

**Employing User Interviews to Reduce Transportation-  
Related Barriers to Health Care in McDowell County,  
West Virginia.**

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## **Introduction**

One of the most important and consistent barriers to health care for the people of rural Appalachia is physical access. Roads are inadequate and often in poor repair. Bad weather or high water often makes them impassable. Public or private transport is limited or unavailable. These barriers are especially severe for the elderly, disabled, chronically ill, and poor, all of whom are over represented in rural Appalachia.

A result of these physical barriers is that rural Appalachian people come late to prevention, care, and diagnosis (Rowland and Lyons, 1989). As a consequence, health care outcomes are poorer for rural people than their urban and suburban counterparts (Freeman, 1989). Deficits in health care affect work force efficiency, education and the effective allocation of scarce resources. Many elders spend a significant percentage of their weekly income to pay private individuals for transport to care. Effects on local and regional economy are inevitable, continuing the downward spiral, which has plagued this disadvantaged region. For the purpose of this paper, a specific case study, which addresses these issues, will be presented.

This study took place in McDowell County, of West Virginia, this is an area almost exclusively rural and embodies the characteristics and conditions described by Rowland, Lyons, and Freeman (offered above). The community health center at Tug River Clinic was the principal interview site and, because one of the most important and consistent barriers to health care and improved outcomes in rural Appalachia is physical access to physicians and treatment, transportation to and from the medical facilities was the focus of the study. Our goal was to assess the level to which the lack of transportation obstructs care in McDowell County, what this may possibly suggest about Central Appalachia as a whole, and offer suggestions for reducing the transportation-related barriers reported by participants.

A survey of those visiting the community health center specifically addressed the availability, cost, dependability, and perceived safety and adequacy of transportation to medical care. The study results, which will be discussed later, generally suggested that transportation-related barriers did exist and were factors in the ability to and decision of

obtaining care. In the perspective that poor access to health care has been shown to be associated with a decline individual health status (Bindman, Keane, et al, 1990), this is a very serious situation which must be remedied. Rural people must be able to maintain and improve individual health, particularly in the ability to visit the doctor and obtain prescription medicine.

## **The Setting and Target Population**

### *General Setting: Population, Location, and Terrain*

McDowell County, West Virginia has a population of 27,329 (U.S. Census Bureau, 2000). It is a rural county with ten incorporated towns, most with a population under 1000. Welch (population 2,683) is the county seat and is approximately a one-hour drive from both Bluefield and Princeton, the nearest populated cities. The county had a population of 98,887 in 1950, and steadily declined to 35,233 in 1990 (a 64.4% change) to its current population. (2000 Census)

McDowell County is located in the southernmost area of the state, in the Central Appalachian Highlands, and covers 538.40 square miles (WV Blue Book, 2000). The terrain is rugged and mountainous, while 67 percent of the county's road-mileage is unpaved (WVDOT). Roads in McDowell County may be impassable at times due to snow, earth slides, or high water.

### *Economic and Social Conditions*

Economic and social indicators support the county's disadvantaged status both in comparison to other areas of the country as well as to the remainder of West Virginia. According to 1997 model-based estimates from the U.S. Census Bureau, 31.4 % of McDowell County residents live below the poverty line as compared to the 11.3 % in 2000 for the U.S. and 16.8 % in West Virginia. The median household income was reported as \$18,892 compared to the \$27,432 recorded for the state. The Census Bureau also reported in 2000 (a 1990 data source) that there were 9,369 high school graduates 25

