Rural Medical Transportation Network (RMTN)
Health Care Transportation Needs Survey
Center for Rural Health and Social Services Development (CRHSSD)

Report to Transit Providers
March 2015

Overview

The mission of the Rural Medical Transportation Network (RMTN) is to assess the capabilities of rural medical transportation, both emergent and non-emergent, as offered by both public and private transportation providers, and to develop models of rural medical transportation that can be implemented throughout the state.

RMTN routinely conducts investigations to increase the understanding of all aspects of medical transportation. In 2013 it sponsored a survey to explore health care transportation utilization in downstate counties.

A questionnaire was mailed to a random sample of 40,000 households in 14 counties in downstate Illinois. These counties have a combined population of more than 620,000 people and are served by 11 different public transit providers. More than 4,500 surveys were returned and the responses were analyzed by CRHSSD staff.

The purpose of this Report to Transit Providers is to provide a “snapshot” of rural residents’ transportation behavior and perceptions about public transit, especially as it pertains to non-emergency medical transportation. The information presented in this report is organized around key research findings and topical areas that may be of interest to transit providers and may also help to guide the development of future RMTN initiatives.

Questions or comments about this report should be directed to RMTN Coordinator, Dennis Presley, dpresley@siumed.edu, 618-453-3314.

The Rural Medical Transportation Network is a project of the Southern Illinois University School of Medicine’s Center for Rural Health and Social Service Development and is funded by the Illinois Department of Transportation.
Survey Participants

Basic demographic information was collected from survey respondents. This was used to evaluate the relationship between respondent’s personal characteristics and their perceptions and behaviors in regard to the use of public transportation for NEMT. Analysis of this information revealed:

- The **age of respondents spanned the full range of adult ages** (18 to 102; mean=60; median=61). About 28% of respondents were over 70 years old.
- Nearly **two-thirds of participants were women (66%)**. Almost all respondents identified themselves as white/Caucasian. **Only 216 respondents who were members of racial minorities participated** in the survey.
- Nearly equal numbers of respondents were **employed (45%) as were retired (42%); 13% were unemployed**.
- Of those who responded to a question asking about their household income (n=3,989), about **28% reported an annual household income of less than $25,000**; nearly the same percentage (23%) reported income greater than $80,000.
- Nearly **one-fifth (19%) of respondents reported having a person in their household with a disability**.
- **About 1% of the total population of the 14 counties study area participated in the survey**, yielding a response rate of approximately 12% (N=4,605). County response rates ranged from 8% to 14%.

Census data (2012) was used to compare the characteristics of the study area population to that of the survey participants. The comparison revealed a slight over-representation of participants who were: over the age of 55, women, white/Caucasian race, unemployed persons, and households with a disabled family member. African-Americans and Latinos were slightly under-represented. Income distribution was similar for study area residents and respondents. Differences between the sample and the population are noted where they were considered to influence study findings.

Respondent zip codes were linked to **Rural Urban Commuting Area (RUCA)** categories1 to identify the geographic characteristics of respondents. The Federal Office of Rural Health Policy (OHRP) rural-urban guidelines were used to assess the “rurality” of survey participants. Under OHRP guidelines all zip codes outside of “metropolitan” areas are considered to be “rural”. Nearly half of all respondents were from zip code areas that were classified as rural, and about 5% were from zip codes characterized as being in isolated areas that lack significant commuting flows to larger towns or more urbanized areas.

