

SHAPE
1998:

Cigarette Use
Among Adults
in Hennepin
County

Survey of the Health of Adults,
the Population, and the Environment

Hennepin County Community Health Department

Minneapolis Department of Health and Family Support

Suggested Citation:

Hennepin County Community Health Department and Minneapolis Department of Health and Family Support. SHAPE 1998: Cigarette Use Among Adults in Hennepin County, Survey of the Health of Adults, the Population, and the Environment. Minneapolis, Minnesota, January 1999.

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Acknowledgments

SHAPE 1998: Cigarette Use Among Adults In Hennepin County was developed using data from the Survey of the Health of Adults, the Population, and the Environment (SHAPE). The SHAPE project is a collaborative effort of the Minneapolis Department of Health and Family Support, the Hennepin County Community Health Department, and the Minnesota Department of Health.

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The SHAPE project team gives special thanks to Sue Zuidema, Director of the Hennepin County Community Health Department, Ken Dahl, Director of Programs and Services of the Minneapolis Department of Health and Family Support and Donald Fraser, Interim Commissioner of the Minneapolis Department of Health and Family Support for their ongoing support.

The team would also like to thank the persons involved with the original design and development of the SHAPE survey and collection of the SHAPE data. These individuals include Beth Overman, Gayle Geber, Delbert Hurt, Colleen King, Urban Landreman, Dianna Shandy and Sheldon Swaney and the more than 10,000 residents of Minneapolis and suburban Hennepin County who responded to the survey.

Other individuals who contributed their time and expertise to the analysis and interpretation of the SHAPE cigarette data include Jean Forster, Gretchen Griffin, Harry Lando, Megan Betz, Cindy Kallstrom, Howard Epstein, Jennifer Schuster, Jodell O'Connell, and Sonja Savre.

Finally, the team would also like to thank Mark Hertzfeld, Tim Zimmerman and other staff of the Hennepin County Office of Planning and Development for their assistance with geocoding the data files and generating the maps found in this report, Nancy Baker at Litho Technical Services for the layout and design of the document, and Margaret Holm for technical support.

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Executive Summary

Executive Summary

SHAPE 1998: Cigarette Use Among Adults in Hennepin County reveals that cigarette smoking continues to be a serious public health threat – Hennepin County young adults smoke at significantly higher rates than their state and national counterparts.

At one time, Minnesota was a leader in smoking education and prevention. In 1975, Minnesota's Clean Air Act became the first comprehensive state law restricting indoor smoking in public places. In 1979, Minneapolis and St. Paul became the first U.S. cities to ban the distribution of free cigarette samples.

In the past decade, however, Minnesota has fallen behind other states in implementing strong tobacco control programs. With a settlement of \$6.1 billion with the tobacco industry, Minnesota once again has the opportunity to counter the sobering statistics revealed in this SHAPE report, and become a leader in tobacco control.

Data from this report show that more than four out of 10 adults (41.2%) in Hennepin County have smoked in their lifetimes, and more than one out of five (21.2%), or approximately 174,000 residents, currently smoke cigarettes. (Note that this report covers cigarette smoking in Hennepin County, and does not cover other forms of tobacco use.) Of greatest concern is the high rate of smoking among young adults — one out of three adults aged 18-24 years currently smokes cigarettes (36.5%), which is significantly higher than state and national averages (29.6%, 27.6%).

SHAPE 1998: Cigarette Use Among Hennepin County Adults presents findings from SHAPE, the Survey of the Health of Adults, the Population, and the Environment. The SHAPE survey and related reports are a collaborative effort of the Hennepin County Community Health Department, the Minneapolis Department of Health and Family Support, and the Minnesota Department of Health. Survey findings are summarized in *SHAPE 1998: Initial Findings*.

Our goal is that the information provided in this report will be used to inform and support tobacco control efforts. Local agencies and community groups now have local information that can be used to develop strategies that maximize resources by targeting population groups and high-use geographic areas.

Health Effects Associated with Cigarette Smoking

Cigarette smoking is a significant threat to the public's health. Cigarette smoking has been shown to cause:

- Death (one out of six deaths in Minnesota is related to smoking – 17%).
- Heart disease.
- Cancer.
- Chronic lung disease.
- Low birthweights and Sudden Infant Death Syndrome (SIDS) in infants.
- Asthma attacks and middle ear infections in children.
- \$50 billion in medical costs, and another \$50 billion in indirect costs per year in the United States.

In addition, SHAPE data show that:

- People who smoke tend to have worse physical health than non-smokers.
- People who smoke tend to have worse mental health than non-smokers.
- People who smoke tend to engage in other health risk behaviors such as binge drinking, drinking and driving, and eating poorly.

Current Smoking

- One out of five adults (21.2%) in Hennepin County currently smokes.
- One out of three young people aged 18-24 (36.5%) currently smokes.
- One out of two males aged 20-21 (51.6%) currently smokes.
- Smoking is more common among people with less education compared to those who have a college education or more.
- A higher percentage of males than females currently smokes (23.7% vs. 18.9%).
- Minneapolis has a higher rate of smoking than does suburban Hennepin County (25.1% vs. 19.0%). In addition, there are significant differences in smoking rates across the 19 geographic areas in Hennepin County.

Smoking Intensity

- Countywide, about 15 percent of current smokers are heavy smokers (i.e. smoke ≥ 25 cigarettes per day).
- Twice as many males as females smoke heavily (18.9% vs. 9.5%).
- Although a higher percentage of young adults than older adults smokes cigarettes, older smokers tend to smoke more cigarettes per day.
- Minneapolis has a higher smoking rate than suburban Hennepin County, but there is a higher rate of heavy smoking in suburban Hennepin County.
- Current smokers with less education tend to be heavier smokers than those with a college education or more.

Smoking Cessation

- Almost half of the adults in Hennepin County who have ever smoked have quit successfully (48.4%).
- Over half of the adults in Hennepin County who currently smoke have attempted to quit for at least one day during the past year (52.2%).
- Almost three out of four adult smokers aged 18-24 (72.1%) tried to quit for at least one day during the past year.

Environmental Tobacco Smoke (ETS)

- One out of five households in Hennepin County with children under age 18 is exposed to ETS in their home (19.3%).
- There are significant differences in ETS rates across the 19 geographic areas in Hennepin County.

Recommendations

- Dedicate funds for long-term tobacco use prevention and reduction initiatives.
 - Increase smoking education and prevention efforts among high-use populations such as young adults, males, and those with less education.
 - Target tobacco control efforts to address the disparities in tobacco use found across the 19 geographic areas in Hennepin County.
 - Create holistic programs. Smoking, drinking, and eating habits all play roles in making a person healthy, and are often linked.
- Expand current efforts by schools, work sites, health care providers, and health plans to provide cessation programs and/or information about cessation programs.
 - Educate parents and communities about the harmful effects of secondhand smoke.
 - Learn from other successful prevention and cessation efforts. When California and Massachusetts earmarked money from an increase in tobacco taxes for media counter-advertising, healthcare services, and community-based grants, a dramatic reduction in cigarette consumption was documented.

Series

Introduction

Series Introduction

In the United States, approximately two million people die each year. Over half of these deaths are directly related to personal health behaviors – the choices people make every day that affect their health. Such behaviors include tobacco use, lack of physical activity, poor diet, alcohol misuse, drug use, violence, risky sexual behavior and lack of access to and use of preventive health services (e.g., screening, immunization)(1).

Health promotion efforts at all levels (national, state and local) seek to reduce the prevalence of health risk behaviors. Efforts to monitor the extent of health risk behaviors have provided national and state data which policy makers and program planners have used to monitor progress and identify target groups most at risk. In the early 1980s, the Centers for Disease Control and Prevention (CDC) worked with states to establish a unique state-based surveillance system called the "Behavioral Risk Factor Surveillance System" (BRFSS) which monitors risk behaviors among adults (1). The *Minnesota BRFSS*, a joint CDC and state effort, has since been the primary source for statewide adult health risk information in Minnesota (2,3). The BRFSS sample size has, however, limited utility at local levels. Information on risk behaviors among Hennepin County residents has come from synthesized estimates based on statewide survey results and, until the Hennepin County SHAPE Survey was implemented in 1997-98, much specific information has not been available.

The Survey of the Health of Adults, the Population, and the Environment in Hennepin County (SHAPE)(4) provides, for the first time, broad population-based surveillance information on the health status of Hennepin County residents aged 18 and older.

SHAPE data are unique in that they include:

- broad information on lifestyle choices and health risk behaviors, including cigarette smoking, alcohol use, physical activity, nutrition, body weight, and seatbelt use;

- demographic information on age, gender, racial and ethnic background, education, household income, and specific geographic area of residence within the county.

The *SHAPE 1998: Initial Findings* report (released in August 1998) provides overall health risk behavior estimates for Hennepin County (4). Comparisons of selected health risk behaviors across 19 geographic areas in Hennepin County are reported in the *SHAPE 1998: Overall Comparison Report* (5). Objectives of the series of reports which will focus on lifestyle and health risk behavior in Hennepin County include the following:

- Summarize available lifestyle and health risk behavior information for Hennepin County adults aged 18 and older, by population sub-groups and socio-demographic characteristics;
- Specify lifestyle and health risk behavior information for 19 geographic areas in Hennepin County (11 in Minneapolis and 8 in suburban Hennepin County);
- Examine relationships between lifestyle and health risk behaviors, physical and mental health status, and selected physical and mental health conditions;
- Compare health status measures of Hennepin County residents with similar measures from state and national level data;
- Provide information which supports public health policy, health promotion, and program planning decision making in Hennepin County.

SHAPE 1998: Cigarette Use Among Hennepin County Adults is the first of several reports which will focus on health risk behaviors.

Cigarette
Use Among
Adults In
Hennepin
County

Cigarette Use Among Adults In Hennepin County

Overview

Tobacco use is responsible for approximately one of every five deaths (430,000) in the United States annually. This is equivalent to 5,700,000 years of potential life lost every year (6). More deaths are attributable to tobacco use than to alcohol use, drug use, firearms, motor vehicle crashes and HIV/AIDS combined (7). Paralleling this enormous health burden is the economic burden of tobacco use: more than \$50 billion in medical expenditures and another \$50 billion in indirect costs (8,9). For more than a decade, tobacco use has been identified as the single most important preventable cause of death in the United States.

In Minnesota, approximately 6,400 deaths (17% of all deaths) were related to cigarette smoking in 1995 (10). Cigarette smoking is related to many leading causes of death in Minnesota such as cardiovascular disease, cancer, respiratory disease and fatal fire. The toll of tobacco use is even greater when deaths associated with smokeless tobacco, cigar, pipe smoking and environmental tobacco smoke are considered and when associated non-fatal illness and disability are recognized. The economic cost of tobacco use in Minnesota in 1995 was estimated to be \$1.3 billion or \$277 per Minnesota resident (10).

SHAPE 1998: Cigarette Use Among Adults in Hennepin County presents detailed information on cigarette smoking in Hennepin County (objectives of the report provided in previous section). Our goal is that the information provided in this report will contribute to and inform public policy, program planning and funding decisions regarding tobacco control efforts, especially with the opportunity provided by recent tobacco settlements in Minnesota.

Methodology

The SHAPE data were collected through telephone interviews with a representative sample of non-institutionalized Hennepin County residents aged 18 and older. A primary goal of SHAPE was to identify differences in health status, health behaviors, social environment and access to health care between residents of different communities in Hennepin County. To accomplish this goal, a *disproportionate stratified sampling method* was used. First, Hennepin County was divided into 19 geographic areas, which included 11 communities in Minneapolis and eight areas (communities) in suburban Hennepin County. Approximately 550 households within each geographic area were randomly selected. Second, the adult from each selected household who had the most recent birthday was asked to complete the interview. The overall survey response rate was 90.1 percent. A total of 10,617 completed interviews are used for data analysis of this report. Additional information on survey methodology, survey content, response rates, potential bias, and survey sample characteristics is provided in *SHAPE 1998: Initial Findings, Survey of the Health of Adults, the Population, and the Environment* (4).

Weighting of Sample Data

For data analysis, a statistical procedure called *weighting* was applied to the survey data. While a detailed explanation is available in the technical notes of this report and two previous reports (4,5), the following summarizes weighting procedures applied for the analysis of cigarette smoking.

- The survey data were weighted to represent the number of adults in Hennepin County;
- When estimates on smoking behavior are provided for 19 geographic areas, the survey data were weighted to represent the number of adults in each of the 19 geographic areas;
- The analysis of environmental tobacco smoke is at the household level rather than at the individual level. In this case, the survey data were weighted to represent the number of households in Hennepin County for these analyses.

Data Analysis and Presentation

Four measures of cigarette smoking behavior were analyzed:

- Current smoking status,
- Smoking intensity (how much smokers smoke),
- Smoking cessation, and
- Environmental tobacco smoke.

This report also briefly examines the relationship between cigarette smoking and health status, and the relationship between cigarette smoking and other risk behaviors.

Smoking is analyzed first by selected socio-demographic characteristics individually, such as age, gender, region of residency (Minneapolis vs. suburban Hennepin County), level of education, race and ethnicity (Hispanic origin vs. non-Hispanic origin), and household income measured as a percentage of Federal Poverty Levels (see Technical Notes). Then, the relationship between smoking behavior and socio-demographic characteristics is further analyzed using a multivariate analysis technique called “logistic regression” (see Technical Notes).

Where possible, other data (i.e. state and national results from other data sources) are included in the discussion in order to provide useful comparisons for the Hennepin County results.

The comparison of smoking behavior between racial groups is limited due to small sample sizes for groups other than Whites and African Americans. For the most part, smoking behavior among population subgroups is compared to that for Whites. This comparison does not imply that smoking behavior among Whites is the standard, but rather that the White population subgroup is a useful frame of reference for comparison.

If the difference in smoking behavior between population subgroups is statistically significant ($p < 0.05$) (see Technical Notes), a bar, line, or pie chart will be presented. Data tables for smoking behavior by socio-demographic characteristics are presented in Appendix tables.

Cigarette Use Among Adults In Hennepin County

C o n t i n u e d

When comparing smoking behavior among the 19 geographic areas, a figure which maps the levels of observed rates of smoking behavior will be presented, followed by a data table. While *unadjusted* rates by geographic area are provided, age-gender *adjusted* rates of smoking behavior across the 19 geographic areas may be the most meaningful when drawing conclusions about smoking behaviors across the county as *adjusted rates* account for the variation in the distribution of population characteristics across the county (see Technical Notes). The age-gender adjusted rates of smoking behavior by the 19 geographic areas are presented in Appendix tables.

Data Limitations

- Estimates for tobacco use can only be made for cigarette smoking. The SHAPE survey did not collect information on other forms of tobacco use, such as smokeless tobacco, cigar or pipe use.
- Estimates of cigarette smoking are based on data collected during late October 1997 to mid-February 1998. The actual prevalence of cigarette smoking may be slightly different if there are significant seasonal variations in cigarette smoking behavior.
- The SHAPE survey defined smokers somewhat differently than other major national surveys, such as the Behavioral Risk Factor Surveillance System (BRFSS) and the National Health Interview Survey. The SHAPE survey defines current smokers as respondents who reported smoking at the time of the survey. The BRFSS and the National Health Interview Survey included in their definition of smokers (either current or former) only those who smoked at least 100 cigarettes in their lifetimes.

Current Smoking

Current Smoking

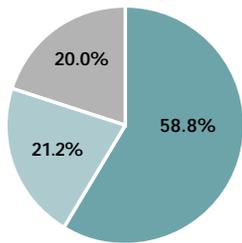


FIGURE 1.1
Current smoking status among Hennepin County adults aged 18 and older

Current smoker
Former smoker
Never smoked

Approximately one out of five Hennepin County adults (aged 18 and older) currently smokes cigarettes (a prevalence rate of 21.2%)(Figure 1.1). Based on recent population projections (11), this percentage is equivalent to 174,000 county adult residents. Twenty percent (20.0%) of county adult residents are former smokers, while 58.8 percent have never smoked.

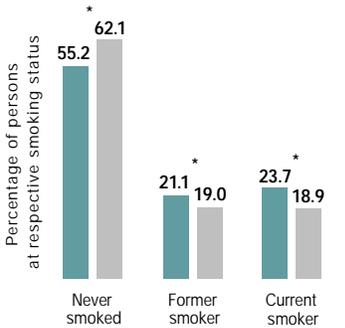


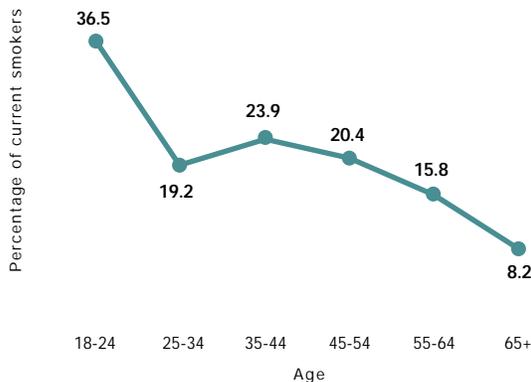
FIGURE 1.2
Current smoking status by gender among Hennepin County adults aged 18 and older

Male
Female

* The difference in rates between males and females within the same smoking status category is statistically significant.

SHAPE data measures cigarette use among Hennepin County residents aged 18 and older. Tobacco use among those under age 18, smokeless tobacco, cigar and pipe use among the general population was not measured. If these had been measured, the rate of total tobacco use among Hennepin County residents would be much greater, especially for male residents. Nationally, 15.9 percent (median rate) of adults have ever used smokeless tobacco. Among males, the median rate is 29.2 percent and among females, 2.9 percent (12). National data also show that males exhibit significantly higher cigar and pipe smoking rates than females (13). Smoking prevalence by selected socio-demographic characteristics is presented in Appendix Table 1.1.

FIGURE 1.3
Current smoking rate by age among Hennepin County adults aged 18 and older



* The difference in current smoking rates across age groups is statistically significant.

Current Smoking and Socio-Demographic Characteristics

Age and gender

Hennepin County adult males smoke at a significantly higher rate than adult females (23.7% vs. 18.9%, $p < 0.05$) (Figure 1.2). Similarly, males are more likely to report themselves as former smokers than are females (21.1% vs. 19.0%, $P < 0.05$).

Age is significantly related to smoking prevalence (Figure 1.3). The current smoking rate is highest among county residents aged 18-24: more than one-third (36.5%) of them smoke. Smoking prevalence drops sharply among those aged 25-34 (19.2%) and then rises to 23.9 percent for those

aged 35-44. Beyond age 35-44, smoking prevalence steadily decreases as age increases. Senior residents aged 65 and older reported the lowest smoking prevalence (8.2%). Several factors may contribute to the low rate of smoking among those aged 65 and older. Individuals in this age group are least likely to initiate smoking, many may have stopped smoking earlier in life because of health problems and consequences of smoking, and some smokers may have died prematurely as a result of a long history of smoking (14).

In *SHAPE 1998: Initial Findings* (4), the smoking rate among young adults aged 18-29 was reported in addition to the rates among those aged 18-24 and 25-34. About one in every three county residents of this age group (29.9%) are current smokers (Figure 1.4). Further analysis examines the smoking rate among this group by gender for two-year age intervals (Figure 1.5). Among females, the current smoking rate decreases consistently as age increases. For males, however, the current smoking rate peaks at age 20-21 where more than half (51.6%) currently smoke. Then the rate drops to a low of 23.2 percent for those aged 24-25. Almost two out of five residents aged 18-19 (38.2% for males and 37.8% for females), and two out of five males aged 22-23 (40.4%) are current smokers.

Region and Geographic Area

One out of four Minneapolis adult residents are current smokers (25.1%), while one out of five suburban Hennepin County adults currently smokes (19.0%) (Figure 1.6). Gender-specific analysis shows similar patterns. The differences in rates between Minneapolis and suburban Hennepin County are all statistically significant.

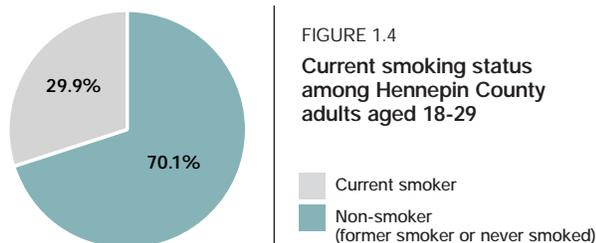
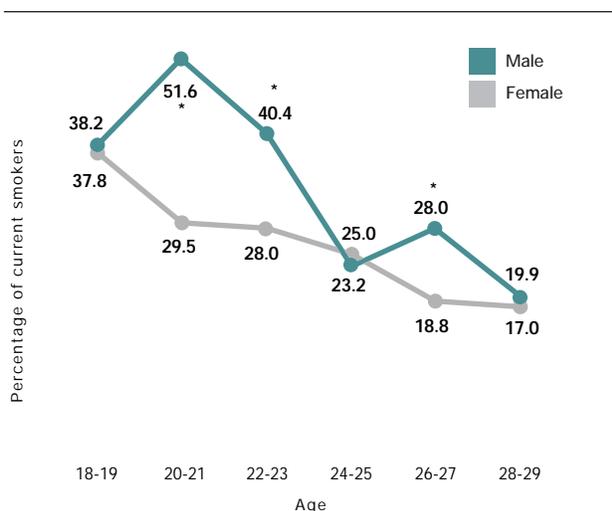
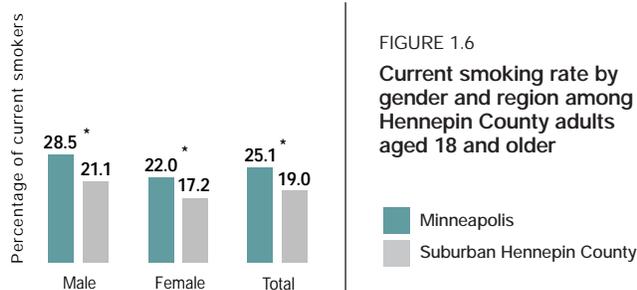


FIGURE 1.5
Current smoking rate by age among Hennepin County adults aged 18-29



* The difference in current smoking rates between males and females within the same age group is statistically significant.

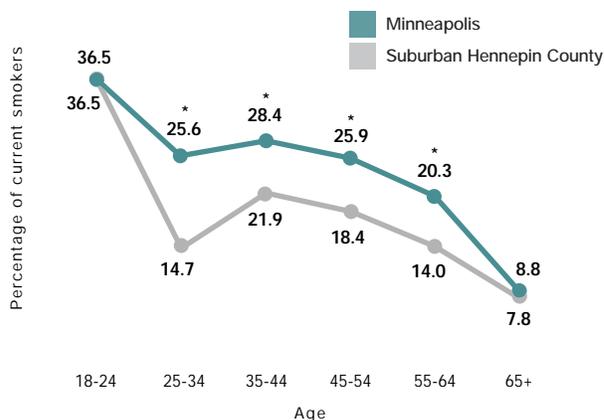


* The difference in current smoking rates between Minneapolis and suburban Hennepin County residents is statistically significant.

Current Smoking

C o n t i n u e d

FIGURE 1.7
Current smoking rate by age and region among Hennepin County adults aged 18 and older



* The difference in current smoking rates between Minneapolis and suburban Hennepin County residents within the same age group is statistically significant.

Figure 1.7 shows the age-specific smoking prevalence for Minneapolis and suburban Hennepin County. There is no difference in smoking rates between 18-24 year-olds living in Minneapolis and 18-24 year-olds living in suburban Hennepin County (36.5% vs. 36.5%). However, 25-34 year-old Minneapolis residents smoke at nearly twice the rate of suburban residents of the same age (25.6% vs. 14.7%, $p < 0.05$). The difference in smoking rates between the two regions continues to be significant for all other age groups except for those aged 65 and older.

Figure 1.8 and Table 1.1 present the current smoking rates for the 19 geographic areas in the SHAPE survey. The Minneapolis communities of Camden, Phillips and Powderhorn have the highest smoking rates (34.0%, 32.4% and 30.7% respectively) where about one-third of the adult population currently smokes. The current smoking rates for these

communities are almost twice those for communities with the lowest current smoking rates (i.e. geographic area 12 (Bloomington, Edina, Richfield, Eden Prairie and Fort Snelling)- 15.5%, geographic area 18 (Greenfield, Independence, Loretto, Maple Plain, Medina and Rockford)- 17.1% and the Southwest community of Minneapolis-16.2%).

