Accessibility and Quality of Health Care in Snohomish County Results of a 1996 Survey

Snohomish Health District
Health Statistics and Assessment

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A Special Report Prepared by the
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Our Mission is:

Promoting Health Through Partnerships.

Our Vision is:

Healthy Lifestyles, Healthy Communities.

Acknowledgments

This report represents the support and efforts of many individuals. Diane Gordon designed the study and compiled the survey questionnaire with input from David Solet (Seattle-King County Department of Public Health.) The Gilmore Research Group of Seattle implemented the telephone survey. Diane Gordon and M. Ward Hinds reviewed the report and provided guidance. Renea Coward provided technical assistance. Mark Serafin reviewed the manuscript, prepared the map of Snohomish County and provided technical support. Dean Churchill reviewed the manuscript. Special thanks go to the 1200 Snohomish County residents who agreed to participate in the survey.

Executive Summary

Context: In follow-up to previous needs assessment surveys in Snohomish County, this report presents the finding of a survey on access to health care. Health insurance is a major determinant of access to health care. In Snohomish County approximately 10% of adults lacked medical insurance in 1996. Insured individuals report wide-ranging variability in the quality of care they receive.

Main Objectives: (1) Identify characteristics associated with lack of insurance; (2) Assess unmet needs; (3) Compare those enrolled in major insurance plan types -- and those without insurance, with respect to consumer satisfaction with health care services.

Design & Methods: A cross-sectional random digit dial telephone survey of 1200 county residents was conducted in 1996. Descriptive statistics and logistic regression models were used to analyze the data. Main outcomes were lack of insurance and variables related to satisfaction with health care.

Highlights of Findings[1]:

On Health Care Coverage & Unmet Needs

- All senior citizens (65+) had some type of medical coverage. Among working-age adults (18-64) 11% lacked medical coverage.
- Approximately 78% of the insured were covered by privately funded medical insurance; 22% had publicly funded insurance including Medicare, the Washington State Basic Health Plan, Medicaid, and the Indian Health Service.
- Among those who had been unemployed for more than one year 53% were covered by publicly funded insurance; 18% did not have any coverage.
- Among those unemployed for less than one year, 20% had publicly funded insurance and 47% were without coverage .
- Dental care: about 35% of adult county residents did not have dental care plans. Among senior citizens 76% did not have dental coverage, while 29% of working-age adults lacked coverage.

[1] Confidence intervals for most proportions reported in this summary can be found in Appendix IV.

- Vision care: 35% of all adults lacked vision care coverage. The age groups were not significantly different with respect to lack of vision coverage.

- Mental health: 46% had coverage for mental health counseling, 20% did not have coverage, and 34% did not know if their medical plan covered mental health.

- Prescription drugs: 18% of the population did not have any coverage for prescription drugs; 38% of senior citizens and 15% of working-age adults did not have coverage.

- There were insured individuals who did not receive needed dental, vision, or mental health care, but the uninsured were significantly more likely not to receive needed services.

- Mammograms: approximately 11% of women 40 years old and over were not covered for mammograms. An additional 7% did not know if they had the coverage under their medical plan.

- Well-child care: 24% of the adults whose household included at least one child under the age of 18, did not have well-child care coverage. An additional 8% did not know if their medical plan covered it.

- Forty-three uninsured survey respondents (43% of the uninsured) reported having others in their household who did not have any medical coverage. Approximately 40% of these household members were children under the age of 18.

- Lack of emergency care when needed: In the 12 months preceding the survey, 18 (1%) survey respondents reported needing emergency care they did not receive; 24 (2%) respondents reported that another household member needed emergency care and did not receive it. Among these household members, 11 were children under the age of 18.

Characteristics of the Uninsured & Socioeconomic Indicators:

- Single marital status, low-income, less education, male gender, and better self-perceived health status were associated with lack of insurance after controlling for confounding factors.

- There was an inverse relationship between better self-perceived health and lack of medical insurance. The uninsured were more likely to be younger and report better health.

- Socioeconomic indicators, less education and lower income, were significantly associated with the lack of medical, dental, and vision coverage, after controlling for potential confounding factors.

- Among the insured working-age adults, low-income individuals were more likely to report 'fair' or 'poor' health than higher income groups, after controlling for age and gender.

