

**Prevalence of Health Related
Behavioral Risk Factors
Among Non-Metro Minority Adults**



South Carolina

Rural Health Research Center



UNIVERSITY OF
SOUTH CAROLINA

Arnold School of Public Health
Department of Health Administration
Columbia, SC 29208

Prevalence of Health Related Behavioral Risk Factors Among Non-Metro Minority Adults

Authors:

P. Daniel Patterson, MPH
Charity G. Moore, PhD
Janice C. Probst, PhD
Michael E. Samuels, DrPH

August 2003

Funding acknowledgment:

This report was prepared under Grant No. 6 U1C RH 00045-01 with the Federal Office of Rural Health Policy, Health Resources and Services Administration.



Joan Van Nostrand, DPA, Project Officer

Table of Contents

Executive Summary.....	p. 3
Chapter One: Tobacco Use.....	p. 5
Chapter Two: Seat Belt Use.....	p. 10
Chapter Three: Alcohol.....	p. 13
Chapter Four: Conclusions and Recommendations.....	p. 17
Appendix A: Methods and Detailed Tables.....	p. 22
Appendix B: References.....	p. 34

Executive Summary

Educational, clinical and legal interventions aimed at reducing high-risk behaviors may be failing to reach non-metro populations.

Tobacco use

- For all racial / ethnicity groups except African Americans, non-metro rates of current smoking exceed urban rates. In rural areas, the majority of persons of “other” race are American Indians. Nearly a third of rural adult “others” (31%) smoke, followed by 27% of rural whites and 23% of rural Hispanics and African Americans.
- Smokeless tobacco use (snuff and chewing tobacco) is a rural behavior; urban rates of use are extremely low. Within rural populations, smokeless tobacco use is most common among persons of “other” races, particularly American Indians. Snuff and chewing tobacco are used by 8% and 6%, respectively, of rural adult “others,” followed by 4% (snuff) and 3% (chewing tobaccos) among whites, and less than two percent of Hispanics and African Americans.

Seat Belts

- Across all racial / ethnicity groups, both front seat and back seat restraint use is lower among rural than among urban populations. Rates of reported seat belt use are lowest among rural adult “others” and African Americans, and highest among rural Hispanics.

Heavy Drinking

- Reported heavy drinking was highest among non-metro Hispanics and non-metro adult “others,” at 14% of respondents. In these populations, rural rates of heavy drinking were markedly higher than among urban residents. Among African Americans and whites, rural and urban rates of heavy drinking were similar.

Coordinated educational, clinical, and enforcement approaches are needed to reduce high-risk behaviors in non-metro populations. All of these activities fall into the framework of community and clinic based preventive and intervention activities. Two excellent sourcebooks are available and programs based on these materials should be fostered in non-metro areas:

- At the clinical level, the guidelines contained in *Put Prevention into Practice*, the Guide to Clinical Preventive Services developed by the US Preventive Services Task Force, should be widely promoted. These guidelines include recommended screening and counseling regarding tobacco and alcohol use and use of occupant restraints when driving or riding in a vehicle.
- At the community level, the *Guide to Community Preventive Services* developed by the Centers for Disease Control and Prevention should be promoted. Community level intervention strategies for reducing alcohol and tobacco use and increasing the use of occupant restraints are outlined in this document.

To promote healthy lifestyles among non-metro adults, particularly minority adults, the Secretary of the Department of Health and Human Services should adopt the following strategies:

- Provide incentives all non-metro federal Community Health Centers (CHCs) to development and implement clinical and community based interventions to reduce high-risk behaviors.
- Promote linkages among rural communities, rural law enforcement, and rural health care providers to enhance compliance with alcohol, tobacco and seat belt laws.
- Review funding for research and demonstration projects aimed at reducing high-risk behaviors to ensure that appropriate attention is given to the development of effective interventions for rural, minority populations.

Additional research into the correlates of high-risk behavior among rural, minority populations is needed. Policy makers and clinicians need a deeper understanding of the roots of high-risk behaviors and of strategies that can be used to prevent, detect and intervene. Understanding will not be developed without research that develops hypotheses and tests interventions within rural minority populations. Specific examples of areas deserving further research include:

Smoking and smokeless tobacco: Possible sources for rural – urban disparities include less prevention education in rural schools, less enforcement of age restrictions on the purchase of tobacco products, fewer public health resources devoted to prevention and cessation in rural areas, fewer community resources, both institutional and through self-help groups, for smoking cessation in rural areas, and less preventive guidance and counseling by rural health care providers.

Seat belt use: Possible research topics pertaining to seat belt use include both infrastructure and personal characteristics. At the infrastructure level, enforcement of seat belt laws may be lower in rural areas. In addition, driver education programs may not be available through rural schools or may not have sufficient resources to provide services for all rural youth. School-based driver education programs may miss minority youth. Rural health care practitioners may lack the time to screen for safety-related activities and may fail to provide appropriate counseling. At the personal level, factors such as perception of risk, both risk of crash and risk of enforcement, may differ between rural and urban populations. Cooperative research by the CDC and the National Highway Transportation Safety Administration would be particularly valuable.

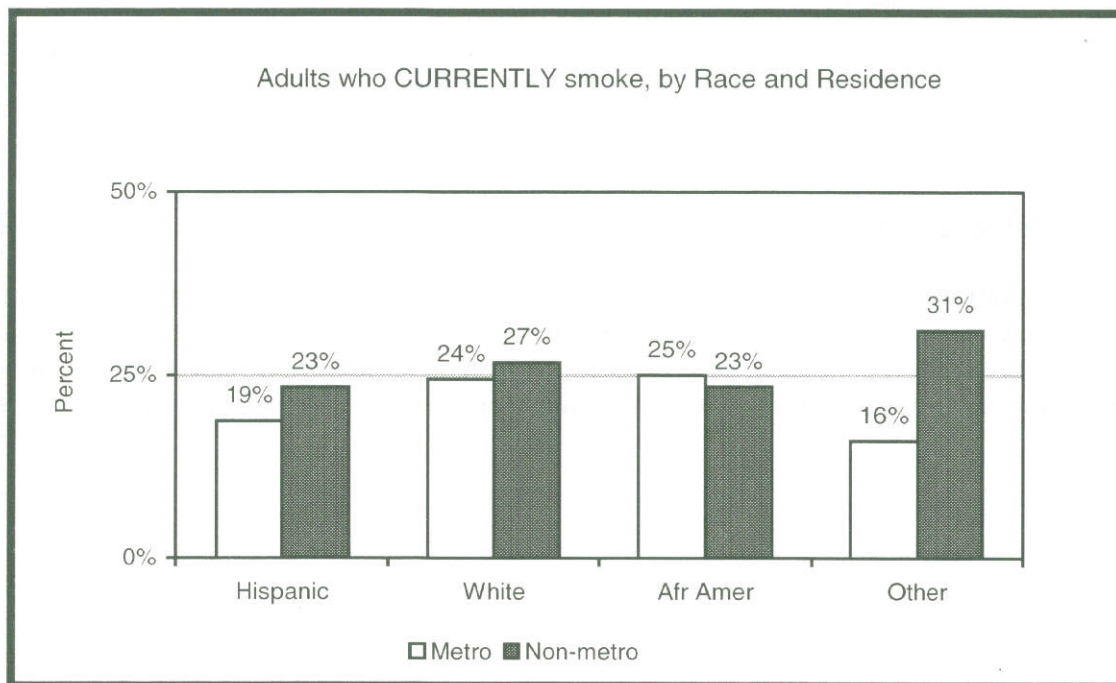
Alcohol use: Excessive rates of inappropriate use of alcohol among non-metro Hispanics and adult “others” may have the same mix of community and personal causes as other high-risk behaviors. Rural enforcement of age restrictions on alcohol purchase and possession may be lower than in urban areas, allowing development of inappropriate drinking patterns. Similarly, rural enforcement of driving while intoxicated laws may be lower. Rural practitioners may have less time to screen for high-risk alcohol consumption and fewer community resources to which to refer identified patients. Further research is needed to identify prevention, detection and intervention activities that are effective among rural, minority populations.

Chapter One

Tobacco Use

Smoking

For all groups except African Americans, non-metro rates of current smoking exceed urban rates. Educational interventions may be failing to reach non-metro populations, particularly Hispanics and adult “others,” principally American Indian.



Just under a quarter of all adults in the US (24.2%, or 47.3 million persons) were current smokers in 1998. This is a promising decrease from the 25.5% (an estimated 48 million persons) who were current smokers from 1993-1994 (“Cigarette Smoking Among Adults,” 1996). Of those persons who classified themselves as current smokers, nearly all smoke every day (19.9%, or 38.8 million persons), while a minority report smoking “some” days in a week (4.3%, or 8.3 million persons; Table 1B).

Smoking Among African Americans

Nearly one in every four adult African Americans (24.8%, or 5.4 million persons) currently smokes. Smoking is more common among metropolitan African Americans than non-metro African Americans (25% metropolitan, versus 23.4% non-metro; Table 1B).