The smoking rates for the specific geographic areas as shown in Figure 1.8 and Table 1.1 are very important for health professionals and policy makers as they plan smoking prevention and reduction policies and programs. However, the *comparison* of smoking rates across the 19 geographic areas should be done cautiously as the rates may be affected by differences in the age-gender distributions within these areas. When comparing the overall rates across geographic areas, age-gender *adjusted* rates are more meaningful if *age-gender compositions are different across these areas and if age and gender relate significantly to the rate being measured* (15). It was established above that age and gender are significantly related to current smoking. Appendix Table 1.2 presents both the actual smoking rates (unadjusted) and the smoking rates adjusted for the age-gender differences between geographic areas (see Technical Notes). For example, the unadjusted current smoking rate for the University community in Minneapolis is 22.4 percent. It is ranked the 10th highest across all 19 geographic areas. After adjusting for age-gender differences across the 19 geographic areas, however, the current smoking rate for this area becomes 19.6 percent and its rank drops to 17th. The University community has a high percentage of young adults and smoking rates among young adults are generally higher.

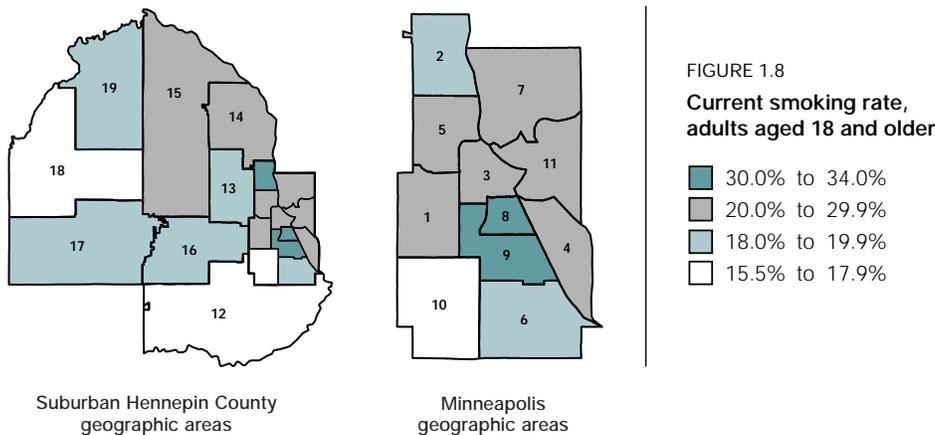
TABLE 1.1

Current smoking rate for 19 geographic areas among Hennepin County adults aged 18 and older

GEOGRAPHIC AREAS	CURRENT SMOKING RATE(%)	RANK
Area 2 - Camden	34.0	1
Area 8 - Phillips	32.4	2
Area 9 - Powderhorn	30.7	3
Area 7 - Northeast	27.6	4
Area 1 - Calhoun-Isles	27.1	5
Area 3 - Central	26.9	6
Area 5 - Near North	26.3	7
Area 4 - Longfellow	25.0	8
Area 14	23.7	9
Area 11 - University	22.4	10
Area 15	22.2	11
Area 13	19.7	12
Area 19	19.2	13
Area 17	19.2	13
Area 16	18.7	15
Area 6 - Nokomis	18.0	16
Area 18	17.1	17
Area 10 - Southwest	16.2	18
Area 12	15.5	19

Geographic areas for suburban Hennepin County:

- Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.
- Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.
- Area 14 - Brooklyn Center, Brooklyn Park, Osseo.
- Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.
- Area 16 - Hopkins, Minnetonka, St. Louis Park.
- Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.
- Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.
- Area 19 - Corcoran, Hanover, Hassan, Rogers.



Current Smoking

C o n t i n u e d

TABLE 1.2

Current smoking rate for 19 geographic areas among Hennepin County adults aged 18-29

GEOGRAPHIC AREAS	CURRENT SMOKING RATE(%)	RANK
Area 2 - Camden	49.1	1
Area 9 - Powderhorn	42.7	2
Area 1 - Calhoun-Isles	42.6	3
Area 8 - Phillips	41.0	4
Area 17	38.0	5
Area 4 - Longfellow	37.2	6
Area 14	35.4	7
Area 3 - Central	34.5	8
Area 15	34.3	9
Area19	31.6	10
Area 5 - Near North	28.7	11
Area 13	27.2	12
Area 7 - Northeast	27.0	13
Area 12	25.2	14
Area 11 - University	25.0	15
Area 6 - Nokomis	23.1	16
Area 18	22.2	17
Area 10 - Southwest	21.2	18
Area 16	18.6	19

Geographic areas for suburban Hennepin County:

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

Area 14 - Brooklyn Center, Brooklyn Park, Osseo.

Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.

Area 16 - Hopkins, Minnetonka, St. Louis Park.

Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.

Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.

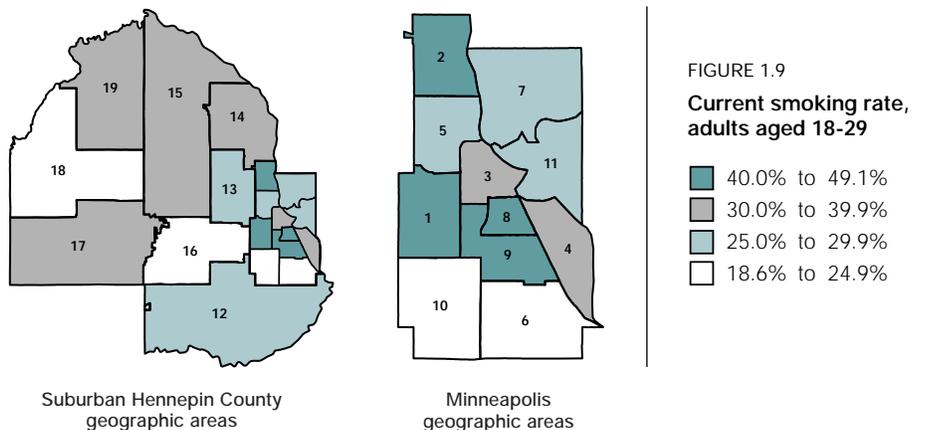


Figure 1.9 and Table 1.2 show the current smoking rates for young adults aged 18-29 for the 19 geographic areas. Young adults living in Camden, Powderhorn, Calhoun-Isles and Phillips communities of Minneapolis exhibit the highest rates of smoking. About half of young adults in Camden are smokers (49.1%). About two out of five young adults in Powderhorn, Calhoun-Isles, and Phillips are smokers (42.7%, 42.6%, and 41.0% respectively). Young adults from geographic area 16 (Hopkins, Minnetonka, St. Louis Park) exhibit the lowest rate of smoking (18.6%), a rate even lower than the average smoking rate for all county adults (21.2%). Young adults from the Southeast community of Minneapolis and geographic area 18 (west suburban Hennepin County) also exhibit low smoking rates (21.2% and 22.2% respectively), as compared to other geographic areas.

Education

Level of education is significantly related to smoking rates (Figure 1.10). Residents having a college degree or more smoke at a significantly lower rate than those in all other education categories. The difference in current smoking rates between residents with less than a high school education and residents who have only a high school education is not statistically significant ($p > 0.05$). (The analysis shown in Figure 1.10 excludes respondents aged 24 or less since some of the respondents may still be students.)

Figure 1.11 presents smoking prevalence by age and level of education. At each age group, except those aged 65 and older, an inverse relationship between smoking status and education level exists. In other words, the higher the level of education, the lower the rate of smoking tends to be. For residents aged 65 and older, those with a college education or more smoke at a rate of 5.2 percent, which is about half the smoking rate of those with less education (9.2% to 9.7%).

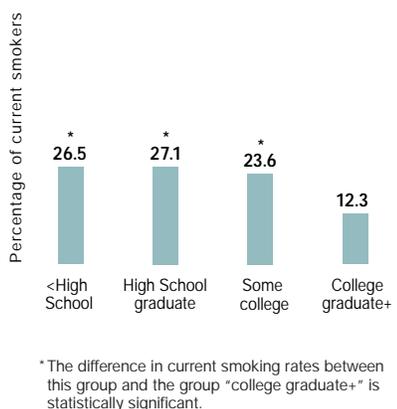
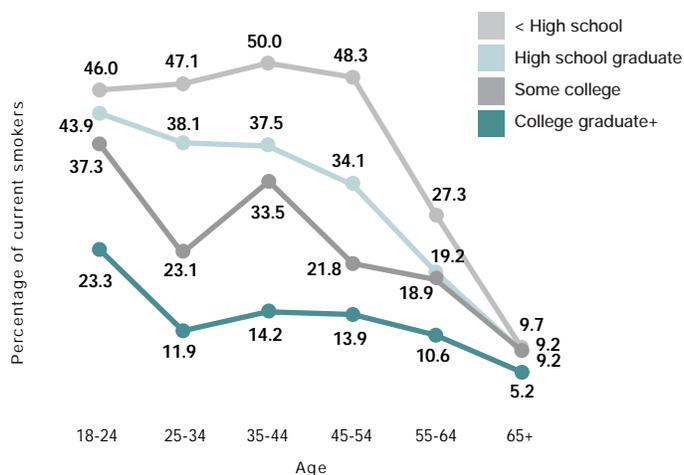


FIGURE 1.10
Current smoking rate by level of education among Hennepin County adults aged 25 and older

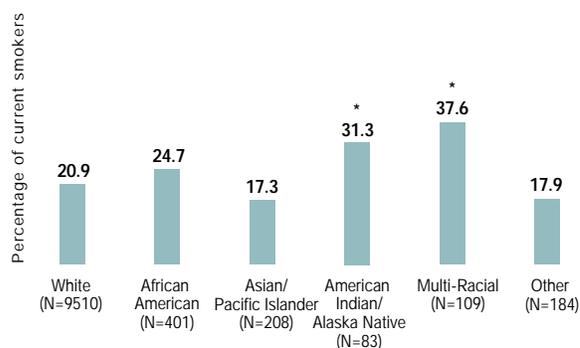
FIGURE 1.11
Current smoking rate by age and level of education among Hennepin County adults aged 18 and older



Current Smoking

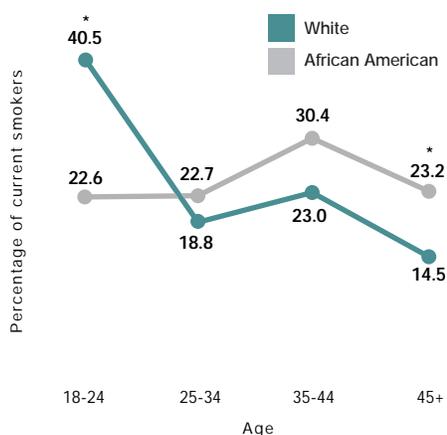
C o n t i n u e d

FIGURE 1.12
Current smoking rate by race among Hennepin County adults aged 18 and older



* The difference in current smoking rates between this racial group and Whites is statistically significant.

FIGURE 1.13
Current smoking rate by age¹ among Hennepin County White and African American adults aged 18 and older



* The difference in current smoking rates between Whites and African Americans within the same age group is statistically significant.

¹ The age groups for those aged 45 and older are combined due to the small sample sizes for ages 55-64 and 65 and older.

Race and Ethnicity

Figure 1.12 shows race-specific smoking rates. The smoking rate for those who self-identify as multi-racial is 37.6 percent, American Indian 31.3 percent, African American 24.7 percent, White 20.9 percent, and Asian and Pacific Islanders 17.3 percent. Current smoking rates among American Indians (31.3%) and the multi-racial group (37.6%) are significantly higher than the overall smoking rates for Whites (20.9%, $p < 0.05$).

However, the difference in rates between Whites and the rest of the racial groups is not statistically significant. The number of cases for non-white groups other than African Americans is small (Appendix Table 1.1). Consequently, comparisons by racial group of smoking rates by other demographic factors are limited to Whites and African Americans.

Figure 1.13 presents smoking rates by age for Whites and African Americans. Among young White residents (18-24), the current smoking rate is almost twice as high as the rate among African Americans of the same age (40.5% vs. 22.6%, $p < 0.05$). Similar findings were recently reported nationally (16,17). For older age groups (25-34, 35-44, 45+), African Americans smoke at a higher rate than Whites; however, only among those aged 45 and older is the difference statistically significant.

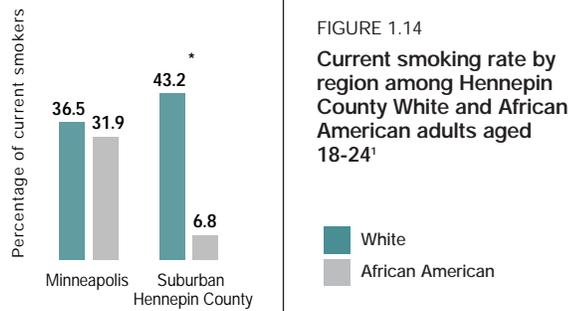
Current smoking among 18-24 year-old Whites and African Americans was further analyzed by region (Figure 1.14). More than two out of five (43.2%) young suburban Whites are smokers as compared to only one out of 15 (6.8%) suburban area African Americans of the same age. Within Minneapolis, racial differences in smoking rates for this age group are not statistically significant.

Smoking rates by Hispanicity were analyzed (Appendix Table 1.1). Countywide, smoking rate differences by Hispanicity are not significant. Additional analysis (not shown) identified that smoking rates between Hispanic Whites and non-Hispanic Whites are also not significantly different. Countywide, only 2.6 percent of residents are of Hispanic origin.

Income

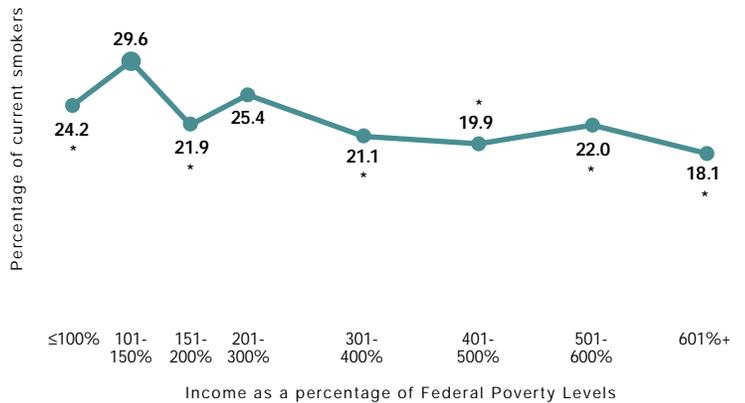
Figure 1.15 shows smoking rates by income measured as a percentage of Federal Poverty Levels. Adult residents with incomes between 101-150 percent of poverty have a smoking rate significantly higher (29.6%) than all other income groups except those with incomes between 201-300 percent of poverty.

These findings mirror the earlier SHAPE analyses (4) which examined the relationship between income and general health status. The SHAPE Initial Findings Report identified that those with incomes between 101-150 percent of Federal Poverty Levels had lower mental and physical health status scores (as measured by the SF12, see Technical Notes) than all other income groups.



* The difference in current smoking rates between the two racial groups is statistically significant within the Suburban Hennepin County.
 † The weighted sample size is 72 for Minneapolis African Americans and 44 for suburban Hennepin County African Americans.

FIGURE 1.15: Current smoking rate by income as a percentage of Federal Poverty Levels among Hennepin County adults aged 18 and older



* The difference in current smoking rates between this group and those with incomes between 101-150% of poverty is statistically significant.

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Multivariate Analysis

Logistic regression (18) was used to further analyze the relationship between smoking and socio-demographic variables (Table 1.3). This analysis simultaneously related several socio-demographic factors to smoking behavior. The dependent variable for the regression analysis was current smoking (yes or no) and the independent variables were age, gender, education, race (White or African American), income as a percentage of Federal Poverty Levels, and region of residence. The resulting adjusted Odds Ratio (OR) identifies the likelihood of a resident in a *specific* socio-demographic category being a current smoker *while statistically controlling all other socio-demographic factors* (see Technical Notes).

The logistic regression analysis identified that age and education are the strongest predictors of smoking behavior. Holding other socio-demographic factors constant, residents aged 18-24 are 7.3 times more likely to smoke than residents aged 65 or older, and residents with less than a high school education are 4.7 times more likely to smoke than residents who have a college education or more.

Smoking behavior also varies significantly depending on income level, gender and region. Those with incomes less than 100 percent of Federal Poverty Levels and those with incomes between 151-200 percent, 301-400 percent and 401-500 percent of Federal Poverty Levels are 1.4 times less likely to smoke than those in the 101-150 percent income category. Males are 1.3 times more likely to smoke than females and Minneapolis residents are 1.4 times more likely to smoke than suburban county residents.

After adjusting for the other socio-economic variables, race (African American vs. White) is not significantly related to current smoking.

TABLE 1. 3

Adjusted odds ratios (from Logistic Regression Model¹) for current smoking among Hennepin County adults aged 18 and older

SOCIO-DEMOGRAPHIC VARIABLE	ADJUSTED ODDS RATIO (OR) ²	95% CONFIDENCE INTERVAL
GENDER		
Male	1.33*	(1.19 - 1.49)
Female	Reference	Reference
AGE (years)		
18-24	7.31*	(5.65 - 9.46)
25-34	3.73*	(2.89 - 4.82)
35-44	4.53*	(3.54 - 5.79)
45-54	3.80*	(2.91 - 4.97)
55-64	2.27*	(1.67 - 3.09)
65+	Reference	Reference
EDUCATION		
<High school	4.72*	(3.53 - 6.30)
High school	3.81*	(2.27 - 4.43)
Some college	2.57*	(2.24 - 2.95)
College+	Reference	Reference
RACE		
White	1.18	(0.89 - 1.56)
African American	Reference	Reference
INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVELS³		
≤100%	0.70*	(0.51 - 0.96)
101-150%	Reference	Reference
151-200%	0.70*	(0.50 - 0.97)
201-300%	0.86	(0.65 - 1.15)
301-400%	0.72*	(0.54 - 0.96)
401-500%	0.73*	(0.54 - 0.98)
501-600%	0.81	(0.59 - 1.10)
≥ 601%	0.75	(0.56 - 1.00)
REGION		
Minneapolis	1.41*	(1.26 - 1.59)
Suburban Hennepin County	Reference	Reference

NOTE:

¹ The dependent variable for the model was current smoking vs. non-smoking (former and never smokers). The independent variables for the model were age, gender, level of education, race, income as a percentage of Federal Poverty Levels, and region of residence (see Technical Notes). The total sample for the model was 8,114.

² The adjusted Odds Ratio indicates the risk that respondents in a particular category of a variable are current smokers, as compared to the reference group, adjusting for all other factors in the model. Example: the OR=7.31 for age 18-24. This is interpreted as county residents aged 18-24 are 7.3 times more likely to be current smokers than county residents aged 65+, adjusting for all other factors in the model.

³ See Technical Notes.

* The Odds Ratio is statistically significant at p<0.05.

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Summary

- About one in five adult Hennepin County residents (21.2%) is a current cigarette smoker. This is approximately 174,000 county residents.
- Current smoking rates decrease as age increases, except between the 25-34 and 35-44 year-old age groups.
- Males are more likely to smoke than females (23.7% vs. 18.9%).
- Those aged 18-24 exhibit the highest current smoking rate (36.5%) among all age groups. About one third (29.9%) of adults aged 18-29 are current smokers. More than half (51.6%) of males aged 20 or 21 currently smoke.
- Minneapolis adult residents smoke at a significantly higher rate than suburban county adult residents (25.1% vs.19.0%).
- Smoking rates are disproportionately distributed across the 19 Hennepin County geographic areas. The highest smoking rates among adults aged 18 and older occur in the Camden, Phillips and Powderhorn areas of Minneapolis (34.0%, 32.4%, and 30.7% respectively). These rates are approximately twice as high as those Hennepin County communities which have the lowest smoking rates (i.e. geographic area 12 (Bloomington, Edina, Richfield, Eden Prairie and Fort Snelling)- 15.5%, geographic area 18 (Greenfield, Independence, Loretto, Maple Plain, Medina and Rockford)-17.1% and the Southwest community of Minneapolis- 16.2%).
- Smoking rates among adults aged 18-29 vary across the 19 geographic areas. About half of young adults living in Camden are current smokers (49.1%), while about two out of five young adults in Powderhorn, Calhoun-Isles and Phillips are smokers (42.7%, 42.6%, and 41.0% respectively). Young adults from geographic area 16 (Hopkins, Minnetonka, St. Louis Park) exhibit the lowest rate of smoking (18.6%), a rate lower than the average smoking rate for all county adults (21.2%).
- While level of education is inversely related to smoking, the difference in rates is most evident when comparing those having a college education or more and those having less education. Smoking and educational level are inversely related even when age groups are examined separately.
- Among all income groups, those with incomes just above 100 percent of Federal Poverty Levels (101-150% of poverty) have the highest smoking rate.

How are We Doing?

Year 2010 Objectives Comparisons

U.S. Year 2010 Objective on tobacco use is to reduce the proportion of adults aged 18 and older who use *tobacco products* to no more than *13 percent* (19)(Table 1.4). *Current prevalence of cigarette use* among Hennepin County adults aged 18 and older is *21.2 percent*. This does not include other forms of tobacco use, such as smokeless tobacco, cigar and pipe use. Current cigarette use alone among Hennepin County adults is well above Year 2010 National Objective on tobacco use.

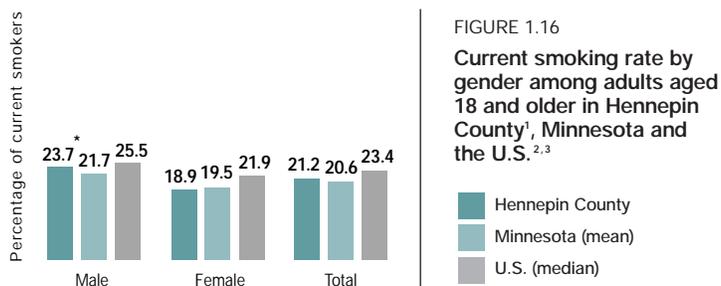
TABLE 1.4

Comparison of Hennepin County smoking prevalence to U.S. Year 2010 Objective on tobacco use

U.S. YEAR 2010 OBJECTIVE ON TOBACCO USE (19)	HENNEPIN COUNTY SMOKING PREVALENCE SHAPE 1998
Reduce to 13 percent the proportion of adults aged 18 and older who use <i>tobacco products</i>	The prevalence of <i>cigarette smoking</i> for adults aged 18 and older is 21.2 percent

Current Smoking

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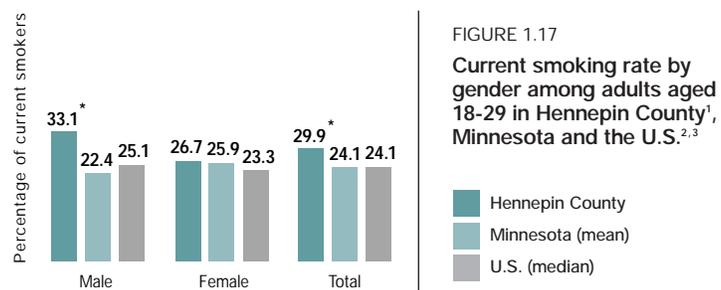


* The difference in current smoking rates between Hennepin County and Minnesota adult residents is statistically significant.

¹ Data source: SHAPE 1998. Definition of current smoker: respondents who describe themselves as smoking now at the time of survey.

² Data source: Behavioral Risk Factor Surveillance System (BRFSS) 1996 (20). Definition of current smoker: respondents who describe themselves as smoking now and who have smoked at least 100 cigarettes during their lifetimes.

³ Mean smoking rates are reported for Minnesota. Median smoking rates of 50 states plus the District of Columbia and Puerto Rico participating in the BRFSS are reported for the U.S. adult population.