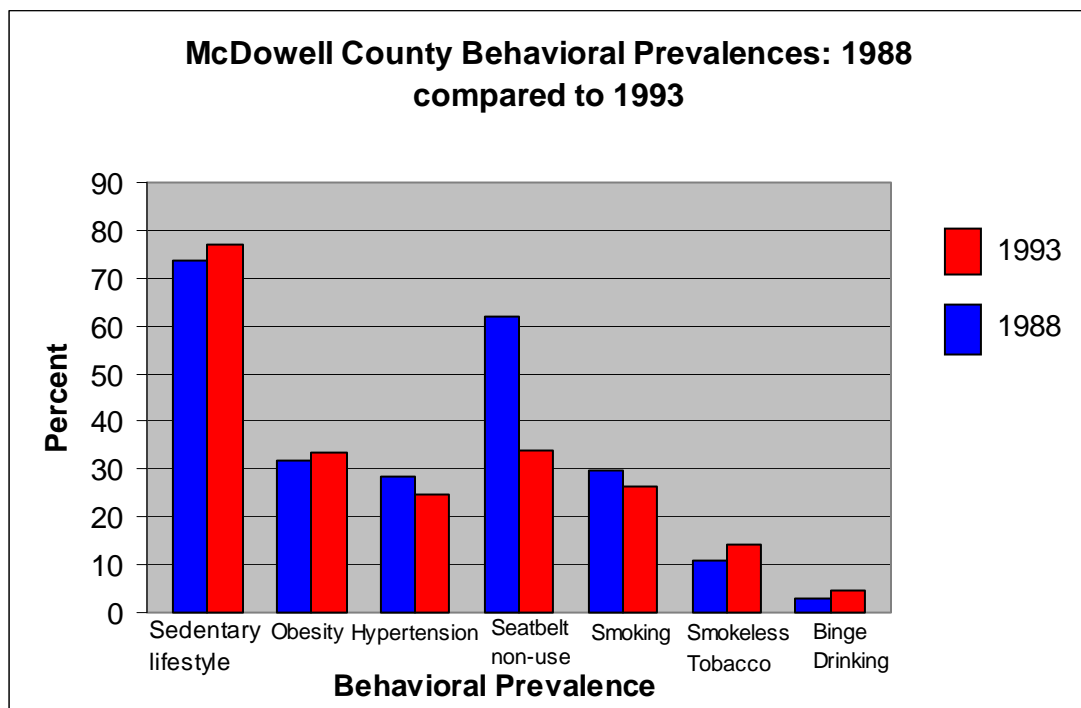
years and over (49.7%), with only 1,015 college graduates (5.4%) from the same age bracket (U.S. Census Bureau, 2000).

The largest industrial sector in terms of number of employed workers, is Government, which inhibits economic expansion in that few industries can successfully “feed” off governmental employment (McDowell Co. Community Needs Assessment, 2000). Other leading industries and chief agricultural products are coal, lumber and natural gas (WV Blue Book 2000).

### *Health Conditions and Services*

Health care indices suggest that the population of McDowell County can be classified as relatively unhealthy. Mortality rates for colon cancer (26.9%), coronary heart disease (356.1%), lung cancer (85.0%), and pre-maturity in infants (15.0%) are significantly higher than the national average (Community Health Status Report). Many expectant mothers receive no care in first trimester (36.2%) versus the U.S. average (17.0% in 1997) (Community Health Status Report). Poor lifestyle choices are prevalent among many the residents of McDowell County and serve only to add to current present health care deficits. As is depicted below in Table 1, poor lifestyle choices have increased since 1988 (McDowell County Community Needs Assessment, 2000).

**Table 1: McDowell Co. Behavioral Prevalences**



The mortality data for the county indicate similarly poor health status. For deaths between 1986 and 1995, the county ranks first in the state in unintentional injuries--245 deaths, intentional injuries--143 deaths, and suicide--78 deaths. The county also ranks third for both deaths due to diseases of the heart--1,540 and chronic pulmonary disease—286 (WV Health Statistics).

Somewhat surprisingly, McDowell County residents have decent access to acute and preventative health care services. Twenty-three full-time physicians, 3 physician assistants, and a nurse practitioner are available at 4 separate sites for primary health care. Additionally, the Welch Community Hospital provides 24-hour emergency services, medical, surgical, outpatient and same day surgery, a day clinic, an intensive care unit, obstetrics, birthing, long-term intermediate care, maternity/family planning, and hearing services. A state run hospital, it is a 124-bed facility that has 280 full-time employees and 25 hospital-based staff physicians. (WV Blue Book 2000)

McDowell County also has community health centers in Gary and Northfork, which are operated by the Tug River Clinic. These clinics are open five days and evenings per week, and provide emergency care, prenatal care, outpatient surgery, X-rays, dental services and certified clinical laboratory services. Tug River also does pulmonology care, retinopathy screens, school linked health, as well as houses a black lung clinic. The community health center's sliding-fee scale, with minimal or no patient fees, has help reduce cost-related barriers to care. Since the study focuses on those seeking physical access to health care, the clinics were identified as the major source of study participants. Although studies were done in other health care facilities in the county, as well as in the community, most surveys were done in the waiting room of Tug River Clinic.

