Finding a Ride:
Identifying Transportation-Related Barriers to Health Care in a Rural West Virginia County.

TRP 99-03

Walker, R. B., Braun, C., Burton M., Burton, L., Hicks, M., Plymale, J.T., Vance A., and Willis, J. M.

Appalachian Transportation Institute

Robert C. Byrd Center for Rural Health

Marshall University School of Medicine,
Department of Family and Community Health

Disclaimer

The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of exchange. The U.S. Government assumes no liability for the contents or use thereof.

Introduction

One of the most important and consistent barriers to health care for the people of rural Appalachia is the lack of physical access (Connor, et al, 1994). This study attempts to assess the level to which the lack of transportation serves as a barrier to health care in a rural, Central Appalachian county. Previous research has shown that rural people come later to health care and experience poorer quality outcomes than their urban and suburban counterparts (Freeman, 1989). This delayed treatment and the poor health outcomes found in rural populations has been directly related to limited access (Yantzie, N., 2001)(Mikhail, B.L., 1999). This paper covered Phase I of a research project at The Robert C. Byrd Center for Rural Health at Marshall University, which addresses the issue of transportation and access to health care. The study was conducted in Lincoln County, West Virginia, an area which is almost exclusively rural. Lincoln county is typical of many economically disadvantaged rural counties. The study specifically focused on the availability, cost, dependability, and perceived safety and adequacy of any form of transport used by study participants. The study also attempted to offer specific suggestions for reducing transportation-related barriers with the hope that such solutions may be extended to other rural other rural counties.

The Setting and Target Population

General Setting: Population, Location, and Terrain

Lincoln County, West Virginia has a population of 22,108 (U.S. Census Bureau, 2000). It is a rural county with only two incorporated towns, each with a population under 1000. Hamlin (population 900) is the County seat and is approximately a one-hour drive from both Huntington and Charleston, the closest metropolitan areas.

The county is located in the Southwestern area of West Virginia, in the Central Appalachian Highlands, (Appendix 1) and covers 437 square miles (U.S. Census Bureau, 2000). The terrain consists mostly of forested, low hills. The highway system is essentially three paved, two lane roads. According to the West Virginia Department of Transportation,

51 % of Lincoln County's road mileage is paved while 41 % remains unpaved. The roads may be impassable at times due to snow, earth slides, or high water.

Economic and Social Conditions

Economic and social indicators support Lincoln County's disadvantaged status both in comparison to other areas of the U.S. and West Virginia. According to1997 model-based estimates from the U.S. Census Bureau, 24.9 % of Lincoln County residents live below the poverty level as compared to the 16.8 % of West Virginia residents, and 13.3% for the US. The median household income in the county was $22,744 compared to $27,432 for the state, and $37,005 for the US. The 2000 Census reported that there were high school graduates in Lincoln County 25 years and over represent 17.4% of the population and college graduates 1.7%. These numbers for the rest of West Virginia are 42.8% and 8%, respectively. In the US, high school graduates represent 42.5% of the total population and college graduates represent 11.5%.

Health Conditions and Services

The county's mortality rates for heart disease, diabetes, and pre-maturity in infants are significantly higher than the national average, as are rates for tobacco use, lung cancer, hypertension and obesity. (West Virginia Department of Health and Human Resources, 2001).

Access to acute and preventative health care services, within the county, is restricted due to a lack of health care resources. Lincoln County is designated as a "medically underserved" area (MUA) by the federal government (Bureau of Public Health Resources, 2001). The county has no hospital and residents are obliged to visit either Huntington or Charleston for that purpose. Six full-time physicians, 3 physician assistants, and a nurse practitioner are available at 4 separate sites for primary health care. The Lincoln County Primary Care Center (LPCC), however, is the most prominent health facility in Lincoln in terms of both resources and use: six of the ten providers practice at LPCC and this clinic is responsible for over 70 % of the total patient visits in Lincoln. Since LPCC is endowed with the most providers and patients, it was chosen as the principal interview/survey site and was the major source of study participants. Lincoln Primary Care Center is open 7 days and evenings per week, 364 days a year and provides emergency services, prenatal care,

outpatient surgery, x-rays (including mammography, and certified clinical laboratory services. The sliding-fee scale, with minimum patient fee requirements extending to zero, has greatly reduced cost-related barriers and allows for the care of those in severe poverty.

