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Joe Blankenau

*Wayne State College, Wayne, Nebraska*

Joni Boye-Beaman

*Saginaw Valley State University, University Center, MI*

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## **HEALTH-CARE UTILIZATION AND THE STATUS OF LATINOS IN RURAL MEAT-PROCESSING COMMUNITIES**

**Joe Blankenau**

*Social Sciences  
Wayne State College  
Wayne, NE 68787  
joblank1@wsc.edu*

**Joni Boye-Beaman**

*Department of Sociology  
Saginaw Valley State University  
University Center, MI 48710  
jbb@svsu.edu*

and

**Keith Mueller**

*Center for Rural Health Research  
Department of Preventive and Societal Medicine  
University of Nebraska Medical Center  
Omaha, NE 68198-4350*

**ABSTRACT**—Using interviews conducted in two Nebraska communities, we illustrate health-care challenges for Latinos in meat-processing communities. Two hundred twenty-one Latinos (48% male), primarily of Mexican descent, were interviewed face-to-face by bilingual interviewers. Fifteen percent of the respondents are between the ages of 20 and 24, 75% are between 25 and 44, and 10% are between 45 and 64. Nearly half have lived in the United States for five or fewer years. Aday's (1993) framework for predicting populations at risk is used to identify factors affecting health status and utilization. These factors include measures of human capital, social status, and social capital. It is found that barriers to utilization include, among others, transportation, lack of understanding of the health-care system, income, insurance, inconvenient office hours or location, and distrust of doctors. Variables significantly affecting health status include age, length of residence, and perceived racism. Policy recommendations are considered based on the findings.

### **Rural Industrialization and Immigration**

The adoption of a rural industrialization strategy by dominant meatpackers has led to meat processing becoming an important part of the economies of rural states areas in the Great Plains. However, disassembly work in meat processing is dangerous, physically demanding, and low-paying. Consequently, finding an adequate supply of labor is an ongoing problem for meat processors. In order to find labor, meat-processing plants have made a large-scale effort to recruit from outside the Great Plains (Broadway 1995). The recruitment of minorities for work in meat processing has altered the racial and ethnic composition of primarily white communities. For instance, in Nebraska from 1990 to 1998 the Latino population increased 96%, the fifth highest increase in the country during this period. From 1995 to 2025, 40% of Nebraska's population growth will be in the minority communities, with the largest minority share coming in the Latino community (US Bureau of the Census 1996). Madison County (population approximately 35,000) in rural northeast Nebraska reflects this trend in meat-processing communities, as its Latino population has increased seven times since 1980.

This rapid influx of Latinos into rural communities in the Great Plains has led to much consideration of the impact. However, there is much less research concerning how well the communities have responded to providing for the needs of the incoming Latinos. In this paper, we examine the health challenges of Latinos in two Madison County communities (Norfolk and Madison).

### **Understanding Health-Care Utilization and Status of Vulnerable Populations**

Many studies link race and ethnicity with health status and/or health utilization (Woolhandler et al. 1985; Council on Scientific Affairs 1991; Trevino et al. 1992; Aday 1993; Escarce et al. 1993; Hafner-Eaton 1994; Heard-Mueller et al. 1994; Williams and Lavizzo-Mourey, 1994; Gornick et al. 1996; Mueller et al. 1999). However, there is significantly less research concerning the specific health concerns of the various minority populations in rural areas.

Mueller et al. (1999) provide a helpful starting point in trying to understand the unique challenges to health care of Latinos living in rural areas. They examine published literature from 1970 to 1993 concerning the health status and health-care access of Hispanic Americans living in rural areas. Regarding access, they note a pattern of an underutilization of health

services. The reasons for underutilization are primarily linked to the use of *curanderos* (folk healers), preference for home health care, financial barriers, and most importantly, a lack of proper medical insurance. Concerning health status, diabetes and obesity are the most frequent health problems in rural Latino communities.