### *Transportation*

McDowell County has one small airport, no passenger trains or taxi service, and limited commercial bus services (Ibid). There are seven traffic arteries servicing the county: US Route 52, and State Routes 635, 161, 103, 83, 80 and 16 (1990 WV County Profiles). Currently, a neighboring county offers limited public bus service to Welch from Bluefield, making four trips daily Monday through Friday, from 6:30 a.m. to 6:20 p.m. Although there is no public transportation system operating throughout McDowell County, the McDowell County Commission on Aging furnishes transportation services for senior citizens. Located in Welch, the Commission on Aging provides services throughout McDowell County. There is also an agency that arranges transportation for domestic violence victims and their children. Local church groups also provide limited services.

### **Materials and Methods**

Structured interviews were conducted at randomly selected intervals during the fall of 2001. Consecutive adults entering the community health center in Gary were offered interviews. Surveys were also done throughout the county at such places as the local supermarket, the Welch Community Hospital, and the mental health center. Two local interviewers were trained in using the survey instrument and conducted all interviews. Interviewees selected responses from defined choices (interview questions and choices are appended to this paper).

### **Results**

#### *Community Health Center Surveys*

Survey participants from McDowell 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, are shown in

Table 2. McDowell was very close to the southwestern region of West Virginia median in many categories, except for poverty, where it was higher.

<b>Table 2. Comparison of Selected Demographic Parameters for Lincoln County and Southwestern West Virginia<sup>1</sup></b>		
<b>Demographic Parameter</b>	<b>McDowell County</b>	<b>Southwestern West Virginia</b>
Percentage under 100% of the Federal Poverty Level	31.4%	26.1%
Percentage Under Age 18	23.2%	22.4%
Percentage Age 65 or older	16.1%	14.2%
Percentage High School Graduates	42.3%	43.8%

<sup>1</sup> Contiguous southwestern counties of Lincoln, Logan, McDowell, Mercer, Mingo, Raleigh, Summers, Wayne, and Wyoming.

<b>Table 3: Demographics of Survey Participants</b>	
Median Age	46.37 (50.5 Census 2000)
Female	66.9%
Married	54.8%
No Children living at home	55.1%
High School Diploma/GED only	27.1%
Less than High School Diploma	47.1%
Income	74.4% make \$20,000 or less (35.1% make \$10,000 to \$20,000)
Living Areas	Gary, Welch, Iaeger

### *Survey Results*

Patients completing the interview traveled significant distances to obtain health care. Sixty-six of 250 (24.6%) participants traveled 16 to 30 miles for care and fifty-four (21.6%) traveled 31 to 45 miles. Sixty-five (26%) traveled 45 or more miles for care. When asked about driving time to health care facilities, eighty-three (55.1%) of people

reported it took over sixty minutes to get to care, while sixty-nine (27.6%) said it took 30 to 60 minutes. Sixty-one (24.4%) replied that it took 16 – 30 minutes to get to a health care facility. Seventy-one participants (29%) could not drive themselves and either walked or relied on someone to drive them to care.

<b>Table 4: Distance Question</b>	<b>Percentage Yes</b>
Traveled 16 – 30 miles for care	24.6
Traveled 31 – 45 miles for care	21.6
Takes over 60 minutes to get to care	55.1
Takes 30 – 60 minutes to get to care	27.6
Takes 16 – 30 minutes to get to care	24.4
Could not drive self to care	29

*Physical Barriers*

Lack of transportation was revealed to be a barrier to care for many participants. One hundred six (42%) had missed health care appointments during the previous 2 years because of lack of transportation and 38 participants (15.2%) reported missing 3 or more appointments. Eighty participants (32%) were unable to get to a pharmacy on at least one occasion due to lack of transportation. One hundred seventy-two (69.9%) participants reported that road conditions had prevented transportation to medical care over the past year.