Transportation

Lincoln County has no airport, passenger trains, or taxi service. A rural transportation system, Tri-River Transit Authority, was established in January 2000. The system consists of three buses running during the daylight hours. These buses connect all areas of Lincoln County, including the community health centers, and also make trips to Huntington and Charleston (which are approximately 90 minutes from the geographic center by bus, slightly longer than driving). The Lincoln County Opportunity Company, based in the County seat, provides transportation to Medicare eligible residents on individual request, especially to health care facilities outside of Lincoln County. Classified as non-emergency medical transportation, it is designed to lower the Medicare costs by providing little to no cost transportation to those individuals who qualify and to decrease the use of more costly ambulances often called on by these groups they serve. Local church groups also provide limited services.

Materials and Methods

Structured interviews were conducted at randomly selected, half-day intervals during the spring of 2001. Consecutive adults entering Lincoln Primary Care Center were offered interviews. Two local citizens trained in using the survey instrument conducted all interviews. Interviewees selected responses from defined choices (interview questions and choices are appended to this paper). Fewer than 10 adults declined to participate. Consecutive passengers on Lincoln County's rural transportation system, Tri-River Transit Authority, were also interviewed on randomly selected days. Again, fewer than ten adults declined to be interviewed.

Focus Groups

The use of public transportation to reach medical care both within and outside of the county was examined in greater death depth in a series of three focus groups. Reasons for

the use, or failure to use, public transportation and modifications that might increase use were discussed within each group.

The membership of each focus group was based on a cluster sampling of the target population. The clusters were identified according to a matrix that segmented the population into significant social and age-related groups representing those found to be in greatest need of transportation to health care, based on the user surveys. Five to 10 potential users were included in each group.

The characteristics of the groups in the cluster sampling are as follows. The focus groups consisted mostly of females in three age categories: oldest adult (75 and older), older adult (65 to 74), and younger adult (18 to 24). The focus groups also consisted of those with low socio-economic status, incomes 100% below the federal poverty level. All of these characteristics – female, either elderly or younger adults, and poor – are representative of LPCC's patients as a whole, meaning that these are the groups that visit the doctor most often.

Members of each focus group were presented with a set of topics related to finding transportation to a health care facility and the specific use of public transportation for that purpose. All comments were recorded on a flip chart during the discussion and each participant was asked to record individually the two most important barriers to the use of the public transportation system to reach a health care facility.

The data was sorted into mutually exclusive categories based on the central idea in each statement. Sorting was performed by the single investigator who led the focus group process. For example, when group members made statements such as "Timing of the bus and the doctor's office didn't match," or "I couldn't get a doctor's appointment to match the bus schedule," all the statements were placed in the same category and given the designation Scheduling. Scheduling was then identified as a potential barrier to use.

Results

Community Health Center Surveys

Survey participants from Lincoln County were found to be representative of the nine county region encompassing Southwestern West Virginia. Comparisons of educational attainment, age distribution, and median household income. Lincoln was slightly below the Southwestern region median in many categories. Study participants were typical of the adult users of the community health center. The locations of study participants' homes within Lincoln County paralleled the locations of all community health center users.

Patients completing the interview traveled significant distances to obtain health care. Eighty-nine of 266 (33.5%) participants traveled 16 to 30 miles for care and 93 (34.2%) traveled 6 to 15 miles. Forty-four (16.5%) traveled 31 or more miles for care. Seventy-five participants (28.3%) could not drive themselves and either walked or relied on someone to drive them to care.

Lack of transportation was revealed to be a barrier to care for many participants. One hundred seven (40.2%) had missed health care appointments during the previous 2 years because of lack of transportation and 45 participants (16.9%) reported missing 3 or more appointments. Seventy-four participants (27.8%) were unable to get to a pharmacy on at least one occasion due to lack of transportation. One hundred nineteen (44.7%) participants reported that road conditions had prevented transportation to medical care.