- Insured women of ethnic minorities[2] were more likely than non-minorities to be unaware of mammogram coverage in their medical plan.

- There were no statistically significant differences in the rates of health care, dental, and vision care coverage between each of the six health planning areas of Snohomish County and the county as a whole.

On Utilization of Health Care Services:

- Among the uninsured, 14% used a hospital emergency room the last time they needed medical attention.

- About 82% of the insured went to a doctor or clinic in the year prior to the survey, versus only 58% of the uninsured.

- Approximately 52% of the insured, versus only 27% of the uninsured sought medical advice by phone during office hours; 26% of the insured sought medical advice by phone after hours or on weekend, versus only 9% of the uninsured.

On Satisfaction with Health Care Quality

- The insured were significantly more likely than the uninsured to rate their confidence in their doctor as 'good' to 'excellent'.

- The insured were significantly more likely than the uninsured to report that their doctor listened to them better and involved them in decision making.

- About 92% of the insured, versus 68% of the uninsured, reported receiving referrals they needed for seeing specialists.

- Among the insured, those who were under managed care/gate-keeper plans had significantly more problems with their choice of physicians, problems getting telephone help during office hours, and difficulty receiving needed care because of 'insurance hassles'.

- Those who were enrolled in fee-for-service plans were significantly more likely than those enrolled in managed care/gate-keeper plans to say that doctors *always* acts in the best interest of patients. Those enrolled in preferred provider plans were not significantly different in their opinion from those enrolled in either of the other two types of plans.

[2] See definition of minority in Appendix V.

Conclusions: Although Snohomish County is a generally prosperous place to live, there are unmet needs with respect to access to health care. In 1996 there were children and adults who did not receive needed care. Despite perceptions of good health, single, low income, less educated men may be at risk for lacking insurance during acute or long-term changes of health status. For the insured, preferred provider and fee-for-service organizations may provide more satisfactory service than managed care/gate-keeper plans.

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BACKGROUND AND SIGNIFICANCE

Access to health care is "the timely use of personal health services to achieve the best possible health outcomes."[3]

Since 1989 collaborative efforts among various organizations and community leaders in Snohomish County have resulted in completion of four 'needs assessment' projects. The purpose of these projects was to evaluate the quality of life in Snohomish County and to identify areas where community action could result in the greatest benefit for the entire community. Surveys were conducted in 1989, 1991, 1993 and 1995. Snohomish Health District (SHD) became involved in this collaborative effort in 1995, with a special section devoted to detailed evaluation of health and dental care access. These surveys identified the issues that community members perceived as 'major' or 'moderate' problems in Snohomish County. 'Affordable health care' was one of the areas consistently considered a 'major' problem by at least 25% of the survey population in each of the four surveys. In fact, 33% in 1989, 41% in 1991, 47% in 1993, and 25% in 1995, considered health care affordability a major problem. An additional 19% to 24% of the survey population considered affordable health care a moderate problem in each of the survey years. During the 1995 survey affordable dental care was also identified by 20% of the survey population as a major problem, with an additional 19% who felt it was a moderate problem (1,2,3,4).

In addition to a survey of over 1200 adult residents of Snohomish County, the 1995 needs assessment project included a survey of 450 community leaders. Among community leaders, 38% believed that affordable health care was a major problem and an additional 38% felt that it was a moderate problem. The survey of adult community members revealed that 10% of the respondents did not have health insurance coverage in 1995. Among those who *did* have coverage, 28% said that their health insurance did not cover all of their health care needs (4).

The increase from 1989 to 1993, and subsequently the decrease in 1995, in the proportion of survey respondents who considered health care access a 'major' problem in Snohomish County is reflective of a national trend. Nationally, health care coverage, accessibility, and quality of care, have been in the forefront of social and political discussions in the past several years. In particular, during 1993 and 1994 there was an enormous national debate on major health care reform. However, no national legislation was ever enacted to modify the health care system drastically. Less media attention has been given to health care reform since the end of the 1993-1994 debate. This is reflected in polls nationally as well as locally. In the height of the health care reform debate, in 1994, 55% of Americans named health care as one of two most important problems *for the government to address*. The percentage has been declining since 1995, with only 12% of the nation considering health care one of two most important of the nation's problems for the government to address in 1997 (5). There is another side however to the public's opinion. Surveys (5) show that since 1958 there has

[3] Institute of Medicine Committee on Monitoring Access to Personal Health Care Services. Access to health care in America. Michael Millman (ed.) National Academy of Sciences. National Academy Press. Washington D.C. 1993.

been a general decline in the percentage of Americans who say they trust the government to do the right thing "just about always or most of the time". In 1958, 73% said they had such trust in the Federal government, versus only 22% in 1997 (5).