<b>Table 5: Physical Barrier Question</b>	<b>Percentage Yes</b>
Missed Health Care Appointments in the past year due to lack of transportation	42
Missed three or more health care appointments due to transportation	15.2
Unable to get to pharmacy due to lack of transportation	32
Road conditions prevented transportation to medical care in the past year	69.9



*Financial Barriers*

Not surprisingly, the lack of personal transportation also contributed to financial barriers to care among many of those interviewed. Overall, forty-nine (20%) of participants reported having to pay for transportation to care. The most commonly reported payment per physician visit was over \$20, which represents a significant percentage of disposal income in this group. Thirty-nine (15.6%) stated that they were not able to pay for transportation to care while sixty-two (27.9 %) reported they could pay up to \$6 to \$10.

<b>Table 6: Financial Barrier Questions</b>	<b>Percentage Yes</b>
Pay for transportation to care	20
Not able to pay for transportation	15.6
Could pay up to \$6 - \$10 for transportation	27.9

*Outside County Travel*

Of patients needing to travel outside of the county for care, 100 (40%) were driven by someone else. The most common destinations for out-of-county care were to Bluefield (38.5%), Princeton (15.6%) and Beckley (4.5%). One hundred thirty-six (55.3%) could not get to a hospital outside McDowell County for tests. The reliance on others for transportation to care cut across most demographic parameters and was associated with time traveled to care and education level, but not with sex, age, income, or distance traveled to care.

<b>Table 7: Outside County Travel Question</b>	<b>Percentage Yes</b>
Driven by someone else for out of county health care	40
Could not get to hospital outside McDowell County for tests	55.3
Travel to Bluefield for care	38.5
Travel to Princeton for care	15.6
Travel to Beckley for care	4.5

## **Discussion**

### *Problems*

People of McDowell County travel long distances to reach healthcare, 55.1% drive sixty minutes or more. Possible reasons for this extensive travel are that they go outside the county for healthcare, or they live on such poor roads that a small distance takes considerable time to travel. Road conditions seem to be a big issue since 70% of those surveyed reported that road problems limited their ability to get to healthcare. Also, by having to travel such a long time to care, those who need someone to drive them (29% of those surveyed) may have difficulty finding transportation. The lack of public transportation adds to this obstacle.

Cost seems to also be a factor in getting people to healthcare. In an area where the poverty level is 31.4%, most people report having to pay at least \$20 dollars for others to drive them to the doctor. As a significant portion of their income, most could refrain from receiving regular preventative care and only receive medical attention for serious problems. This lack of health maintenance should contribute to the high occurrences of poor health status. Perhaps if there were a less expensive way for residents to travel to health care, more people would receive preventative attention.

Of those residents traveling out of county, 40% reported to be driven by someone else. These people travel to other areas at least an hour or more away to neighboring counties. Reasons for this could be to receive specialist care or a preference to out of county healthcare. One would expect that the further distance that one would need someone else to drive them to care, the more money that they would be expected to pay. Perhaps if more people could, or believed they could, receive adequate services within McDowell County, there would be less of a transportation issue.

### *Possible Solutions*

Proposed solutions to McDowell County's transportation problems include augmenting some form of a transportation system, expanding the network of existing healthcare facilities, or to bring in new equipment that would make forms of telemedicine possible. The first option is the more traditional approach, in that it brings the patient to

the healthcare provider in the existing facilities. The other approaches may be better suited to the rural geography, in that they bring the medicine to the patient.

Currently Bluefield Transit Authority, from a neighboring county, provides limited services to Welch, the county seat, in McDowell County. If it were possible to expand those services to include all regions of McDowell, perhaps more residents would be able to use public transportation to reach healthcare. A study done by the state public transit found that to meet 10% of the estimated county demand would require a fleet size of nine vehicles, costing a little over \$550,000 a year. The cost to meet the estimated full demand would run just over \$6 million dollars. (West Virginia Transit Needs Study) While this is not an unreasonable proposition for the solution of transportation problems, much government funding would be needed to subsidize such an operation.