The review article also points out that existing studies have a regional bias. Regarding health care research on rural Latinos, there is a distinct lack of sampling from the northern Great Plains. Most health research concerning rural Latinos is based on sampling from southwestern states. This regional bias neglects important differences in the experiences of Latinos in other regions. For instance, given their isolation, Latinos in rural areas in the Great Plains are much less likely to have health services that are primarily for them.

While Mueller et al. (1999) examine the literature up to 1993, important studies have been conducted since. Guendelman and Wagner (2000) use the 1994 Commonwealth Fund survey to compare health-care utilization and health status differences between Latinos and white non-Latinos. They find an underutilization of services by Latinos, particularly in terms of preventive care. The utilization differences between Latinos and white non-Latinos are driven primarily by structural factors (having no regular doctor, having little choice of care, and suffering discrimination or poor treatment by the provider) and financial difficulties (lacking adequate insurance, education, or income). Trevino (1999) also sees financial barriers, in terms of lacking health insurance, as one of the leading obstacles to good health for Latinos.

In a recent study using data from California, Baezconde-Garbanti and Portillo (1999) point out several factors that place female Latinos at risk, such as lower education, income, and type of employment, that is, Latinas are disproportionately represented in higher risk jobs such as in agriculture. Behavioral risks are also evident in terms of obesity and physical inactivity. Lack of knowledge of the health-care system is an important barrier to gaining preventive care. Interestingly, though, Latinas in the study have a higher life expectancy than non-Latina whites and African Americans, and they have better outcomes in terms of low birth weight and fewer delivery complications. The authors conclude that even though Latinas are at a greater risk, there are several mitigating factors. Most importantly, Latino culture is heavily reliant on strong familial bonds, and multigenerational families are protective of women.

In addition to general problems in health care, Latinos who have come to work to the Great Plains to work in meat processing face occupational

health hazards, as the probability of incurring an injury is three times higher than in other types of manufacturing (Stull and Broadway 1995). Repetitive and difficult maneuvering can lead to nerve damage, particularly in the hands or wrists. Speeding up production lines leads to even more severe injuries. Moreover, workers often continue to work regardless of their illness or injury because they fear losing their jobs.

Existing research points out the necessity of understanding the complex and interrelated factors affecting the health-care utilization and health status of Latinos. Aday (1993) provides a complicated model that reflects these factors. The many predictors of health can be grouped into three categories: (1) social status (age, sex, and race or ethnicity); (2) human capital (schools, jobs, income, and housing); (3) social capital (family structure, marital status, voluntary organizations, and social networks). With respect to social status, minorities, the young, the elderly, and women have a higher risk of poor physical, psychological, and/or social health. Human capital encompasses people's skills, capabilities, and resources. People who have less education, have lower-paying jobs, are unemployed, and/or have inadequate housing generally are at a greater health risk. Social capital is the supportive ties among people, which increase feelings of belonging, psychological well-being, and self-esteem. Female-headed families, singles, and people who are not members of voluntary or social organizations have the least social capital (Aday 1993).

The model presented by Aday is useful in its understanding of the intricate web that influences health-care utilization and health status. While we do not employ Aday's model to make predictions about health-care utilization and health status, we draw upon its conceptual framework in identifying key variables that affect access and health status. Specifically, we address three questions. First, are Latinos living in Madison and Norfolk vulnerable in terms of Aday's criteria? Second, what are barriers to health-care access? Third, does increased vulnerability affect utilization and health status?

## **Data and Methods**

### **Survey Procedure and Sample**

This study involves a secondary analysis of data obtained from a needs assessment of Latinos living in Madison and Norfolk. The assessment was conducted in 1998 by the Northeast Nebraskans on the Move (NeNOM) in

conjunction with the Social Sciences Research Center of Wayne State College and the Nebraska Office of Minority Health. Face-to-face surveys were administered to 221 self-identified Latinos. Face-to-face interviewing was selected for a variety of reasons. First, it was expected to provide a high response rate, which was important given the relatively small population bases of the minority groups. Second, interviewers were selected from the targeted minority populations, which helped establish a rapport with the participants and made them more comfortable. Third, face-to-face interviews, using bilingual Latino interviewers, allowed for responses from especially vulnerable respondents, such as those who are functionally non-English speaking and/or illegal immigrants. An official at the Office of Minority Health of the Department of Health and Human services trained the interviewers. Although an attempt was made to hire male interviewers, only female interviewers were used.