Smoking Among Hispanics

About one in five Hispanic adults (19.1%, or 3.8 million persons) currently smoke. Rates of smoking are higher among non-metro Hispanics (23.3%) than among urban Hispanics (18.7%; Table 1B).

Smoking Among Persons of "Other" Races¹

Fewer than 18% (17.8%) of all adult "others" currently smoke. Rural / urban disparities are marked: 31.1% of non-metro adult "others" currently smoke, versus 16% among metropolitan residents (Table 1B).

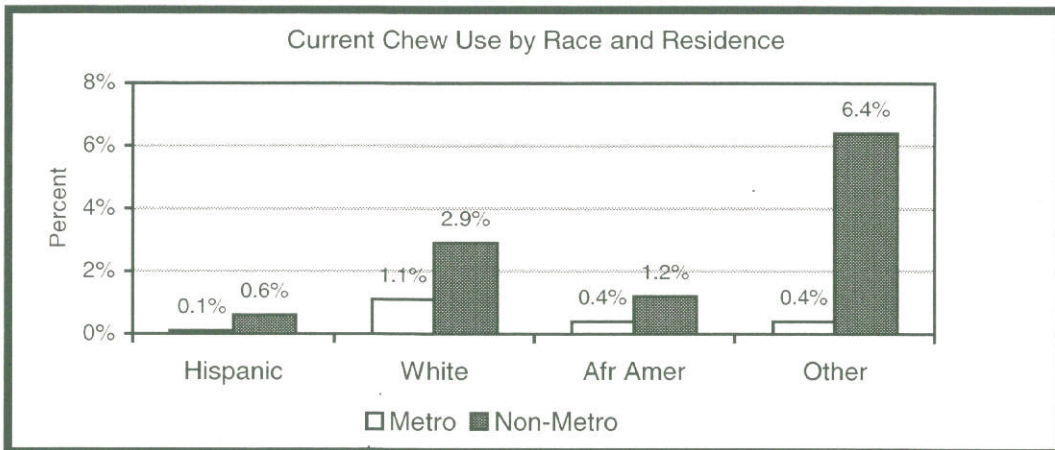
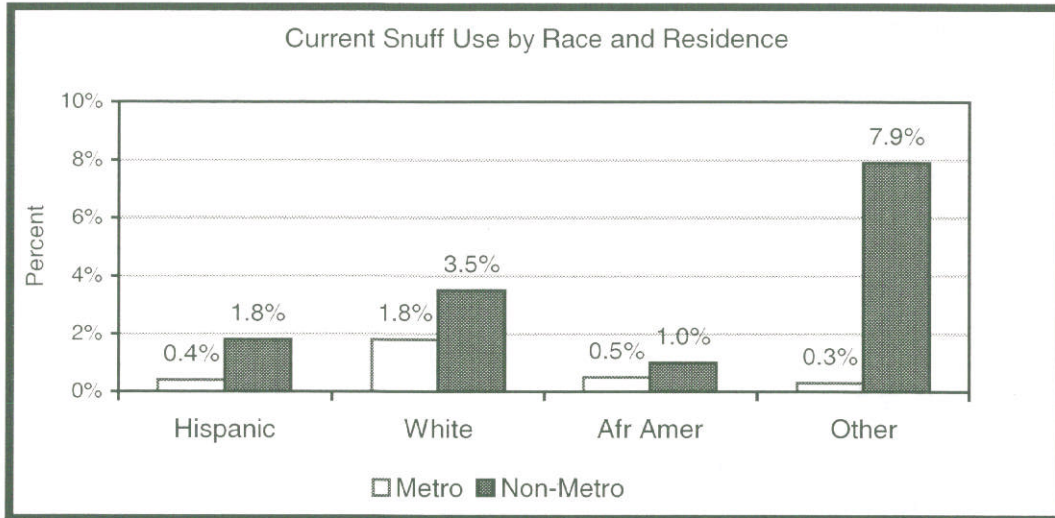
Smoking Among Whites

One-quarter of all adult whites (25% or 36.7 million persons; Table 1B) currently smoke. The percentage of adult whites that currently smoke is largest when compared to all other racial groups, but only slightly (see table 1B). A larger percentage of non-metro adult whites currently smoke compared to metropolitan adult whites (non-metro = 26.7%, versus metropolitan 24.4%; Table 1B).

¹ See Appendix A; Table 5A for a detailed description of the categories defined as "Other" race.

Smokeless Tobacco

Smokeless tobacco use is a rural behavior, most common among adult “others,” particularly American Indians. Educational campaigns need to target rural audiences.



Smokeless tobacco use, as the graphs above illustrate, is a rural behavior. Earlier research found that use was associated with American Indian descent, residing in the South, low socio-economic status, and rural residence (*“Use of Smokeless Tobacco Among Adults,”* 1993). According to the CDC, the prevalence of smokeless tobacco use is highest among males in predominantly rural states: Mississippi (11.1%), Montana (11.9%), Wyoming (13.5%), and West Virginia (15.6%) (*“Current Smokeless Tobacco Use,”* 2000).

Smokeless Tobacco Among African Americans

Nearly 2% of African American adults (1.9%) have tried snuff tobacco.² A larger percentage of non-metro African American adults have tried snuff tobacco (non-metro = 3.1%; metro = 1.7%; Table 2A). About half of persons who tried snuff tobacco continue to use it. Fewer than 1% of all adult African Americans reported currently using snuff (0.6%). Like previous use, current use was more common in non-metro areas (non-metro = 1%; metropolitan = 0.5%; Table 2C).

A somewhat larger percentage of African American adults (2.6%) have tried chewing tobacco. A history of chewing tobacco use is more common among non-metro African American adults (non-metro = 3.4%, metro = 2.5%; Tables 2B). Less than 1% of all adult African Americans report current use of chewing tobacco (0.5%). Similar to snuff, current use of chewing tobacco is more common in rural African Americans (non-metro = 1.2%, metropolitan = 0.4%; Table 2D).

Smokeless Tobacco Among Hispanics

Nearly 2% of Hispanic adults report having tried snuff (1.9%). A higher percentage of non-metro adult Hispanics have tried snuff than metropolitan adult Hispanics (non-metro = 3%, metro = 1.8%; Table 2A). Less than 1% of all adult Hispanics report currently using snuff smokeless tobacco (0.5%). Current use is more common among non-metro adult Hispanics (non-metro = 1.8%; metro = 0.4%; Table 2C).

The proportion of Hispanics who have tried chewing tobacco parallels use of snuff tobacco (1.9%). A larger percentage of non-metro Hispanic adults have tried chewing tobacco (non-metro = 3.4%, metro = 1.8%; Table 2B). Current chewing tobacco use was uncommon, reported by less than 1% of all adult Hispanics (0.2%). Rates of use were higher among non-metro adults (0.6%) than among metropolitan residents (0.1%; Table 2D).

Smokeless Tobacco Among Persons of "Other" Races

Just over 3% of adult "others" have tried snuff (3.3%). Trial use of snuff was strikingly more common among non-metro adult "others" than among urban residents (non-metro = 16.1%, metro = 1.3%; Table 2A). Fewer than 2% of all adult "others" report currently using snuff (1.3%). Current snuff use among adult "others" is overwhelmingly a rural problem (non-metro = 7.9%; metro = 0.3%; Table 2C).

Fewer than 3% of adult "others" have tried chewing tobacco (2.9%). Like snuff, a history of chewing tobacco use was more common among non-metro than metropolitan adult "others" (non-metro = 13.1%, metro = 1.3%; Table 2B). Current chewing tobacco use among

² "Tried" is defined as having used a product 20 or more times during a lifetime.

adult “others,” as was the case with snuff, is largely rural (non-metro = 6.4%; metropolitan = 0.4%; Table 2D).