* The difference in current smoking rates between Hennepin County and Minnesota residents age 18-29 is statistically significant.

¹ Data source: SHAPE 1998. Definition of current smoker: respondents who describe themselves as smoking now at the time of survey.

² Data source: Behavioral Risk Factor Surveillance System (BRFSS) 1994-1995 (26). Definition of current smoker: respondents who describe themselves as smoking now and who have smoked at least 100 cigarettes during their lifetimes.

³ Mean smoking rates are reported for Minnesota. Median smoking rates of 49 states participating in the BRFSS are reported for the U.S. residents aged 18-29.

Behavioral Risk Factor Surveillance System Comparison:

Smoking rates in Hennepin County are compared to the Minnesota and the U.S. adult population 1996 smoking rates in Figure 1.16. The data for Minnesota and the U. S. adult population are from the Behavioral Risk Factor Surveillance System (BRFSS) 1996 (20). The overall smoking rate in Hennepin County is lower than the national median (21.2% vs. 23.4%). This is true for both males and females. Although the difference in overall smoking rates between Hennepin County and Minnesota is not statistically significant (21.2% vs. 20.6%, $p > 0.05$), the smoking rate for Hennepin County males is significantly higher than the smoking rate for Minnesota males (23.7% vs. 21.7%, $p < 0.05$).

Figure 1.17 shows that smoking among Hennepin County adults aged 18-29 (29.9%) is significantly higher than the state average (24.1%, $p < 0.05$), and higher than the national median (24.1%). One third of Hennepin County men aged 18-29 smoke (33.1%), as opposed to one-fifth (22.4%) of men aged 18-29 statewide. Nationally, among men aged 18-29, the median smoking rate is 25.1 percent.

Figure 1.18 compares the smoking rates for Hennepin County, Minnesota and the U.S. by age. Hennepin County adult residents aged 18-24 have a significantly higher smoking rate than their counterparts statewide and nationally. Hennepin County residents aged 25-34 have a significantly lower smoking rate than their counterparts statewide and nationally. Smoking rates statewide as well as nationally decrease consistently as age increases. In Hennepin County, the rate of current smoking is highest among those aged 18-24, drops sharply among the 25-34 age group, rises again among those aged 35-44 and then subsequently decreases gradually with age.

The differences between Hennepin County, the state as a whole and the nation in smoking prevalence among those aged 18-24 and 25-34 may be due to several factors:

a. The SHAPE survey defines “current smoker” differently. “Current smokers” are defined as respondents who reported smoking at the time of the survey, while the BRFSS defines “current smokers” as respondents who describe themselves as smokers at the time of the survey and who had smoked at least 100 cigarettes during their lifetimes (20). This difference may cause some inflation of the smoking prevalence in Hennepin County (especially among those aged 18-24) since those who say they smoke now, but have not yet consumed 100 cigarettes would be counted as “current smokers” in the SHAPE data but not in the BRFSS data. Any such overestimation, however, would not completely explain the county, state and national difference in smoking rate for adults aged 18-24 (21).

b. Minnesota BRFSS data was collected throughout the entire year in 1996, while the SHAPE data was collected between late October 1997 and mid-February 1998. Seasonal variations in smoking rates may be significant. In addition, the length of time between BRFSS 1996 and SHAPE 1997-98 data collection may decrease data comparability. SHAPE results will be compared to 1997 and 1998 BRFSS data as these become available.

c. Higher smoking rates among those aged 18-24 may be reflective of high smoking rates among younger adolescents. Research has shown that tobacco use among adolescents increased during the 1990s after showing decreases in the 1970s and 1980s (19). A National study shows that past-month smoking rates among 8th, 10th and 12th grade students in 1997 was 19.4 percent, 29.8 percent and 36.5 percent respectively; these rates represent an increase of 20-40 percent since 1991(17). Data from the *CDC Youth Risk Behavior Survey* reveal that current smoking rates among 9th to 12th grade students rose from 27.5 percent in 1991 to 36.4 percent in 1997, a 32 percent increase (22). A recent study reported that smoking rates

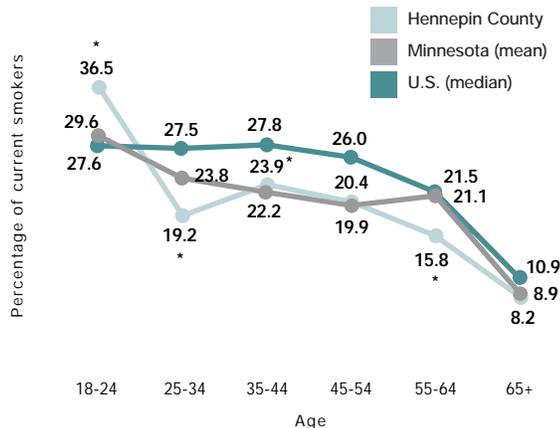


FIGURE 1.18
Current smoking rate by age among adults aged 18 and older in Hennepin County¹, Minnesota and the U.S.^{2,3}

* The difference in current smoking rates between Hennepin County and Minnesota adult residents within the same age group is statistically significant.

¹ Data source: SHAPE 1998
Definition of current smoker: respondents who describe themselves as smoking now at the time of survey.

² Data source: Behavioral Risk Factor Surveillance System (BRFSS) 1996 (20).
Definition of current smoker: respondents who describe themselves as smoking now and who have smoked at least 100 cigarettes during their lifetimes.

³ Mean smoking rates are reported for Minnesota. Median smoking rates of 50 states plus the District of Columbia and Puerto Rico participating in the BRFSS are reported for the U.S. adult population.

among college students have risen from 22.3 percent in 1993 to 28.5 percent in 1997 (23). Close to 90 percent of those smokers started smoking before age 18 (23). Cigarette smoking among adolescents has increased dramatically in Hennepin County (24, 25). Data from the Minnesota Student Survey show that the smoking rate among grade 12 increased by nearly 30 percent between 1992 and 1995, and daily smoking rates have doubled for 12th grade males between 1992 and 1995 (13% to 26%). Countywide, the past-month smoking rate for grade 12 in 1995 was 39 percent (24,25).

Data comparing BRFSS (1996)(20) and SHAPE data by education and race is shown in Table 1.5. At every education level, adult county residents exhibit a significantly higher rate of smoking than do adults statewide. The discrepancy is largest among those having less than a high school education (32.1% vs. 22.3%). While Whites in Hennepin County exhibit the same smoking rate as Whites statewide (20.9% vs. 20.4%), Whites in Hennepin County exhibit a lower rate of smoking than does the U.S. adult population (20.9% vs 23.5%-national median).

Current Smoking

C o n t i n u e d

TABLE 1.5

Comparison of current smoking rates: Hennepin County SHAPE 1998, Minnesota BRFSS 1996, U.S. BRFSS 1996

SOCIO-DEMOGRAPHIC VARIABLE (WS ¹ FOR SHAPE 1998)		HENNEPIN COUNTY, SHAPE 1998 ² CURRENT SMOKING RATE(%)	MINNESOTA BRFSS 1996 ^{3,4} CURRENT SMOKING RATE (%)- MINNESOTA MEAN	U.S. BRFSS 1996 ^{3,4} CURRENT SMOKING RATE (%)- NATIONAL MEDIAN
TOTAL	(10,592)	21.2	20.6	23.4
GENDER				
Male	(5,042)	23.7*	21.7	25.5
Female	(5,550)	18.9	19.5	21.9
AGE (years)				
18-24	(1,448)	36.5*	29.6	27.6
25-34	(2,219)	19.2*	23.8	27.5
35-44	(2,977)	23.9*	22.2	27.8
45-54	(1,553)	20.4	19.9	26.0
55-64	(861)	15.8*	21.1	21.5
65+	(1,535)	8.2	8.9	10.9
EDUCATION				
<High school	(480)	32.1*	22.3	31.7
High school	(2,244)	30.0*	27.0	28.3
Some college	(2,910)	26.4*	22.3	24.3
College+	(4,896)	13.1*	11.5	12.8
RACE				
White	(9,510)	20.9	20.4	23.5
African American	(401)	24.7	24.1	24.0

NOTE:

¹ WS: Weighted sample size.

² Data source: SHAPE 1998.

Definition of current smoker: respondents who describe themselves as smoking now at the time of survey.

³ Data source:

Behavioral Risk Factor Surveillance System (BRFSS) 1996 (20).

Definition of current smoker: respondents who describe themselves as smoking now and who have smoked at least 100 cigarettes during their lifetimes.

⁴ Mean smoking rates are reported for Minnesota. Median smoking rates of 50 states plus the District of Columbia and Puerto Rico participating in the BRFSS are reported for the U.S. adult population.

* The difference in current smoking rates between Hennepin County and Minnesota adult residents is statistically significant.

Smoking Intensity

Smoking Intensity

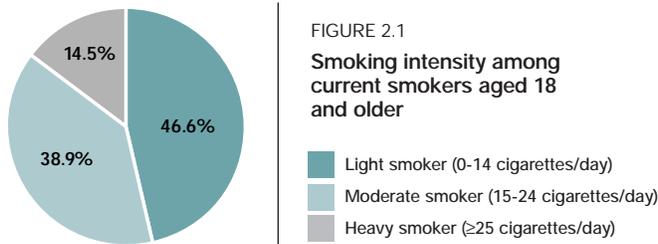
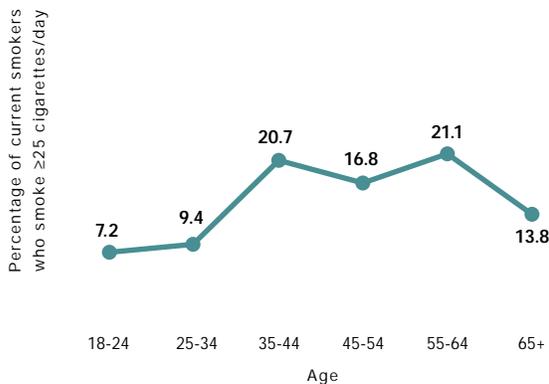


FIGURE 2.1
Smoking intensity among current smokers aged 18 and older

FIGURE 2.2
Heavy smoking rate among current smokers aged 18 and older by age*



* The difference in heavy smoking rates across age groups is statistically significant.

Research has identified a “dose-effect” relationship between the number of cigarettes smoked and the effect on health status (27). The more a person smokes and the longer a person smokes, the worse the health consequences and addiction (27). Understanding the factors associated with smoking intensity, especially heavy cigarette use will assist cessation programs as well as policy makers in developing appropriate and effective individual and community interventions.

The SHAPE survey measured intensity of cigarette smoking in Hennepin County by collecting data on the number of cigarettes smoked daily. Light smokers are defined as those who smoke fewer than 15 cigarettes per day, and moderate smokers are those who smoke 15 to 24 cigarettes per day. Heavy smokers are defined as those who smoke 25 cigarettes a day or more. This categorization has been used to monitor “hard-core smoking” which involves individuals who are less interested in quitting and less able to do it (13, 27). Countywide, the median number of cigarettes smoked daily by current smokers is 15.

Smoking Intensity and Socio-Demographic Characteristics

Countywide, 14.5 percent of current smokers are heavy smokers (i.e. smoke 25 or more cigarettes daily), 38.9 percent are moderate smokers (i.e. smoke 15-24 cigarettes daily) and 46.6 percent are light smokers (i.e. smoke 0-14 cigarettes daily) (Figure 2.1). Appendix Table 2.1 provides details regarding smoking intensity by socio-demographic characteristics.

Age and Gender

Interestingly, while the *current smoking rate* is the highest among those aged 18-24 (refer to Figure 1.3), the *heavy smoking rate* among smokers in this age group is the lowest (7.2%) (Figure 2.2).

The highest percentages of heavy smoking among current smokers occur in age groups 35-44 and 55-64: about one-fifth of smokers in these age groups (20.7% and 21.1% respectively) are heavy smokers.

A higher percentage of males than females are heavy smokers. About one-fifth (18.9%) of male current smokers countywide are heavy smokers, a rate that is twice as high as that for female smokers (9.5%, $p < 0.05$) (Figure 2.3). This pattern is consistent across all age groups (although the gender difference is not statistically significant for the 25-34 year-old age group) (Figure 2.4). About one out of four male smokers aged 35 and older is a heavy smoker.

Countywide, female smokers are more likely to be light smokers than male smokers (50.7% vs. 43.0%) (Figure 2.3).

Region and Geographic Area

While a significantly higher percentage of Minneapolis residents than suburban residents are current smokers (refer to Figure 1.6), *heavy smoking rate* in the suburbs is significantly higher than the *heavy smoking rate* in Minneapolis (16.7% vs. 11.5%, $p < 0.05$) (Figure 2.5). Gender-specific analysis shows that among current male smokers, suburban males have a significantly higher heavy smoking rate than Minneapolis males (22.4% vs. 14.3%, $p < 0.05$). Among females, there is no significant difference in heavy smoking rates by region (i.e. Minneapolis vs suburban Hennepin County)(Figure 2.5).

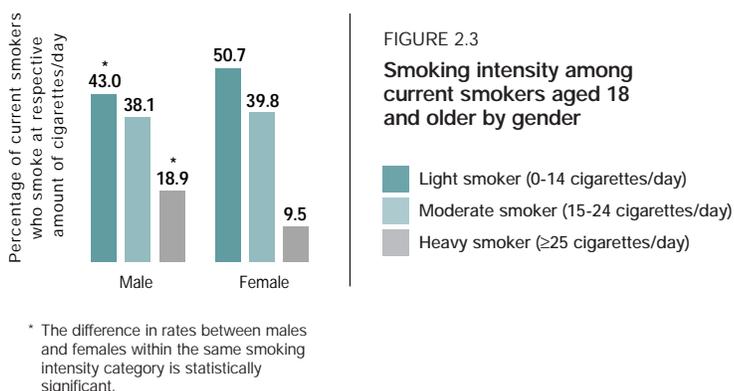
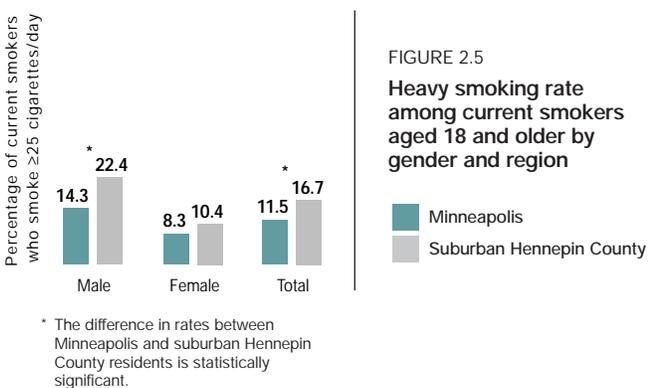
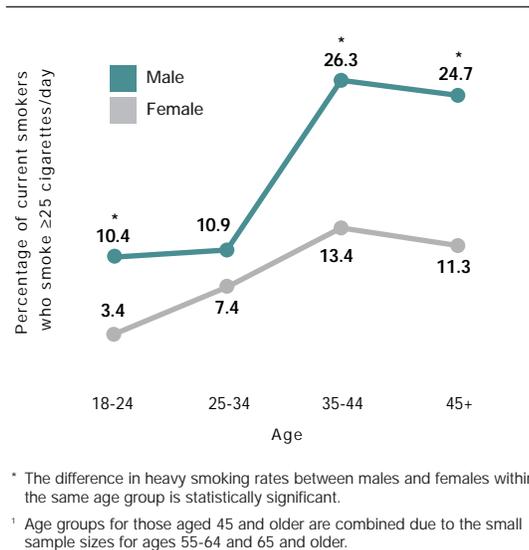


FIGURE 2.4
Heavy smoking rate among current smokers aged 18 and older by age¹ and gender



Smoking Intensity

C o n t i n u e d

TABLE 2.1

Heavy smoking rate¹ among current smokers aged 18 and older for 19 geographic areas, Hennepin County

GEOGRAPHIC AREAS	HEAVY SMOKING RATE(%)	RANK
Area 12	28.7	1
Area 17	26.5	2
Area 7 - Northeast	19.7	3
Area14	17.8	4
Area 8 - Phillips	17.8	4
Area 18	17.7	6
Area 10 - Southwest	16.7	7
Area 6 - Nokomis	15.7	8
Area 4 - Longfellow	14.9	9
Area 19	13.9	10
Area 3 - Central	11.5	11
Area 13	11.4	12
Area 2 - Camden	10.9	13
Area 5 - Near North	10.8	14
Area 16	10.2	15
Area 9 - Powderhorn	7.2	16
Area 15	5.2	17
Area 1 - Calhoun-Isles	4.9	18
Area 11 - University	1.3	19

¹ Heavy smokers are defined as those current smokers who reported smoking 25 or more cigarettes daily.

Geographic areas for suburban Hennepin County:

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

Area 14 - Brooklyn Center, Brooklyn Park, Osseo.

Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.

Area 16 - Hopkins, Minnetonka, St. Louis Park.

Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista,

Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.

Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.

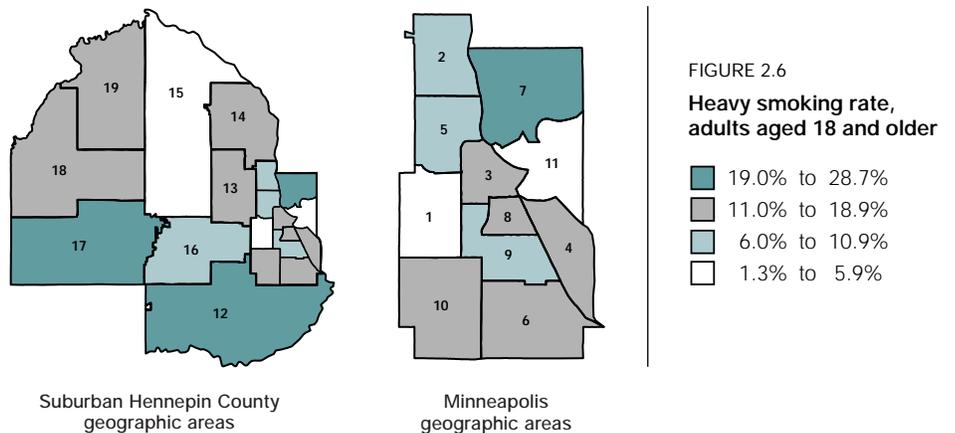


Figure 2.6 and Table 2.1 show the distribution of heavy smoking rates across 19 geographic areas in Hennepin County. Heavy smoking rates vary widely across these areas. Heavy smoking rates are highest in suburban geographic areas 12 (Bloomington, Eden Prairie, Edina, Richfield and Fort Snelling) and 17 (Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland) and in the Northeast community of Minneapolis. In these areas, 20-30 percent of current smokers are heavy smokers. The lowest heavy smoking rates occur in the University and Calhoun-Isles communities of Minneapolis and in geographic area 15 (Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth) of suburban Hennepin County. Only 1-5 percent of current smokers in these areas are heavy smokers (1.3%, 4.9% and 5.2% respectively).

Age-gender adjusted heavy smoking rates by geographic area appear in Appendix Table 2.2. Adjustment accounts for differences in the age and gender distributions in the population and makes heavy smoking rate comparisons more meaningful across geographic areas (see Technical Notes). After adjustment, some minor rank order shifts occur; however, the overall pattern remains the same.

Education

The analysis for heavy smoking and *education level* excludes the respondents who are under 25 as many may still be students.

Figure 2.7 shows that heavy smoking rate among current smokers who have not finished high school is 23.1 percent, and the heavy smoking rate among those who are college graduates is 13.7 percent. Further analysis shows that the general pattern between heavy smoking and level of education among current smokers exists only among female current smokers ($p < 0.05$) (Figure 2.8). Female current smokers who have not completed high school

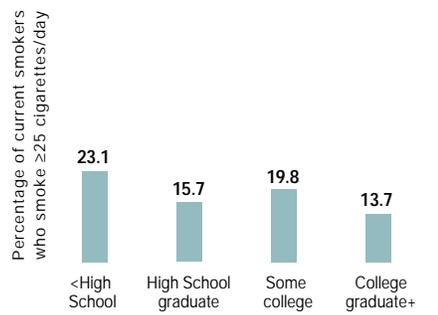


FIGURE 2.7
Heavy smoking rate among current smokers aged 25 years and older by level of education

* The differences in heavy smoking rates across educational levels are statistically significant.

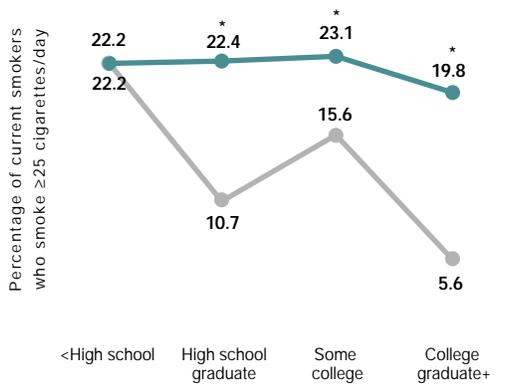


FIGURE 2.8
Heavy smoking rate among current smokers aged 25 years and older by level of education and gender

* The difference in heavy smoking rates between males and females within the same level of education is statistically significant.

¹ The differences in heavy smoking rates across educational levels are statistically significant for females.

Smoking Intensity

C o n t i n u e d

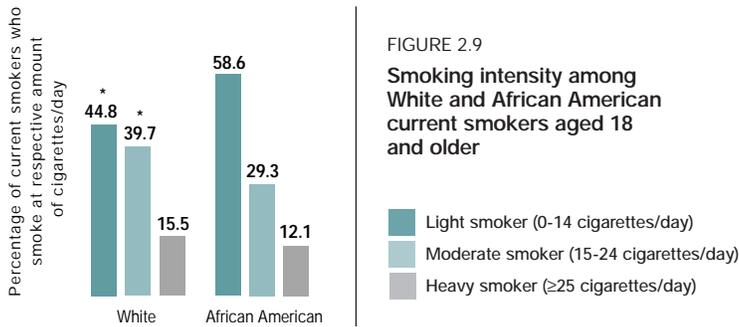


FIGURE 2.9
Smoking intensity among White and African American current smokers aged 18 and older

* The difference in rates between Whites and African Americans within the same smoking intensity category is statistically significant.

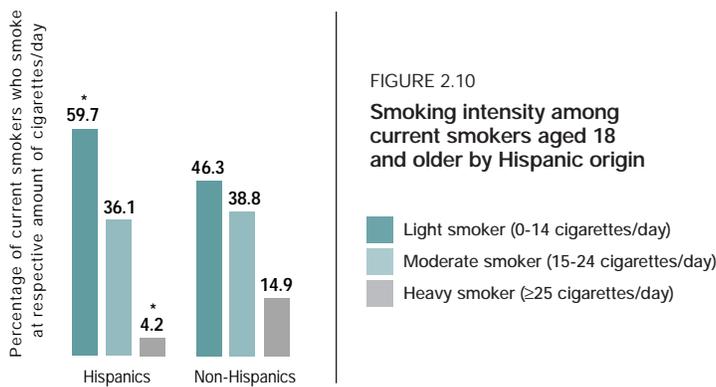


FIGURE 2.10
Smoking intensity among current smokers aged 18 and older by Hispanic origin

* The difference in rates between Hispanics and non-Hispanics within the same smoking intensity category is statistically significant.

have a rate of heavy smoking of 22.2 percent and female current smokers who have completed college have a rate of heavy smoking of 5.6 percent. Heavy smoking rates among males vary only slightly across education levels ($p > 0.05$).

Heavy smoking rate differences by gender continue to exist when level of education is analyzed (Figure 2.8). Males at every education level exhibit significantly higher heavy smoking rates than females, except among those who have not completed high school, where there is no gender difference. (Results should be interpreted cautiously as the SHAPE sample size for current smokers with less than a high school education is 54 for males and 36 for females.)

Race and Ethnicity

The analysis of differences in smoking intensity by race was limited to Whites and African Americans since the number of smokers in other racial groups is small. Rates of heavy smoking for Whites and African Americans are not statistically different (Figure 2.9). A significantly higher percentage of African American than White smokers, however, are light smokers (58.6% vs. 44.8%, $p < 0.05$). White smokers are more likely to be moderate smokers than are African Americans (39.7% vs. 29.3%, $p < 0.05$).