Interviewers selected Latino neighborhoods and went door-to-door in search of respondents. This sampling procedure was necessary given the rather difficult nature of sampling vulnerable groups whose population is not clearly known, for example, immigrants and illegal workers. Interviewers depended upon participants to act as informants to identify other minority households. All interviews were conducted in private households. Interview hours were scheduled in evenings and on weekends. In order to increase the feeling of anonymity on the part of the respondents, they were not asked to sign a consent form. However, they were told that they could end the interview at any time. Respondents were compensated with coupons from local businesses and health-related information packets.

Compared with census estimates, the survey underrepresents males, which merits some concern, but the difference is not overwhelming and smaller than expected. With respect to age, the survey distribution is fairly similar to the census estimates, but it is generally a bit older. Once again, this was expected, as older, more connected members of the communities were more likely to respond. As seen in Table 1, there is substantial variation among other important demographic variables, such as income, education, sex, length of residence, age, and marital status. Therefore, the sample represents the diversity within the Latino community.

## **Measures**

We incorporate 18 independent variables that measure social status, social and human capital, and perceived barriers to care. Age and sex are

included as independent variables measuring social status. Education and income measure human capital. Marital status and length of residence in the United States measure social capital. We included several measures based upon perceived barriers to health care. Respondents were asked:

Which of the following have been problems for you in getting health care in this community during the past year? It costs too much/I can't afford; I do not have health insurance; I don't know where to go for help with my problem; I don't have transportation; the doctor's office or clinic is too far away or in a poor location; the clinic or the doctor's office hours are not convenient; I have to wait too long to be seen; I prefer to take care of my health problems at home; the provider does not understand/accept my cultural practices/beliefs; I am too nervous, afraid, or embarrassed; I don't like or trust doctors; the provider does not speak my language; I have been treated differently because of my race. (Respondents reported "yes" or "no" to each barrier.)

Four dependent variables, three measuring health-care utilization and one measuring health status, were constructed from the survey. The first dependent variable measuring utilization is whether or not the respondent reported seeing a physician in the last year when they were ill. Interviewees responded "yes" or "no."

While vulnerable populations are likely to seek physician care for immediate health concerns, they are less likely to access care that is preventive, such as physician exams, pap smears, prenatal care, and mammograms (Commonwealth Fund 1995). In this paper, then, we consider physicals and pap smears as dependent measures of preventive health utilization. All respondents were asked when they had their last physical. Responses were collapsed into three time periods (last year, over a year, never). Female respondents were asked when they had their last pap smear. Once again, responses were collapsed into three time periods (less than two years, two or more years, never).

Health status is measured using self-assessment. Self-assessed health is a broad measure of well-being, which has shown to be a valid and reliable indicator of a person's overall health status, mortality, and physical functioning (US Department of Health and Human Services 1998). The survey question measuring health status was as follows: *Which of the following categories best describes your overall health? Excellent, very good, good, poor, or very poor.*

The dependent variable of health status is collapsed into a dichotomy between those responding excellent or very good and those responding “good” or “poor” (no one responded “very poor”). Admittedly, the collapsing is partially a function of there not being enough “poor” or “very poor” responses for analysis. However, there is both a methodological and an empirical justification for this. First, the response “good” is considered a neutral response since it is in the middle of the scale. Since “good” is in the middle of the scale, we assume that “excellent” or “very good” connote a higher level of satisfaction with health status, while “good” or “poor” or “very poor” suggest an average or below average satisfaction. Empirically speaking, only six respondents reported “excellent” and only six reported “poor.” Fifty-four respondents reported “very good” and 150 reported “good.” Thus, there seems to be a natural delineation between “very good” and “good.” Further, collapsing six “poor” responses with 150 “good” responses has little impact on the statistical analysis.