Smokeless Tobacco Use Among Whites

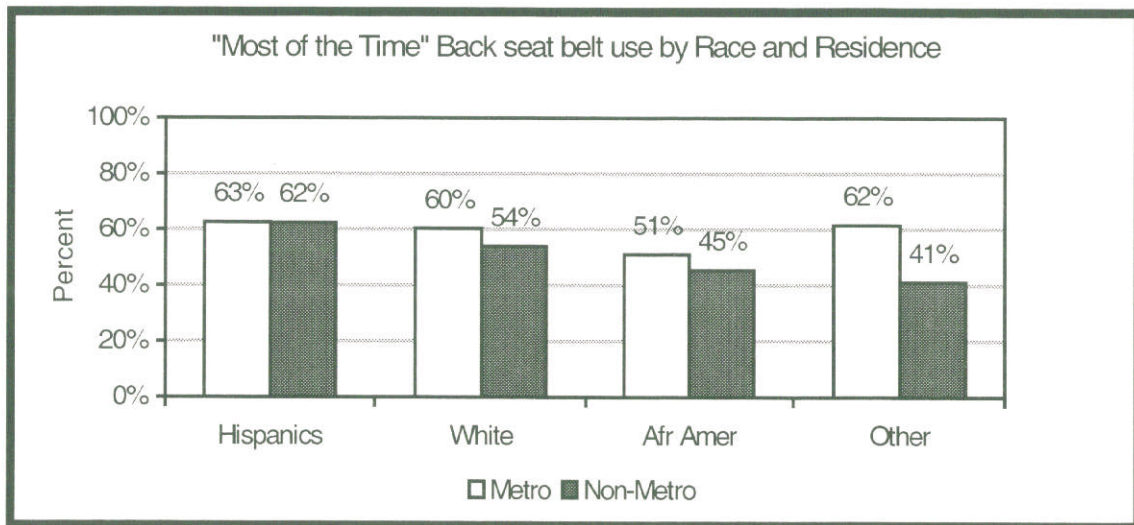
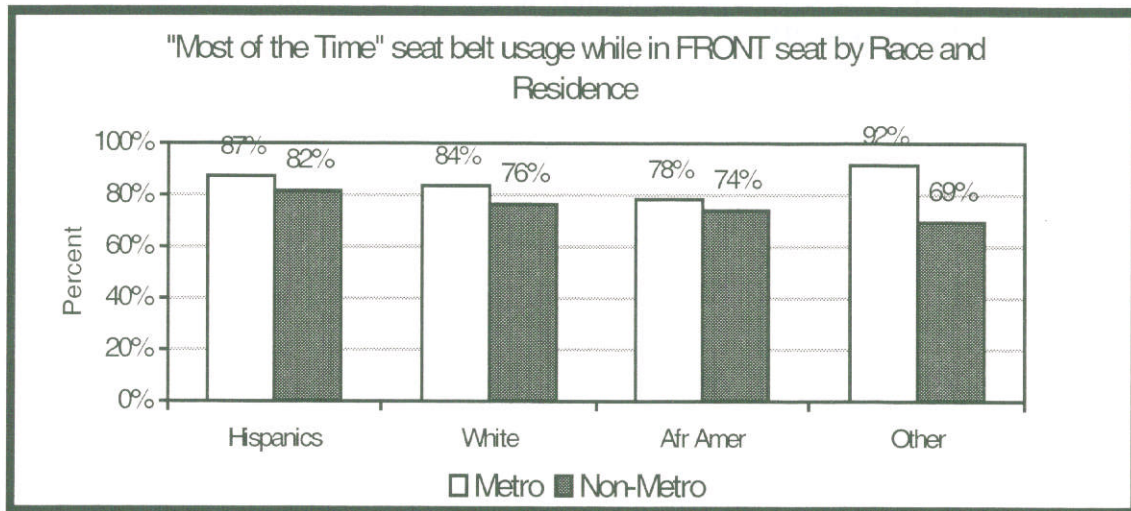
Six percent of all white adults have tried snuff tobacco (6%). A history of use was more common among non-metro than among urban adults (non-metro = 8.6%, metro = 5.1%; Table 2A). Just over 2% of adult whites report current use of snuff (2.2%). As was the case among minority racial / ethnic groups, current use of snuff among whites was more common among rural than urban residents (non-metro = 3.5%, metro = 1.8%; Table 2C).

The proportion of white adults who have tried chewing tobacco is similar to that for snuff (6.3%). A larger percentage of non-metro white adults have tried chewing tobacco (non-metro = 9.5%, metro = 5.3%; Table 2B). Fewer than 2% of all adult whites currently use of chewing tobacco (1.5%). Again, use was more common in non-metro areas (non-metro = 2.9%, metropolitan = 1.1%; Tables 2D).

Chapter Two

Seat Belt Use

Seat belt use is consistently lower among non-metro population and non-metro residents of "other" races in particular. Interventions are needed to increase seat belt use in rural areas.



Seat Belt Use Among African Americans

Three quarters of all adult African Americans report that they wear their front seat belt all or most of the time (77.7%, or 16.4 million persons; Table 3A). Seat belt use while in the front seat was lower among non-metro African American adults (non-metro = 74%; metropolitan = 78.4%). Back seat restraint use was considerably lower than front seat use, with only half of all African Americans reporting using seat belts (50.1%; Table 3B). Back seat restraint use was lower among non-metro adult African Americans (45.4%) than among their urban peers (51%). In addition, a greater percentage of adult African Americans than persons of other racial / ethnic groups report that they “never” use their seat belt while riding in the back seat (non-metro = 24.9%, metropolitan = 25.3%; Table 3B).

Seat Belt Use Among Hispanics

Four out of every five adult Hispanic (86.7%, or 16.5 million persons; Table 3A) reported wearing a seat belt “most of the time” when riding in the front seat. Reported use was lower among rural Hispanics (non-metro = 81.6%, metropolitan = 87.3%). Rear seat restraint use, compared to front restraint use, was less common among both urban and rural Hispanic residents. Less than three quarters of all metropolitan adult Hispanics (62.6%) reported using a seat belt “most of the time” while in the back seat, and nearly 20% of metropolitan and non-metro adult Hispanics report “never” using a back seat restraint (Table 3B). Back seat restraint use was slightly lower among non-metro adult Hispanics (62.3% “most of the time” use), but still higher than among other non-metro minority populations.

Seat Belt Use Among Persons of “Other” Races

According to the Centers for Disease Control and Prevention, motor vehicle injuries are the leading cause of death for American Indians and Alaskan Natives between the ages of 1-44 (“*National Vital Statistics Reports*,” 2001). Reported front seat restraint use was markedly lower among non-metro adult “others” (69.4%), over half of who are American Indian (See Appendix A & Table 5A). Non-metro adult “others” were less likely to report using a front seat restraint use “most of the time” than were adults of any other racial/ethnic group (Table 3A). Back seat restraint use was similarly low. Only 41% of non-metro adult “others” reported frequently using a seat belt when riding in the back seat of a vehicle; this proportion was the lowest among any racial/ethnic group (Table 3B).

Seat Belt Use Among Whites

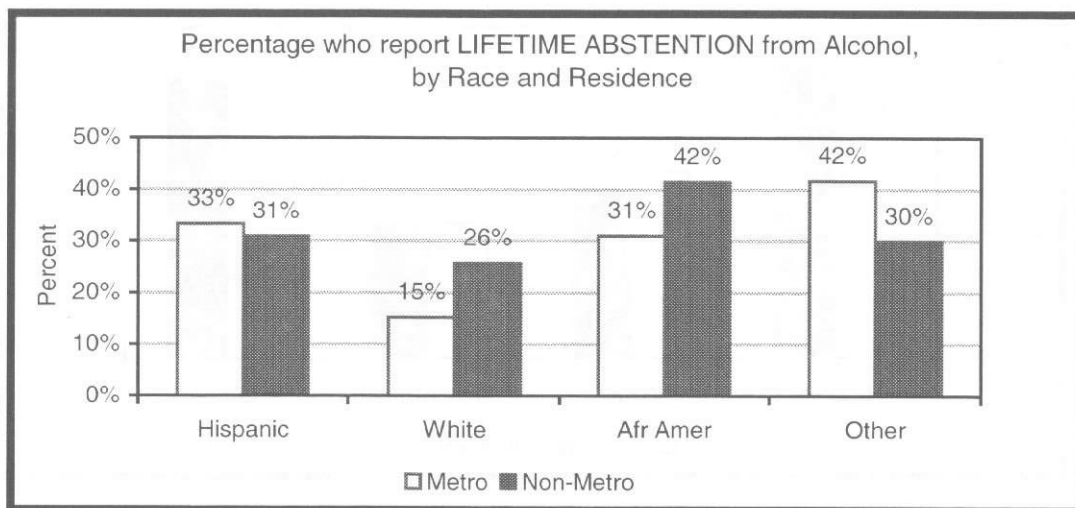
Over 80% of all adult whites wear their seat belt “most of the time” while riding in the front seat (81.8%, or 118.6 million persons; Table 3A). White residents in metropolitan areas were more likely to report front seat belt use “most of the time” than were non-metro adult whites (metropolitan = 83.6%, non-metro = 76.4%).

