consistency between sources
- Visualize specific needs of the community within geographic regions
Example data integration

<table>
<thead>
<tr>
<th>Who is reporting specific themes?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BY sociodemographic groups</td>
</tr>
<tr>
<td>• BY food insecurity</td>
</tr>
<tr>
<td>• BY burden of discriminatory experiences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Where are themes most often mentioned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• BY healthcare changes</td>
</tr>
<tr>
<td>• BY food or housing insecurity</td>
</tr>
<tr>
<td>• BY neighborhood characteristics</td>
</tr>
<tr>
<td>• BY participant residence</td>
</tr>
</tbody>
</table>
Who is reporting specific themes?

Distribution of frequently mentioned codes related to ACCESS according to changes in housing

Percent of individuals who frequently mentioned code

<table>
<thead>
<tr>
<th>Code</th>
<th>No housing changes</th>
<th>Housing changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONV</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>PRICE</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>ORDER</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>SECURITY</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>SERVICE</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>QUALITY</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>AVAIL</td>
<td>20</td>
<td>80</td>
</tr>
</tbody>
</table>
Who is reporting specific themes?

Distribution of frequently mentioned codes related to ACCESS according to changes to food insecurity

- Never food insecure
- Emergent food insecurity
- No longer food insecure
- Persistent food insecurity
Where are themes mentioned?
Adapting to trends and needs over time

**Why?**

- Improve implementation of policies and services over time
- Sustained community engagement
- Evidence improvements to circumstances around social determinants of health

**How?**

- Periodic analyses of resident reports
- Repeated survey questions
- Template data presentation scheme to assess trends
Intention → action

Present *novel data model* for timely, contextualized understanding of structural and social determinants of health as experienced by residents in their communities.

**Strengths**

- Domain-specific data collection
- Data collection can be hyper-local or regional
- Sustained/integrated data collection addresses ongoing need and is poised to aid response to crises
Intention \(\rightarrow\) action

Present *novel data model* for timely, contextualized understanding of structural and social determinants of health as experienced by residents in their communities

- **Considerations**
  - Ease of participation
  - Urgency of response
  - Timeline
  - Participant, partner, and researcher support
Intention → action

Consider ways in which this data model could inform program and policy recommendations

- Resource needs (e.g., eviction moratoriums, food resource infrastructure, childcare)
- Gaps in existing resources
- Quality and reach of resources
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