### **Methods of Data Analysis**

The methods for data analysis are threefold. First, we use descriptive univariate analysis to examine the health vulnerability of the sample based on Aday’s criteria and for describing barriers to care. Second, we use cross-tabs and Cramer’s V to measure the strength of relationship between each independent variable and dependent variable. Chi-square is used to measure statistical significance. Only relationships that are significant at an alpha level of .05 are reported in the findings. This is done to prioritize the stronger relationships and not to determine generalizability. Finally, all statistically significant variables in the chi-square tests for health status are analyzed in a logit model to measure their impact on health status.

## **Findings**

### **Vulnerability?**

First, we examine each of the measures of human and social capital and social status to evaluate the health vulnerability of the sample. Regarding social status, the age of the respondents is older than census estimates. Seventy-five percent of the respondents are between ages 25 and 44, and there are no respondents over the age 65. As such, the sample in terms of age does not reflect the criteria for vulnerability regarding age, that is, infants, adolescents, and the elderly. However, Aday argues that minorities and



TABLE 1  
SAMPLE CHARACTERISTICS

Characteristic	(f)	(%)
<i>Marital status</i>		
Married	106	49.1
Divorced	5	2.3
Widowed	5	2.3
Separated	0	4.6
Never married	51	23.6
Unmarried	39	18.1
Missing	5	
(Total)	(221)	(100.0)
<i>Educational attainment</i>		
Elementary	57	27.6
Some secondary/H.S.	88	42.1
High school graduate	41	18.2
Some tech	12	5.1
Tech/AA graduate	3	1.4
Some college	11	5.1
College graduate	0	---
Postgrad/professional	1	.5
Missing	7	
(Total)	(221)	(100.0)
<i>Age</i>		
20-24	31	14.8
25-44	158	75.2
45-64	21	10.0
Missing	11	
(Total)	(221)	(100.0)
<i>Time in US</i>		
Less than three years	50	23.0
3-5 years	58	26.7
6-10 years	43	19.8
11-15 years	15	6.9
More than 15 years	28	12.9
All their life	23	0.6
Missing	4	
(Total)	(221)	(100.0)
<i>Income</i>		
Under \$9,999	20	9.3
10,000-19,999	133	61.6
20,000-29,999	49	22.6
30,000-49,999	12	5.5
Over 50,000	2	1.0
Missing	5	
(Total)	(216)	(100.0)

women have a higher risk for health problems. All of the respondents are minorities and slightly over half are women.

As expected, measures of human capital, education, and income indicate that Latinos have a greater vulnerability because of low educational attainment and income. Nearly 70% report less than a complete high school education. This compares rather unfavorably to the white population in Madison County. For instance, in the 1990 census only 21.3% of whites over age 25 report having less than a high school degree. Regarding income, 71% of respondents report making less than \$20,000 per year, when the median household income for Madison County as a whole was over \$31,000 in 1993 (see Table 1).

The distribution of marital status, a measure of social capital, reveals that nearly 50% of the respondents are at a higher risk because they are not married. Nevertheless, the marital status distribution is comparable to the overall society. As a result of their newcomer status, immigrants are a particularly vulnerable population. As Table 1 shows, almost 50% of Latinos reported living in the US less than five years and 70% less than 10 years.

### **Reported Barriers to Care**

Reported barriers to care further support the potential for vulnerability. Consider the responses concerning cultural, organizational, and financial barriers (see Table 2). Financial barriers, as defined here, are a significant problem. Sixty-one percent of Latinos reported that cost had been a barrier to health. Sixty-four percent of Latinos cited not having insurance as a barrier to care. Interestingly, in a separate question approximately 72% of Latinos respondents reported having some form of health insurance. Thus, perceived underinsurance is at least as important to consider as insurance status in examining barriers to care.