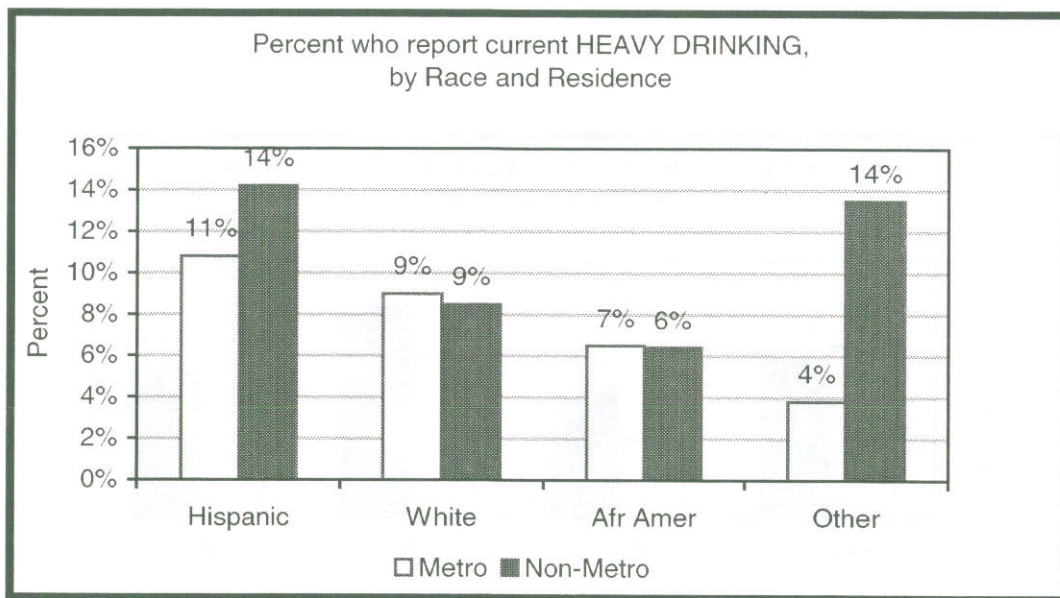
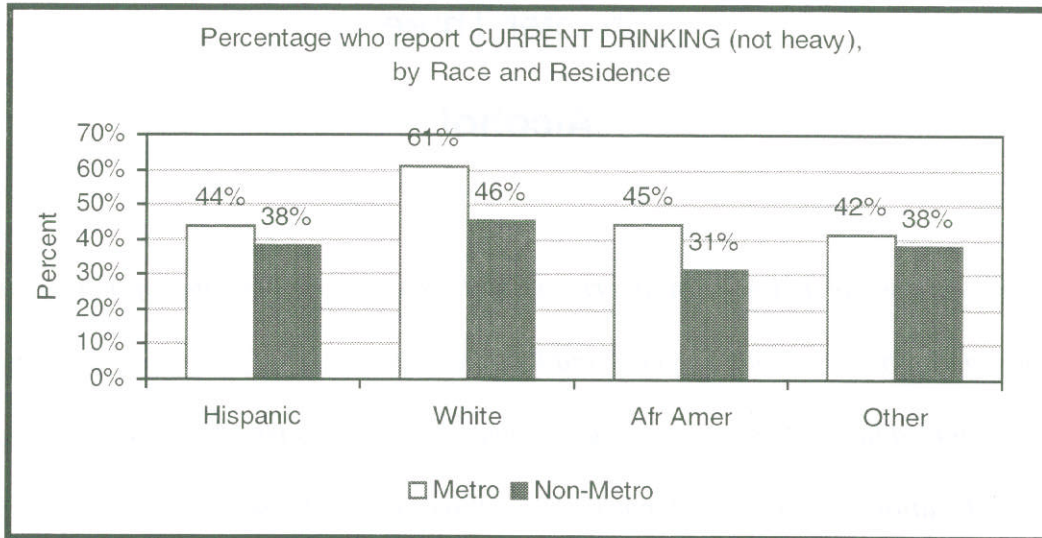
Slightly more than half of all adult whites (58.7%) reported using a seat belt “most of the time” while riding in the back seat (Table 3B). Restraint use while in the back seat was reported more often by metropolitan adult whites, versus non-metro (metropolitan = 60.2%, non-metro = 53.9%). Conversely, non-metro adult whites were more likely to report never using a seat belt while in the rear seat (non-metro = 23.1%, metropolitan = 18.8%).

Chapter Three

Alcohol

Non-metro white and African American adults reported higher rates of lifetime and current abstinence than their urban peers and had the lowest rates of potentially abusive drinking. Reported heavy drinking was highest among non-metro Hispanics, followed by adult “others.” Education, screening and intervention efforts among Hispanics and adult “others” need to be improved.





The research presented in this chapter explores alcohol use at three levels: *abstention*, or no use of alcohol; *current drinking*, the consumption of 12 or more drinks in past year; and *heavy drinking*, defined as five drinks on a single day at least once a month for adults.

Alcohol Use Among African Americans

One-third of all adult African Americans report lifetime alcohol abstention (32.5%, or 6.9 million persons; Table 4A), and an additional 18.4% report having consumed no alcohol during

the past year. A larger percentage of non-metro adult African Americans report both lifetime and current alcohol abstinence than do urban adults (non-metro = 41.5% lifetime, 20.7% current; metropolitan = 31% lifetime, 17.9% current). Conversely, a larger percentage of metropolitan adult African Americans report being current (not heavy) drinkers than do non-metro residents (metropolitan = 44.6%; non-metro = 31.4%).

Just over 6% of all adult African Americans report heavy alcohol use (6.5%, or 1.3 million persons). The proportion of African Americans who report heavy drinking does not differ by residence (metropolitan = 6.5%; non-metro = 6.4%).

Alcohol Use Among Hispanics

About a third of all adult Hispanics report lifetime abstinence from alcohol, with an additional 16% reporting that they do not currently consume alcohol (lifetime abstinence = 33%, or 6.5 million persons; current 12.4%, or 2.3 million persons; Table 4A). A slightly larger percentage of metropolitan adult Hispanics report lifetime abstinence (metropolitan lifetime = 33.3%; non-metro = 30.9%; Table 4A), but current abstinence is more common among non-metro Hispanics (metropolitan current abstinence = 11.8%; non-metro current abstinence = 17%; Table 4A).

Among Hispanics who consume alcohol, metropolitan residents are more likely to be light to moderate consumers (metropolitan = 44.1%; non-metro = 37.9; Table 4A). The prevalence of heavy drinking is higher among non-metro Hispanics (non-metro = 14.2%; metropolitan = 10.8%; Table 4A).

Alcohol Use Among Adults of "Other" Races

Two of every five adult "others" report being lifetime abstainers from alcohol and an additional 13.7% report consuming no alcohol during the past year (lifetime abstinence = 40.2%, or 3 million persons; current abstinence = 13.5% or 1 million persons; Table 4A). Lifetime abstinence was more common among urban residents (metropolitan = 41.7%, non-metro = 29.9%); while current abstinence was reported more often by non-metro residents (metropolitan = 13%, non-metro = 18.4%).

Just over 40% of all adult "others" report current light to moderate consumption of alcohol (40.2%, or 3 million persons). Light to moderate consumption of alcohol was slightly higher among urban residents (metropolitan = 41.5%, non-metro = 38.2%).

Heavy drinking was reported by one in twenty "other" adults (5.1%, or 384,520 persons). Heavy drinking was significantly more common among rural residents (non-metro = 13.5%; metropolitan = 3.8%).

Alcohol Use Among Whites

Less than two of every ten adult whites report lifetime abstention from alcohol, while 16% report not having consumed alcohol during the past year (lifetime abstention = 17.8%, or 25.8 million persons; current abstention = 16.2% or 23.4 million persons; Table 4A). As was the case among African Americans, both lifetime and current abstention were more commonly reported by non-metro adult whites (metropolitan lifetime = 15.2%, current = 14.9%; non-metro lifetime = 25.7%, current = 20.2%).

Just over half of all white adults report light to moderate alcohol consumption (57.2%, or 83.2 million persons). Light to moderate alcohol consumption was more common among metropolitan white residents (metropolitan = 60.9%, non-metro = 45.6%).

Rates of heavy drinking were similar across metropolitan and rural adult white populations (metropolitan = 9%; non-metro = 8.5%).

Chapter 4

Conclusions and Recommendations

Tobacco Use

Healthy People 2010 (HP 2010) call for reducing smoking among adults (18 years of age and older) to no more than 12% (*objective 27-1A*). Rural America is far from meeting this objective. Nearly one-quarter (24.2%) of all Americans currently smoke. In non-metro areas, nearly a third (31%) of adult “others,” principally American Indians, were smokers in 1998. Rates were slightly lower for whites (27%) and African Americans and Hispanics (both 23%). With the exception of African Americans, smoking rates are higher for each racial / ethnic group in non-metro areas than in urban areas.

Smokeless tobacco, the generic term for snuff and chewing tobacco, has addictive properties similar to those of cigarettes. Smokeless tobacco can cause bleeding gums and sores in the mouth. Additional health consequences of smokeless tobacco use include halitosis, leukoplakia, and oral cancer (“*Preventing Tobacco Use Among Young*,” 1994). Some early indicators of such disease development include soft tissue lesions within the mouth. Thus, the high prevalence of smokeless tobacco use among rural populations represents a significant health risk.

The highest prevalence of any form of smokeless tobacco use in urban populations was 1.8% for snuff use among whites. In contrast, the prevalence of snuff use among non-metro “other” adult residents, the majority of whom are American Indian / Alaska Native, was 7.9% and the prevalence of chewing tobacco use was 6.4%. While the prevalence of use was lower among non-“other” racial groups, use was consistently higher for rural than for urban residents.

Research Recommendations

Further research is needed into the high prevalence of smokeless tobacco use in non-metro areas. Paralleling smoking tobacco, possible sources for rural – urban disparities in smokeless tobacco use include less prevention education in rural schools, fewer public health resources devoted to prevention and cessation in rural areas, fewer community resources, both institutional and through self-help groups, for smoking cessation in rural areas, and less preventive guidance and counseling by rural health care providers. Each of these potential sources deserves further investigation.