The problem of access to quality health care however still persists. In 1994, 40 million Americans did not have health insurance and the figure promises to remain high. Another 40 million are insured for only a portion of any year [due to employment situations] (6). In 1996 an estimated 18% of the US population, about 46 million Americans, reported that they had no 'usual source' of health care, no particular doctor's office or clinic that they would usually go to if they needed medical advice (7). Also in 1996, an estimated 12% of all American families, 12.8 million families, experienced barriers to receiving needed health services. The main reasons cited were inability to afford medical care, and insurance related problems (7).

These observations present a paradox: there are health care access and quality concerns in the nation, but the public may not want the solution to come from the [Federal] government (5). Other sectors of the society are now shaping the health care system of the nation. The market-driven private sector sharply affects the actions of providers (6). Employers, and in particular large employers, who pay the premiums for most insured people have great interest in reducing the cost of health care. But are employers concerned about the quality of health care? Responsible employers do care about the quality of health care their employees receive, as they understand that having productive employees depends greatly on the health status of employees and their families. A corporate vice president was quoted saying "We want employees concentrating on today's job, not complaining about yesterday's doctor's appointment" (8).

The assessment of accessibility and quality of health care is more complex than ever. With the advent of managed care systems, changes in the economy, changes in employers' policies on paying insurance premiums for their employees, and cuts in Federal government programs such as Medicare and Medicaid, it has become increasingly difficult to understand the inequalities in the delivery of health care. The majority of those who do not have health insurance in this country are the 'working poor' (see sections entitled 'The Working Poor' and 'Washington State Basic Health Plan'). In 1993, in the US, 84% of those who were without insurance were employed or were the dependents of one who worked (9). The working poor do not have coverage through their employers--or if they are self-employed, cannot afford to buy insurance; at the same time, financially they do not qualify to take advantage of the Federal government programs. The State of Washington's Basic Health Plan (BHP) attempts to fill this gap. Yet there are still those, even in Snohomish County--one of the most prosperous counties in the state, who lack access to health care.

In Fall of 1996, SHD undertook a survey of Snohomish County's adult residents in follow up to the 1995 needs assessment survey, specifically focused on issues related to access to health care, utilization of services, and quality of care. This report presents the findings of that survey. The present study does not claim to find the causes of inequalities in health services and satisfaction. Such causal relationships can only be established through long term longitudinal studies. But the survey results do shed light on aspects of health care access and utilization where most attention is needed in Snohomish County. In addition to identifying major areas

of concern, this survey provides us with associations between certain outcomes such as satisfaction with health care providers, and certain circumstances, such as the type of medical coverage one may have.

Without a comprehensive Federal strategy, health care access will continue to be an important societal issue. It is timely to assess the accessibility and quality of health care in Snohomish County as perceived by its residents. This assessment enables our community to recognize areas of greatest concern, and to direct efforts accordingly.

METHODS

Survey design This survey was designed and conducted by Snohomish Health District's Health Statistics and Assessment Program. Questionnaires on access to health care and quality of health care, previously tested and used by academic institutions, national surveys, and Seattle-King County Department of Public Health (10, 11, 12) were used as models. The survey was a telephone random digit dial, cross sectional survey--a one-time prevalence survey that measures parameters at one point in time only. There were 90 questions on the survey (see Appendices III & IV), ranging from demographic information to health care access, utilization, and quality.

Target population Adults 18 years of age and older who lived in Snohomish County in November of 1996 were the target population for this survey. In 1993 SHD defined six "Health Planning Areas" [4] (HPA's) in order to better understand and serve the health concerns of specific geographical regions in Snohomish County. The HPA's are: Everett, North County, East County, Highway 99, South Central and View Corridor. Appendix I provides a map of the regions and the zip codes in each of the HPA's. Equal numbers of respondents from each of the six regions were included in the survey.