<table>
<thead>
<tr>
<th>RUCA Code</th>
<th>Rural-Urban Commuting Area (RUCA) Descriptions</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>Metropolitan Area</td>
<td>2374</td>
<td>51.7</td>
</tr>
<tr>
<td></td>
<td><strong>Total Urban</strong></td>
<td></td>
<td><strong>51.7</strong></td>
</tr>
<tr>
<td>4-6</td>
<td>Micropolitan Area</td>
<td>1213</td>
<td>26.5</td>
</tr>
<tr>
<td>7-9</td>
<td>Small town</td>
<td>725</td>
<td>16.9</td>
</tr>
<tr>
<td>10</td>
<td>Rural areas</td>
<td>225</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td><strong>Total Rural</strong></td>
<td></td>
<td><strong>48.3</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>4588</td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

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1 Rural-Urban Commuting Areas (RUCAs) Version 3.10 (8/4/14)  
http://ruralhealth.und.edu/ruca
Finding: Number of NEMT public transportation users

Approximately 3% of respondents reported that they regularly used (“most often”) public transportation to get to non-emergency medical appointments.

About 13% used public transportation for non-emergency medical transportation at least one time.

Most survey respondents (90%) reported that they used their personal vehicles for non-emergency medical appointments. A much smaller number of respondents reported being driven by family, friends or volunteers (about 6%). Less than 1% of respondents reported regularly using ambulances as a means of NEMT.

<table>
<thead>
<tr>
<th>Form of transportation MOST OFTEN used to get to non-emergency health care appointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal vehicle, etc. 4141</td>
</tr>
<tr>
<td>Friends or family 231</td>
</tr>
<tr>
<td>Public transportation 132</td>
</tr>
<tr>
<td>Volunteer transportation 40</td>
</tr>
<tr>
<td>Ambulance 8</td>
</tr>
<tr>
<td>Total 4552</td>
</tr>
</tbody>
</table>

![Diagram showing transportation modes](image)

About 3% (n=132) of more than 4,500 respondents reported that they most often used public transportation for their medical needs.

About 13% of survey respondents (n=582) reported that they had used public transportation for non-emergency medical care at least once.

Respondents also reported how often they had used public transit for NEMT in the past six months. Based on their responses, it was estimated that survey participants had made more than 1,300 non-emergency medical trips using public transit and that about 2% of respondents (n=87) had used public transit for medical transportation 8 or more times during this period.

While only a small percentage of respondents used public transportation for NEMT, these users represent thousands of customers and transit visits in the 14 county study area.
Finding: Characteristics of NEMT public transportation users

Respondents who regularly used public transportation for non-emergency medical appointments were more likely to be:

- lower income
- unemployed
- disabled (or have a family member who is disabled)
- a member of a racial minority.

The economic and demographic characteristics of respondents that most often used public transportation for NEMT differed from those using other forms of transportation in several important ways.

Income, employment, disability status, and racial identity were all significantly different for respondents that reported using public transit for NEMT. Respondents most often using public transportation were also older and more likely to be female, as was the sample as a whole.

These results are consistent with the findings of other researchers who have examined NEMT transportation behavior. Individuals with this combination of characteristics have been categorized as “transportation-disadvantaged”\(^2\). These individuals are very likely to be highly dependent upon public transportation.

Analysis of survey data also found a consistent relationship between household income and mode of transportation.

Approximately 86% of respondents who most often used public transportation had household incomes less than $25k/year as did more than 60% of those who had used public transportation for NEMT at least once. Nearly 80% of those who were most often driven by family, friends or volunteers were also in the two lowest income categories.

Survey results suggest that public transportation is likely to be the ONLY choice of NEMT for low-income households. Public transit plays a critical role in the rural health care system for transportation-disadvantaged individuals.

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Finding: Transportation and missed medical appointments

About 7% of survey respondents missed one or more medical appointments in the previous six months because of transportation problems.

The form of transportation most often used had a significant impact on the number of missed medical appointments.

A substantial number of respondents reported missing health care appointments due to transportation difficulties. Those respondents that used public transportation were far more likely to have missed an appointment, with more than one-third (37%) having missed at least one health care appointment, compared to only 6% of those using all other forms of transportation. Public transit users were also more likely to report missing multiple health care appointments, with nearly 10% missing 4 or more appointments in the previous six months.