Countywide, heavy smoking is more prevalent among non-Hispanics than Hispanics (14.9% vs. 4.2%, $p < 0.05$) (Figure 2.10). Caution needs to be exercised again in the interpretation of this result since the sample size for Hispanic smokers is small (72 cases).

Income

Heavy smoking varies significantly with income as a percentage of poverty, but the relationship is peculiarly non-linear (Figure 2.11). Countywide, heavy smoking increases with income up to 151 - 200 percent of Federal Poverty Levels. Heavy smoking then declines significantly for those with incomes between 201- 300 percent of poverty. Among those with incomes above 300 percent of poverty, heavy smoking increases steadily, peaking among those with incomes between 501-600 percent of poverty.

Multivariate Analysis

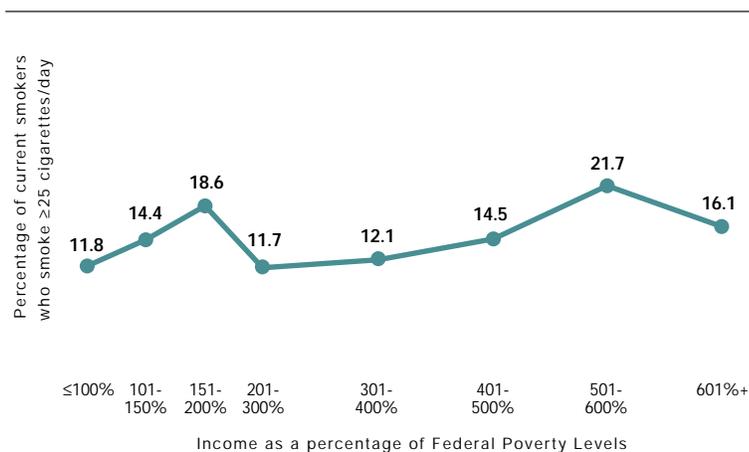
Table 2.2 presents the results of the logistic regression analysis (see Technical Notes) used to identify multivariate relationships between heavy smoking and socio-demographic characteristics among current smokers. The Odds Ratios presented for each socio-demographic characteristic are adjusted for the other five socio-demographic characteristics presented in the table.

Significant relationships exist between certain socio-demographic characteristics and heavy smoking. Age is related most strongly to heavy smoking among current smokers. Smokers aged 35-44 are about 10 times more likely to be heavy smokers than those aged 18-24. Smokers aged 55-64 are 7.3 times more likely to be heavy smokers than those aged 18-24.

Gender, education, income and region of residency are also significantly related to heavy smoking. Males are 2.2 times more likely to be heavy smokers than females and those with less than a high school education are 2.4 times more likely to smoke heavily than those who are college graduates. Countywide, those with incomes between 151-200% of poverty are 2.5 times more likely to be heavy smokers than those whose incomes are at or below 100 percent of poverty. Suburban Hennepin County residents are 1.6 times more likely to be heavy smokers than Minneapolis residents, holding other socio-demographic variables constant.

FIGURE 2.11

Heavy smoking rate among current smokers aged 18 and older by income as a percentage of Federal Poverty Levels*



* The differences in heavy smoking rates across income levels are statistically significant.

Smoking Intensity

C o n t i n u e d

TABLE 2.2

Adjusted odds ratios (from Logistic Regression Model¹) for heavy smoking among current smokers aged 18 and older, Hennepin County

SOCIO-DEMOGRAPHIC VARIABLE	ADJUSTED ODDS RATIO (OR) ²	95% CONFIDENCE INTERVAL
GENDER		
Male	2.24*	(1.65 – 3.02)
Female	Reference	Reference
AGE (years)		
18-24	Reference	Reference
25-34	2.94*	(1.54 – 5.58)
35-44	9.99*	(5.61 – 17.81)
45-54	6.56*	(3.46 – 12.45)
55-64	7.33*	(3.53 – 15.21)
≥65	5.38*	(2.44 – 11.83)
EDUCATION		
<High school	2.38*	(1.22 – 4.62)
High school	1.21	(0.83 – 1.77)
Some college	1.26	(0.89 – 1.79)
College+	Reference	Reference
RACE		
White	Reference	Reference
African Americans	0.999	(0.50 – 2.01)
INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVELS³		
≤100%	Reference	Reference
101-150%	1.59	(0.73 – 3.47)
151-200%	2.46*	(1.22 – 4.97)
201-300%	0.95	(0.51 – 1.76)
301-400%	0.77	(0.41 – 1.42)
401-500%	0.99	(0.52 – 1.88)
501-600%	1.89	(0.998 – 3.57)
≥601%	1.00	(0.55 – 1.83)
REGION		
Minneapolis	Reference	Reference
Suburban Hennepin County	1.58*	(1.16 – 2.15)

NOTE:

¹ The dependent variable for the model was heavy smoking vs. less smoking among current smokers.

The independent variables for the model were age, gender, level of education, race, income as a percentage of Federal Poverty Levels, and region of residence (see Technical Notes).

The analysis only includes two racial groups, White and African Americans. The total sample for the model was 1,729.

² The adjusted Odds Ratio indicates the risk that respondents in a particular category of a variable are heavy smokers, as compared to the reference group, adjusting for all other factors in the model. Example: the OR=2.24 for males. This is interpreted as male smokers are 2.24 times more likely to smoke heavily than female smokers, adjusting for all other factors in the model.

³ See Technical Notes.

* The Odds Ratio is statistically significant at p<0.05.

Other Smoking Intensity Patterns

Extremely Heavy Smoking

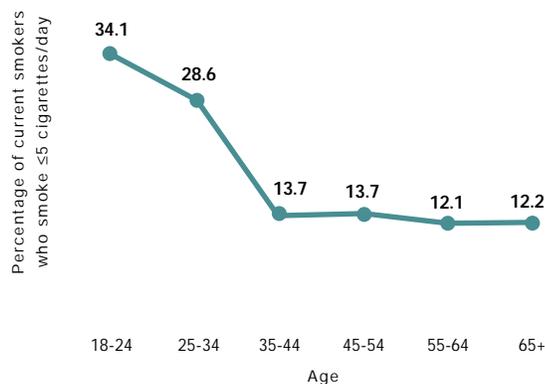
The rate of extremely heavy smoking among current smokers countywide (i.e. smoking of 45 or more cigarettes daily) is 2.3 percent. Among current smokers, males exhibit a significantly higher rate of extremely heavy smoking than females (3.5% vs. 1.0%, $p < 0.05$) (Figure not shown). Countywide, 98 percent of extremely heavy smokers are White. (Total N for extremely heavy smokers in the SHAPE survey was 51.)

Extremely Light Smoking

About one out of five current smokers (21.1%) countywide is an extremely light smoker (i.e. smokes 5 cigarettes or fewer daily). As was observed among all light smokers (i.e. those who smoke fewer than 15 cigarettes per day), females are more likely than males to be extremely light smokers (24.8% vs. 17.9%, $p < 0.05$) (Figure not shown). Minneapolis smokers are more likely to be extremely light smokers than their suburban counterparts (25.7% vs. 17.8%, $p < 0.05$) (Figure not shown). The extremely light smoking rate is the highest among those smokers aged 18-24 (34.1%) and decreases steadily through age 44 (Figure 2.12). Among 18-24 year-old female smokers countywide (N=87), about half under age 22 are extremely light smokers (Figure 2.13).

FIGURE 2.12

Extremely light smoking rate among current smokers aged 18 and older by age¹*

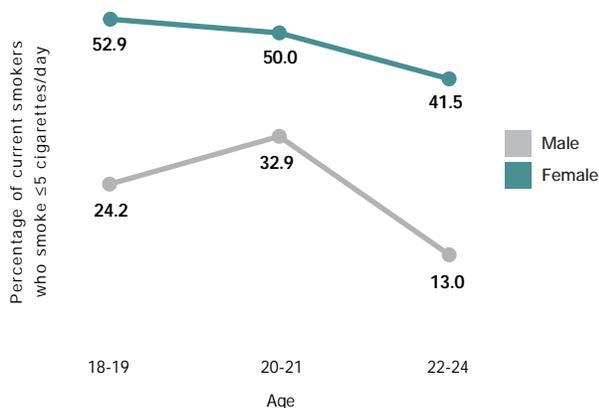


* The difference in extremely light smoking rates across age groups is statistically significant.

¹ Extremely light smokers are those who smoke 5 or fewer cigarettes/day.

FIGURE 2.13

Extremely light smoking rate¹ among current smokers aged 18-24 by age and gender



¹ Extremely light smokers are those who smoke 5 or less cigarettes/day.

Smoking Intensity

C o n t i n u e d

Summary

- Countywide, about 15 percent of current smokers are heavy smokers (i.e. smoke ≥ 25 cigarettes per day).
- Current male smokers are twice as likely to smoke heavily as current female smokers (18.9% vs 9.5%, $p < 0.05$).
- While those aged 18-24 have the highest *current* smoking rate across all age groups, they are the group least likely to smoke *heavily* (just 7.2% are heavy smokers). Current smokers aged 35-44 and 55-64 are most likely to be heavy smokers.
- Although suburban residents exhibit a significantly lower *current* smoking rate than Minneapolis residents, the *heavy* smoking rate is significantly higher among suburban current smokers than among Minneapolis current smokers (16.7% vs. 11.5%, $p < 0.05$).
- Heavy smoking rates vary widely across the 19 geographic areas of Hennepin County. Heavy smoking rates are highest in suburban geographic areas 12 (Bloomington, Eden Prairie, Edina, Richfield, Ft. Snelling) and 17 (Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland) and in the Northeast community of Minneapolis.
- Heavy smoking is more prevalent among smokers with less than a high school education, and less prevalent among smokers having at least a college degree.
- Heavy smoking varies significantly with income (as a percentage of Federal Poverty Levels), but the relationship does not show a clear pattern.
- Age is the socio-demographic characteristic related most strongly to heavy smoking among current smokers. Smokers aged 35-44 are about 10 times more likely to be heavy smokers than those aged 18-24. Gender is also strongly associated with heavy smoking. Males are 2.2 times more likely to be heavy smokers than females.
- About one out of five (21.1%) current smokers countywide is an extremely light smoker (i.e. smokes 5 cigarettes or fewer daily). Half of female smokers under age 22 are extremely light smokers.
- About 2.3 percent of current smokers are extremely heavy smokers (i.e. smoke 45 cigarettes or more daily). Ninety-eight percent (98%) of them are White.

How are We Doing?

Behavioral Risk Factor Surveillance System Comparison

Table 2.3 presents comparison data for smoking intensity. The categories of smoking intensity are those used by BRFSS (20). The following discussion focuses on the percentage of smokers who smoke 41 cigarettes or more daily.

Hennepin County has a significantly higher percentage of smokers who smoke 41 cigarettes or more per day (2.4%) than does Minnesota statewide (1.4%) and the U.S as a whole (1.3%). Among adults aged 18-24 and 25-34, the percentages of smokers who smoke 41 cigarettes daily or more are 3.9 percent and 2.6 percent respectively, while the rates for State and U.S. are estimated at 0.0 percent for those age groups.

Note: The denominators in the rate calculations in the SHAPE survey data and the BRFSS 1996 data are defined somewhat differently. In the SHAPE analyses, the denominator is the number of respondents who reported that they were current smokers and on average smoked at least one cigarette per day. In the BRFSS analyses, the denominator for the rate calculations includes those who have smoked at least 100 cigarettes in their lifetimes *and currently* smoke cigarettes daily (20).

Smoking Intensity

C o n t i n u e d

TABLE 2.3

Comparison of smoking intensity: Hennepin County SHAPE 1998, Minnesota BRFSS 1996, U.S. BRFSS 1996

SOCIO-DEMOGRAPHIC VARIABLES (WS ¹ FOR SHAPE 1998)		HENNEPIN COUNTY SHAPE 1998 ²			MINNESOTA BRFSS 1996 ^{3,4}			U.S. BRFSS 1996 ^{3,4}		
		NUMBER OF CIGARETTES SMOKED/DAY AMONG CURRENT SMOKERS (%)			NUMBER OF CIGARETTES SMOKED/DAY AMONG THOSE WHO SMOKE EVERY DAY (%)			NUMBER OF CIGARETTES SMOKED/DAY AMONG THOSE WHO SMOKE EVERY DAY (%)		
		1-20	21-40	41 or more	1-20	21-40	41 or more	1-20	21-40	41 or more
TOTAL	(2,192)	85.0*	12.6*	2.4*	76.7	21.9	1.4	79.7	18.7	1.3
GENDER										
Male	(1,171)	80.9*	15.5*	3.6	69.1	28.2	2.7	73.6	23.1	2.1
Female	(1,022)	89.8*	9.2*	1.0	84.8	15.2	0.0	85.9	13.4	0.6
AGE (years)										
18-24	(509)	92.5*	3.5*	3.9*	83.0	17.0	0.0	91.5	8.1	0.0
25-34	(417)	90.4	7.0*	2.6*	89.1	10.9	0.0	86.0	12.7	0.0
35-44	(700)	79.1*	19.0*	1.9	66.6	31.4	2.0	76.6	21.6	1.4
45-54	(315)	81.3*	17.1*	1.6	68.0	29.5	2.4	70.2	27.3	2.5
55-64	(131)	78.6	19.1	2.3	75.2	21.5	3.3	76.0	21.9	1.6
65+	(121)	85.1	14.9	0.0	82.1	17.1	0.7	81.3	18.2	0.0
EDUCATION										
<High school	(153)	85.0*	12.4*	2.6	72.3	26.0	1.8	77.3	19.8	1.9
High school	(666)	87.2*	10.5*	2.3	75.0	23.3	1.8	78.7	19.9	1.3
Some college	(753)	84.6*	13.7*	1.7	81.4	17.4	1.2	81.3	17.8	1.4
College+	(610)	83.0*	13.8*	3.3*	75.5	24.1	0.4	82.3	16.9	0.7
RACE										
White	(1,938)	84.0*	13.4*	2.6	75.9	21.8	2.3	76.7	20.4	2.3
African American	(97)	87.6*	12.4*	0.0	77.7	22.3	0.0	93.3	4.8	0.0

NOTE:

¹ Weighted sample size.

² Data source: SHAPE, 1998.

Definition: the number of cigarettes smoked per day among current smokers who smoked at least one cigarette per day.

³ Data source:

Behavioral Risk Factor Surveillance System (BRFSS) 1996 (20).

Definition: the number of cigarettes smoked per day among those who smoke every day.

⁴ Mean percentage of heavy smoker among current smokers are reported for Minnesota. Median percentages of 50 states plus the District of Columbia and Puerto Rico participating in the BRFSS are reported for U.S. adult population.

* The difference in percentages between Hennepin County and Minnesota adult residents for the same smoking intensity category is statistically significant.

Smoking Cessation

Smoking Cessation

More than 44 million Americans are former cigarette smokers, and nearly half of all living adults who have ever smoked have quit (28, 29). A majority of U.S. current smokers want to stop using cigarettes (28, 30, 31). Unfortunately, an estimated 47 million Americans continue to smoke cigarettes (28).

The benefits of smoking cessation have been well-documented (29):

- Smoking cessation has major and immediate health benefits for men and women of all ages.
- Former smokers live longer than current smokers
- Smoking cessation decreases the risk of lung cancer, other cancers, heart attack, stroke and chronic lung disease.
- Women who stop smoking before pregnancy or during the first 3 to 4 months of pregnancy reduce their risk of having low birth weight babies to that of women who never smoked.
- The health benefits of smoking cessation far exceed any risks associated with an average 5 pound (2.3kg) weight gain or adverse psychological effects that may follow quitting.

As evidence of the negative health effects of cigarette smoking mounts and the benefits of smoking cessation become more clear, effective strategies which will decrease tobacco use among all ages of the population still remain elusive. In Hennepin County, about one out of five adults (approximately 174,000 adults) is a current smoker (21.2%). This estimate does not include current smokers who are under age 18, nor does it include the use of smokeless tobacco, cigars and pipes.

Reduction of smoking among current smokers requires an understanding of smoking cessation behavior in the population and an identification of the factors that are associated with smoking cessation. Effective smoking prevention strategies will be based in part on this knowledge. The following presents data regarding smoking cessation behavior among Hennepin County adults. Two measures of smoking cessation behavior are used.

1. *Cigarette smoking cessation prevalence among ever smokers:*

This is a measure of quitting behavior among ever smokers (i.e. current smokers as well as those who have ever smoked in their lifetimes). In other words, this is the percentage of former plus current smokers who are former smokers. This measure is also known as quit ratio and is reported in the literature and Surgeon General Reports (27, 29, 30).

2. *Percentage of current smokers who tried to quit during the past year (quit attempt in past year):*

This is a measure of the percentage of current smokers who tried to quit smoking during the past year for at least one day. This measure has been used by the U.S. Behavioral Risk Factor Surveillance System Survey (12, 28).

Smoking Cessation Among Ever Smokers and Socio-Demographic Characteristics

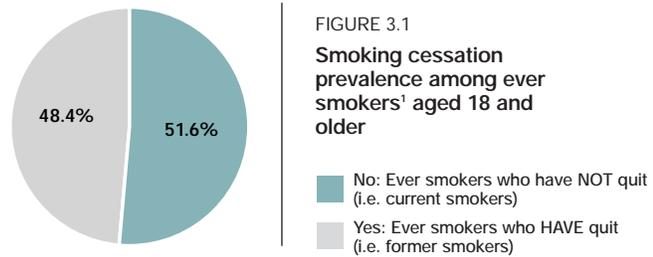
Approximately half (48.4%) of ever smokers (i.e. current smokers plus former smokers) in Hennepin County have stopped smoking (i.e. former smokers)(Figure 3.1). Smoking cessation by socio-demographic characteristics is provided in Appendix Table 3.1.

Age and Gender

Countywide, the smoking cessation prevalence among ever smokers is 47.0 percent for males and 49.8 percent for females (figure not shown). There is no significant difference in cessation prevalence between males and females in Hennepin County overall ($p>0.05$).

Ever smokers in older age groups are likely to have made more quitting attempts, and may have more compelling reasons to quit such as health consequences resulting from their smoking history. Smoking cessation prevalence significantly increases as age increases (Figure 3.2). This is not surprising since most smokers initiate smoking when they are young (23, 27, 32), and this is a cumulative graph.

Smoking cessation prevalence for both males and females increases as age increases (Figure 3.3). While the overall gender difference in cessation rates is not significant, age specific analysis shows that female ever smokers aged 18-24 and 35-44 have significantly higher cessation prevalence than their male counterparts. Conversely, male ever smokers aged 65+ have a significantly higher cessation prevalence than their female counterparts.



¹ Percentage of ever smokers who have quit smoking (i.e. former smokers). Ever smokers are current smokers or former smokers at the time of the survey.

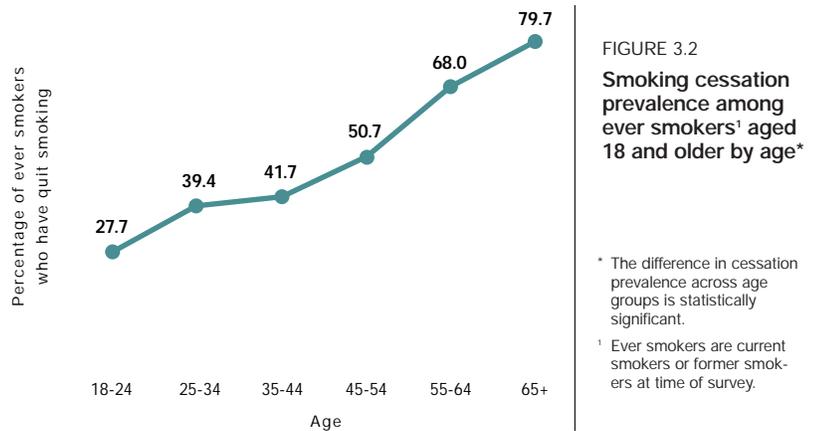


FIGURE 3.2
Smoking cessation prevalence among ever smokers¹ aged 18 and older by age*

* The difference in cessation prevalence across age groups is statistically significant.

¹ Ever smokers are current smokers or former smokers at time of survey.

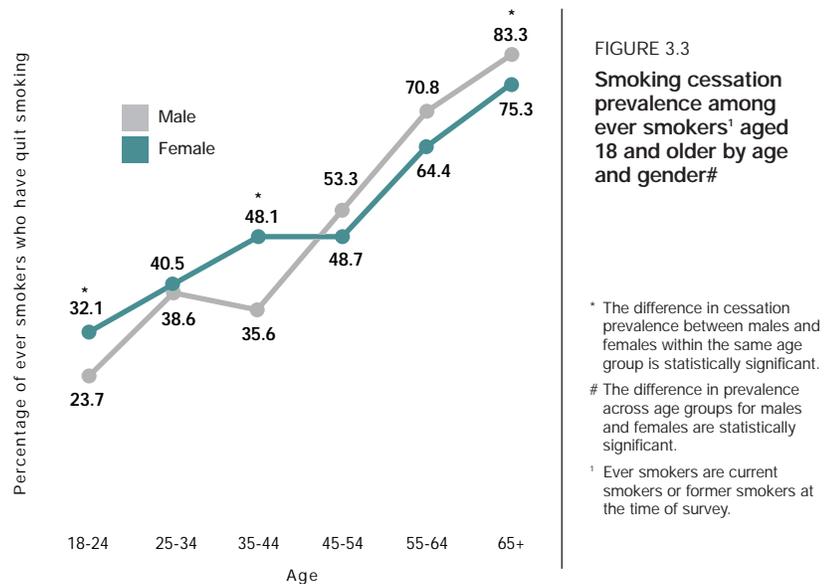


FIGURE 3.3
Smoking cessation prevalence among ever smokers¹ aged 18 and older by age and gender#

* The difference in cessation prevalence between males and females within the same age group is statistically significant.

The difference in prevalence across age groups for males and females are statistically significant.

¹ Ever smokers are current smokers or former smokers at the time of survey.

Smoking Cessation

C o n t i n u e d

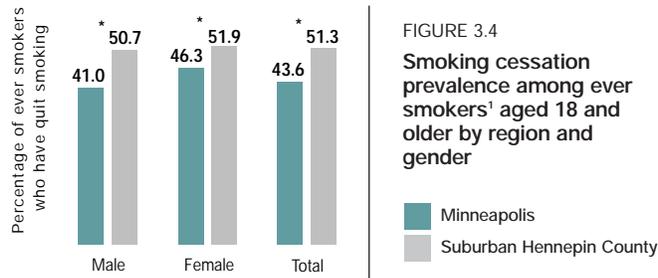


FIGURE 3.4
Smoking cessation prevalence among ever smokers¹ aged 18 and older by region and gender

* The difference in cessation prevalence between Minneapolis and suburban Hennepin County residents is statistically significant.

¹ Ever smokers are current smokers or former smokers at the time of survey.

Region and Geographic Area

Suburban Hennepin County ever smokers are more likely to have quit smoking than their counterparts from Minneapolis (46.3% vs. 51.3%, $p < 0.05$) (Figure 3.4). Gender specific analyses show similar trends.

Cessation prevalence by geographic area is presented in Figure 3.5 and Table 3.1. In seven of the 19 geographic areas in Hennepin County, half of ever smokers have quit. The geographic areas are area 17 (outer-ring suburbs in southwestern part of Hennepin County), 12 (southern part of Hennepin County), 18 (outer-ring suburbs in the far western part of Hennepin County), 16 (inner-ring suburbs west of Minneapolis) and 15 (outer-ring suburbs in the northern part of Hennepin County) in suburban Hennepin County and the Southeast and Nokomis communities in Minneapolis. In comparison, only about one-third of ever smokers (33.4%) in the Phillips area of Minneapolis have quit. The Phillips area cessation rate is the lowest across all 19 geographic areas. The cessation rates in the Calhoun-Isles, Camden, and Near North areas of Minneapolis are only somewhat higher than in the Phillips area (39%, 38.4% and 37.3% respectively). Communities exhibiting lower smoking cessation rates (i.e. less than 40%) also exhibit the higher *current smoking rates* (Figure 1.8 and Table 1.1).