Survey implementation The Gilmore Research Group of Seattle was contracted to conduct the survey. The survey was conducted by telephone. Random digit dial was utilized to select the residential telephone numbers. Sample selection was without replacement, that is each telephone number could be included in the survey only once. A total of 3,358 telephone calls were made until the targeted sample size of 1,200 respondents (200 from each of the 6 HPA's,) who completed the survey, was accomplished. There were 1,966 immediate rejections, and 192 respondents who terminated the survey after answering at least one question. Respondents were assured of the confidentiality of their identity. Names and addresses were not asked; only zip code of residence was recorded. Each respondent was assigned a number.

In order to best approximate the gender distribution of the population of Snohomish County in the sample, the interviewers used quotas for the numbers of men and women based on population estimates in Snohomish County for 1996 (see Appendix II.) When a household was contacted, the interviewer first asked the number of men and women 18 years of age and older in the household. If the household included both genders, based on quotas, the interviewer asked for a specific gender respondent as first choice. If the person was not available at the time, arrangements were made for the interviewer to call back at a different time, or the interviewer selected a second choice to be interviewed. If the household included only one adult, that adult, regardless of gender, was asked to participate in the survey. Each completed telephone survey lasted approximately 15 to 20 minutes. Generally more women than men responded to the survey. The 1996 estimated population of Snohomish County was comprised of 51% women and 49% men. The sample however consisted of 56% women and

[4] For a full description of Snohomish County's health planning area's see "The Health of Snohomish County 1995 Annual Report" (13).

44% men. This discrepancy was adjusted for by weighting the sample in the analysis of the data. The weighting of the sample also adjusts for the discrepancies in the age distribution of the sample and that of the population. Older adults (over 75 years old), and younger adults (under 29 years old), tend to respond to surveys less frequently than middle age adults. Thus if the sample is not weighted the groups that respond to surveys less frequently are under-represented, and those groups that respond more frequently are over-represented.

The sample was weighted according to Centers for Disease Control (CDC) procedures. The CDC weighting procedure also adjusts for unequal probability of selection of individuals based on the number of telephones and adults in the household. Since some households have more than one telephone line on which one can hold a conversation (not counting fax and modem lines), the probability of selecting the individual(s) in these households increases. Furthermore, in households with more than one adult 18 years of age or older, the probability of selecting each individual from the household decreases. The CDC weighting procedure adjusts for this unequal probability. See Appendix II, Methodology, for detailed description of the weighting method.

Sample size An overall sample size of 1200 was selected considering several factors. An important determinant was the budget. A sample of 1200 respondents, 200 from each HPA, was the largest sample size that we could interview and analyze, and still have reasonable confidence in our results. Table 2 in Appendix II shows the width of any confidence interval calculated using a sample size of 1200, 1000, 500, 200, and 100, for parameters with prevalences of 5% to 95% (5% increments). For example, for any parameter with prevalence of 40%, a sample size of 1200 can give us a 95% confidence interval with a width of ± 2.8 %, but a sample size of 200 will yield a 95% confidence interval with a width of ± 6.8%. The table shows that as sample size decreases and probability of the prevalence of a parameter approaches 50%, the width of the confidence interval increases, making the estimate a less precise measurement.

Statistical Analysis First the sample's demographic features are described. Appendix III shows the characteristics of the entire samples as well as the characteristics of each HPA's sample. Gender, age group, mean age, marital status, race, Hispanic origin, education level, total number of household members, number of adults and children in the household, annual household income, employment status, length of time at current residence, and, the number of telephone lines at home, are shown in the appendix. These statistics were not weighted as they only describe the sample population.

The analysis of survey questions on accessibility and quality of health care, involved weighted quantification of the data as described earlier. Proportions (percentages) of particular re-

sponses were calculated. Confidence intervals (95%) are given for parameters that were weighted. A confidence interval is the range within which a parameter can be expected to fall given specific probabilities and sample sizes (see Appendix V--Statistical Definitions). Appendix IV shows the results of the analysis for each question on the survey. The responses are given for the entire sample, and when appropriate, for each gender, for each of four age groups[5], and for each of the six HPA's.