Other forms of transportation were also linked to missed medical appointments. One-quarter or more of respondents who relied on family, friends, or volunteers for NEMT also reported missing health care appointments.

Only about 4% of those who used personal transportation reported missing a medical appointment.

Missed medical appointments can have serious health and cost implications. Research sponsored by the Transportation Research Board has identified the population characteristics of individuals who are most likely to be chronically ill and in the greatest need of regular health care services and determined that these are very similar to the characteristics of those who are transportation-disadvantaged.

Missed medical appointments are a serious problem, especially for individuals who are chronically ill and would benefit from routine health care treatment.

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### Most often used form of transportation

<table>
<thead>
<tr>
<th>Most often used form of transportation</th>
<th>Number of missed appointments in last 6 months (% of respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal vehicle</td>
<td>1-3</td>
</tr>
<tr>
<td>3.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Family/friends</td>
<td>25</td>
</tr>
<tr>
<td>Public Transit</td>
<td>28</td>
</tr>
<tr>
<td>Volunteer driver</td>
<td>31</td>
</tr>
</tbody>
</table>

This population overlap underscores the importance of keeping missed medical appointments of transportation-disadvantaged individuals to a minimum.

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Finding: Awareness of public transportation characteristics

There appears to be a significant “knowledge gap” in survey respondents’ understanding of public transportation.

More than 30% of respondents reported that they did not understand public transportation schedules, rates, or types at all. Sixty percent (60%) did not understand transit schedules, probably the most important information necessary to be able to access public transportation effectively.

Less than 20% of survey respondents reported that they understood characteristics of public transportation services very well.

This lack of awareness of how services are provided is likely to significantly reduce the ability of public transportation systems to reach all of the residents in the region who might benefit from - or who may need - these services.

Those most often using transit services for NEMT reported a much greater understanding of public transportation attributes.

However, even in the group of respondents that was most knowledgeable, only slightly more than half (55%) reported that they understood any of the three community transportation attributes very well.

Improving local knowledge of transportation characteristics – particularly knowledge about schedules - could potentially help to reduce the number of missed medical appointments, increase the number of residents who take advantage of public transportation opportunities, and improve the health care of residents in the region.

The lack of understanding about basic transit system operations is a barrier to effective NEMT and improved health care in the region.
Finding: Perception of Availability of public transit for NEMT

More than half of respondents were unable to rate the availability of public transportation in their communities.

Most (65%) of those who most often use public transportation for NEMT rate availability as good/excellent.

Survey participants were asked to rate the availability of public transit for NEMT. Availability can be measured in a variety of ways, such as the frequency of regular trips, convenient timing, range of travel destinations, or by other attributes that were considered to be important to respondents.

Only about 5% of respondents rated availability as excellent, while 14% rated it as poor. More than one-half of respondent were unable to provide any rating at all.

Respondent ratings of transportation availability varied significantly depending on the form of transportation that respondents most often used.

<table>
<thead>
<tr>
<th>Public Transportation Availability Rating</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>239</td>
<td>5</td>
</tr>
<tr>
<td>Good</td>
<td>728</td>
<td>16</td>
</tr>
<tr>
<td>Fair</td>
<td>638</td>
<td>14</td>
</tr>
<tr>
<td>Poor</td>
<td>607</td>
<td>14</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2281</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>4493</td>
<td>100</td>
</tr>
</tbody>
</table>

Respondents who reported a lack of awareness of public transportation characteristics were also found to be those least likely to be able to rate its availability.

The overall low rating of public transportation availability – less than 25% good/excellent – as well as the high percentage of respondents that lacked knowledge of the availability of public transit for NEMT, merits further investigation.

The perception of public transit availability is linked to respondents’ knowledge and use of public transportation systems.
Finding: Perception of *Acceptability* of public transportation for NEMT

Survey respondents appeared to be ambivalent about the acceptability of public transportation for NEMT.