Actual unadjusted smoking cessation rates and age-gender adjusted rates for 19 geographic areas are presented in Appendix Table 3.2 (see Technical Notes). After adjustment, some changes in rank occur. For example, when rates of smoking cessation are unadjusted, area 11 in Minneapolis (University) ranks 11th among the 19 geographic areas. After adjustment, it ranks 4th.

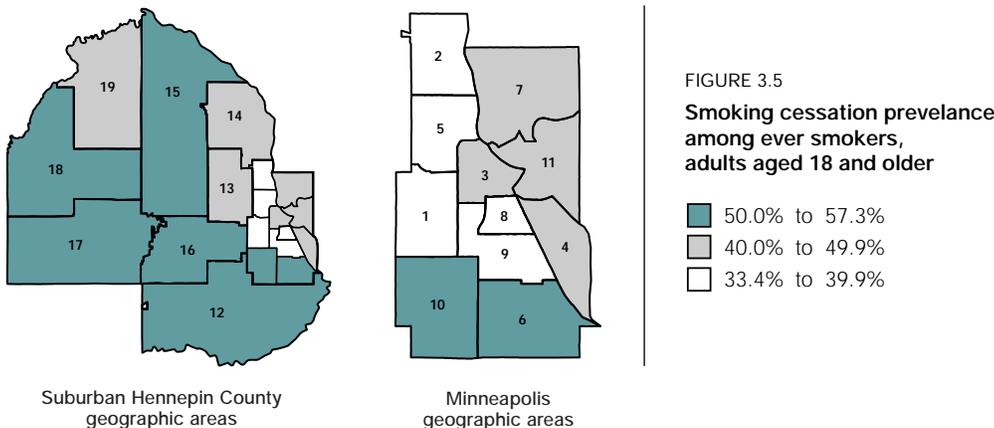
TABLE 3.1

Smoking cessation prevalence among ever smokers aged 18 and older for 19 geographic areas, Hennepin County

GEOGRAPHIC AREAS	PREVALENCE OF SMOKING CESSATION AMONG EVER SMOKERS	RANK
Area 17	57.3	1
Area 10 - Southwest	56.9	2
Area 12	56.5	3
Area 6 - Nokomis	52.8	4
Area 18	51.7	5
Area 16	51.6	6
Area 15	50.0	7
Area 13	49.0	8
Area 4 - Longfellow	46.7	9
Area 19	45.8	10
Area 3 - Central	43.8	11
Area 11 - University	42.2	12
Area 7 - Northeast	41.9	13
Area 14	40.0	14
Area 9 - Powderhorn	39.4	15
Area 1 - Calhoun-Isles	39.0	16
Area 2 - Camden	38.4	17
Area 5 - Near North	37.3	18
Area 8 - Phillips	33.4	19

Geographic areas for suburban Hennepin County:

- Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.
- Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.
- Area 14 - Brooklyn Center, Brooklyn Park, Osseo.
- Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.
- Area 16 - Hopkins, Minnetonka, St. Louis Park.
- Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.
- Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.
- Area 19 - Corcoran, Hanover, Hassan, Rogers.



Smoking Cessation

C o n t i n u e d

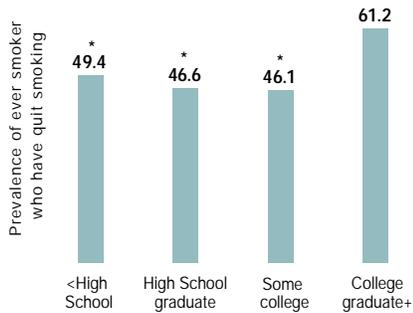


FIGURE 3.6
Smoking cessation prevalence among ever smokers¹ aged 25 and older by level of education

* The difference in cessation prevalence between this group and the group "college graduates+" is statistically significant.

¹ Ever smokers are current smokers or former smokers at the time of survey.

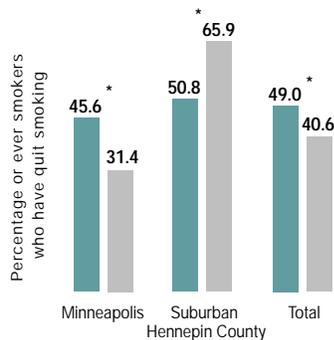


FIGURE 3.7
Smoking cessation prevalence among White and African American ever smokers¹ aged 18 and older by region

* The difference in cessation prevalence between Whites and African Americans is statistically significant.

¹ Ever smokers are current smokers or former smokers at the time of survey.

Education

Level of education is significantly related to smoking cessation (Figure 3.6). Ever smokers who have completed college or more education have a significantly higher smoking cessation rate than ever smokers who are less educated ($p < 0.05$). This analysis excludes those who are under 25 since some may still be students.

Race and Ethnicity

The comparison of differences in smoking cessation rates by race is limited to Whites and African Americans since the sample sizes for other racial groups are too small to provide statistically stable results.

Overall, White ever smokers have a significantly higher cessation prevalence than African American ever smokers (49.0% vs. 40.6%, $p < 0.05$) (Figure 3.7). However, further analysis shows that this is true only among Minneapolis residents (Minneapolis Whites-45.6% vs. Minneapolis African Americans-31.4%, $p < 0.05$). In suburban Hennepin County, the opposite is true: the cessation prevalence for African American ever smokers is significantly higher than that for White ever smokers (65.9% vs. 50.8% respectively, $p < 0.05$).

There is no significant difference in cessation rates between Hispanics and non-Hispanics countywide (47.8% vs. 48.5%, $p > 0.05$) (Figure not shown).

Income

The relationship between smoking cessation and income as a percentage of Federal Poverty Levels among ever smokers is statistically significant ($p < 0.05$) (Figure 3.8). However, the relationship is non-linear. Countywide, smoking cessation prevalence increases with income up through 301-400 percent of poverty. Smoking cessation prevalence then declines slightly after 400 percent of poverty.

Multivariate Analysis

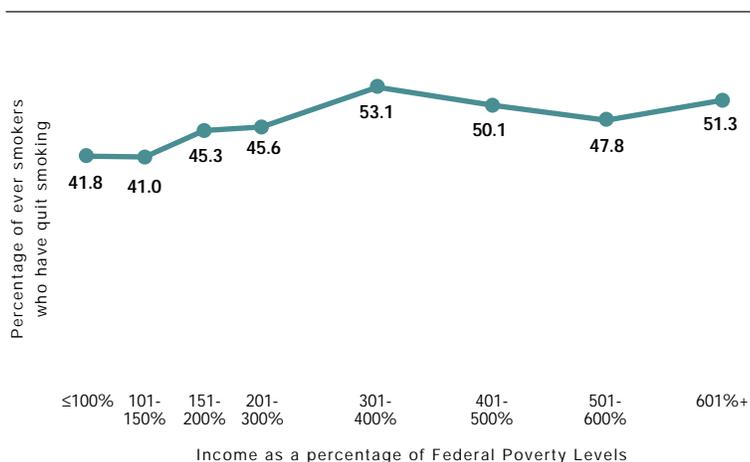
Logistic regression (see Technical Notes) was used to further analyze the relationship between smoking cessation and socio-demographic characteristics among ever smokers (Table 3.2). The odds ratios presented for each socio-demographic characteristic are adjusted for the other five socio-demographic characteristics in Table 3.2.

The results of the analysis show that age is the characteristic related most strongly to smoking cessation among ever smokers. When compared to 18-24 year-olds, ever smokers aged 65 and older are 10.8 times more likely to be ex-smokers. Ever smokers aged 55-64 are 5.1 times more likely to be ex-smokers than those aged 18-24. The adjusted odds ratio results do not mean that ever smokers in older age groups are more likely to *quit* smoking; they are, rather, more likely to *be* ex-smokers. Many ever smokers in older age groups may have stopped smoking at a young age.

Gender, education and region of residency are also related strongly to smoking cessation among ever smokers. After adjusting for other socio-demographic characteristics, female ever smokers are 1.3 times more likely to have quit than their male counterparts. Ever smokers who have a college education or more are 2 times more likely to have quit than those who have not completed high school. Ever smokers from suburban Hennepin County are 1.3 times more likely to have quit than ever-smokers from Minneapolis.

FIGURE 3.8

Smoking cessation prevalence among ever smokers¹ aged 18 and older by income as a percentage of Federal Poverty Level*



* The difference in cessation prevalence across income levels are statistically significant.

¹ Ever smokers are current smokers or former smokers at the time of survey.

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TABLE 3.2

Adjusted odds ratios (from Logistic Regression Model¹) for smoking cessation prevalence among ever smokers aged 18 and older, Hennepin County

SOCIO-DEMOGRAPHIC VARIABLE	ADJUSTED ODDS RATIO (OR) ²	95% CONFIDENCE INTERVAL
GENDER		
Male	Reference	Reference
Female	1.28*	(1.11-1.49)
AGE (years)		
18-24	Reference	Reference
25-34	1.30	(0.99 - 1.71)
35-44	1.76*	(1.38 - 2.25)
45-54	2.22*	(1.68 - 2.92)
55-64	5.14*	(3.75 - 7.05)
65+	10.78*	(7.91 - 14.68)
EDUCATION		
<High school	Reference	Reference
High school	0.74	(0.51 - 1.07)
Some college	0.87	(0.61 - 1.26)
College +	1.99*	(1.38 - 2.87)
RACE		
White	1.10	(0.74 - 1.64)
African Americans	Reference	Reference
INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVELS³		
≤100%	Reference	Reference
101-150%	0.80	(0.51 - 1.24)
151-200%	1.06	(0.71 - 1.58)
201-300%	1.04	(0.75 - 1.43)
301-400%	1.37	(1.00 - 1.89)
401-500%	1.31	(0.93 - 1.84)
501-600%	1.21	(0.85 - 1.73)
≥ 601%	1.06	(0.76 - 1.46)
REGION		
Minneapolis	Reference	Reference
Suburban Hennepin County	1.30*	(1.11 - 1.52)

NOTE:

¹ The dependent variable for the model was former smokers vs. current smokers (among all ever smokers).

The independent variables for the model were age, gender, level of education, race, income as a percentage of Federal Poverty Levels and region of residence (see Technical Notes).

The analysis includes two racial groups, Whites and African Americans. The total sample for the model was 3,381.

² The adjusted Odd Ratio indicates the risk that respondents in a particular category of a variable are former smokers, as compared to the reference group, adjusting for all other factors in the model. Example: the OR=1.28 for females.

This is interpreted as female ever smokers are 1.28 times more likely to have quit smoking than male ever smokers, adjusting for all other factors in the model.

³ See Technical Notes.

* The Odds Ratio is statistically significant at p <0.05.

After adjusting for other socio-demographic characteristics, neither income nor race has a significant relationship to smoking cessation. Contrary to the results presented in Figures 3.7 and 3.8, the multivariate analysis shows that the apparent relationship between race and income and smoking cessation is *entirely accounted for* by age, education and gender.

Current Smokers Who Have Tried to Quit One Day or Longer During the Past Year and Socio-Demographic Characteristics

Among current smokers in Hennepin County, 52.2 percent have tried to quit for at least one day during the past year (Figure 3.9).

Smoking cessation is a multistage process of resolving addictive behavior (27, 29, 33). One model characterizes this process as having several stages, which include *precontemplation*, *contemplation*, *action* and *maintenance* (34, 35). Individuals frequently recycle through the same stages after relapse episodes on their way to becoming long-term ex-smokers (34, 35). A quit attempt made during the past year is an indicator of movement into the action stage of the quitting process. U.S. Healthy People 2010 Objectives include an objective to increase the proportion of cigarette smokers aged 18 and older who have stopped smoking cigarettes for at least a day to 75 percent by the year 2010 (19).

Appendix Table 3.1 provides socio-demographic characteristic information about those who have attempted to quit smoking for at least one day during the past year.

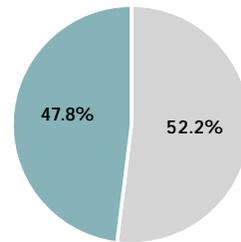


FIGURE 3.9

Percentage of current smokers aged 18 and older who have tried to quit one day or longer during the past year

■ No: did NOT try to quit
■ Yes: tried to quit

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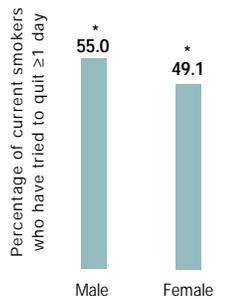


FIGURE 3.10
Percentage of current smokers aged 18 and older who have tried to quit one day or longer during the past year by gender

* The difference in percentages between males and females is statistically significant.

FIGURE 3.11
Percentage of current smokers aged 18 and older who have tried to quit one day or longer during the past year by age

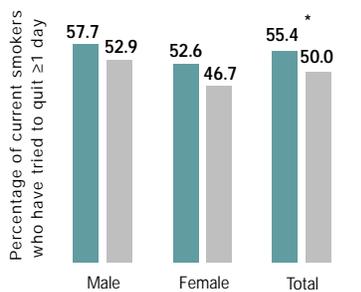
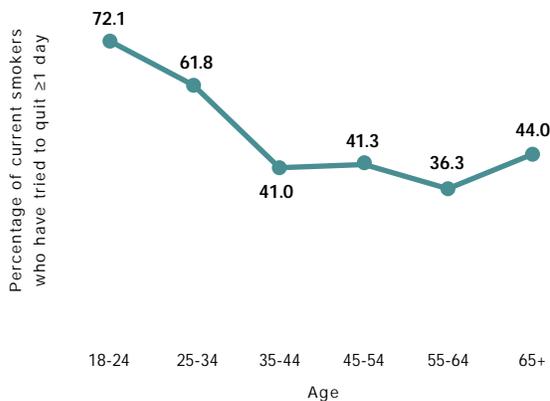


FIGURE 3.12
Percentage of current smokers aged 18 and older who have tried to quit one day or longer during the past year by gender and region

■ Minneapolis
 ■ Suburban Hennepin County

* The difference in percentages of quit attempts between Minneapolis and suburban Hennepin County residents is statistically significant.

Age and Gender

A significantly higher percentage of male current smokers than female current smokers have attempted to quit smoking during the last year (55.0% vs. 49.1%, $p < 0.05$) (Figure 3.10).

About three quarters (72%) of current smokers aged 18-24, and two-thirds (62%) of current smokers aged 25-34 have attempted to quit smoking for at least one day during the past year (Figure 3.11). From age 35 on, the percentage of current smokers who have tried to quit is fairly stable, at about 40 percent.

Region and Geographic Area

A significantly higher percentage of Minneapolis than suburban Hennepin County current-smokers have attempted to quit (55.4% vs. 50.0%, $p < 0.05$) (Figure 3.12). However, regional differences in rates within each gender are not statistically significant.

The percentage of current smokers who attempted to quit smoking during the past year by geographic area is presented in Figure 3.13 and Table 3.3. University, Calhoun-Isles, Near North of Minneapolis and geographic area 17 of suburban Hennepin County (outer-ring suburbs in the southwestern part of Hennepin County) exhibit the highest quit attempt rates. In these areas, sixty percent or more of current smokers have attempted to quit for at least one day during the past year. The lowest quit attempt rates were exhibited by Camden (43%), geographic area 12 (43.3%, southern part of Hennepin County), geographic area 15 (43.4%, outer-ring suburbs in the northern part of Hennepin County).

Age-gender adjusted (see Technical Notes) smoking quit attempt rates for 19 geographic areas is presented in Appendix Table 3.3.

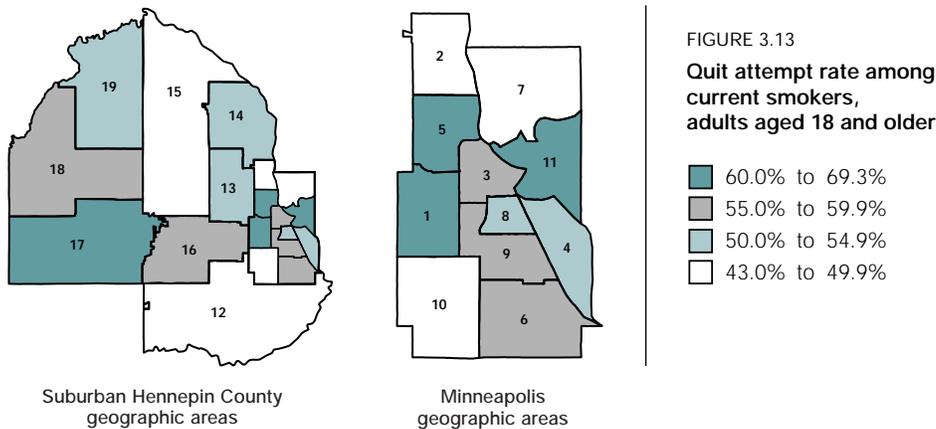
TABLE 3.3.

Percentage of current smokers aged 18 and older who have tried to quit one day or longer during the past year for 19 geographic areas, Hennepin County

GEOGRAPHIC AREAS	PERCENTAGE OF CURRENT SMOKERS WHO TRIED TO QUIT ≥1 DAY DURING THE PAST YEAR	RANK
Area 11 - University	69.3	1
Area 1 - Calhoun-Isles	64.9	2
Area 17	60.9	3
Area 5 - Near North	60.0	4
Area 9 - Powderhorn	58.1	5
Area 16	57.4	6
Area 3 - Central	57.1	7
Area 18	55.3	8
Area 6 - Nokomis	55.0	9
Area 8 - Phillips	54.1	10
Area 14	53.9	11
Area 4 - Longfellow	52.5	12
Area 13	51.2	13
Area 19	50.7	14
Area 7 - Northeast	49.4	15
Area 10 - Southwest	48.4	16
Area 15	43.4	17
Area 12	43.3	18
Area 2 - Camden	43.0	19

Geographic areas for suburban Hennepin County:

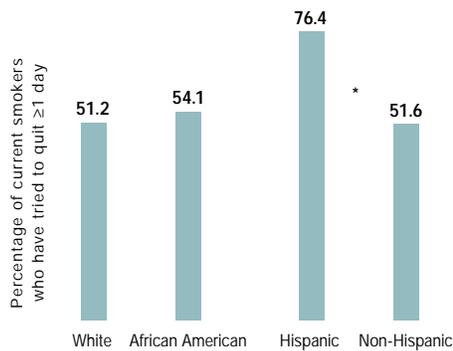
- Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.
- Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.
- Area 14 - Brooklyn Center, Brooklyn Park, Osseo.
- Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.
- Area 16 - Hopkins, Minnetonka, St. Louis Park.
- Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.
- Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.
- Area 19 - Corcoran, Hanover, Hassan, Rogers.



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FIGURE 3.14
Percentage of current smokers aged 18 and older who have tried to quit one day or longer during the past year by race¹ and Hispanic origin



* The difference in percentages between Hispanics and Non-Hispanics is statistically significant.

¹ Sample sizes are too small to perform meaningful analyses on other racial groups.

Education

Level of education is not significantly related to quit attempt behavior among current smokers (Figure not shown). The analysis excludes residents under 25 years of age.

Race and Ethnicity

Differences in attempts to quit smoking between White and African American current-smokers are not significant. Hispanic current smokers have a significantly higher rate of quit attempts than do non-Hispanic current smokers (76.4% vs. 51.6%, $p < 0.05$) (Figure 3.14). Analysis focusing on other racial groups was not done due to small sample sizes.

Income

Quit attempt rates do not differ significantly by income among current smokers (Figure not shown).

The multiple logistic regression analysis is not presented since the results are quite similar to those presented above.

Summary

- Nearly half of county adults (48.4%) who have smoked cigarettes during their lifetime have quit.
- Cessation prevalence is significantly higher among ever smokers from suburban Hennepin County than among ever smokers from Minneapolis.
- Ever smokers who have a college education or more are significantly more likely to have quit smoking than those who have less education.
- Smoking cessation prevalence across the 19 geographic areas in Hennepin County varies widely from a high of 57.3 percent in area 17 (outer-ring suburbs in southwestern part of Hennepin County) to a low of 33.4 percent in Phillips Community of Minneapolis.
- Minneapolis White ever smokers have a significantly higher cessation prevalence than Minneapolis African American ever smokers (45.6% vs. 31.4%, $p < 0.05$). In suburban Hennepin County, the opposite is true: the cessation prevalence for African American ever smokers is significantly higher than that for White ever smokers (65.9% vs. 50.8%, $p < 0.05$).
- After adjusting for other socio-demographic characteristics, neither income nor race has a significant relationship to smoking cessation. Multivariate analysis shows that the apparent relationship between race, income and smoking cessation is entirely accounted for by age, education and gender.
- Among current smokers in Hennepin County, 52.2 percent have attempted to quit smoking for at least one day during the past year.
- A significantly higher percentage of current male smokers than female smokers have attempted to quit smoking (55.0% vs. 49.1%, $p < 0.05$).
- About three quarters (72.1%) of current smokers aged 18-24 and two thirds (61.8%) of current smokers aged 25-34 have attempted to quit smoking for at least one day during the past year. From age 35 on, the percentage of current smokers who have tried to quit is fairly stable, at about 40 percent.
- A significantly higher percentage of Minneapolis than suburban Hennepin County current smokers have attempted to quit smoking (55.4% vs. 50.0%, $p < 0.05$).
- Income and level of education are not significantly related to quit attempt rates among current smokers.

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How are We Doing?

Year 2010 Objectives

Year 2010 Objectives (19) include a quit attempt objective which states that among cigarette smokers aged 18 and older, the percentage who quit smoking for one day or longer will be 75 percent. The national baseline obtained in 1995 was 45.8 percent (Table 3.4). SHAPE data show that, countywide, 52.2 percent of current smokers have attempted to quit for at least one day during the past year. Although the current quit attempt rate in Hennepin County is higher than the national 1995 baseline, it is much lower than the 75 percent target for Year 2010.

National Health Interview Survey

The Year 2000 Health Objectives Supplement of the 1993 U.S. National Health Interview Survey (NHIS-2000) collected self-reported information on cigarette smoking among U.S. adults 18 years and older (30). The results on smoking cessation prevalence are presented in Table 3.5. Cessation prevalence among Hennepin County female ever smokers is significantly higher than the national average (49.8% vs. 46.7%, $p < 0.05$). Hennepin County ever smokers aged 18-24 exhibit a significantly higher cessation rate than their national counterparts (27.7% vs. 21.7%). Smoking cessation prevalence, however, among Hennepin County male ever smokers, White ever smokers, and ever smokers who have 13 or more years of education (see footnotes of Table 3.5), is significantly lower than their counterparts nationally. The SHAPE survey and the National Health Interview Survey define ever smokers somewhat differently. The SHAPE survey defines ever smokers as persons who report that they are either current smokers or former smokers (used to smoke, but do not smoke anymore). The U.S. National Health Interview Survey defines ever smokers as persons who reported ever smoking 100 cigarettes during their lifetime (30).

Behavioral Risk Factor Surveillance System Survey (20)

The overall quit attempt rate among Hennepin County current smokers is 52.2 percent, a rate which is significantly higher than state average of 41.8 percent and national median of 45.4 percent (Figure 3.6). Quit attempt differences between Hennepin County and the state or nation are even greater for male current smokers, current smokers aged 18-24 and 25-34, and current smokers having some college education (Figure 3.6).

TABLE 3.4

Comparison of Hennepin County quit attempt rate to U.S. Year 2010 Objective

	NATIONAL BASELINE IN 1995 ¹	YEAR 2010 OBJECTIVE ²	HENNEPIN COUNTY 1998 ³
Proportion of cigarette smokers aged 18 and older who stopped smoking cigarettes for at least a day	45.8%	75%	52.2%

NOTE:

¹ Data Source National Health Interview Survey (NHIS), CDC, NCHS (19).² Healthy People 2010 (19).³ Data from SHAPE 1998.