Lack of transportation contributed to financial barriers to care in many of those interviewed. One hundred thirteen (42%) of participants reported having to pay for transportation to care. Although the most commonly reported payment interval per visit was $6 to $10, this represents a significant percentage of disposal income in this group. Twenty-eight (11%) stated that they were not able to pay for transportation to care while 142 (53.4 %) reported they could pay up to $5. Of patients needing to travel outside of the county for care, 98 (36.8%) were driven by someone else. The most common destination to out-of-county care was a hospital (32.6%), followed a doctor's office (24.5%). The reliance on others for

transportation to care cut across most demographic parameters and was associated with lower income, but not with sex, age, or distance traveled to care.

Focus Groups

Focus groups consistently identified scheduling as a barrier to using the public transportation system to reach the local primary health care facility. Statements included "I could get to the Clinic on the bus but I couldn't get back home," and "It would take me all day to get to and from the Clinic using the bus system." Participants uniformly approved of the low cost, comfort, and safety of the public transportation system. Most participants felt they could get to and from the nearest bus stop from their home. Patients consistently stated they would use the public transportation system to reach the health care facility if scheduling permitted.

Focus group responses indicate that patients would also be willing to use the public transportation system to reach tertiary care hospitals outside the County for advanced diagnostic tests. Again, matching the scheduling of hospital-based procedures with schedules presented the greatest barrier.

Bus Surveys

Bus usage did not provide enough participants as to be statistically significant, and, therefore, were not included as a main focus; however the responses are still important information. Here is a brief summary of responses from those passengers on the public transportation system to be further touched upon in the discussion section. Interviews were completed on 41 participants riding the public transportation system. Bus riders interviewed tended to be younger, reported lower incomes, and were more likely to be male and single than those interviewed at Lincoln Primary Care Center. Bus riders were much more likely to use that system for transportation to health care. Transportation system users still reported significant numbers of missed appointments (73% had missed at least 1 and 27% had missed 3 or more). Thirty-seven percent (37%) of bus riders still reported paying others to drive them to care.

Discussion

The study results suggest that there are some rather prominent transportation-related problems which directly relate to health care in Lincoln County, specifically missed appointments (reported by 40.2 % of participants) and the inability to obtain prescription medication (reported by 27.8 % of participants). Although the most transportation-needy were the poor, transportation deficiencies in Lincoln County affected participants with a wide range of incomes and cut across gender and age lines. There are two primary transportation-related barriers reported by participants which are addressed in this study. The first of these concerns the cost of transportation. A significant number of participants were paying others to drive them to health care facilities both within and outside of Lincoln County. For some, these costs may represent a sizeable percentage of disposable income, resulting in either the inability to pay at all or a large financial burden on the patient; while for others, even if finances permit, the high cost of paying a relative or neighbor to transport them may be considered simply not worth the expenditure.

The second prominent barrier to health care access is travel distances. Evidence from other study in the United States supports the fact the rural people often travel longer distances to doctors' offices and hospitals than those in urban or suburban areas (Summer, 1991). Patients of the Lincoln Primary Care Center, both those using private means and the public transportation system, traveled relatively long distances to receive care; in fact, the distances recorded were often more significant than those documented for rural populations in other areas of the United States. These longer travel times have a negative impact on both the decision and ability to receive the necessary medical attention (Rowland and Lyons, 1989) and it must be noted that distance has a symbiotic relationship with cost. The longer the travel times for those using private means (a friend, neighbor or relative), the higher the cost of transport, particularly if the driver has to wait for the patient at excessive intervals.

Although it may seem that an increase in number and placement of health clinics would improve access and outcomes, this would be a costly and time-consuming solution. What are some of the other possible suggestions? This study looks to the public transportation systems for answers. In its current form, the public transportation system (Tri-River Transit Authority), which was established approximately a year prior to this study, is

severely underused. In fact, only 4 out of the 266 people surveyed used this bus system for health-related purposes. While inexpensive and safe with numerous runs a day (8 of which visit Lincoln County Primary Care), the system still appears to be an inconvenient method of transportation for several reasons. Most elderly patients are apprehensive to put themselves in an unfamiliar situation and are not likely to use the bus without assistance. Bus schedules are often difficult to understand and passengers are required to wave the bus down to get on, even at the designated stops. Many residents in Lincoln County expressed the fear of missing the bus home and being stranded with no way to get back. One of the most significant problems reported about the public transportation system indicated by both LPCC users and the Focus Groups responses is that patients are unlikely to be able to schedule appointments compatible with the bus schedule. This lack of coordination often results in long waiting times for transport both to and from care. People do not want to wait long times either before or after appointments to get home.