Link to Rural Healthy People 2010

Although rural areas experience higher smoking prevalence rates, the feasibility of implementing intervention campaigns and programs in rural areas can vary (*Gamm et al, 2003*). Some models of practice identified by Rural Healthy People 2010 include:

- The Stickers-Suckers-Smokers Pregnancy Tobacco Cessation Program located in Mesa County, Colorado. The program targets tobacco use among pregnant women, and specifically addresses HP 2010 objective 27. Additional information can be obtained from: Janice Ferguson (970)-244-7890.
- The Tobacco Intervention and Prevention Strategy Program located in Prosperity, South Carolina. The program targets tobacco use, and specifically addresses HP 2010 objective 27. Additional information can be obtained from: Renee Martin (803)-364-1011 ext. 197.
- The Too Smart to Smoke Tobacco Prevention Campaign Program located in Newport, Vermont. The program targets tobacco use, and specifically addresses HP 2010 objective 27. Additional information can be obtained from: <http://www.nchsi.org>

Seat Belt Use

Seat belts saved over 11,000 American lives in 2000 (*“Seat Belts & Hispanics,” 2001*). However, during that same year, over half of the people killed in passenger cars, light trucks, and large trucks were unrestrained (*“Motor Vehicle Traffic Crash,” 2001*). Although the national average rates of restraint use have been rising steadily for some time, different regions of the country are not uniform. Unintentional injuries (motor vehicle crashes included) are the leading cause of death for Hispanics from 1-44 years of age, and are the third leading cause of death for Hispanics of all ages, surpassed only by heart disease and cancer (*“Leading Causes of Death,” 2001*).

The high self-reported rates of front seat occupant restraint use found in this research parallel, at a slightly higher level, those obtained by observational studies. The National Occupant Protection Use Survey, conducted across 4,000 road segments throughout the country at approximately the same time as the 1998 NHIS, found that over two thirds of all Americans (68.9%) use their driver and passenger front seat belts for all types of cars (*“The National Occupant Protection Use Survey,” 1999*). However, for every seating position and every racial/ethnic group, reported seat belt use was lower among rural populations than among their urban counterparts.

Non-metro resident adults of “other” races were least likely to report using seat belts. Three of every ten rural vehicle occupants of “other” races fail to use an occupant restraint when riding in the front seat, and six of every ten do not use restraints when sitting in the back seat. Rural African Americans reported the next highest levels of riding without seat belts, 26% when using the front seat and 65% when using the back seat. Hispanics, both urban and rural, reported the highest levels of occupant restraint use.

Although the national rate of seat belt use has been rising steadily for some time, different regions of the country are not uniform and have varying rates of seat belt usage. Disparities across states may be due to the lack of enforcement by certain states (*“The National Occupant Protection Use Survey,” 1999*).

Research Recommendations

The Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control, of the Centers for Disease Control and Prevention (CDC) funded cooperative agreements demonstrating potential seat belt promotion activities in 1996. However, these agreements involved only four states, Maryland, Massachusetts, Missouri and New Mexico, only one program (New Mexico) had a rural focus, and all programs emphasized teens and/or children. Further research into rural – urban and minority – white disparities in seat belt use is needed to prevent avoidable injury and death. The CDC and National Highway Traffic Safety Administration (NHTSA) should pursue such research cooperatively.

Possible research areas include both infrastructure and personal characteristics. At the infrastructure level, enforcement of seat belt laws may be lower in rural areas, due to both lower traffic levels, which would make routine surveillance disproportionately expensive, and lower ratios of law enforcement personnel per miles of local roadway. In addition, driver education programs available through rural schools or may not have sufficient resources to provide services for all rural youth. School-based driver education programs may miss minority youth. Rural health care practitioners may lack the time to screen for safety-related activities and may fail to provide appropriate counseling. At the personal level, factors such as perception of risk, both risk of crash and risk of enforcement, may differ between rural and urban populations.

Excessive Alcohol Use

Among Hispanics and persons of “other” races, the prevalence of heavy drinking, which may be associated with alcohol abuse, was higher among rural residents than among urban residents. This high-risk population may not be adequately addressed by prevention and treatment activities.

An extensive variety of interventions have been employed to prevent or reduce harmful alcohol consumption among youth and adult populations, including community based health promotion (*Cheadle, et al, 1995*), school based family interventions (*Spoth et al, 2002*), brief physician counseling during routine visits (*Fleming et al, 2002; Manwell et al, 2000*) or athletic physicals (*Werch et al, 2000*). Recommending a specific approach is beyond the scope of this study, which is limited to assessing the size of the problem among rural minority populations. Nor would any specific intervention or treatment methodology be applicable across the entire range of rural, minority communities. The principal policy recommendation is that rural communities, and particularly rural, minority communities, not be overlooked when planning interventions for alcohol abuse.

Research Recommendations

The Secretary of DHSS should insure that adequate resources are devoted to research and demonstration projects addressing the prevention, detection and treatment of alcoholism and alcohol abuse in rural, minority populations.

Excessive rates of inappropriate use of alcohol among non-metro Hispanics and adults of “other” races may have the same mix of community and personal causes as other high-risk

behaviors. Rural enforcement of age restrictions on alcohol purchase and possession may be lower than in rural areas, promoting early development of inappropriate drinking patterns. Similarly, rural enforcement of driving while intoxicated laws may be lower. Rural practitioners may have less time to screen for high-risk alcohol consumption and fewer community resources to which to refer identified patients. Further research is needed to identify prevention, detection and intervention methods that are effective in rural populations.

Link to Rural Healthy People 2010

Because of the lack of access to traditional substance abuse treatment programs in rural areas, alternative methods of providing education and counseling are important solutions for rural communities. Rural Healthy People 2010 recommends primary care clinicians play a role in the education process, providing brief counseling and recognizing the unique barriers to prevention and treatment in rural areas. Some models for practice identified by Rural Healthy People 2010 include:

- The Community Family Services Program located in Sitka, Alaska. The program targets substance abuse and mental health, addressing HP 2010 objective 18. Additional information can be obtained from: <http://www.searhc.org>
- The Project Forward, a Program of the Center for Community Outreach, Marshfield Clinic located in Marshfield, Wisconsin. The program targets substance abuse, specifically addressing HP 2010 objectives 26-6, 26-9, 26-10, 26-10b, 26-10c, 26-11, 26-15, 26-16, 26-17, 26-23.
- The Project Northland Program located in Center City, Minnesota. The program targets substance abuse and other substances of abuse, specifically addressing HP 2010 objective 26. Additional information can be obtained from: <http://hazelden.org>

Summary

Policy action to reduce high-risk behaviors among non-metro minority populations

Tobacco use, failure to use seat belts, and excessive alcohol use all can all be categorized as high-risk behaviors. Coordinated educational, clinical, and enforcement approaches are needed to reduce high-risk behaviors in non-metro populations. All of these activities fall into the framework of community and clinic based preventive and intervention activities. Three excellent sourcebooks are available and programs based on these materials should be fostered in non-metro areas.

At the clinical level, the guidelines contained in *Put Prevention into Practice*, the Guide to Clinical Preventive Services developed by the US Preventive Services Task Force, should be widely promoted. These guidelines include recommended screening and counseling regarding tobacco and alcohol use and use of occupant restraints when driving or riding in a vehicle.

At the community level, activities outlined in the *Guide to Community Preventive Services* developed by the Centers for Disease Control and Prevention should be promoted. Community level intervention strategies for reducing alcohol and tobacco use and increasing the use of occupant restraints are outlined in this document. The National Highway Traffic Safety

Administration (NHTSA) guidebook, *Achieving a High Belt Use Rate: A Guide to Selective Traffic Enforcement Programs*, suggests community methods for implementing an enforcement-based strategy. Enforcement-based strategies are a necessary complement to longer-term strategies, such as improved driver education or graduated licensing, which principally affect younger drivers.

The following strategies are recommended to the Secretary, Department of Health and Human Services, for improving community and clinical interventions regarding high-risk behaviors:

- Provide incentives all non-metro federal Community Health Centers (CHCs) to development and implement clinical and community based interventions to reduce high-risk behaviors.
- Promote linkages among rural communities, rural law enforcement, and rural health care providers to enhance compliance with alcohol, tobacco and seat belt laws.
- Review funding for research and demonstration projects aimed at reducing high-risk behaviors to ensure that appropriate attention is given to the development of effective interventions for rural, minority populations.

APPENDIX A

Methods and Detailed Tables

Data Source

Data from this report come from 1998 National Health Interview Survey (NHIS). The 1998 NHIS is a multipurpose health survey conducted by the National Center for Health Statistics (NCHS), and the Centers of Disease Control and Prevention (CDC). The NHIS is the principal source of information on the health of the civilian, non-institutionalized, household population of the United States (*"NHIS Survey Description," 2000*). The survey has been conducted since 1957 on a continual basis and at the end of every year results are released for public and professional alike to examine and analyze.

The survey is actually made up of a series of smaller surveys. When an interviewer enters a household they administer designed questionnaires based on the makeup of the household. Questions are designed to retrieve essential information related to a household's, person's and child's demographic information (i.e., age, sex, ethnicity), health status (i.e., health problems), behavioral patterns (i.e., exercise, smoking), health services (i.e., insurance coverage) and other.