Associations between certain characteristics and responses were quantified and graphically represented. Chi-square tests were performed and univariate odds ratios are provided when appropriate. Chi-square tests compare the proportions of certain responses within certain characteristics. Furthermore, multivariate logistic regression analyses were performed to control for confounding factors. The results of the statistical associations are discussed in the 'Findings' section of this report. Definitions and classifications are explained in detail in Appendix V. Confidence intervals, sample representativeness, methods for weighting of the data, break-up of age groups, data sources for population estimates, unweighted data, and statistical analysis are discussed further in Appendix II.

[5] The age groups are: 18 to 29, 30 to 39, 40 to 59, and 60+. This classification is compatible with the BRFS 1996 report (14)

POPULATION AND SAMPLE CHARACTERISTICS

Geography. Snohomish County is the third most populated county in the State of Washington. In 1996 the county had an estimated population of 538,100. The county is mostly rural in its northern and eastern regions. The urban and suburban centers are located in the west and southwest of the county. In the west Snohomish County borders Puget Sound. In the south the Seattle metropolitan area's suburban sprawl stretches into Snohomish County. In the east and north Snohomish County borders the mostly rural counties of Chelan and Skagit. Whereas most of the western parts of the county have easy access to Interstate 5, connecting them to the Seattle metropolitan area, the eastern regions of the county are relatively isolated with small rural towns scattered in the Cascade Mountains. Most of the population of Snohomish County, approximately 80%, is concentrated in the southwest region of the county.

Population Age and Gender Distribution. The complete demographic characteristics of Snohomish County's population are described elsewhere (13). In 1996, the adult population of Snohomish County was comprised of 51% women and 49% men. The sample of population that participated in this survey was 56% women and 44% men. Figures 1, 2 and 3 compare the age distribution of Snohomish County adults with the age distribution of survey participants. Although the data were weighted to adjust for any discrepancies between the sample and the population of the county, in general the sample matched the population age distribution of Snohomish County before weighting. The figures show the age distribution of the total sample, and for each gender, compared with that of the county in 1996. The overall shape of the distributions are similar, but an over-representation of the middle age group and an under-representation of the extreme ends of the age-groups in the sample is evident. Snohomish County's age distribution for 1996 is estimated based on the derivations from the 1990 US census (see Appendix II.)

Socioeconomic Characteristics. Figures 4, 5, and 6 compare some of the survey sample socioeconomic characteristics with that of Snohomish County and Washington State as a whole. Snohomish County has a lower proportion of minority populations than Washington State. The sample proportion of minorities is lower than that of Snohomish County's in all groups with the exception of those with Hispanic heritage (Figure 4). In the survey sample those without a high school diploma are under-represented, and those who completed college are over-represented (Figure 5). This phenomenon is common in surveys of this magnitude. The income groups are represented more or less following Snohomish County's income distribution (Figure 6). Approximately 11% of the sample was unwilling to reveal their income.

Socioeconomic and demographic statistics for Washington State and Snohomish County, namely educational attainment, minority populations, and annual household income, are taken directly from the 1990 US Census. The survey data are from 1996. The demographics of any population may change from year to year, therefore, it is important to use caution when comparing data from 1990 to 1996.

