Background

- US nursing homes have been significantly impacted by the COVID-19 pandemic, as their residents are typically elderly adults with underlying medical conditions.
- HHS announced ~$5 billion in emergency provider relief funds (PRF) under the CARES Act.
- CMS reported longitudinal data on COVID-19 outcomes in US nursing homes.
- Association between PRF funding and COVID-19 outcomes for facilities and residents is unknown.

Project Description

Data Sources

- Center for Medicare & Medicaid Services COVID-19 Nursing Home Dataset (Jun 2020 – Jan 2021)
- US Department of Health & Human Services PRF Dataset (Jan 2021)
- Final merged sample, after quality assurance filtering, includes 107,762 reports on 2858 US nursing homes.

Outcomes Analysis

- Divided nursing homes into four quartiles by facility CARES Act funding per resident.
- Examined trends in COVID-19 metrics (including cases, deaths, staff cases, PPE shortages, and access to testing) across funding quartiles.
- Categorized nursing homes into geographic regions (Northeast, South, Midwest, West) and analyzed facility geographic distribution and regional median household incomes.

Results

Summary Statistics

<table>
<thead>
<tr>
<th>Funding per resident capacity, mean ± SD, $</th>
<th>PRF Quartile 1 (N=729, 25%)</th>
<th>PRF Quartile 2 (N=728, 25%)</th>
<th>PRF Quartile 3 (N=728, 25%)</th>
<th>PRF Quartile 4 (N=729, 25%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>82685.79 ± 25.56</td>
<td>8642.59 ± 1804.14</td>
<td>6340.80 ± 207.98</td>
<td>7123.73 ± 294.05</td>
<td>35203.28 ± 163427.58</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Number of beds, mean ± SD

<table>
<thead>
<tr>
<th>COVID-19 Cases Per 1,000 Residents, mean ± SD</th>
<th>COVID-19 Deaths Per 1,000 Residents, mean ± SD</th>
<th>Mortality, mean ± SD</th>
<th>Total staff confirmed COVID-19, mean ± SD</th>
<th>1-week PPE shortage, any type (%)</th>
<th>Facilities with shortage of staff (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>121.35 ± 59.25</td>
<td>116.34 ± 54.12</td>
<td>100.76 ± 65.91</td>
<td>79.27 ± 53.36</td>
<td>127.10 ± 25.21</td>
<td>20.46 ± 20.75</td>
</tr>
</tbody>
</table>

Discussion

- Higher funded facilities have smaller bed capacity, significantly fewer resident cases and deaths, less staff shortage, and fewer staff COVID-19 cases.
- Lesser funded nursing homes are clustered in the geographic south, while highest funded homes are in areas with higher median incomes.
- Lesser funded nursing homes had a greater proportion of COVID-19 test results taking >7 days.

Takeaways

- Highest funded nursing homes tended to be less impacted throughout the pandemic on multiple COVID-19 metrics.
- Results point to a need for more equitable and transparent distribution of emergency funding to nursing homes nationwide.

Our Next Steps

- Conduct stakeholder interviews to better understand PRF expenditure.
- Quality improvement: Identify supply chain and staffing issues.
- Partner and work with nursing facilities.
- Disseminate our results.

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