The NHIS survey randomly selects one adult and one child, if the household does in fact have these characteristics, and information is collected then weighted which will act as a representation of the entire nation. As mentioned previously, the NHIS is made up of distinct core questionnaires. These questionnaires are so designed to answer basic health status, health services, and behavioral issues. Every so often the NHIS adds Topical Modules, which allow for a more in-depth examination of certain populations (i.e., pregnant adults, and children). During the administering of the 1998 NHIS, interviewers used an Adult Prevention Module, a Child Prevention Module and a Pregnancy and Smoking section for those who were eligible. This addition of more in-depth questionnaires helped to answer important questions related to the behaviors of Adults as they related to health.

The interviewed sample for the 1998 NHIS consisted of 38,209 households, which yielded 98,785 persons in 38,773 families (*"NHIS Survey Description," 2000*). For the purposes of this report we concentrated on the adults sampled in the survey. According to the NHIS documentation, the total number of adults sampled reached 32,440 persons 18 years of age and older. The response rate for the Sample Adult component of the survey was 83.8% (*"NHIS Survey Description," 2000*).

However, the overall response rate for the Adult Sample Component was calculated to be (Overall Family Response Rate)(Sample Adult Response Rate) $(88.2\%)(83.8\%) = 73.9\%$ (*"NHIS Survey Description," 2000*). The response rate is a fairly good indication that the majority of those sampled did in fact complete their responses. This good response rate also ensures that an excellent representation of the American public can be obtained and permit the generalization of the responses to the American public.

From the Sample Adult Core survey and the Adult Prevention Core Module, any behavioral risk factor data related to tobacco use, seat belt use, and alcohol consumption were pulled and analyzed.

In order to identify any significant trends in different ethnic groups, the data was stratified by race (Hispanic, African American, White, and Other), as well as by urban and rural status. Once all data were stratified by the outlined criteria, several areas of interest either did not offer enough responses to a particular question, or the question within the survey itself did not permit the making of important inferences. The ability to generalize the findings of this data to the general public, more specifically to the urban and rural ethnic groups of study was of the utmost importance; therefore, special attention was paid to the variables and questions in the survey.

When interpreting results one should take into account the diversity of "other" races geographically. More than half of rural adult "others" are American Indian, while less than 10% are urban (non-metro = 56.8%, 562,126 persons; metropolitan = 8.5%, 561,661 persons; Table 7A). The greater majority of urban adult "others" are of Asian descent, with nearly 4 out of every 10 representing Asian Pacific Islanders (API) (metropolitan API = 38.5%, 2.5 million persons; Table 5A).

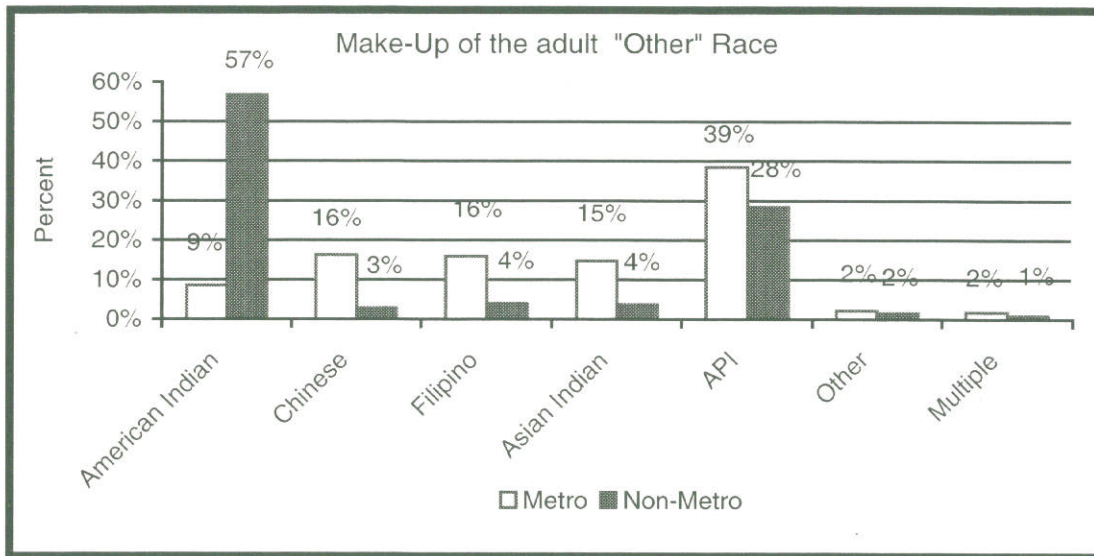


TABLE 1A: Prevalence of Smoking Tobacco by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Ever smoked \geq 100 cigarettes in entire life?	Total	Hispanic	White	African American	Other
Un-weighted	32,167	5,141	21,685	4,276	1,065
Weighted	195,796,939	19,830,633	146,679,220	21,760,660	7,526,426
Yes	47.0	35.1	50.6	38.9	32.1
No	53.0	64.9	49.4	61.1	67.9
	Metro	Metro	Metro	Metro	Metro
Ever smoked \geq 100 cigarettes in entire life?	Total	Hispanic	White	African American	Other
Un-weighted	25,728	4,586	16,533	3,688	921
Weighted	153,948,897	17,863,348	110,972,601	18,577,222	6,535,726
Yes	46.4	35.0	50.5	38.7	30.0
No	53.6	65.0	49.5	60.0	70.0
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Ever smoked \geq 100 cigarettes in entire life?	Total	Hispanic	White	African American	Other
Un-weighted	6,439	555	5,152	588	144
Weighted	41,848,042	1,967,285	35,706,619	3,183,438	990,700
Yes	49.2	36.0	51.0	37.1	46.0
No	50.8	64.0	49.0	62.9	54.0

*Note: Variable SMKEV (Sample Adult Questionnaire); Weighted = wfa_sa

*Original Sample size n=32,440, weighted=197,303,607. Less than 1% of total response were missing and were excluded from analyses.

Sample Adult variable "SMKSTAT2" Smoking Status: Recode 1.

*Italicized percentages indicate that sample size numbers are below 30.

TABLE 1B: Prevalence of Smoking Tobacco by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Smoking Status	Total	Hispanic	White	African American	Other
Un-weighted	32,155	5,140	21,677	4,273	1,065
Weighted	195,744,319	19,826,377	146,643,474	21,748,042	7,526,426
Current Everyday	19.9	13.2	21.2	19.4	13.7
Current Some days	4.3	5.9	3.8	5.4	4.4
Former	22.8	16.0	25.6	14.1	14.1
Never	53.0	64.9	49.4	61.1	67.8
	Metro	Metro	Metro	Metro	Metro
Smoking Status	Total	Hispanic	White	African American	Other
Un-weighted	25,718	4,585	16,525	3,687	921
Weighted	153,905,957	17,859,092	110,936,855	18,574,284	6,535,726
Current Everyday	19.1	12.7	20.4	19.3	12.1
Current Some days	4.4	6.0	4.0	5.7	3.9
Former	22.9	16.3	26.0	14.2	14.0
Never	53.6	65.0	49.6	60.8	70.0
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Smoking Status	Total	Hispanic	White	African American	Other
Un-weighted	6,437	555	5,152	586	144
Weighted	41,838,362	1,967,285	35,706,619	3,173,758	990,700
Current Everyday	22.8	17.6	23.4	19.4	23.8
Current Some days	3.6	5.7	3.3	4.0	7.3
Former	22.8	12.8	24.4	13.5	14.9
Never	50.8	63.9	48.9	63.1	54.0

*Note: Variable SMKSTAT2 (Sample Adult Questionnaire); Weighted = wtfa_sa

*Original Sample size n=32,440, weighted=197,303,607. Less than 2% of total response were missing and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30.

TABLE 2A: Prevalence of Smokeless Tobacco Use by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Ever used Snuff at least 20 times?	Total	Hispanic	White	African American	Other
Un-weighted	31,856	5,086	21,510	4,216	1,044
Weighted	194,076,902	19,587,212	145,591,967	21,472,367	7,425,356
Yes	5.0	1.9	6.0	1.9	3.3
No	95.0	98.1	94.0	98.1	96.8
	Metro	Metro	Metro	Metro	Metro
Ever used Snuff at least 20 times?	Total	Hispanic	White	African American	Other
Un-weighted	25,449	4,534	16,383	3,632	900
Weighted	152,420,996	17,681,822	109,997,478	18,307,040	6,434,656
Yes	4.2	1.8	5.1	1.7	1.3
No	95.8	98.2	94.9	98.3	98.7
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Ever used Snuff at least 20 times?	Total	Hispanic	White	African American	Other
Un-weighted	6,407	552	5,127	584	144
Weighted	41,655,906	1,905,390	35,594,489	3,165,327	990,700
Yes	8.1	3.0	8.6	3.1	16.1
No	91.9	97.0	91.4	96.9	83.9

*Note: Variable SNUFF20 (Sample Adult Prevention Module); Weighted = wtfa_ap

*Original Sample size n=32,440, weighted=197,303,607. Less than 2% of total response were missing and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30.