Organizational barriers are endemic for Latinos. Approximately one-half of the respondents indicated that not knowing where to go and a lack of transportation are barriers. Further, 40% cited clinic hours and waiting time as barriers. Cultural barriers are also prevalent. Forty-seven percent reported that language is a barrier, and a dislike or distrust of doctors impeded care for 37% of the respondents. Thus, it is no surprise that around 25% listed either being embarrassed, afraid or nervous as a barrier and 26% perceived racism as a barrier.

A prior attempt was made in the area of Madison County to examine health assessment and utilization. Since the first survey contains data from

TABLE 2  
BARRIERS TO HEALTH CARE  
(% responding yes)

Barriers to health care (respondents answered "yes")	(f)	(%)*
<i>Financial</i>		
Cost too much/can't afford.	140	61
I do not have insurance.	147	64
<i>Organizational</i>		
I don't know where to go for help with my problem.	125	54
I don't have transportation.	120	52
The Doctor's office/clinic too far away/poor location.	73	22
The office/clinic hours are not convenient.	92	40
I have to wait too long to be seen.	93	40
<i>Cultural</i>		
I prefer to take care of my health problems at home.	81	35
The provider does not understand/accept my cultural beliefs.	44	19
I am afraid to go because I am illegal.	11	5
I'm too nervous/afraid/embarrassed.	58	25
I do not like/trust doctors.	85	37
The provider doesn't speak my language.	108	47
I have been treated differently because of my race.	60	26

\*Percentages are rounded.

the majority population, some of it is useful in comparing the nonminority to the minority population. In that survey 96% of whites reported having health insurance, compared with 72% of the respondents in this survey. Also, and perhaps more importantly, only 6% of whites found money to be a barrier for health care, compared with 61% for Latinos. These results are similar to the Commonwealth Fund survey (1995), which found that 40% of adult minorities have major problems paying for medical care.

As can be seen, many Latinos in Madison County meet several of Aday's criteria for vulnerable populations. The next question is whether or not this vulnerability affects health-care utilization and health status. In the following section, the four dependent variables described above are consid-

ered in relationship to the independent variables selected from Aday's model (age, sex, marital status, length of residence in the US, income, education) and the barriers to care listed in Table 2. As mentioned, only bivariate relationships that are statistically significant at alpha .05 or less are reported in the tables.

### **Health-Care Utilization**

Eighty-nine percent of the respondents reported seeing a physician when they were sick, which arguably is a high rate of access during illness. Still, 11% of the respondents did not receive care when they were ill. The question is what affected access to a doctor when the respondent was ill. Since the dependent variable, seeing a physician, is highly skewed (89% vs. 11%), coupled with a relatively small sample size, we did not expect a large number of statistically significant variables. Only one variable (a preference for taking care of health problems at home as a barrier to care) has a statistically significant relationship with having seen a physician. As seen in Table 3, 84% of those who said their preference for taking care of health problems at home is a barrier to health care reported seeing a physician when sick, while 93% of those not reporting this as a barrier saw a physician.

Health utilization should not be measured only in terms of receiving care when ill. Vulnerable populations are less likely to receive preventive care. Forty-two percent of respondents received a physical exam within the last year, 49% over a year ago, and 9% have never had a physical. Of the respondents reporting health insurance as a barrier, only 35% had a physical within the last year, whereas 56% of the respondents not listing health insurance as a barrier had a physical within the last year (see Table 3). Other reported barriers, such as not knowing where to go for help, location of the doctor's office, and distrust of doctors, are also associated with the timing of the last physical. Once again, similar results were found in the Commonwealth Fund survey (1995).

Fifty-eight percent of the respondents noted that they had a pap smear within the last two years, with 30% reporting a pap smear over two years ago, and 11% having never received a pap smear. These findings are similar to what Baezconde-Garbanti and Portillo (1999) found among Latinas in California. Five reported barriers have moderate relationships with receiving pap smears: cost, not knowing where to go for help, inconvenient clinic hours, having to wait too long, and preferring home care for health.