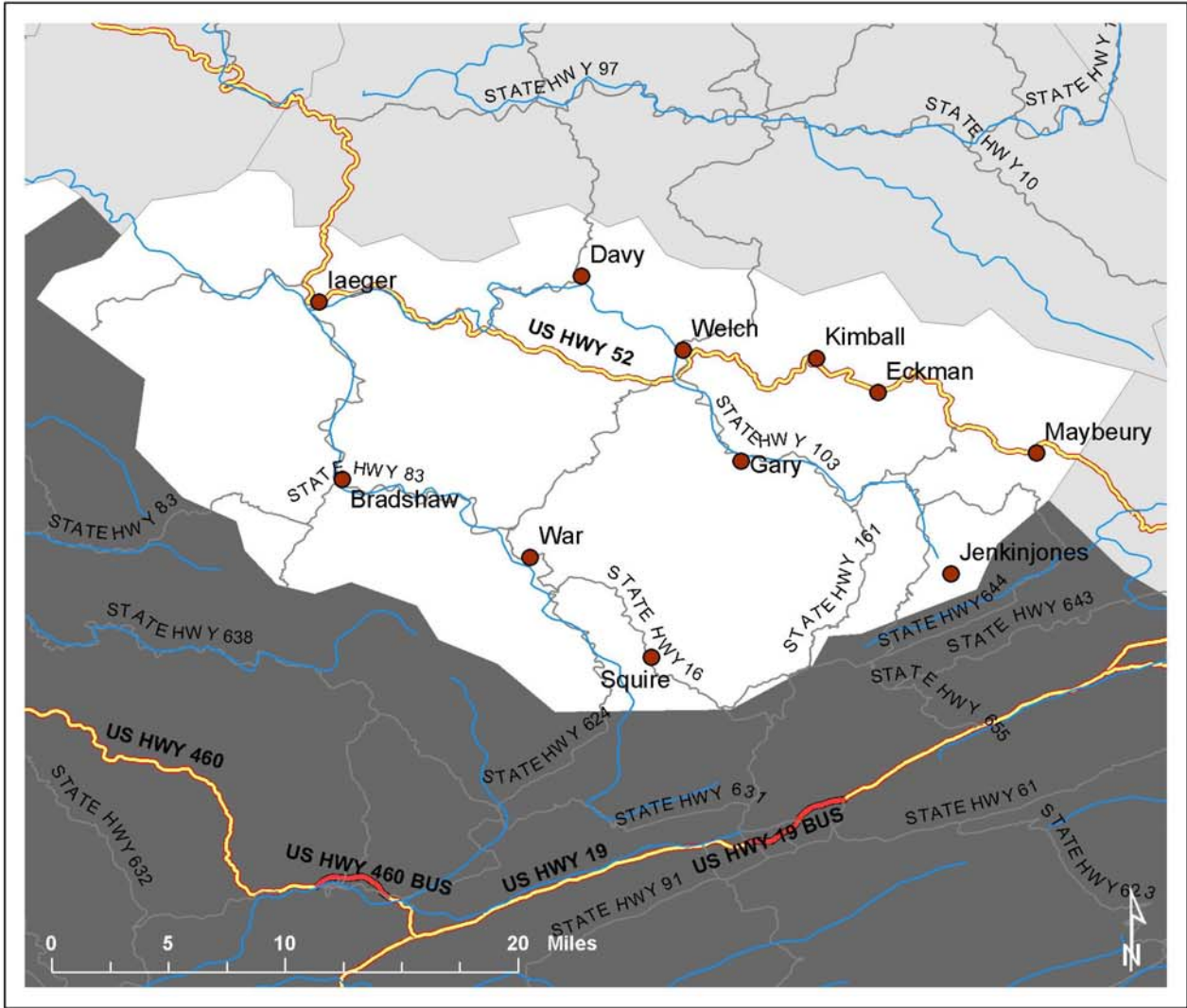
The second possible solution to aiding transportation problems would be to identify gaps in the placement of healthcare facilities and try to fill those gaps with satellite facilities. A few days out of the week, providers would see patients in isolated locations where it has shown that community residents are not able to get to healthcare due to geography. Perhaps this could not only apply to general providers, but to specialists from surrounding areas who could render needed care to those who ordinarily are not able to receive it.

The third option for solving the transportation problems would be to put in place the equipment and infrastructure for telemedicine. Not only the equipment to perform certain tasks is needed, but connectivity between facilities as well. This would allow current providers the ability to consult and receive guidance from a wide variety of specialists in other areas.

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# McDowell County, West Virginia



## Legend

### Road Classification

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