TABLE 2B: Prevalence of Smokeless Tobacco Use by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Ever used Chew tobacco at least 20 times?	Total	Hispanic	White	African American	Other
Un-weighted	31,862	5,088	21,510	4,219	1,045
Weighted	194,091,542	19,594,164	145,584,581	21,484,771	7,428,026
Yes	5.3	1.9	6.3	2.6	2.9
No	94.7	98.1	93.7	97.4	97.1
	Metro	Metro	Metro	Metro	Metro
Ever used Chew tobacco at least 20 times?	Total	Hispanic	White	African American	Other
Un-weighted	25,454	4,536	16,383	3,634	901
Weighted	152438,518	17,688,774	109,996,640	18,315,778	6,437,326
Yes	4.4	1.8	5.3	2.5	1.3
No	95.6	98.2	94.7	97.5	98.7
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Ever used Chew tobacco at least 20 times?	Total	Hispanic	White	African American	Other
Un-weighted	6,408	552	5,127	585	144
Weighted	41,653,024	1,905,390	35,587,941	3,168,993	990,700
Yes	8.8	3.4	9.5	3.4	13.1
No	91.2	96.6	90.5	96.6	86.9

*Note: Variable CHEW20 (Sample Adult Prevention Module); Weighted = wfa_ap

*Original Sample size n=32,440, weighted=197,303,607. Less than 2% of total response were missing and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30.

TABLE 2C: Prevalence of Smokeless Tobacco Use by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Current Snuff Use	Total	Hispanic	White	African American	Other
Un-weighted	31,870	5,089	21,515	4,221	1,045
Weighted	194,134,795	19,596,831	145,620,085	21,489,853	7,428,026
Current Snuff Use	1.8	<i>0.5</i>	2.2	0.6	<i>1.3</i>
Not Current	98.2	99.5	97.8	99.4	98.7
	Metro	Metro	Metro	Metro	Metro
Current Snuff Use	Total	Hispanic	White	African American	Other
Un-weighted	25,460	4,537	16,386	3,636	901
Weighted	152,463,306	17,691,441	110,013,679	18,320,860	6,437,326
Current Snuff Use	1.4	<i>0.4</i>	1.8	<i>0.5</i>	<i>0.3</i>
Not Current	98.6	99.6	98.2	99.5	99.7
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Current Snuff Use	Total	Hispanic	White	African American	Other
Un-weighted	6,410	552	5,129	585	144
Weighted	41,671,489	1,905,390	35,606,406	3,168,993	990,700
Current Snuff Use	3.3	<i>1.8</i>	3.5	<i>1.0</i>	<i>7.9</i>
Not Current	96.7	98.2	96.5	99.0	92.1

*Note: Current Snuff Use defined as: SNUFF20 = 1 (yes) or 9 (Don't Know) and SNUFFNOW = 1 (everyday) or 2 (some days).

(Sample Adult Prevention Module); Weighted = wtfa_ap

*Original Sample size n=32,440, weighted=197,303,607. Less than 2% of total response were missing and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30

SNUFF20: "Have you used snuff, such as Skoal, Skoal Bandits, or Copenhagen, at least 20 times in your entire life?"

SNUFFNOW: "Do you now use snuff everyday, some days, or not at all?"

TABLE 2D: Prevalence of Smokeless Tobacco Use by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Current Chew Use	Total	Hispanic	White	African American	Other
Un-weighted	31,871	5,089	21,515	4,222	1,045
Weighted	194,141,144	19,596,831	145,620,085	21,496,202	7,428,026
Current Chew Use	1.3	<i>0.2</i>	1.5	<i>0.5</i>	<i>1.2</i>
Not Current	98.7	99.8	98.5	99.5	98.8
	Metro	Metro	Metro	Metro	Metro
Current Chew Use	Total	Hispanic	White	African American	Other
Un-weighted	25,461	4,537	16,386	3,637	901
Weighted	152,469,655	17,691,441	110,013,679	18,327,209	6,437,326
Current Chew Use	0.8	<i>0.1</i>	1.1	<i>0.4</i>	<i>0.4</i>
Not Current	99.2	99.9	98.9	99.6	96.8
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Current Chew Use	Total	Hispanic	White	African American	Other
Un-weighted	6,410	552	5,129	585	144
Weighted	41,671,489	1,905,390	35,606,406	3,168,993	990,700
Current Chew Use	2.8	<i>0.6</i>	2.9	<i>1.2</i>	<i>6.4</i>
Not Current	97.2	99.4	97.1	98.8	93.6

***Note:** Current Chew Use defined as: CHEW20 = 1 (yes) or 9 (Don't Know) and CHEWNOW = 1 (everyday) or 2 (some days).

(Sample Adult Prevention Module); Weighted = wtf_a_ap

*Original Sample size n=32,440, weighted=197,303,607. Less than 2% of total response were missing and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30

CHEW20: "Have you used chewing tobacco, such as Redman, Levi Garrett, or Beechnut at least 20 times in your entire life?"

CHEWNOW: "Do you now use chewing tobacco everyday, some days, or not at all?"

TABLE 3A: Prevalence of Front Seat Belt Use by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Seat Belt (Front Seat)	Total	Hispanic	White	African American	Other
Un-weighted	31,496	4,938	21,402	4,124	1,032
Weighted	192,606,833	19,135,878	145,052,820	21,089,979	7,328,156
All or Most of the Time	82.1	86.7	81.8	77.7	88.6
Some of the Time	10.4	9.1	10.0	15.4	7.6
Once in a While	3.9	2.1	4.3	3.6	2.2
Never	3.6	2.1	3.9	3.3	1.6
	Metro	Metro	Metro	Metro	Metro
Seat Belt (Front Seat)	Total	Hispanic	White	African American	Other
Un-weighted	25,117	4,391	16,293	3,545	888
Weighted	151,101,219	17,259,237	109,543,385	17,961,141	6,337,456
All or Most of the Time	83.7	87.3	83.6	78.4	91.6
Some of the Time	9.6	8.7	9.1	15.0	5.7
Once in a While	3.4	1.9	3.8	3.4	1.2
Never	3.3	2.1	3.5	3.2	1.5
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Seat Belt (Front Seat)	Total	Hispanic	White	African American	Other
Un-weighted	6,379	547	5,109	579	144
Weighted	41,505,614	1,876,641	35,509,435	3,128,838	990,700
All or Most of the Time	76.3	81.6	76.4	74.0	69.4
Some of the Time	13.4	12.9	12.9	17.6	20.2
Once in a While	5.5	3.4	5.6	4.7	8.0
Never	4.8	2.1	5.1	3.7	2.4

*Note: Variable SBELTF (Sample Adult Prevention Module); Weight = wtfa_ap

*Original Sample size n=32,440, weighted=197,303,607. Less than 3% of total response were "don't ride in front seat, or don't ride in a car, or refused" and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30

TABLE 3B: Prevalence of Back Seat Belt Use by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Seat Belt (Back Seat)	Total	Hispanic	White	African American	Other
Un-weighted	26,229	4,379	17,441	3,491	918
Weighted	160,013,652	16,866,719	118,748,289	17,915,900	6,482,744
All or Most of the Time	58.2	62.6	58.7	50.1	58.9
Some of the Time	15.1	14.2	14.9	17.2	16.7
Once in a While	6.5	4.7	6.6	7.5	6.6
Never	20.2	18.5	19.8	25.2	17.9
	Metro	Metro	Metro	Metro	Metro
Seat Belt (Back Seat)	Total	Hispanic	White	African American	Other
Un-weighted	21,052	3,899	13,373	2,987	793
Weighted	126,262,747	15,225,255	90,229,273	15,181,315	5,626,904
All or Most of the Time	59.5	62.6	60.2	51.0	61.6
Some of the Time	14.8	14.2	14.5	16.3	16.1
Once in a While	6.3	4.6	6.5	7.5	5.3
Never	19.4	18.6	18.8	25.3	17.0
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Seat Belt (Back Seat)	Total	Hispanic	White	African American	Other
Un-weighted	5,177	480	4,068	504	125
Weighted	33,750,905	1,641,464	28,519,016	2,734,585	855,840
All or Most of the Time	53.3	62.3	53.9	45.4	41.0
Some of the Time	16.5	13.8	16.0	22.3	20.3
Once in a While	7.2	5.7	7.0	7.4	15.1
Never	23.0	18.2	23.1	24.9	23.6

*Note: Variable SBELTB (Sample Adult Prevention Module); Weight = wtfa_ap

*Original Sample size n=32,440, weighted=197,303,607. Approximately ~19% responded “don’t ride in back seat, or don’t ride in a car, or refused” and were excluded from analysis.