TABLE 3  
BIVARIATE ANALYSIS OF HEALTH-CARE UTILIZATION:

Dependent Variables		Independent Variables	
Physician Visit		Prefer Home	
		<u>Yes</u>	<u>No</u>
Yes		84	93
		(68)	(126)
No		16	7
		(13)	(9)
		CV = .149	
		p = .027	

  

	No health insurance		Don't know where		Transport as barrier		Office too far		Distrust doctors	
Physical	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
Last year	35	56	33	53	34	52	33	46	3	48
	(51)	(41)	(43)	(46)	(42)	(49)	(24)	(67)	(30)	(59)
Over year	60	29	57	40	57	40	61	44	60	41
	(88)	(21)	(74)	(35)	(71)	(38)	(44)	(64)	(53)	(50)
Never	5	15	10	7	9	8	6	10	7	11
	(8)	(11)	(13)	(6)	(11)	(8)	(4)	(15)	(6)	(14)
	CV = .30		CV = .197		CV = .182		CV = .165		CV = .188	
	p = .000		p = .015		p = .026		p = .051		p = .024	

  

	Money as barrier		Don't know where*		Hours as barrier		Wait as barrier		Prefer home	
Pap smear	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>
<2 year	53	70	48	71	44	72	59	59	43	66
	(32)	(21)	(22)	(31)	(17)	(36)	(19)	(34)	(12)	(41)
2 or more	40	13	44	18	39	24	41	26	54	21
	(24)	(4)	(20)	(8)	(15)	(12)	(13)	(15)	(15)	(13)
Never	7	17	9	11	18	4	0	16	4	13
	(4)	(5)	(4)	(5)	(7)	(2)	(0)	(9)	(1)	(8)
	CV = .289		CV = .274		CV = .313		CV = .267		CV = .334	
	p = .023		p = .03		p = .013		p = .041		p = .007	

Note: Cross-tabs for variables significant at alpha .05 or < in percentages that are rounded. Frequencies are in parentheses.

\*Chi-square significance problem, expected frequencies less than five for one cell.

## Health Status

A comparison with the earlier community survey mentioned above shows that 53% of whites reported their health status to be excellent or very good. In the minority survey, only 27% of Latinos responded such. Once again, these results reflect the survey by the Commonwealth Fund (1995), which noted 30% of minorities reported excellent health care versus 41% of whites.

The age of the respondent affected the reporting of health status. Younger people reported excellent or very good health status at a greater percentage. Length of residence has a significant effect on health status. Only 14% of respondents living in the US less than three years cited excellent or very good health status, compared with nearly 38% for long-term residents. Barriers that are common to vulnerable populations are once again important in understanding self-reported health status. Those respondents experiencing barriers to care—not knowing where to go for help, lacking transportation, having to wait too long to be seen, preferring home health care, and being nervous—report a lower health status.

Perceived racism has a very strong relationship to health status. Those who felt that race had been a barrier to care were much less likely to report excellent or very good health. Less than 7% of those citing race as a problem reported excellent or very good health, compared with nearly 37% of those not finding race a barrier.

A logistic regression model is constructed based upon the variables found to be significant at least at the .05 level (Table 4). Such a model is employed at this point for two reasons. First, a multivariate analysis allows us to hold each variable constant in order to determine the individual effects of each independent variable. Second, the results of these independent effects can be interpreted in terms of odds, which is a concept readily understood by people less familiar with statistics.

As with the cross-tabs, the dependent variable of health status is collapsed into a dichotomy with those responding “excellent” or “very good” coded 0 and the rest (good, poor, very poor) coded 1. All the independent variables are binary distributions except for age. Length of residence in the US is collapsed into five or fewer years (coded as 0) or more than five years (coded as 1). All the other variables are coded 0 if the respondent declared it to be a barrier to health, and 1 if not.