- While 45% of respondents thought public transportation could meet their NEMT needs "moderately/very/extremely" well, 32% reported that it could not meet their needs at all.
- Nearly half (47%) of respondents did not offer an opinion on their confidence that public transportation could get them to their medical appointments on time; about one-third (32%) reported being extremely/somewhat confident.
- More than 60% of respondents reported that they were unlikely to use public transportation for their NEMT needs, even if it were “more readily available”.

Several survey questions addressed respondent perception of the acceptability of public transportation for NEMT.

The majority of respondents did not think public transit could meet their needs more than slightly well (or did not answer), did not express confidence that it could get them to health appointments on-time, and were UNLIKELY to use public transportation, even if more readily available.

However, while only 13% of respondents had ever tried public transportation for NEMT, about twice that number thought it could meet their NEMT needs well (moderately/very/extremely), were confident it would be on-time, and would be likely to use it if more readily available. Also, as with questions about awareness and availability, those respondents who were most likely to use public transit had more positive perceptions of its acceptability for NEMT.

These contradictory responses may be a reflection of the indifference of the large percentage of respondents that use personal vehicles for NEMT, and perhaps the positive perception of the value of maintaining a public transit alternative for NEMT. This suggests that there may be an opportunity to increase public NEMT use by addressing the real or perceived obstacles to greater public transit acceptability.

**Acceptability of public transportation for NEMT - while low – is still far greater than would be expected from current levels of use. Opportunities may exist to expand transit utilization by exploring obstacles to acceptability.**
Summary and implications

While personal vehicles are likely to always be the most common form of non-emergency medical transportation in non-metropolitan areas, public transit provides a critical safety net for those, mostly lower income households, who have few other NEMT alternatives. These “transportation-disadvantaged” households are also likely to share many demographic characteristics with individuals who are chronically ill, and would benefit from regular health care services.

Survey respondents reported significant transportation-related problems in being able to arrive at their health care appointments on time. Those individuals without personal transportation, including those using public transit, reported the greatest difficulties. Investigation into the causes of these transportation-related problems was beyond the scope of this study, and considering the importance of timely health care to this vulnerable population, further research may be warranted. Insuring reliable transportation to health services has the potential to improve health care and reduce the need for costly emergency transportation and treatment. Collaboration between RMTN partners may reveal opportunities to optimize transit systems and schedules to improve the ease and timeliness of non-emergency medical transportation in the region.

The public transportation "knowledge gap" reported by survey respondents represents a significant barrier to improved medical transportation and health maintenance for rural residents. There was a general lack of awareness about public transportation among survey participants. Most importantly, less than half of respondents reported any knowledge of public transportation schedules, the most basic information needed to access NEMT. This lack of knowledge is likely to have a serious impact on the utilization, effectiveness, and perception of the availability and acceptability of public transportation for NEMT, and may be a significant contributing factor in transportation-related missed medical appointments.

Findings from this survey offer an opportunity to initiate further inquiries into the lack of awareness of public transportation services. Transportation providers may wish to re-evaluate current promotion programs and explore other public information campaign strategies. RMTN partners are well-positioned to provide information to the NEMT user-base. Hospitals, rural clinics and medical offices can follow-up with clients who have missed appointments to determine whether they were due to transportation-related problems and ensure that clients are aware of available transportation alternatives. EMS providers can also play an important role by informing clients about non-emergency transportation alternatives.

In spite of low utilization rates, concerns about timeliness and availability, and low awareness of services, survey responses did provide some evidence of a positive attitude about the role of public transportation in non-emergency medical transportation. While half of survey participants reported that they had no interest (very unlikely) in using public transportation this may represent a “threshold” measure for transit participation, and the potential level of transit NEMT participation may well be greater than current levels of utilization. The Rural Medical Transportation Network provides a forum to explore and address barriers to increased use of transit use. Rural residents and Network partners all stand to benefit from improved coordination of non-emergency medical transportation.