*Italicized percentages indicate that sample size numbers are below 30

TABLE 4A; Prevalence of Alcohol Behaviors by race and residence

	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
Drinking Habits	Total	Hispanic	White	African American	Other
Un-weighted	31,871	5,097	21,516	4,202	1,056
Weighted	194,205,497	19,712,657	145,572,923	21,409,417	7,510,500
Lifetime Abstainer	21.8	33.0	17.8	32.5	40.2
Year Abstainer	16.0	12.4	16.2	18.4	13.7
Current Drinker (not heavy)	53.5	43.5	57.2	42.6	41.0
Current Drinker (heavy)	8.7	11.1	8.8	6.5	5.1
	Metro	Metro	Metro	Metro	Metro
Drinking Habits	Total	Hispanic	White	African American	Other
Un-weighted	25,475	4,541	16,399	3,623	912
Weighted	152,608,785	17,745,944	110,083,789	18,259,252	6,519,800
Lifetime Abstainer	20.3	33.3	15.2	31.0	41.7
Year Abstainer	14.8	11.8	14.9	17.9	13.0
Current Drinker (not heavy)	56.2	44.1	60.9	44.6	41.5
Current Drinker (heavy)	8.7	10.8	9.0	6.5	3.8
	Non-Metro	Non-Metro	Non-Metro	Non-Metro	Non-Metro
Drinking Habits	Total	Hispanic	White	African American	Other
Un-weighted	6,396	556	5,117	579	144
Weighted	41,596,712	1,966,713	35,489,134	3,150,165	990,700
Lifetime Abstainer	27.2	30.9	25.7	41.5	29.9
Year Abstainer	20.0	17.0	20.2	20.7	18.4
Current Drinker (not heavy)	44.0	37.9	45.6	31.4	38.2
Current Drinker (heavy)	8.8	14.2	8.5	6.4	13.5

*Note: Original Variables include: ALCSTAT and ALC5UPYR.

(Sample Adult Questionnaire); Weight = wtfa_sa

*Original Sample size n=32,440, weighted=197,303,607. Less than 2% were missing and were excluded from the analysis.

*Italicized percentages indicate that sample size numbers are below 30.

TABLE 5A: Description of the “Other” race

Race/Ethnicity	Metro Weighted	Non-Metro Weighted	Metro Un-weighted	Non-Metro Un-weighted	Metro wtd %	Non-Metro wtd %
Indian (American) “other”	561,661	562,126	95	80	8.5	56.8
Chinese “other”	1,074,366	27,903	153	7	16.2	2.8
Filipino “other”	1,051,406	39,467	144	7	15.9	4.0
Asian Indian “other”	970,788	36,613	120	4	14.7	3.7
Asian/Pacific Isl. “other”	2,548,240	281,592	361	40	38.5	28.4
Other Race “other”	146,144	16,164	23	2	2.2	1.6
Multiple Race “other”	123,408	8,467	15	1	1.8	0.9
Refused to Answer “other”	94,661	13,279	16	2	1.4	1.3
Not Ascertained “other”	0	0	0	0	0	0
Don’t Know “other”	52,888	5,089	5	1	0.8	0.5

*Note: Total figures are representative of those interviewed for the Sample Adult and Sample Adult Prevention Module Questionnaires solely.

APPENDIX B

References

- Adams WL. (1993). Alcohol-related hospitalizations of elderly people: prevalence and geographic variation in the United States. *Journal of the American Medical Association*, 270(10):1222-1225.
- Anderson P, Cremona A, Paton A, Turner C, Wallace P. (1993). The risk of alcohol. *Addiction*, 88(11):1493-1508.
- Beauvais F. (1998). American Indians and alcohol. *Alcohol Health and Research World*, 22(4):253-259.
- Booth BM, Ross RL, Rost K. (1999). Rural and urban problem drinkers in six southern states. *Substance Use and Misuse*, 34(4 & 5):471-493.
- Borgialli DA, Hill EM, Maio RF, Compton CP, Gregor MA. (2000). Effects of alcohol on the geographic variation of driver fatalities in motor vehicle crashes. *Academic Emergency Medicine*, 7(1):7-13.
- Caetano R, Clark C, Tam T. (1998). Alcohol consumption among racial/ethnic minorities. *Alcohol Health and Research World*, 22(4):233-238.
- Centers for Disease Control and Prevention. (1996). Cigarette smoking among adults – United States, 1994. *MMWR*, 45(27), 588-590.
- Centers for Disease Control and Prevention. (2001). National vital statistics report. 49(11):35-37. Retrieved 23 Jan. 2002, from http://www.cdc.gov/nchs/fastats/pdf/nvsr49_11tb1.pdf.
- Centers for Disease Control and Prevention. The National Center for Chronic Disease Prevention and Health Promotion. (2000). Current smokeless tobacco use among men aged 18 years and older – United States, 1992-1993. Retrieved June 9, 2002, from http://www.cdc.gov/tobacco/research_data/spit/sltmen.htm.
- Cheadle A, Pearson D, Wagner E, Psaty BM, Diehr P, Koepsell T. (1995). A community-based approach to preventing alcohol use among adolescents on an American Indian reservation. *Public Health Rep.* 110(4):439-47.
- Dawson DA. (2000). Alcohol consumption, alcohol dependence, and all-cause mortality. *Alcohol Clinical Experience Research*, 24(1):72-81.
- Fleming MF, Mundt MP, French MT, Manwell LB, Stauffacher EA, Barry KL. (2002). Brief physician advice for problem drinkers: long-term efficacy and benefit-cost analysis. *Alcohol Clin Exp Res*, 26(1):36-43.
- Gamm L, Hutchison L, Dabney B, Dorsey A, eds. (2003). Rural Healthy People 2010: A Comparison Document to Healthy People 2010, Volume I. College Station, Texas: The Texas A&M University System Health Science Center, School of Rural Public Health, Southwest Rural Health Research Center.
- Harwood HJ, Fountain D, Livermore G. (1998). Economic costs of alcohol and drug abuse in the United States 1992. National Institute on Drug Abuse, Bethesda, MD. NIH publication 98-4327.

- Holder HD, Miller TR, Carina RT. (1995). Cost savings of substance abuse prevention in managed care. Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention (CSAP), Rockville, MD.
- Jones-Webb R. (1998). Drinking patterns and problems among African Americans: recent findings. *Alcohol Health and Research World*, 22(4):260-264.
- Centers for Disease Control and Prevention. National Center for Health Statistics, NCHS, National Vital Statistics Reports. (2001). Leading causes of death, 1999. National Center for Health Statistics. *National Vital Statistics Reports*, 49(11):1-88. Retrieved March 22, 2002, from http://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_11.pdf.
- Makimoto K. (1998). Drinking patterns and drinking problems among Asian Americans and Pacific Islanders. *Alcohol Health and Research World*, 22(4):270-275.
- Manwell LB, Fleming MF, Mundt MP, Stauffacher EA, Barry KL. (2000). Treatment of problem alcohol use in women of childbearing age: results of a brief intervention trial. *Alcohol Clin Exp Res*, (10):1517-24
- National Highway Traffic Safety Administration. (2001). Motor Vehicle Traffic Crash Fatality and Injury Estimates for 2000. Retrieved March 22, 2002, from www.nhtsa.dot.gov.
- Centers for Disease Control and Prevention. (2001). National vital statistics report. 49(11):35-37. Retrieved 23 Jan. 2002, from http://www.cdc.gov/nchs/fastats/pdf/nvsr49_11tb1.pdf.
- Centers for Disease Control and Prevention. (1994). Preventing tobacco use among young people: a report of the Surgeon General. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, CDC, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
- Randolph WM, Stroup-Benham C, Black SA, Markides KS. (1998). Alcohol use among cuban-americans, mexican-americans, and puerto ricans. *Alcohol Health and Research World*, 22(4):265-269.
- National Highway and Traffic Safety Administration. (2001). Seat Belts and Hispanics 2000 Report. DOT HS 809 045. Retrieved March 22, 2002, from <http://www.nhtsa.dot.gov/people/injury/airbags/buckleplan/seatbeltshispanic/index.htm>
- Segal B. (1998). Drinking and drinking-related problems among Alaska natives. *Alcohol Health and Research World*, 22(4):276-280.
- Centers for Disease Control and Prevention. (1997). Smoking-attributable mortality and years of potential life lost—United States, 1984. *MMWR*, 46(20):444-51.
- Spoth RL, Guyll M, Day SX. (2002). Universal family-focused interventions in alcohol-use disorder prevention: cost-effectiveness and cost-benefit analyses of two interventions. *J Stud Alcohol*, Mar;63(2):219-28.
- National Institute on Alcohol Abuse and Alcoholism. (1999). Tenth special report to the U.S. congress on alcohol and health from the secretary of health and human services, June 1999. US Department of Health and Human Services, Public Health Service, National Institutes of Health, NIAAA, Rockville, MD. NIH publication 97-4017.
- National Highway Traffic Safety Administration. (1999). The 1998 NATIONAL OCCUPANT PROTECTION USE SURVEY. Belt and Helmet Use for Vehicle and Person Type by Region;

(Estimates and 2 Standard Errors); Table 1. Retrieved March 22, 2002, from <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/1999/98obbelt.html>.

Centers for Disease Control and Prevention. (1993). Use of smokeless tobacco among adults – United States, 1991. *MMWR*, 42(14):263-266.

Werch CE, Carlson JM, Owen DM, DiClemente CC, Carbonari JP. (2001). Effects of a stage-based alcohol preventive intervention for inner-city youth. *J Drug Educ*, 31(2):123-38.

World Health Organization. (2001). National Tobacco Information Online System. Retrieved 23 Jan. 2002, from <http://apps.nccd.cdc.gov/nations/about/who.asp>