Figure 1

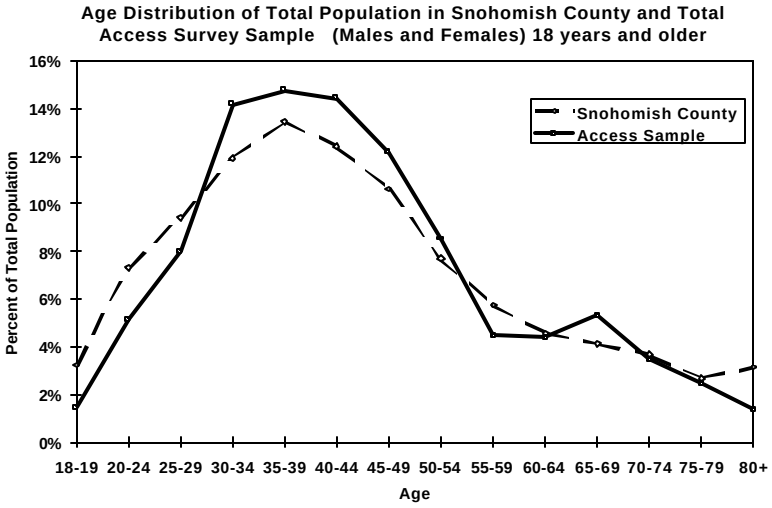


Figure 2

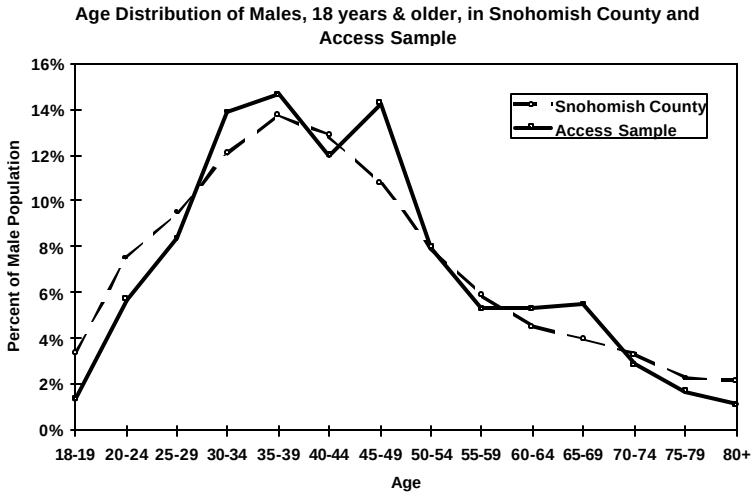
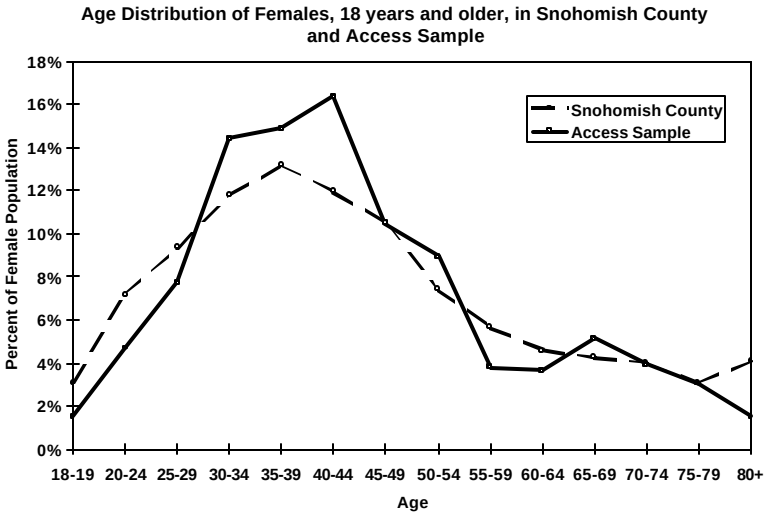


Figure 3



Ethnic Minorities: Washington State, Snohomish County, Access Survey Sample

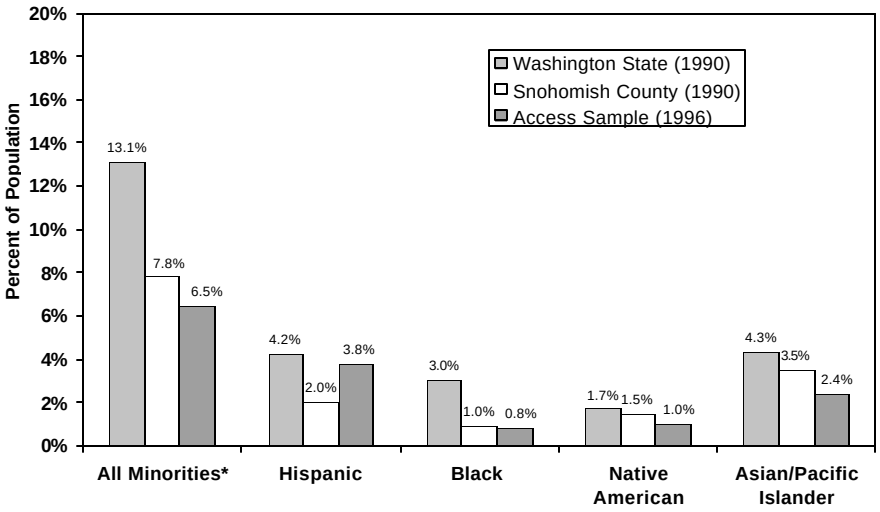


Figure 4

Educational Attainment of Adults 18 Years & Older: Washington State, Snohomish County, Access Survey Sample