TABLE 3.5

Comparison of smoking cessation prevalence: Hennepin County SHAPE 1998, U.S. National Health Interview Survey 1993

SOCIO-DEMOGRAPHIC VARIABLES (WS ¹)		HENNEPIN COUNTY SHAPE 1998 ² SMOKING CESSATION PREVALENCE AMONG EVER SMOKERS (%)	U.S. NHIS 1993 ³ SMOKING CESSATION PREVALENCE AMONG EVER SMOKERS (%)
TOTAL	(4,311)	48.4	49.6
GENDER			
Male	(2,240)	47.0*	51.9
Female	(2,072)	49.8*	46.7
AGE (years)			
18-24	(725)	27.7*	21.7
25-44	(1,905)	40.9	39.0
45-64	(1,065)	57.6	56.6
65+	(616)	79.7	76.6
EDUCATION (year)⁴			
≤8			56.2
9-11	(274) ⁵	44.9 ⁵	38.2
12	(1,158)	42.5	45.3
13-15	(1,298)	41.1*	50.7
16+	(1,558)	59.2*	65.4
RACE			
White	(3,871)	49.0*	51.6
African American	(165)	40.6	37.8

¹ Weighted sample size.² Data source: SHAPE 1998.

Definition of ever smokers: respondents who are either current smokers or former smokers (used to smoke, but do not smoke anymore) at the time of survey.

³ 1993 U.S. National Health Interview Survey(NHIS). CDC. (30).

Definition of ever smokers: respondents who ever smoked at least 100 cigarettes during their lifetimes.

⁴ Educational levels for SHAPE 1998 is classified as 1/ less than high school education (equivalent to 0-8 and 9-11 years of education combined), 2/ grade 12 or GED (equivalent to 12 years of education), 3/ some college or trade school or associate degree (equivalent to 13-15 years of education), and 4/ a bachelor degree or higher (equivalent to 16+ years of education).⁵ For "≤8" and "9-11" years of education combined.

* Differences in smoking cessation prevalence among ever smokers between Hennepin County and the nation are statistically significant.

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TABLE 3.6

Comparison of quit attempts: Hennepin County SHAPE 1998, Minnesota BRFSS 1996, U.S. BRFSS 1996

SOCIO-DEMOGRAPHIC VARIABLES (WS ¹ FOR SHAPE 1998)		HENNEPIN COUNTY, SHAPE 1998 ² PERCENTAGE OF CURRENT SMOKERS WHO HAVE TRIED TO QUIT FOR ONE DAY OR LONGER DURING THE PAST YEAR	MINNESOTA BRFSS 1996 ^{3,4} PERCENTAGE OF CURRENT SMOKERS WHO HAVE TRIED TO QUIT FOR ONE DAY OR LONGER DURING THE PAST YEAR	U.S. BRFSS 1996 ^{3,4} PERCENTAGE OF CURRENT SMOKERS WHO HAVE TRIED TO QUIT FOR ONE DAY OR LONGER DURING THE PAST YEAR
TOTAL	(2,226)	52.2*	41.8	45.4
GENDER				
Male	(1,186)	55.0*	41.1	45.4
Female	(1,040)	49.1*	42.6	44.5
AGE (years)				
18-24	(524)	72.1*	59.3	63.8
25-34	(424)	61.8*	54.3	52.8
35-44	(702)	41.0*	34.3	40.7
45-54	(317)	41.3*	34.6	39.8
55-64	(135)	36.3*	24.9	36.7
65+	(125)	44.0	39.3	37.5
EDUCATION				
<High school	(151)	57.6	51.4	45.0
High school	(666)	47.7*	36.7	44.3
Some college	(766)	55.1*	44.8	47.8
College+	(635)	52.9*	44.1	44.4
RACE				
White	(1,974)	51.2*	40.9	43.2
African American	(98)	54.1*	35.9	58.0

NOTE:

¹ Weighted sample size.

² Data source: SHAPE, 1998.

Definition of current smoker: respondents who describe themselves as smoking now at the time of survey.

³ Data source:

Behavioral Risk Factor Surveillance System (BRFSS) 1996 (19).

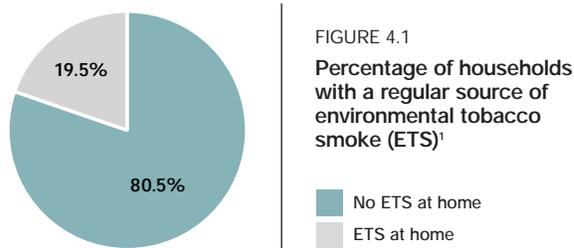
Definition of current smoker: respondents who smoke every day and have smoked at least 100 cigarettes during their lifetimes.

⁴ Mean quit attempt rates are reported for Minnesota. Median quit attempt rates of 50 states plus the District of Columbia and Puerto Rico participating in the BRFSS are reported for the U.S. adult population.

* The difference in the percentages of quit attempts among current smokers between Hennepin County and Minnesota adult residents is statistically significant.

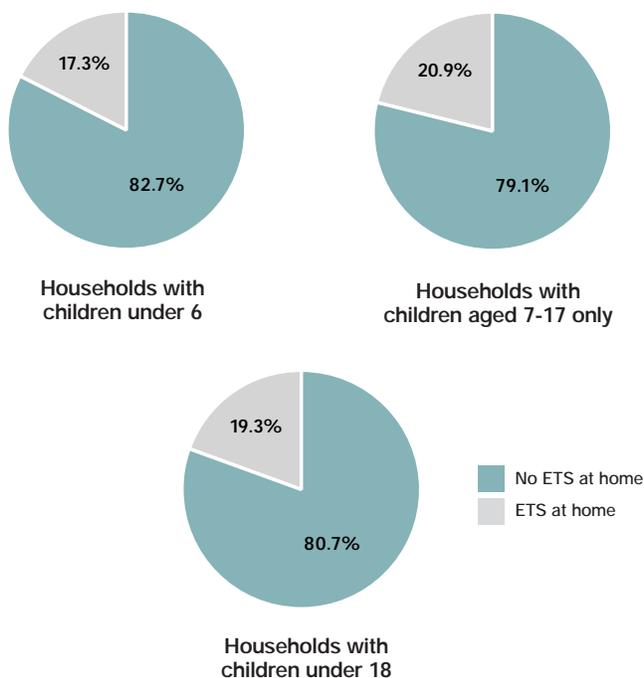
Environmental
Tobacco Smoke
(Secondhand Smoke)

Environmental Tobacco Smoke (Secondhand Smoke)



¹ ETS at home is defined as someone regularly smoking inside the household.

FIGURE 4.2
Household environmental tobacco smoke (ETS) by family status



Exposure to environmental tobacco smoke (ETS), or secondhand smoke, refers to the mixture of predominantly side stream smoke and exhaled main stream smoke that is inhaled by non-smokers (32). ETS has serious health consequences (36, 37). Each year approximately 3,000 non-smoking Americans die of lung cancer, and 150,000 - 300,000 children suffer from respiratory tract infections because of exposure to ETS (37). Research has linked ETS exposure and heart disease among adults (38, 39, 40). ETS also increases the risk of Sudden Infant Death Syndrome (SIDS), asthma attacks and middle ear infections among children (41). Almost 90 percent of U.S. non-smokers are found to be exposed to ETS according to the measure of serum cotinine, a biological marker for ETS exposure (41). The home and workplace are the major locations for widespread ETS exposure among adults. For children, however, the primary source of exposure to ETS is in the home (42). In 1996, estimates indicated that 21.9 percent of U.S. children and adolescents under age 18 (approximately 15 million children and adolescents) were exposed to secondhand smoke in their homes (43).

The SHAPE survey measured the exposure of Hennepin County adults to ETS in the home. Survey respondents were asked whether or not someone regularly smokes inside their home. The data was weighted using the distribution of households in Hennepin County in order to provide estimates of ETS among county households (see Technical Notes). (While other SHAPE data analyses provide estimates for *the population*, ETS analyses provide estimates for *households* in Hennepin County.)

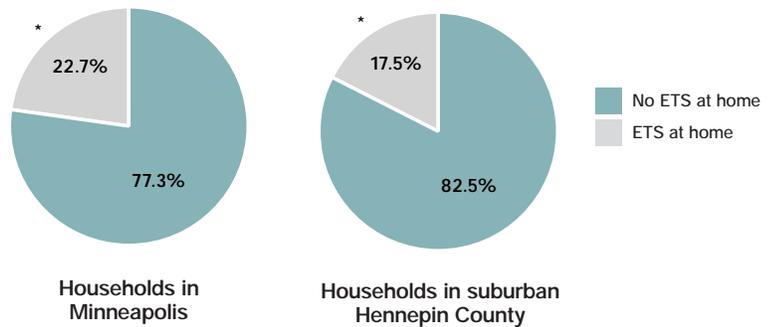
About one in five households (19.5%) in Hennepin County are regularly exposed to ETS inside the home (Figure 4.1). This is equivalent to approximately 86,100 households in Hennepin County (44). About one in five households (19.3%) with at least one child under age 18 are regularly exposed

to ETS (Figure 4.2). About one in six households (17.3%) with at least one child under age 6 are exposed to ETS regularly (Figure 4.2)

A significantly higher percentage of Minneapolis than suburban Hennepin County households is regularly exposed to ETS (22.7% vs. 17.5%, $p < 0.05$) (Figure 4.3). ETS rates also vary among the 19 geographic areas in Hennepin County (Figure 4.5, Table 4.1). The Phillips and Camden areas of Minneapolis exhibit the highest household ETS rates (33.2% and 30.7% respectively). Geographic areas 12 (Bloomington, Eden Prairie, Edina, Richfield and Fort Snelling) and 17 (Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata and Woodland) in suburban Hennepin County as well as the Southwest and University communities of Minneapolis exhibit the lowest rates of household ETS (14.2%, 16.8%, 16.1% and 15.2% respectively).

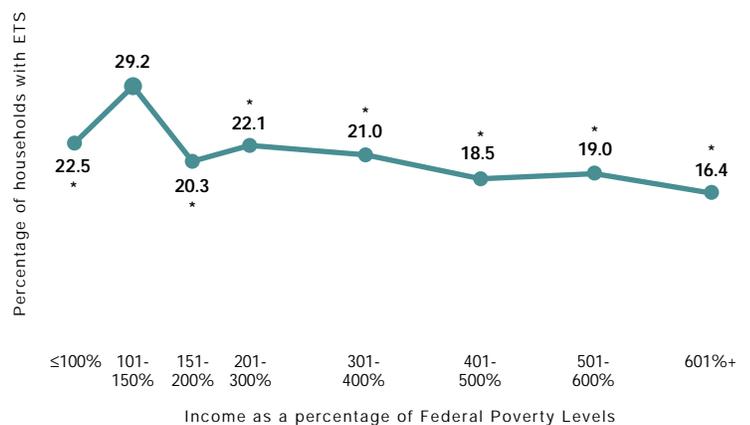
Households with incomes just above the Federal Poverty Levels (101-150% of poverty) exhibit the highest rate of ETS (29.2%) (Figure 4.4). This rate is significantly higher than the rates for all other household income levels, including households with income at 100 percent of poverty or below.

FIGURE 4.3
Household environmental tobacco smoke (ETS) by region



* The difference in percentages of households exhibiting ETS at home between Minneapolis and suburban Hennepin County is statistically significant.

FIGURE 4.4
Household environmental tobacco smoke (ETS) by income as a percentage of Federal Poverty Level



* The difference in percentages of households with ETS between this income group and income at 101-150% of Federal Poverty Level is statistically significant.

Environmental Tobacco Smoke (Secondhand Smoke)

C o n t i n u e d

TABLE 4.1

Percentage of households with a regular source of environmental tobacco smoke (ETS) for 19 geographic areas, Hennepin County

GEOGRAPHIC AREAS	PERCENTAGE OF HOUSEHOLDS WITH REGULAR SOURCE OF ETS AT HOME	RANK
Area 8 - Phillips	33.2	1
Area 2 - Camden	30.7	2
Area 5 - Near North	28.6	3
Area 9 - Powderhorn	25.9	4
Area 7 - Northeast	23.5	5
Area 3 - Central	23.1	6
Area 4 - Longfellow	22.5	7
Area 1 - Calhoun-Isles	21.0	8
Area 14	20.5	9
Area 13	20.3	10
Area 15	18.8	11
Area 16	18.8	11
Area 18	18.8	11
Area 19	18.8	11
Area 6 - Nokomis	18.5	15
Area 17	16.8	16
Area 10 - Southwest	16.1	17
Area 11 - University	15.2	18
Area 12	14.2	19

Geographic areas for suburban Hennepin County:

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

Area 14 - Brooklyn Center, Brooklyn Park, Osseo.

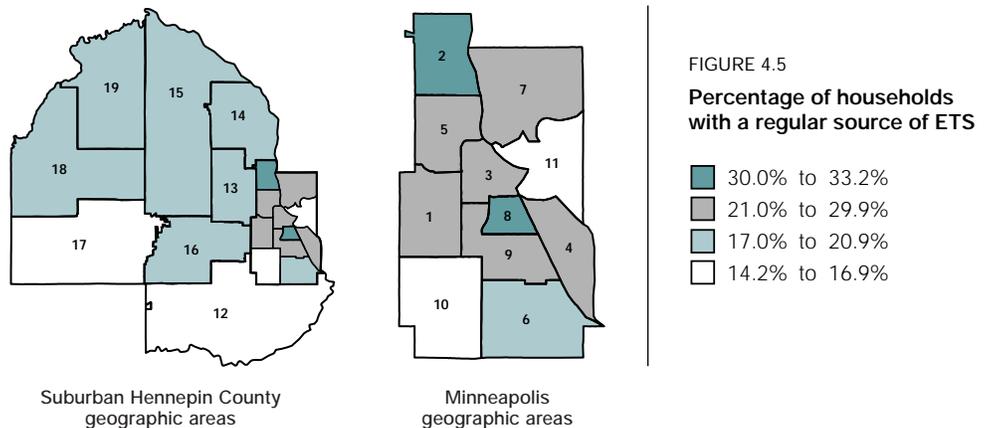
Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.

Area 16 - Hopkins, Minnetonka, St. Louis Park.

Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.

Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.



Summary

- About one in five households (19.5%) in Hennepin County is regularly exposed to ETS (Figure 4.1). This is equivalent to approximately 86,100 households in Hennepin County.
- Currently, the Hennepin County ETS rate for households with at least one child under 6 (17.3%) is lower than the Minnesota Public Health Improvement Goal for 2004 of 20.0 percent.
- About one in five county households (19.3%) with children under 18 are regularly exposed to ETS.
- A significantly higher percentage of Minneapolis than suburban Hennepin County households is regularly exposed to ETS (22.7% vs. 17.5%, $p < 0.05$).
- ETS rates vary among the 19 geographic areas in Hennepin County with a high of 33.2 percent in the Phillips area of Minneapolis to a low of 14.2 percent in geographic area 12 of suburban Hennepin County (Bloomington, Eden Prairie, Edina, Richfield and Fort Snelling).
- Household ETS rates are highest for those households with incomes between 101-150 percent of Federal Poverty Levels.

How are We Doing?

Minnesota Public Health Improvement Goal Comparison

Currently, the Hennepin County ETS rate for households with children under 6 (17.3%) is lower than the Minnesota Public Health Improvement Goal for 2004 of 20.0 percent (45).

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Smoking and Self-Reported Health Status

Smoking and Self-Reported Health Status

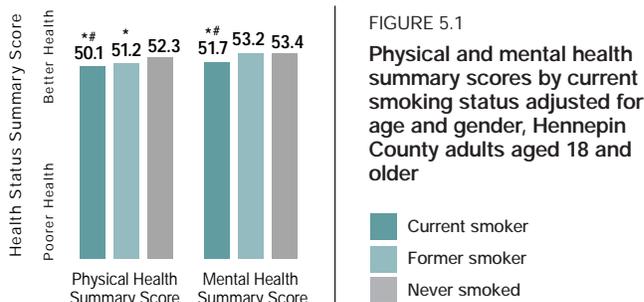


FIGURE 5.1
Physical and mental health summary scores by current smoking status adjusted for age and gender, Hennepin County adults aged 18 and older

* The difference in summary scores between this group and those who have never smoked is statistically significant.

The difference in summary scores between this group and former smokers is statistically significant.

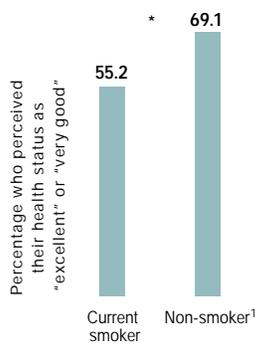


FIGURE 5.2
Perceived health status by current smoking status, Hennepin County adults aged 18 and older

* The difference in percentage between current smokers and non-smokers is statistically significant.

¹ Non-smokers include former smokers and those who have never smoked.

The health consequences of tobacco use are well documented (19, 27). Cigarette smoking causes heart disease, various cancers and chronic lung disease. Adverse pregnancy outcomes (e.g. spontaneous abortion, low birth weight, sudden infant death syndrome) are also directly associated with tobacco use (19, 46).

The SHAPE survey data is limited in its ability to provide evidence of health consequences directly related to tobacco use due to the nature of the study design. SHAPE is a cross-sectional (one-time) survey, not a longitudinal one. SHAPE data can, however, be used to describe and assess the association between cigarette smoking and general health status as measured by the SF-12 scores (see Technical Notes) among Hennepin County adults. Relationships between cigarette smoking and selected health conditions such as diagnosed depression can also be examined.

Current Smoking and Health Status

General health status was assessed using a set of questions known as the SF-12. This set of questions and the two general summary scales generated from them were developed by The Health Institute (see Technical Notes). Small numeric differences in SF-12 summary scores are meaningful as they may reflect large differences in actual physical and mental health status (4). Analysis of SHAPE data shows that, on average, countywide, after adjusting for age and gender (see Technical Notes), current smokers have a significantly lower physical health status score (50.1) than those who are former smokers (51.2, $p < 0.05$) or those who have never smoked (52.3, $p < 0.05$) (Figure 5.1). Similar findings are observed for mental health status. Current smokers have a significantly lower mental health status score (51.7), than residents who are former smokers (53.2, $p < 0.05$) or those who have never smoked (53.4, $p < 0.05$) (Figure

5.1). Analyses also found that former smokers have a significantly lower average physical health score than those who have never smoked (51.2 vs. 52.3, $p < 0.05$). However, there is no significant difference in the average mental health score between former smokers and those who have never-smoked.

A significantly lower percentage of current smokers than non-smokers report an “excellent” or “very good” health status (55.2% vs. 69.1%, $p < 0.05$) (Figure 5.2). Fifteen percent (15.4%) of current smokers have ever been diagnosed as depressed by a physician or other health care provider. This is significantly higher than the percentage reported by non-smokers (8.4%, $p < 0.05$) (Figure 5.3).

Smoking Intensity and Health Status

On average, after adjusting for age and gender, current smokers who smoke heavily (i.e. smoke 25 cigarettes or more daily) have a significantly lower physical health status score than current smokers who smoke fewer cigarettes daily (48.3 vs. 51.3, $p < 0.05$) (Figure 5.4). Similar findings are observed for mental health status. Heavy smokers have a significantly lower mental health status score than non-heavy smokers (49.2 vs. 51.9, $p < 0.05$) (Figure 5.4).

Forty-nine percent (49.1%) of heavy smokers rated their health as “excellent” or “very good”, which is significantly lower than the same measure among non-heavy smokers (56.1%, $p < 0.05$) (Figure 5.5). No significant difference exists in prevalence of diagnosed depression among heavy and non-heavy cigarette smokers (16.0% vs. 15.4%, $p > 0.05$) (Figure not shown).

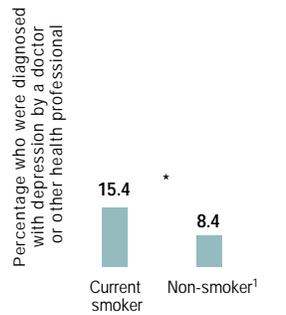


FIGURE 5.3
Diagnosed depression by current smoking status, Hennepin County adults aged 18 and older

* The difference in percentage between current smokers and non-smokers is statistically significant.

¹ Non-smokers include former smokers and those who have never smoked.

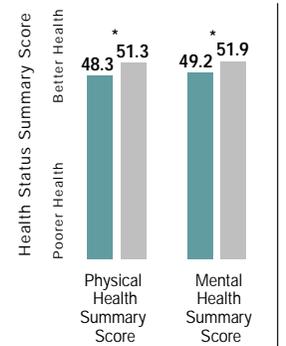


FIGURE 5.4
Physical and mental health summary scores by smoking intensity among current smokers aged 18 and older, adjusted for age and gender

* The difference in summary scores between heavy smokers and non-heavy smokers is statistically significant.

¹ Heavy smokers are those current smokers who smoke 25 or more cigarettes per day.

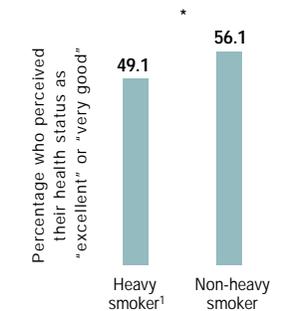


FIGURE 5.5
Perceived health status by smoking intensity among current smokers adults aged 18 and older

* The difference in percentages between heavy smokers and non-heavy smokers is statistically significant.

¹ Heavy smokers are those current smokers who smoke 25 or more cigarettes per day.

Summary

- On average, after adjusting for age and gender, current smokers tend to have worse physical and mental health than non-smokers.
- A significantly lower percentage of current smokers than non-smokers report an “excellent” or “very good” overall health status (55.2% vs. 69.1%, $p < 0.05$). A significantly higher percentage of current smokers report having been diagnosed as depressed by a physician or other health care provider than non-smokers (15.4% vs. 8.4%, $p < 0.05$).
- On average, after adjusting for age and gender, smokers who smoke heavily (i.e. smoke ≥ 25 cigarettes per day) tend to have worse physical and mental health than those who smoke lighter.
- A significantly lower percentage of heavy smokers report an “excellent” or “very good” overall health status than those who smoke lighter (49.1% vs. 56.1%, $p < 0.05$).

Smoking
and Other
Health Risk
Behaviors

Smoking and Other Health Risk Behaviors

Research has shown that smoking is significantly associated with other health risk behaviors. Current smokers are more likely than non-smokers to use alcohol and other drugs and to engage in unsafe sex, and less likely than non-smokers to use automobile seat belts (32).

In this section, the relationship between cigarette smoking and other health influencing behaviors such as alcohol use, regular physical activity, nutrition and seatbelt use is examined. SHAPE survey data is unable to provide evidence of a direct or causal relationship between cigarette smoking and other health risk behaviors. However, SHAPE data can be useful in assessing and describing the association between cigarette smoking and selected risk behaviors. This information can assist program planners and others in making informed decisions about developing both individual and population-based interventions.

The following definitions are used throughout all SHAPE data reports:

Alcohol Use

- *Current alcohol use* is defined as drinking at least one alcoholic beverage such as beer, wine, wine cooler or liquor during the past month.
- *Binge drinking* is defined as drinking five or more alcoholic beverages on at least one occasion during the past month.
- *Chronic drinking* or *heavy drinking* is defined as consumption of 60 or more alcoholic beverages during the past month.
- *Drinking and driving* is defined as driving after having had perhaps “too much to drink” on at least one occasion during the past month.

Physical Activity

- *Vigorous physical activity* is defined as engaging in vigorous physical activity (such as stair master, lap swimming, ski machine or jogging) for at least 20 minutes three days or more per week.

Nutrition

- *Adequate nutrition* is defined as having consumed five or more servings of fruits or vegetables yesterday.

Seatbelt Use

- *Adequate seatbelt use* is defined as always or nearly always using a seatbelt.

Current Smoking and Other Health Risk Behaviors

Alcohol Use

Countywide, smokers exhibit a significantly higher current alcohol use rate than non-smokers (71.7% vs. 62.9%, $p < 0.05$) (Figure 6.1). More than one out of three current smokers (37.3%) is a binge drinker, as compared to just one out of six non-smokers (15.8%) ($p < 0.05$) (Figure 6.2). The heavy drinking (or chronic drinking) rate among current smokers is 9.3 percent, which is four times higher than that among non-smokers (2.2%, $p < 0.05$) (Figure 6.3). The drinking and driving rate among current smokers countywide is more than twice that of non-smokers (6.2% vs. 2.8%, $p < 0.05$) (Figure 6.4).