A possible low cost solution for the transportation-needy is to coordinate the scheduling of appointments with the public transport systems. This would require a concerted effort from the health care facilities (both inside and outside Lincoln County), Tri-River Transit, and the Lincoln County Opportunity Company which serves a significant number of individuals now, but is unable to cope with the growing demand and broad range of patient times. Perhaps, there should be some software installed at the clinics which could perform such a function (that is an option to be explored in Phase II); patients determined "transportation-needy" would automatically be given appointment times at health care facilities compatible with the public transportation system near their home. The Lincoln County Opportunity Company could deliver patients to a tertiary center at a central site for pickup by the larger bus system and eventual deposit by the County health center or those in Huntington and Charleston. Interviews with the administrators of Lincoln Primary Care Center, Tri-River Transit Authority, and the Lincoln County Opportunity Company revealed interest and willingness in developing a system which would achieve such schedule coordination.

References Cited

Bindman, A., D. Keane, and N. Lurie. 1990. *A Public Hospital Closes*. JAMA 26 (6): 2899-2904.

Bodson, Paul, Alun E. Joseph, and Jean-Pierre Thouez. 1998. *Some Methods for Measuring the Geographic Accessibility of Medical Services in Rural Regions*. Medical Care 26 (1): 34-44.

Bureau of Public Health Resources. 2001. County Health Profiles: Lincoln County. www.bphc.hrsa.gov.

Dalaker, Joseph. 2000. *Poverty in the United States: 2000*. U.S. Census Bureau Report. Washington, DC: U.S. Department of Commerce.

Freeman, H.P. 1989. *Cancer in the Economically Disadvantaged*. Cancer 64 (suppl): 324-334.

Office of Technology Assessment. 1990. *Health Care in Rural America*. Publication O7A-H-438. Washington, DC: U.S. Congress.

Summer, L. 1991. Limited Access: Health Care for the Rural Poor. Washington DC: Center on Budget and Policy Priorities.

U.S. Census Bureau. 2000. State and County Quick Facts: Lincoln County, West Virginia. Washington DC: U.S. Census Bureau. www.census.gov

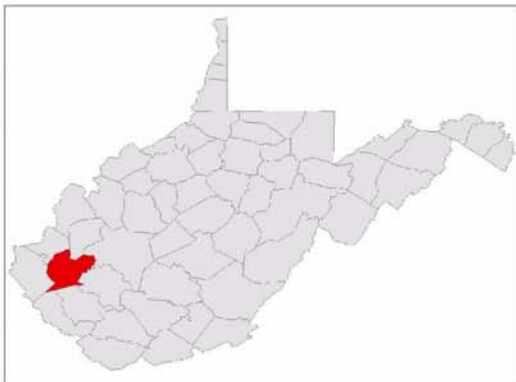
West Virginia Department of Health and Human Resources. 2001.*Lincoln County Overview*. West Virginia County Health Profiles –2000. www.wvdhhr.org

West Virginia Department of Transportation. 2001. Annual Inventory Tables. Division of Highways Planning and Research Division.

Appendix

Lincoln County, West Virginia

US HWY 60
Barboursville
US HWY 60
Nitro
I 64
Saint Albans
STATE HWY 34
West Hamlin
Hamlin
US HWY 119
STATE HWY 214
STATE HWY 3
Griffithsville
Branchland
East Lynn
Ridgeview
STATE HWY 3
Kiahsville
STATE HWY 37
Danville
Madison
STATE HWY 85
Ferrellsburg
Big Creek
US HWY 119
Chapmanville
Jeffrey
STATE HWY 10
0 5 10 20 Miles
N



Legend

Road Classification

- Limited Access
- Highways
- Secondary Roads
- Other
- Highway Ramp