According to the results in Table 5, age, length of residence, and perceived racism as barriers to care were the only significant predictors of

TABLE 4  
BIVARIATE ANALYSIS OF HEALTH STATUS

Health status	Age				US residence		
	18-29	30-39	40-49	50>	<3yrs	3-15	15>
Excellent vs. good	39 (32)	18 (16)	30 (9)	18 (2)	14 (7)	9 (33)	38 (18)
Good/poor	61 (51)	84 (75)	70 (21)	82 (9)	86 (43)	71 (82)	63 (30)
	CV = .217 p = .017				CV = .183 p = .029		

  

Health Status	Don't know where		Transport as barrier		Wait as barrier	
	Yes	No	Yes	No	Yes	No
Excellent vs. good	23 (30)	36 (30)	23 (28)	35 (32)	0 (18)	34 (41)
Good/poor	77 (99)	64 (54)	77 (95)	65 (60)	80 (74)	66 (80)
	CV = .135 p = .048		CV = .133 p = .052		CV = .158 p = .021	

  

Health Status	Prefer home		Nervous/ embarrassed		Racial treatment as barrier	
	Yes	No	Yes	No	Yes	No
Excellent vs. good	19 (15)	33 (44)	17 (10)	32 (50)	7 (4)	37 (55)
Good/poor	82 (66)	68 (88)	83 (48)	8 (108)	93 (57)	63 (95)
	CV = .161 p = .019		CV = .143 p = .036		CV = .304 p = .000	

Note: Cross-tabs of for variables significant at alpha .05 or < in percentages that are rounded. Frequencies are in parentheses.

perceived health status. The logistic regression coefficients are the change in the log of the odds of reporting "good" or "poor" given a change in the independent variable. Length of residence in the US and perceived racism have negative coefficients, so living less time in the US and perceiving racism as a barrier to care are associated with reporting a lower health

TABLE 5  
LOGISTIC REGRESSION OF LIKELIHOOD OF LOWER HEALTH  
STATUS

	Logistic Coefficient	Odds Ratio
Age	.052*	1.054
Length of residence	-1.211***	0.298
Don't know where to go for help	.405	1.500
Transportation	-.594	0.552
Wait too long to be seen	.036	1.037
Prefer to take care at home	-.623	0.536
Nervous, afraid, embarrassed	-.105	0.900
Treatment because of race	-1.943***	0.143

Note: (model includes variables significant at .05 or < in Chi-square testing)

\*significant at alpha .05

\*\*\*significant at alpha .001

-2Log Likelihood = 188.713

Chi-Square = 41.396\*\*\*

status. The odds ratio of reporting good or poor health status is quite small (.298) for those respondents having lived within the US for more than five years. That is, respondents who report living in the US less than five years are over three times more likely to report a lower health status than those living in the US over five years (1/.298). The odds ratio when racism is not considered a barrier to care is even smaller (.143). Thus, respondents citing racism as a barrier to care are about seven times more likely to report a lower health status than those who do not (1/.143).

These findings are intriguing and supportive of Aday's model. Measures of social status (length of residence in the community and perceived racism) are very important in determining self-reported health status. Obviously, these results demand a policy discussion that goes beyond the traditional explanations of health, one that is tailored for this unique population.

Before we consider the policy implications, it is important to note that the results of this study are limited for several reasons. First, the sample contains interviews from only two communities in rural northeast Nebraska,



making it difficult to generalize. Also, the sampling was not random with the community, potentially biasing the results. Second, the overall number of cases is comparatively small, making statistical conclusions less stable. Third, the survey was given only to minorities within the area, so it is hard to make direct comparisons with the white non-Latino residents of the community. Finally, in Norfolk the Beef America plant closed during the middle of the interview process. It is unclear how that might have affected the sample.

### **Policy Implications**

Rural industrialization in meat processing has led to racial and ethnic diversification of previously homogenous communities. In order to assess health care for Latinos in rural communities, we have considered health-care utilization and health status. As stated, such an inquiry requires a comprehensive interpretation of health and an extensive set of factors measuring social status and human and social capital. Likewise, public policy should reflect the complexity of providing health care in this context.