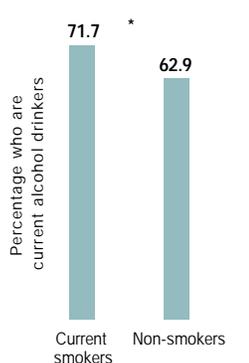


FIGURE 6.1
Current alcohol drinking rate¹ by smoking status among Hennepin County adults aged 18 and older

* The difference in current alcohol drinking rates between current smokers and non-smokers is statistically significant.

¹ Current alcohol users are those who have had at least one alcoholic beverage such as beer, wine, wine cooler or liquor during the past month.

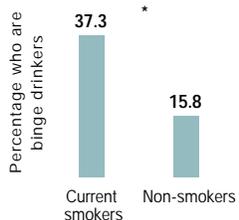


FIGURE 6.2
Binge drinking rate¹ by smoking status among Hennepin County adults aged 18 and older

* The difference in binge drinking rates between current smokers and non-smokers is statistically significant.

¹ Binge drinkers are those who report drinking five or more alcoholic beverages on at least one occasion during the past month.

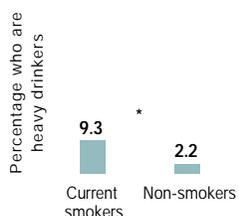


FIGURE 6.3
Heavy drinking rate¹ by smoking status among Hennepin County adults aged 18 and older

* The difference in the heavy drinking rate between current smokers and non-smokers is statistically significant.

¹ Heavy drinkers, also called chronic drinkers, are those who report consuming 60 or more alcoholic beverages during the past month.

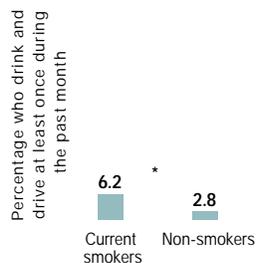


FIGURE 6.4
Drinking and driving¹ by smoking status among Hennepin County adults aged 18 and older

* The difference in the percentage of individuals who drank and drove at least once during the past month between current smokers and non-smokers is statistically significant.

¹ Drinking and driving is defined as having driven after having "perhaps too much to drink" at least once during the past month.

Smoking and Other Health Risk Behaviors

C o n t i n u e d

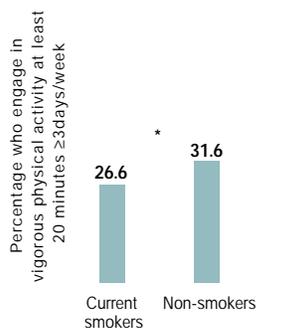


FIGURE 6.5
Engaging in vigorous physical activity¹ by smoking status among Hennepin County adults aged 18 and older

* The difference in the percentage of individuals who engage in vigorous physical activity at least 20 minutes 3 days or more per week between current smokers and non-smokers is statistically significant.

¹ Vigorous physical activities include activities such as stair master, lap swimming, skiing machine or jogging.

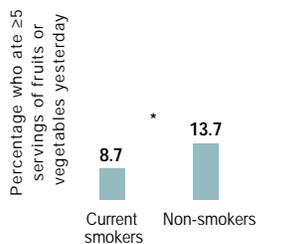


FIGURE 6.6
Five or more servings of fruits or vegetables yesterday by smoking status among Hennepin County adults aged 18 and older

* The difference in the percentage of individuals who ate 5 or more servings of fruits or vegetables yesterday between current smokers and non-smokers is statistically significant.

Other Health Risk Behaviors

- Current smokers are less likely to be vigorously physically active than non-current smokers (Figure 6.5). Among current smokers, 26.6 percent exercise vigorously for at least 20 minutes 3 days or more per week, while among non-current smokers, this percentage is 31.6 percent ($p < 0.05$).
- Non-smokers are more likely to have eaten five or more fruits or vegetables yesterday than non-smokers (13.7% vs. 8.7%, $p < 0.05$) (Figure 6.6).
- Among non-current smokers, 89.8 percent always or nearly always use seatbelts, while among current smokers this percentage is 79.2 percent ($p < 0.05$) (Figure 6.7).

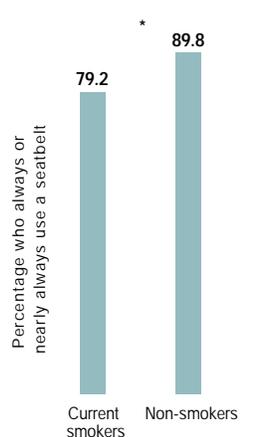


FIGURE 6.7
Seatbelt use by smoking status among Hennepin County adults aged 18 and older

* The difference in the percentage of individuals who always or nearly always use a seatbelt between current smokers and non-smokers is statistically significant.

Heavy Smoking and Other Health Risk Behaviors Among Current Smokers

Alcohol Use

Current alcohol use does not differ between heavy smokers (i.e. those who smoke 25 cigarettes or more per day) and non-heavy smokers (67.3% vs. 72.3%, $p > 0.05$) (Figure not shown). However, current smokers who smoke heavily exhibit a higher rate of *binge* drinking than do current smokers who smoke less (43.3% vs. 36.0%, $p < 0.05$) (Figure 6.8).

More than one-fifth of heavy smokers (22.1%) are heavy (or chronic) drinkers as well. This rate is significantly higher than the heavy drinking rate among current smokers who smoke less (7.2%) ($p < 0.05$) (Figure 6.9).

Other Health Risk Behaviors

- Current smokers who smoke heavily exhibit a significantly lower rate of always or nearly always using seatbelts than do current smokers who smoke less (64.9% vs. 81.6%, $p < 0.05$) (Figure 6.10).
- Participation in vigorous physical activity does not vary significantly between heavy smokers and current smokers who smoke less (29.0% vs. 26.3%, $p > 0.05$) (Figure not shown). Consumption of five or more fruits and vegetables yesterday also does not vary between heavy smokers and current smokers who smoke less (Figures not shown).

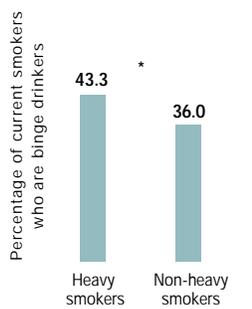


FIGURE 6.8
Binge drinking rate¹ by heavy smoking status among current smokers aged 18 and older

* The difference in the binge drinking rate between heavy smokers and non-heavy smokers is statistically significant.

¹ Binge drinkers are those who report drinking five or more alcoholic beverages on at least one occasion during the past month.

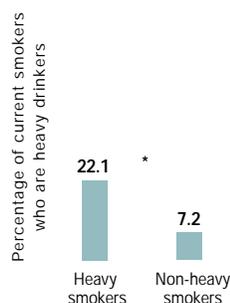


FIGURE 6.9
Heavy drinking rate¹ by heavy smoking status among current smokers aged 18 and older

* The difference in the heavy drinking rate between heavy smokers and non-heavy smokers is statistically significant.

¹ Heavy drinkers, also called chronic drinkers, are those who report consuming 60 or more alcoholic beverages during the past month.

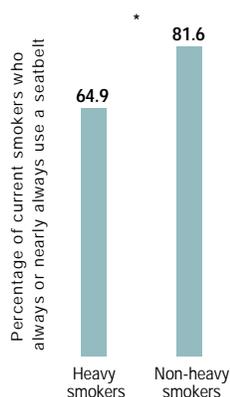


FIGURE 6.10
Seatbelt use by heavy smoking status among current smokers aged 18 and older

* The difference in the percentage of individuals who always or nearly always use a seatbelt between heavy smokers and non-heavy smokers is statistically significant.

Smoking and Other Health Risk Behaviors

C o n t i n u e d

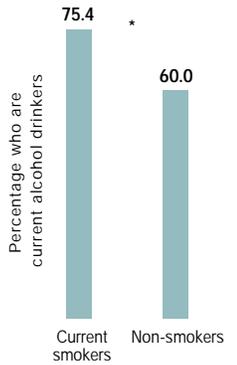


FIGURE 6.11
Current alcohol drinking rate¹ by smoking status among Hennepin County adults aged 18-24

* The difference in current alcohol drinking rates between current smokers and non-smokers is statistically significant.

¹ Current alcohol users are those who have had at least one alcoholic beverage such as beer, wine, wine cooler or liquor during the past month.

Current Smoking and Other Health Risk Behaviors Among Adults Aged 18-24

Alcohol Use

Adults aged 18-24 were analyzed separately because of high rates of most risk behaviors in this age group. Countywide, more than three-fourths (75.4%) of current smokers aged 18-24 are current alcohol drinkers. Among non-current smokers aged 18-24, three-fifths (60.0%) are current alcohol users ($p < 0.05$) (Figure 6.11).

More than half of current smokers aged 18-24 (52.3%) are binge drinkers compared to 28.0 percent of current non-smokers in this age group (Figure 6.12).

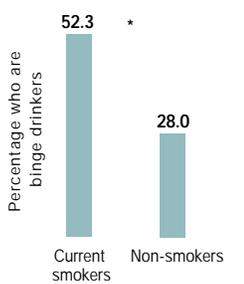


FIGURE 6.12
Binge drinking rate¹ by smoking status among Hennepin County adults aged 18-24

* The difference in binge drinking rates between current smokers and non-smokers is statistically significant.

¹ Binge drinkers are those who report drinking five or more alcoholic beverages on at least one occasion during the past month.

Sixteen percent (16.1%) of current smokers aged 18-24 are also heavy drinkers compared to a rate of 4.0 percent for non-smokers of the same age ($p < 0.05$) (Figure 6.13). Current smokers aged 18-24 also exhibit a significantly higher rate of drinking and driving than non-smokers of the same age (9.5% vs. 3.6%)(Figure 6.14) .

Other Health Risk Behaviors

Current smokers aged 18-24 are less likely to engage in vigorous physical activity than non-current smokers in this age group (34.8% vs. 43.8%, $p < 0.05$)(Figure 6.15).

Seatbelt use and the likelihood of consuming five or more servings of fruits and vegetables yesterday do not vary significantly between current and non-current smokers aged 18-24.

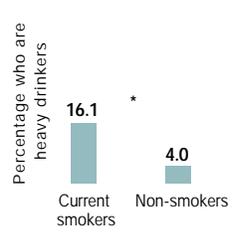


FIGURE 6.13
Heavy drinking rate¹ by smoking status among Hennepin County adults aged 18-24

* The difference in the heavy drinking rate between current smokers and non-smokers is statistically significant.

¹ Heavy drinkers, also called chronic drinkers, are those who report consuming 60 or more alcoholic beverages during the past month.

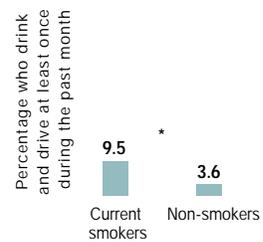


FIGURE 6.14
Drinking and driving¹ by smoking status among Hennepin County adults aged 18-24

* The difference in the percentage of individuals who drank and drove at least once during the past month between current smokers and non-smokers is statistically significant.

¹ Drinking and driving is defined as having driven after having "perhaps too much to drink" at least once during the past month.

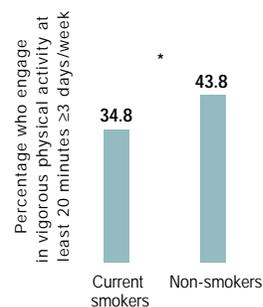


FIGURE 6.15
Engaging in vigorous physical activity¹ by smoking status among Hennepin County adults aged 18-24

* The difference in the percentage of individuals who engage in vigorous physical activity at least 20 minutes 3 days or more per week between current smokers and non-smokers is statistically significant.

¹ Vigorous physical activities include activities such as stair master, lap swimming, skiing machine or jogging.

Smoking and Other Health Risk Behaviors

C o n t i n u e d

Summary

- County adult residents who are current smokers are more likely to also currently drink alcohol than non-smokers.
- More than one third of current smokers (37.3%) reported binge drinking as compared to 15.8 percent for non-smokers ($p < 0.05$).
- Current smokers are at least four times more likely than non-smokers to also be heavy drinkers (9.3% vs. 2.2%, $p < 0.05$).
- Current smokers are more than twice as likely to engage in drinking and driving as compared to non-current smokers (6.2% vs. 2.8%, $p < 0.05$).
- Compared to non-smokers, current smokers are less likely to engage in vigorous physical activity regularly (26.6% vs. 31.6% $p < 0.05$); are less likely to have eaten 5 or more fruits or vegetables yesterday (8.7% vs. 13.7%, $p < 0.05$); and are less likely to always or nearly always (79.2% vs. 89.8%) use a seatbelt.
- Current smokers who smoke heavily (i.e. smoke 25 cigarettes or more per day) also have a significantly higher rate of binge drinking and heavy drinking, and are less likely to engage in vigorous physical activity and to use a seatbelt, as compared to current smokers who smoke less.
- Three quarters of county current smokers (75.4%) aged 18-24 are also current alcohol users; more than half of current smokers (52.3%) in this age group are also binge drinkers, and 16 percent of young smokers exhibit heavy drinking. Nearly one in 10 (9.5%) engages in drinking and driving.

Conclusion

Conclusion

The Survey of the Health of Adults, the Population, and the Environment (SHAPE) provides information about the health status of county residents. SHAPE provides local information on chronic disease, injury, and behavioral risks while integrating this with data on perceptions of community and the social environment. This report:

- Provides detailed information about cigarette smoking among adults in Hennepin County;
- Examines factors that influence smoking status, smoking intensity, smoking cessation, and exposure to environmental tobacco smoke; and
- Provides information that contributes to and informs public policy and funding decisions regarding tobacco control efforts in Hennepin County and Minnesota.

The economic and social costs associated with tobacco use are well documented. Tobacco use is the leading cause of death, accounting for an estimated 430,000 deaths per year in the United States or one in every five deaths (6). Furthermore, it is estimated that tobacco use results in more than \$50 billion in medical expenditures and another \$50 billion in indirect costs in the U.S. each year (9). In 1995, approximately 6,400 Minnesota deaths (17% of all deaths) were related to smoking. Smoking-related illnesses are projected to cost Minnesotans \$1.3 billion per year in additional health care and worker productivity—the equivalent of \$277 per Minnesotan (10).

This report shows that cigarette smoking continues to be a significant public health threat in Hennepin County. More than four out of 10 (41.2%) Hennepin County adults have smoked in their lifetimes and more than one out of five (21.2%), or approximately 174,000 Hennepin County residents, currently smoke. Of greatest concern is the high rate of smoking among young adults. Thirty percent of 18-29 year-olds currently smoke, this is significantly higher than state and national averages (24.1%). Looking closer, we find that 36.5 percent of 18-24 year-olds smoke and more than half of all males aged 20-21 (51.6%) smoke.

The information provided in this report is intended to inform and support tobacco control efforts. Local agencies and community groups can use these data to develop strategies that maximize the impact of tobacco control efforts by targeting population groups and high-use geographic areas. This information also provides baseline measures that are critical for the evaluation of tobacco control efforts. Lastly, the 1998 State of Minnesota/Blue Cross Blue Shield legal settlement with the tobacco industry provides unique opportunities to address the factors that contribute to tobacco use. It is hoped that the information provided in this report will be used to consider how tobacco settlement funds should be allocated to best target and utilize funds dedicated to education, prevention, cessation, and research.

Overview of Findings

Current Smoking

Key Points

- Over one out of five (21.2%), or approximately 174,000 Hennepin County residents aged 18 and older, are currently smoking. This rate is comparable to the rates observed for the state (20.6%) and the nation (23.4%) in 1996. However, the current cigarette smoking rate in Hennepin County alone is well above National Year 2010 Objective on tobacco use (13%)(19).
- Thirty percent of Hennepin County 18-29 year-olds currently smokes. This is significantly higher than state and national averages of 24.1 percent.
- For the most part, smoking rates decline as age increases. The highest rates are among the youngest age groups. More than a third (36.5%) of residents aged 18-24 smoke as compared to only 8.2 percent of residents aged 65 or older. More than half (51.6%) of county males aged 20-21 smoke.
- County males are more likely to smoke than county females (23.7% vs. 18.9%).
- The smoking rates for geographic areas vary. Minneapolis adult residents smoke at a higher rate than suburban county adult residents (25.1% vs. 19.0%) do. Young adults (18-29) residing in Camden (49.1%), Powderhorn (42.7%), Calhoun-Isles (42.6%) and the Phillips (41.0%) communities exhibit the highest smoking rates.
- While smoking rates are high among college-aged adults (18-24), an inverse relationship between smoking status and education level exists: the higher the level of education, the lower the smoking rate tends to be.

Implications / Future Directions

- SHAPE provides baseline information for health planners, community organizers, tobacco prevention activists and others to incorporate into their planning efforts to target resources and evaluate programming.
- Cigarette smoking is a significant public health threat. While the overall tobacco control effort is important, special attention should be dedicated to high-use populations, such as young adults, males and those with less education.
- The high rate of smoking among young adults reflects the increase in smoking among adolescents identified in other studies. Nationally, cigarette use among high school students increased by 32 percent between 1991 and 1997 (22). In Hennepin County, cigarette use among high school seniors increased by nearly 30 percent between 1992 and 1995 (24). Since most smoking is initiated before smokers turn 18 (23, 32), education and prevention efforts need to continue to target adolescents. However, additional attention needs to be given to adults aged 18-24. A recent study reveals that an increasing percentage of college students are initiating smoking after they start college (23).
- Geographic differences were observed in smoking prevalence. These differences should be examined further to see if there are systemic differences (like the targeting of advertising or the enforcement of youth access provisions) that may contribute to these differences. High prevalence areas like the Camden, Powderhorn, Calhoun-Isles, and Phillips neighborhoods in Minneapolis should be targeted for prevention and cessation activities.

Conclusion

C o n t i n u e d

Smoking Intensity and Smoking Cessation

Key Points

- Countywide, about 15% of current smokers are heavy smokers (i.e. smoke ≥ 25 cigarettes per day).
- While those aged 18-24 have the highest current smoking rate across all age groups, they are the group least likely to smoke heavily (7.2%). Smokers aged 35-44 are about ten times more likely to be heavy smokers than those aged 18-24.
- Of current smokers, males are twice as likely as females to be heavy smokers (18.9% vs. 9.5%).
- Current smokers with less education tend to be heavy smokers than those with a college education or more.
- Nearly half of all adults in Hennepin County who smoked during their lifetime have quit (48.4%). Smoking cessation prevalence increases as age increases. This is not surprising. Older age groups are more likely to have made more attempts to quit and may have more compelling and immediate reasons to quit.
- Among current smokers in Hennepin County, 52.2 percent have attempted to quit smoking for at least one day during the past year. Nearly three-quarters (72.1%) of current smokers aged 18-24 and two-thirds (61.8%) of current smokers aged 25-34 have attempted to quit smoking for at least one day during the past year.

Implications / Future Directions

- Cessation efforts need to be tailored and targeted for young adults. Smoking prevalence is highest among young adults (18-24), but only a small percentage (7.2%) smoke heavily (≥ 25 cigarettes per day). Cessation attempts may be more effective among light smokers. Nearly three-quarters (72.1%) of young adults have attempted to quit smoking for at least one day during the past year, reflecting a willingness to act.
- Schools, work sites, businesses, and other organizations that serve young adults should be encouraged to provide cessation services provided or referral to other sources and implement policies that support a smoke-free environment. Employers are encouraged to provide tobacco cessation services as a covered benefit.
- Healthcare providers and health plans are encouraged to continue to build upon their efforts to promote tobacco-related services, programs and policies. They are advised to target young adults with their education, prevention and cessation efforts. Clinical screening, counseling, referral, and follow-up should become routine.

Environmental Tobacco Smoke (Secondhand Smoke)

Key Points

- About one in five (19.5%) households in Hennepin County are regularly exposed to environmental tobacco smoke (ETS) inside the home. Currently, 19.3 percent of households with children under 18 are exposed to ETS.
- ETS rates vary among the 19 geographic areas in Hennepin County with a high of 33.2 percent in the Phillips area of Minneapolis to a low of 14.2 percent in the cities of Bloomington, Eden Prairie, Edina, Richfield and Fort Snelling.
- Exposure to environmental tobacco smoke has serious health consequences. For example, ETS increases the risk of Sudden Infant Death Syndrome (SIDS), asthma attacks, and middle ear infections among children.

Implications / Future Directions

- Minnesota's clean indoor air legislation, once the first of its kind and a model for the nation, now lags behind other states as some states have adopted more restrictive laws that ban smoking from all workplaces (including bars and restaurants). The Minnesota law exempts numerous locations. Opportunities should be explored to strengthen existing legislation.
- Parents and community need to be educated about the harmful consequences ETS has on the health generally and the health of their children. The education and program efforts should be targeted to reduce the disparity in ETS rates across geographic areas.

Smoking and Self-Reported Health Status/Other Health Risk Behaviors

Key Points

- On average, after adjusting for age and gender, current smokers have significantly worse physical and mental health than non-smokers.
- On average, after adjusting for age and gender, current heavy smokers have significantly worse physical health than light smokers. Similar findings are observed for mental health status.
- Current smokers are more likely to drink alcohol, binge drink, drink heavily, drink and drive, eat poorly, and less likely to regularly exercise vigorously than non-smokers.
- Current smokers who smoke heavily (i.e. smoke ≥ 25 cigarettes per day) are more likely to participate in a variety of risk behaviors that threaten their health than moderate or light smokers (< 25 cigarettes per day).

Implications / Future Directions

- People who smoke are more likely to participate in a variety of risk behaviors that threaten their health. Tobacco control efforts need to be holistic in nature, informing and promoting healthy lifestyles.

Conclusion

C o n t i n u e d

CDC / Minnesota Recommendations

The Centers for Disease Control and Prevention (CDC) recommends that states establish tobacco control programs that are comprehensive, sustained over time, and utilize community partnerships (47). Similarly, the Minnesota Health Improvement Partnership (MHIP) Workgroup, citing findings from recent initiatives in Minnesota, recommends that a statewide approach should (48):

- Draw upon the experiences and expertise of practitioners, policy makers and researchers from a cross section of state and local organizations;
- Build upon the state of the science in tobacco use prevention and reduction;
- Emphasize the importance of coordination, communication, training, technical assistance, surveillance, evaluations, and research; and
- Seek to prevent people from beginning to use tobacco, encourages people to stop using tobacco and protects people from exposure to environmental tobacco smoke.

Based on a review of information from local, state and national reports, MHIP identified nine essential elements that have been parts of effective tobacco control programs (48). These nine elements include:

- Reduction of exposure to environmental tobacco smoke (ETS)
- Restriction of tobacco advertising and promotion
- Economic disincentives for tobacco use
- Counter-marketing campaigns and initiatives
- Comprehensive school-based prevention initiatives
- Reduction of youth access to tobacco products
- Tobacco reduction and cessation (treatment of nicotine addiction)
- Inclusion of assessment, evaluation and research
- Product regulation

Where do we go from here?

This report provides detailed information regarding cigarette smoking in Hennepin County. It attempts to answer questions regarding the factors that influence smoking status, smoking intensity, smoking cessation, and environmental tobacco smoke in ways that contribute to and inform public policy and funding decisions regarding tobacco control efforts in Minnesota. Opportunities and potential next steps have been identified based on the information provided in this report.

However, this report is just a beginning. It is part of a much larger discussion that will take place starting in 1999. The 1998 Minnesota Tobacco Settlement provides a projected \$6.1 billion in payments to the state of Minnesota over the next 25 years. The settlement provides Minnesota an opportunity to build upon existing tobacco control efforts. States like Massachusetts and California successfully utilized tobacco excise taxes to support tobacco control programs which decreased per capita tobacco consumption (49). Now, Minnesota has the opportunity to fund and implement policies and programs that reduce tobacco use.

