A comparison of medical costs between residents of a public housing redevelopment and other public housing units in Seattle, King County

Ariel Charney, MPH Candidate 1, Alastair Matheson, PhD 2
1Columbia University, Mailman School of Public Health, Department of Epidemiology, 2Public Health – Seattle & King County

IRB: AARF0995

BACKGROUND

Where we live and the quality of our housing and neighborhood determines many things, including access to healthy food, quality of education, and overall health and well-being (1-2). Place-based initiatives have shown promise in addressing health inequities of disadvantaged neighborhoods by investing in a continuum of support services across jobs, education, housing, and transportation (1-2). Yesler Terrace (YT) is a public housing neighborhood in Seattle currently undergoing such redevelopment with the aim of producing a mixed-income neighborhood with enhanced economic and educational opportunities. One outstanding question is whether community redevelopment initiatives can create healthier, more equitable neighborhoods, while also saving medical costs.

This study aimed to evaluate whether community redevelopment at YT was associated with lower medical costs compared with residents in low-density subsidized housing, known as scattered site units (SS). Medical costs were hypothesized to be lower among YT residents because of a greater use of preventive care and fewer avoidable medical encounters.

YESLER TERRACE REDEVELOPMENT STRATEGIES

- New dwellings, including Breathe Easy (asthma-free) homes
- Adult – social and job development
- Youth – educational and job development
- Health – screenings, education, community health workers
- Nutrition/environmental/physical activities
- Community center programs
- Neighborhood activities

Figure 1. Yesler Terrace

METHODS

Data source (Table 1). Participants were drawn from linked Medicaid claims and Seattle Housing Authority data from 2012-2016. Medicaid claims data included demographic information (e.g. race, gender, disability, coverage type and age), claim counts, and associated costs. Seattle Housing Authority data included place of residence.

Study population (Figure 2). Residents who were enrolled in Medicaid and remained in YT and SS properties during the entire study period were eligible for inclusion. Patients who had dual coverage with Medicare and Medicaid were excluded because Medicare claims data were unavailable.

Figure 2. Study population flow-chart

Table 2. Data sources and outcome measures

<table>
<thead>
<tr>
<th>Data source/type</th>
<th>Measures</th>
<th>Demographics</th>
<th>Medicaid claims</th>
<th>SHA admin</th>
<th># of Moves</th>
<th>Time at YT</th>
<th>Medicaid claims</th>
<th>Claims cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longitudinal data (2012-2016)</td>
<td>Medicaid claims</td>
<td>☑</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicaid claims</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHA admin</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RESULTS

- The final analyses included 98 YT matched to 98 SS residents. Table 2 presents baseline demographics before and after propensity score matching. Before matching, a higher proportion of YT residents were older, Asian and disabled. After matching, standardized mean differences in baseline characteristics between YT and SS residents were less than 0.10 for all covariates. Nonetheless, gender, age, and disability status were kept in the regression model to account for residual imbalance.

Table 3. Comparison of mean annual cost over time between YT and SS residents

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Mean annual cost (SS)</th>
<th>Mean annual cost (YT)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicaid claims</td>
<td>38.78</td>
<td>20.48</td>
<td>0.00019*</td>
</tr>
</tbody>
</table>

CONCLUSIONS

- Across all years, mean annual medical costs were 28% lower among YT residents compared to SS residents, however this was not statistically significant (p-value = 0.11).
- Mean medical costs increased each year (~5%) but this was not statistically significant (p-value = 0.30).
- Furthermore, there was not a statistically significant difference in the rate of change in mean annual medical cost between YT and SS residents (p-value = 0.57).

LIMITATIONS

- Exposure time: Renovations at Yesler Terrace began in 2013 and continue today, thus potentially not enough time has elapsed to see any measurable effect of the redevelopment.
- Power: The inclusion criteria restricted the sample size and may have led to insufficient power to detect any cost changes.
- Representativeness: Conclusions cannot be drawn to the large proportion of residents who moved on and off Medicaid and public housing and/or were on Medicare. The exclusion of residents who had dual Medicaid and Medicare coverage may have dampened the treatment effect, as those who are older and/or disabled potentially stand to gain the most from redevelopment.
- Cost validity: The cost data for Medicaid recipients on managed care had quality issues prior to 2015. The assumption was made that the quality limitations were equally present for both YT and SS residents. However, the jump we see in costs from 2014 to 2015 is more pronounced for people in SS, so it may be that this assumption was incorrect.

REFERENCES


Thank you to Sven Koehler and Maria Ursua from the Seattle Housing Authority, Dr. Alastair Matheson, Dr. Roxana Chen and Dr. Stephanie Farquhar from Public Health – Seattle & King County for their expertise and support, as well as the Robert Wood Johnson Foundation for funding this project.

ACKNOWLEDGEMENTS