In our research, as with that of others (Mueller et al. 1999; Trevino 1999), it is imperative to consider financial barriers. Not surprisingly, respondents who articulated inadequate health insurance as a barrier to health were less likely to receive preventive care. While health insurance is often a benefit in meat-processing occupations, it often is not sufficient. Generally, there are substantial waiting periods (e.g., six months) before being eligible for insurance, and once under a company plan, deductibles are often relatively high for low-income workers and have a significant co-pay (Grey 1995). This can lead to a condition of underinsurance, which, in the data gathered for this study, reflects a barrier to health. Addressing this problem in the policy arena is difficult, as national health insurance seems unlikely, and state policies addressing inadequacies in insurance benefits do not reach self-insured firms. Meat-processing plants should be encouraged to provide adequate health care coverage, so that their workforce is more able to access health care in the community and more able to finance their health care. Perhaps local communities courting meat-processing plants should negotiate adequate health benefits as part of a package that provides the plants with tax incentives and infrastructure. Communities can also develop creative means of spreading risk across broader populations through local insurance cooperatives or through pressures on state governments to enact such policies. Community leaders can broker arrangements between local firms, such as meat processors, and local health care providers for the

purposes of establishing special programs in preventive care. Finally, it is important to recognize how culture affects the perception of health insurance. In particular, newer workers from Mexico may be unfamiliar with health insurance and its benefits.

Organizational barriers are also difficult for new minority populations. Lack of transportation, not knowing where to go for help, inconvenient location of provider, and inconvenient business hours or office hours of the provider all were shown to impede the utilization of health services by Latinos in this survey. Such barriers are less likely to be problematic for long-term residents, but vulnerable populations are less likely to have the support networks to transcend these barriers. For instance, the timing of a pap smear for women in the survey was affected by inconvenient office hours and having to wait too long to be seen. Therefore, it is important to educate health-care providers about these challenges and to encourage them to find ways to accommodate these special circumstances.

In addition to organizational barriers, it was also found that barriers rooted in cultural differences were also critical. Most important, perhaps, was the perception of racism. As we have seen, perceiving racism as a barrier to health has a significant impact on self-reported health status. This barrier is perhaps one more readily addressable by the community health-care system. Rural communities, such as those studied here, must become more aware of the racial environment, which affects all institutions within the community. Racism, perceived or otherwise, is particularly damaging for health care in rural communities, as rural communities already generally have less access. Further limitations to access can be devastating. Health-care providers, working with the available local resources, including schools, should prepare for new population subgroups by securing translation services, perhaps adding part-time help who understand better the family life of the new group, and by working with social service agencies in the community. Diversity programming and education are paramount in fighting racism and also in increasing trust within minority communities of existing institutions. However, programming must begin during negotiations with meat-processing plants. In the case of health-care area, medical providers should begin diversity training, focusing on how to build trust within minority populations and how services can be provided in a culturally sensitive manner. Likewise, a process of education should begin immediately for recruited workers about the availability of health care and the intricacies of the system.

Since many of the barriers to care are ones that can be overcome through strong social networks, one potential strategy for assimilating immigrant

workers into the health services of communities is the use of health advisors. Baker et al. (1997) show that training Latinos within the community to help assist newcomers in dealing with all types of health services is a way to provide culturally appropriate educational and advocacy programming.

Further, all programming should take into consideration the strengths of Latino culture. As Guendelman and Wagner (2000) point out, family is very strong within the Latino community. Financial, diversity, advocacy, or educational programming should incorporate the role of the family. Tapping into families is important for developing deep and strong programming.

The rural industrialization of meat processing will continue to bring Latinos into the Great Plains. Communities have often not been prepared to meet the needs of incoming minority workers. In this article we illuminated some of the barriers to health-care utilization and status and provided a few suggestions to help ameliorate the worst problems. However, there is presently a dearth of understanding and much more expansive and rigorous research is necessary.

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