As *SHAPE 1998: Cigarette Use Among Hennepin County Adults* illustrates, tobacco use continues to be a significant threat to our public's health. By providing baseline information, SHAPE will help health planners, community organizers, tobacco prevention activists, and others to maximize tobacco control efforts and resources to help decrease cigarette use in Hennepin County, and enhance the overall health and well-being of county residents.

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Technical
Notes,
Reference,
and
Appendix

Technical Notes

This section provides some brief notes on a few of the concepts used throughout this report.

Age-gender Adjusted Rate — Age-gender adjusted rates are the rates controlling for the effect of age and gender (see Controlling for Effects below). In this report, when comparing smoking behavior among 19 geographic areas, such as current smoking rates, both actual rates (unadjusted) and age-gender adjusted rates by geographic areas are provided. The actual smoking rates are very important for health professionals and policy makers as they plan smoking prevention and reduction policies and programs. However, the *comparison* of actual smoking rates across the 19 geographic areas should be done cautiously as the rates may be affected by differences in the age-gender distributions within these areas. When comparing the overall rates across geographic areas, age-gender *adjusted* rates are more meaningful if the age-gender compositions are different across these areas and if age and gender relate significantly to the rate being measured (15).

Controlling for Effects — Some of the analyses done in this report were calculated 'controlling for' a specific factor (for example, age or gender). This procedure is done because the specified factor is what is called a *confounding* factor (15).

A confounding factor can mask what the true relationship is between two variables. For example, suppose that a measure of health status was compared between Minneapolis and suburban Hennepin County. It is known from previous studies that one's health status is very much dependent on the age of the person. If, for instance, it is found that the average health status measure is worse in the suburbs than in Minneapolis, then this finding could be true simply because people in Minneapolis are healthier than those in the suburbs. The finding could be true, however, solely because there are more older persons in the suburbs than in Minneapolis. One needs to compute the health status measure 'controlling for age'

before knowing for sure if the two areas are indeed different.

Income as a Percentage of Federal Poverty Levels — This income measurement is based on the size of household and household income information as compared to 1996 Federal Poverty Levels (50). To exemplify what this means, a household of one person with an annual income of \$7,740 or less will be at 100 percent of the Federal Poverty Level or below. A household of three persons with an income of 12,980 or less will also be at or below this category.

Logistic Regression-Multivariate Analysis—Multivariate analysis refers to any statistical analysis of data that simultaneously takes into account more than one variable (15, 51). Logistic regression is the multivariate analysis most commonly used when the outcome variable (or variable of study interest) is binary (e.g. smoking vs. non-smoking). Logistic regression is a very powerful statistical tool for estimating the relationship between a factor (e.g. lower level of education) and a binary outcome (e.g. smoking vs. non-smoking) after adjusting or controlling for a number of other factors (e.g. age, gender, income) (15, 51).

An example of logistic regression analysis is presented in Table 1.3. The dependent variable is current smoking status (smoking vs. non-smoking). The independent variables are age (6 categories), gender (2 categories), level of education (4 categories), race (2 categories), income as a percentage of Federal Poverty Levels (8 categories) and region of residence (2 categories). The resulting adjusted Odds Ratio (OR) identifies the likelihood (or risk) of a respondent in a specific socio-demographic category being a current smoker as compared to the reference group, while controlling for all other socio-demographic factors in the model. In Table 1.3, the OR of 7.3 for age 18-24 is interpreted as county residents aged 18-24 are 7.3 times more likely to be current smokers than county residents aged 65 and older, controlling for all other factors in the model.

In most cases, the analysis *arbitrarily* selects the category having the lowest value as the “reference” category for the convenience of OR interpretation.

Risk factor — Something that is associated with increases in a person's chances of developing a disease.

SF-12 — SF-12 is a twelve-question general health survey developed by researchers at The Health Institute at the New England Medical Center in 1994 (52). The responses to these questions can be combined to measure eight domains, or aspects, of health, and to create two overall summary scores for physical and mental health.

All eight of the domains are used to compute the physical and mental health summary scores. However, the physical functioning, role-physical, and bodily pain domains contribute the most to the physical health summary score, and role-emotional and social functional domains contribute the most to the mental health summary score. Three domain scores: general health, vitality, and social functioning, contribute equally to both summary scores.

Statistical Significance and $p < 0.05$ — A statistically significant difference is the probability that any difference seen in the data is not the result of chance. This is often seen in relation to a predefined number, such as one chance out of 20 (probability p at 0.05 level) or one chance out of 100 (probability p at 0.01 level)(15).

Throughout this report, when a difference in data (such as rates or means) between groups is said to be statistically significant, this significance is at the $p < 0.05$ level. This indicates that the probability that the difference in data between groups is due to chance is less than 5 percent.

Calculations used to determine whether differences are statistically significant use the size of the sample. When samples are large, typically many significant differences are found, even when the

size of the differences are quite small. For example, the value for one question may be 51 percent for Minneapolis, and the value for suburban Hennepin County is found to be 52 percent. This may be a statistically significant difference. However, statistical significance does not necessarily imply that a difference is a ‘meaningful’ one. Small differences may have no practical policy implications.

Weighting by household — The section on Environmental Tobacco Smoke (ETS) provided estimates of ETS among Hennepin County households. In the sampling for SHAPE, approximately equal numbers of households were randomly selected to reach eligible adults for interview in each of the 19 geographic areas, even though the number of households in each geographic area is different. This meant that the percentage of households selected for the survey in some areas was greater in some areas than in others. Therefore, a statistical procedure called “weighting” was applied to the sample data in the analysis in order to provide accurate estimates of ETS among Hennepin County households. Through weighting, geographic areas that have a higher percentage of households selected will be weighted down, and geographic areas that have a lower percentage of households selected will be weighted up, in order to accurately represent the actual number of households in Hennepin County as a whole. The number of households in each of the 19 geographic areas was obtained from 1990 U.S. Census data to calculate the appropriate proportions for the weighting component.

For the rest of the report, the data were weighted either to represent the number of adults in Hennepin County (4) or to reflect the number of adults in each of the geographic areas (5).

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Appendix

APPENDIX TABLE 1.1

Current smoking status and socio-demographic variables among Hennepin County adults aged 18 and older

SOCIO-DEMOGRAPHIC VARIABLE (WS ¹)	NEVER SMOKED		FORMER SMOKER		CURRENT SMOKER		
	WS ¹	PERCENTAGE	WS ¹	PERCENTAGE	WS ¹	PERCENTAGE	
TOTAL	(10,592)²	6,229	58.8	2,117	20.0	2,246	21.2
GENDER	(10,592)						
Male	(5,042)	2,784	*55.2	1,062	*21.1	1,196	*23.7
Female	(5,550)	3,445	62.1	1,055	19.0	1,050	18.9
AGE (years)	(10,593)						
18-24	(1,448)	717	*49.5	202	*14.0	529	*36.5
25-34	(2,219)	1,511	68.1	282	12.7	426	19.2
35-44	(2,977)	1,753	58.9	512	17.2	712	23.9
45-54	(1,553)	904	58.2	332	21.4	317	20.4
55-64	(861)	432	50.2	293	34.0	136	15.8
65+	(1,535)	913	59.5	496	32.3	126	8.2
EDUCATION (age ≥25 years)	(9,087)						
<High school	(343)	162	*47.2	90	*26.2	91	*26.5
High school	(1,861)	913	49.1	443	23.8	505	27.1
Some college	(2,326)	1,298	55.8	478	20.6	550	23.6
College+	(4,557)	3,102	68.1	893	19.6	562	12.3
RACE	(10,495)						
White	(9,510)	5,600	*58.9	1,925	20.2	1,985	*20.9
African American	(401)	234	58.4	68	17.0	99	24.7
Asian/Pacific Islander	(208)	139	66.8	33	15.9	36	17.3
American Indian/Alaska Native	(83)	35	42.2	22	26.5	26	31.3
Multi-Racial	(109)	49	45.0	19	17.4	41	37.6
Other	(184)	118	64.1	33	17.9	33	17.9
ETHNICITY	(10,463)						
Hispanic	(278)	138	*49.6	68	24.5	72	25.9
Non-Hispanic	(10,185)	6,009	59.0	2,034	20.0	2,142	21.0
INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVELS³	(8,634)						
≤100%	(788)	461	*58.5	136	*17.3	191	*24.2
101-150%	(375)	189	50.4	75	20.0	111	29.6
151-200%	(620)	365	58.9	119	19.2	136	21.9
201-300%	(1,249)	662	53.0	270	21.6	317	25.4
301-400%	(1,607)	886	55.1	382	23.8	339	21.1
401-500%	(1,187)	711	59.9	240	20.2	236	19.9
501-600%	(914)	526	57.5	187	20.5	201	22.0
≥601%	(1,894)	1,182	62.4	369	19.5	343	18.1
REGION	(10,592)						
Minneapolis	(3,751)	2,081	*55.5	727	19.4	943	*25.1
Suburban Hennepin County	(6,841)	4,148	60.6	1,390	20.3	1,303	19.0

NOTE:
¹ WS: weighted sample size. Weighted sample sizes may differ due to missing information for different socio-demographic variables. Weighted sample sizes could also differ by one or two cases even when both variables do not have missing information. This difference is due to the rounding of the summation of the weight used for the survey analysis.
² Among 10,617 survey respondents, 25 had smoking status information missing or unknown. Therefore, the maximum number of cases for this analysis was 10,592.
³ See Technical Notes.
* Differences in percentages between categories of the variable are statistically significant at p< 0.05.

APPENDIX TABLE 1.2

Current smoking rates for 19 geographic areas, unadjusted and adjusted, among Hennepin County adults aged 18 and older

GEOGRAPHIC AREAS ¹	UNADJUSTED (ACTUAL) CURRENT SMOKING RATE		ADJUSTED CURRENT SMOKING RATE ²	
	RATE(%)	RANK	RATE (%)	RANK
Area 2 - Camden	34.0	1	41.1	1
Area 8 - Phillips	32.4	2	38.2	2
Area 9 - Powderhorn	30.7	3	34.7	3
Area 7 - Northeast	27.6	4	33.9	4
Area 1 - Calhoun-Isles	27.1	5	30.8	6
Area 3 - Central	26.9	6	31.1	5
Area 5 - Near North	26.3	7	30.0	7
Area 4 - Longfellow	25.0	8	30.0	7
Area 14	23.7	9	26.3	9
Area 11 - University	22.4	10	19.6	17
Area 15	22.2	11	24.2	12
Area 13	19.7	12	24.6	10
Area 19	19.2	13	20.8	15
Area 17	19.2	13	24.4	11
Area 16	18.7	15	22.5	14
Area 6 - Nokomis	18.0	16	22.6	13
Area 8	17.1	17	19.5	18
Area 10 - Southwest	16.2	18	20.1	16
Area 12	15.5	19	18.8	19

¹ **Geographic areas for Suburban Hennepin County:**

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

Area 14 - Brooklyn Center, Brooklyn Park, Osseo.

Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.

Area 16 - Hopkins, Minnetonka, St. Louis Park.

Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.

Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.

² Current smoking rates adjusted for age and gender. The method for the adjustment is multiple logistic regression (see Technical Notes)

APPENDIX TABLE 2.1

Smoking intensity by socio-demographic variables among Hennepin County adults aged 18 and older

SOCIO-DEMOGRAPHIC VARIABLE (WS ¹)		LIGHT SMOKER (0-14 CIGARETTES/DAY)		MODERATE SMOKER (15-24 CIGARETTES/DAY)		HEAVY SMOKER (≥25 CIGARETTES/DAY)	
		WS	PERCENTAGE	WS	PERCENTAGE	WS	PERCENTAGE
TOTAL	(2,215)²	1,032	46.6	861	38.9	322	14.5
GENDER	(2,215)						
Male	(1,177)	506	*43.0	448	38.1	223	*18.9
Female	(1,038)	526	50.7	413	39.8	99	9.5
AGE (years)	(2,117)						
18-24	(516)	302	*58.5	177	*34.3	37	*7.2
25-34	(424)	242	57.1	142	33.5	40	9.4
35-44	(706)	269	38.1	291	41.2	146	20.7
45-54	(315)	114	36.2	148	47.0	53	16.8
55-64	(133)	52	39.1	53	39.8	28	21.1
65+	(123)	55	44.7	51	41.5	17	13.8
EDUCATION (age ≥25 years)	(1,688)						
<High school	(91)	39	*42.9	31	*34.1	21	*23.1
High school	(498)	188	37.8	232	46.6	78	15.7
Some college	(546)	206	37.7	232	42.5	108	19.8
College+	(553)	294	53.2	183	33.1	76	13.7
RACE	(2,189)						
White	(1,959)	878	*44.8	777	*39.7	304	15.5
African American	(99)	58	58.6	29	29.3	12	12.1
Asian/Pacific Islander	(32)	26	81.3	6	18.8	0	-
American Indian/Alaska Native	(25) ³	-	-	-	-	-	-
Multi-Racial	(41)	27	65.9	11	26.8	3	7.3
Other	(33)	23	69.7	9	27.3	1	3.0
ETHNICITY	(2,183)						
Hispanic	(72)	43	*59.7	26	36.1	3	*4.2
Non-Hispanic	(2,111)	978	46.3	819	38.8	314	14.9
INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVELS⁴	(1,855)						
≤100%	(186)	94	*50.5	70	*37.6	22	*11.8
101-150%	(111)	62	55.9	33	29.7	16	14.4
151-200%	(129)	41	31.8	64	49.6	24	18.6
201-300%	(316)	140	44.3	139	44.0	37	11.7
301-400%	(339)	148	43.7	150	44.2	41	12.1
401-500%	(234)	112	47.9	88	37.6	34	14.5
501-600%	(198)	99	50.0	56	28.3	43	21.7
≥601%	(342)	155	45.3	132	38.6	55	16.1
REGION	(2,216)						
Minneapolis	(927)	475	*51.2	345	37.2	107	*11.5
Suburban Hennepin County	(1,289)	558	43.3	516	40.0	215	16.7

NOTE:

¹ WS: weighted sample size. Weighted sample sizes may differ for different socio-demographic variables due to missing information. Weighted sample sizes could also differ one or two cases even when both variables do not have missing information. This difference is due to the rounding of the summation of the weight used for the survey analysis.

² Among 2,246 survey respondents who reported that they were current smokers, 31 had the intensity of smoking information unknown or missing. Therefore, the maximum number of cases for this analysis was 2,215.

³ The sample size is too small to provide a reliable percentage estimate.

⁴ See Technical Notes.

* Differences in percentages between categories of the variable are statistically significant at $p < 0.05$. Categories with sample sizes less than 30 are excluded in the analysis.

APPENDIX TABLE 2.2

Heavy smoking rates¹ for 19 geographic areas, unadjusted and adjusted, among current smokers aged 18 and older, Hennepin County

GEOGRAPHIC AREAS ²	UNADJUSTED (ACTUAL) HEAVY SMOKING RATE		ADJUSTED HEAVY RATE ³	
	RATE(%)	RANK	RATE (%)	RANK
Area 12	28.7	1	28.0	1
Area 17	26.5	2	23.7	2
Area 7 - Northeast	19.7	3	16.9	4
Area 14	17.8	4	18.4	3
Area 8 - Phillips	17.8	4	16.4	5
Area 18	17.7	6	15.3	6
Area 10 - Southwest	16.7	7	15.0	7
Area 6 - Nokomis	15.7	8	13.6	8
Area 4 - Longfellow	14.9	9	13.3	9
Area 19	13.9	10	12.5	10
Area 3 - Central	11.5	11	11.4	11
Area 13	11.4	12	9.9	13
Area 2 - Camden	10.9	13	10.1	12
Area 5 - Near North	10.8	14	9.4	14
Area 16	10.2	15	8.6	15
Area 9 - Powderhorn	7.2	16	7.4	16
Area 15	5.2	17	4.4	18
Area 1 - Calhoun-Isles	4.9	18	5.5	17
Area 11 - University	1.3	19	1.6	19

¹ Heavy smokers are defined as those current smokers who reported smoking 25 or more cigarettes daily.

² **Geographic areas for Suburban Hennepin County:**

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

Area 14 - Brooklyn Center, Brooklyn Park, Osseo.

Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.

Area 16 - Hopkins, Minnetonka, St. Louis Park.

Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.

Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.

³ Heavy smoking rates adjusted for age and gender. The method for the adjustment is multiple logistic regression (see Technical Notes).

APPENDIX TABLE 3.1

Smoking cessation by socio-demographic variables among Hennepin County adults aged 18 and older

SOCIO-DEMOGRAPHIC VARIABLE	SMOKING CESSATION PREVALENCE AMONG EVER SMOKERS			PERCENTAGE OF CURRENT SMOKERS WHO HAVE TRIED TO QUIT ONE DAY OR LONGER DURING THE PAST YEAR		
	NO. OF EVER SMOKERS ¹	NO. OF FORMER SMOKERS	PERCENTAGE	NO. OF CURRENT SMOKERS ¹	NO. OF THOSE WHO HAVE TRIED TO QUIT ≥1 DAY IN PAST YEAR	PERCENTAGE
TOTAL	4,311²	2,085	48.4	2,226³	1,163	52.2
GENDER						
Male	2,240	1,053	47.0	1,186	652	*55.0
Female	2,072	1,032	49.8	1,040	511	49.1
AGE (years)	4,311			2,226		
18-24	725	201	*27.7	524	378	*72.1
25-34	700	276	39.4	424	262	61.8
35-44	1,205	503	41.7	702	288	41.0
45-54	643	326	50.7	317	131	41.3
55-64	422	287	68.0	135	49	36.3
≥65	616	491	79.7	125	55	44.0
EDUCATION (age ≥25 years)	3,565			1,693		
<High school	178	88	*49.4	90	40	44.4
High school	930	433	46.6	497	222	44.7
Some college	1,015	468	46.1	547	251	45.9
College+	1,442	883	61.2	559	271	48.5
RACE⁴	4,268			2,202		
White	3,871	1,896	*49.0	1,974	1,011	51.2
African American	165	67	40.6	98	53	54.1
Asian/Pacific Islander	63	31	49.2	32	19	59.4
American Indian/Alaska Native	46	22	47.8	24	16	66.7
Multi-Racial	59	18	30.5	42	26	61.9
Other	64	33	51.6	32	25	78.1
ETHNICITY	4,266			2,196		
Hispanic	138	66	47.8	72	55	*76.4
Non-Hispanic	4,128	2,004	48.5	2,142	1,095	51.6
INCOME AS A PERCENTAGE OF FEDERAL POVERTY LEVELS⁵	3,610			1,863		
≤100%	323	135	*41.8	189	90	47.6
101-150%	183	75	41.0	107	57	53.3
151-200%	247	112	45.3	135	66	48.9
201-300%	583	266	45.6	317	186	58.7
301-400%	712	378	53.1	334	162	48.5
401-500%	473	237	50.1	237	115	48.5
501-600%	385	184	47.8	201	113	56.2
≥601%	704	361	51.3	343	190	55.4
REGION	4,311			2,227		
Minneapolis	1,650	720	*43.6	930	515	*55.4
Suburban Hennepin County	2,661	1,365	51.3	1,297	648	50.0

NOTE:

¹ Weighted sample size: The weighted sample sizes may differ for different socio-demographic variables due to missing information. Weighted sample size could also differ by one or two cases even when both variables do not have missing information. This difference is due to the rounding of the summation of the weight used for the survey analysis.

² Among 4,363 current or former smokers, 52 had smoking cessation information unknown or missing. Therefore, the maximum of this analysis was 4,311.

³ Among 2,246 current smokers, 20 had smoking cessation information unknown or missing. Therefore, the maximum number of this analysis was 2,226.

⁴ The difference in rates is compared between Whites and African Americans only. Sample sizes for other racial groups are too small to make meaningful comparisons.

⁵ See Technical Notes.

* Differences in percentages between categories of the variable are statistically significant at $p < 0.05$.

APPENDIX TABLE 3.2

Smoking cessation prevalence among ever smokers aged 18 and older for 19 geographic areas, unadjusted and adjusted, Hennepin County

GEOGRAPHIC AREAS ¹	UNADJUSTED (ACTUAL) SMOKING CESSATION PREVALENCE		ADJUSTED SMOKING CESSATION PREVALENCE ²	
	RATE(%)	RANK	RATE (%)	RANK
Area 17	57.3	1	57.4	1
Area 10- Southwest	56.9	2	56.5	2
Area 12	56.5	3	55.3	3
Area 6- Nokomis	52.8	4	49.5	8
Area 18	51.7	5	52.4	6
Area 16	51.6	6	49.8	7
Area 15	50.0	7	54.4	5
Area 13	49.0	8	46.0	10
Area 4- Longfellow	46.7	9	45.6	11
Area 19	45.8	10	49.0	9
Area 3 Central	43.8	11	45.3	12
Area 11- University	42.2	12	54.6	4
Area 7- Northeast	41.9	13	38.7	16
Area 14	40.0	14	41.1	14
Area 9- Powderhorn	39.4	15	41.1	14
Area 1- Calhoun-Isles	39.0	16	41.8	13
Area 2- Camden	38.4	17	36.4	17
Area 5- Near North	37.3	18	35.6	18
Area 8- Phillips	33.4	19	31.5	19

¹ **Geographic areas for suburban Hennepin County:**

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

Area 14 - Brooklyn Center, Brooklyn Park, Osseo.

Area 15 - Champlin, Dayton, Maple Grove, Medicine Lake, Plymouth.

Area 16 - Hopkins, Minnetonka, St. Louis Park.

Area 17 - Deephaven, Excelsior, Greenwood, Long Lake, Minnetonka Beach, Minnetrista, Mound, Orono, St. Bonifacius, Shorewood, Spring Park, Tonka Bay, Wayzata, Woodland.

Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.

² Smoking cessation prevalence adjusted for age and gender.

The method used for the adjustment is multiple logistic regression (see Technical Notes).

APPENDIX TABLE 3.3

Percentage of current smokers aged 18 and older who have tried to quit for one day or longer during the past year for 19 geographic areas, unadjusted and adjusted, Hennepin County

GEOGRAPHIC AREAS ¹	UNADJUSTED (ACTUAL) PERCENTAGE OF CURRENT SMOKERS WHO HAVE TRIED TO QUIT FOR ONE DAY OR LONGER DURING THE PAST YEAR		ADJUSTED PERCENTAGE OF CURRENT SMOKERS WHO HAVE TRIED TO QUIT FOR ONE DAY OR LONGER DURING THE PAST YEAR ²	
	RATE(%)	RANK	RATE (%)	RANK
Area 11- University	69.3	1	57.9	5
Area 1- Calhoun-Isles	64.9	2	58.8	3
Area 17	60.9	3	60.1	1
Area 5- Near North	60.0	4	59.3	2
Area 9- Powderhorn	58.1	5	52.4	8
Area 16	57.4	6	58.4	4
Area 3- Central	57.1	7	50.6	11
Area 18	55.3	8	55.7	6
Area 6- Nokomis	55.0	9	55.0	7
Area 8- Phillips	54.1	10	50.8	10
Area 14	53.9	11	51.5	9
Area 4- Longfellow	52.5	12	50.3	12
Area 13	51.2	13	49.8	14
Area 19	50.7	14	48.8	15
Area 7- Northeast	49.4	15	50.2	13
Area 10- Southwest	48.4	16	46.2	16
Area 15	43.4	17	41.7	17
Area 12	43.3	18	40.5	19
Area 2- Camden	43.0	19	41.2	18

¹ **Geographic areas for suburban Hennepin County**

Area 12 - Bloomington, Eden Prairie, Edina, Richfield, Fort Snelling.

Area 13 - Crystal, Golden Valley, New Hope, Robbinsdale.

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Area 16 - Hopkins, Minnetonka, St. Louis Park.

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Area 18 - Greenfield, Independence, Loretto, Maple Plain, Medina, Rockford.

Area 19 - Corcoran, Hanover, Hassan, Rogers.

² Percentage of current smokers who have tried to quit for one day or longer during the past year adjusted for age and gender. The method used for the adjustment is multiple logistic regression. (see Technical Notes)



Hennepin County Community Health Department

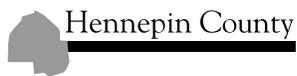
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Hennepin County

**Hennepin County
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