TRANSPORTATION BARRIERS TO HEALTH CARE ACCESS: USING DATA TO PLAN SOLUTIONS

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Transportation and access: National survey data

- **39%** of US residents did not have public transportation available in their community.

- **11%** of US households did not own a working vehicle.

- Only **42%** of those with public transportation in their community reported it could be used to get to a health care site.
  - Range, 14% in rural areas to 69% in big cities.
Transportation availability by area

- **Public Transit**
  - Big City: 91%
  - Small City: 88%
  - Suburban: 73%
  - Small Town: 47%
  - Rural: 25%

- **Personal Vehicle**
  - Big City: 72%
  - Small City: 92%
  - Suburban: 91%
  - Small Town: 94%
  - Rural: 83%
Each year, 4% of US children missed a health care appointment because transportation was not available.
- Included 9% in households with incomes <$50,000

31% reportedly later used an emergency room for the condition associated with the missed appointment.
- Nearly 1 million potentially preventable pediatric ER visits annually

Sources:
- 2006 Children’s Health Fund/Marist College Institute for Public Opinion National Survey
- 2009 Children’s Health Fund/Delta Rural Poll, Delta State University, Cleveland MS
Health Transportation Shortage Index (HTSI): A validated tool for health planning

- Developed using these survey data
- Assesses factors associated with transit barriers to primary care access
  - Rural/metro status
  - Poverty rate (proxy for not owning a vehicle)
  - Health professional shortages
  - Safety net health clinics
  - Public transportation resources
- Generates a point score from 0 to 14
  - Score >7 indicates high risk
# The HTSI form with scoring instructions

**The Health Transportation Shortage Index™**

Rate each of these 5 factors associated with transportation and health-care access in points, as indicated, and add the points for the HTSI™ score. A total score of 6 or higher indicates a transportation shortage area. The higher the score, the higher the risk for transportation-related barriers to child health-care access.

<table>
<thead>
<tr>
<th>1 Type of area, based on population (using Census Bureau population data)</th>
<th>4 HPSA designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RURAL POPULATION ≤ 1,000</td>
<td>YES ENTIRE GEOGRAPHIC AREA 2 points</td>
</tr>
<tr>
<td>SMALL TOWN POPULATION = 1,000 AND ≤ 10,000</td>
<td>YES PARTIAL GEOGRAPHIC AREA 1 point</td>
</tr>
<tr>
<td>SMALL CITY POPULATION = 10,000 AND ≤ 20,000</td>
<td>NO 0 points</td>
</tr>
<tr>
<td>URBAN AREA POPULATION = 20,000 AND ≤ 50,000</td>
<td></td>
</tr>
<tr>
<td>METROPOLITAN AREA POPULATION ≥ 50,000</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2* Child poverty rate (%% in poverty) exceeds US (using most current available data)</th>
<th>5 EJHC in area (for high poverty areas; include rural health clinics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES BY 1.25X OR GREATER</td>
<td>NO 2 points</td>
</tr>
<tr>
<td>YES BY LESS THAN 1.25X</td>
<td>ONE 1 point</td>
</tr>
<tr>
<td>SAME AS US</td>
<td>TWO OR MORE 0 points</td>
</tr>
<tr>
<td>LOWER THAN US</td>
<td>NOT APPLICABLE (NOT A HIGH POVERTY AREA) 0 points</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3 Public transportation availability</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td>1 point</td>
</tr>
<tr>
<td>DEMAND-RESPONSE (E.G., PARATRANSL)</td>
<td>2 points</td>
</tr>
<tr>
<td>LIMITED (DOES NOT RUN FULL-TIME AND/OR ROUTES DO NOT COVER TARGET AREA)</td>
<td>1 point</td>
</tr>
<tr>
<td>YES</td>
<td>0 points</td>
</tr>
</tbody>
</table>

*NOTES:*

1. There is a strong negative correlation between poverty and automobile ownership (i.e., higher poverty rate is associated with lower personal vehicle ownership). The HTSI™ incorporates personal vehicle ownership through the poverty factor as a component of assessing available transportation resources.

2. If child poverty rate is not available for an area, family or household poverty rates may be used as representative because of the strong correlation among these three indicators.
Geomapping to facilitate planning

- Analysis was conducted for each county
- Clinics were mapped by longitude & latitude
  - Federally qualified health centers
  - Rural health clinics
  - Safety net hospitals
  - Local health department clinics
- Population was mapped by census blocks
- Straight-line distance was calculated from population-weighted center to nearest clinic
Example: Lauderdale County, TN

Yellow = pop center

Brown = clinic site

Blue = straight line distance
High-risk TN counties (52%) compared to others in state

- Rural: 98% had population <50,000 *
  - Mean = 20,501

- Higher poverty: 31.4% vs. 26.5% *

- Workforce shortages: 94% were designated full county HPSA *

* p<0.01
Transit needs and resources

- Distance to clinics did not differ for high-risk compared to other counties
  - Mean, 5.8 miles vs. 5.5 miles
    - Two-thirds (67%) of high-risk counties had distances from population center to clinic of <5 miles
    - Median = 2.4 miles

- All high-risk TN counties had public transit
  - 80% had paratransit (demand-response) systems
Distance is <10 miles for most high-risk, high poverty counties
Leveraging paratransit resources to improve health care access

1. Modify paratransit services to include scheduled stops linking health care sites with population centers
2. Develop contracts between county or state governments and paratransit providers to use public transit for health care access
3. Use paratransit services to strengthen Medicaid non-emergency medical transportation (NEMT)
For further information

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