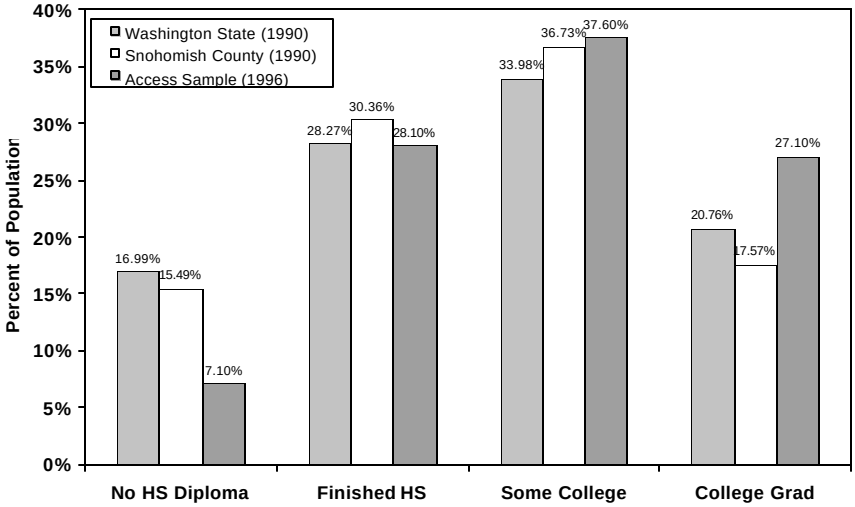


Figure 5

Annual Household Income: Washington State, Snohomish County, Access Survey Sample 1996

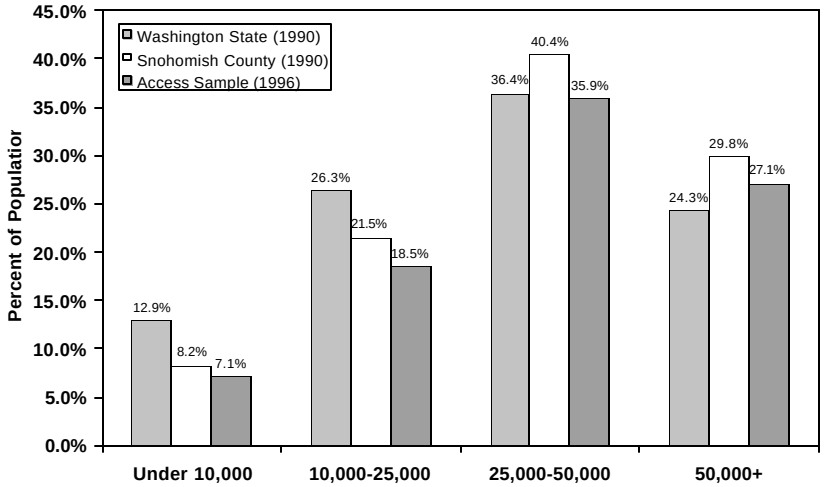


Figure 6

Some major characteristics of the respondents are summarized in Table 1, for the entire sample and for each HPA. In all HPA's, except for North County, more women than men responded to the survey. The population estimate for the North County HPA does not show the same pattern of gender distribution as the sample. Since the sample is weighted this discrepancy is adjusted for. Appendix III summarizes more of the sample characteristics for the entire sample as well as for each of the HPA's of Snohomish County.

Table 1. Respondent characteristics for total county and for each HPA.

Characteristics of Respondents	*Entire Sample*	*Everett*	*North County*	*East County*	*Highway 99*	*South Central*	*View Corridor*
Mean Age (years)	43.9	43.1	42.7	45.1	43.2	41.7	47.9
Female gender (%)	56.0	56.5	44.0	58.5	57.0	61.5	58.5
Ever married (%)	87.2	86.4	90.5	91.5	83.9	83.9	86.9
Retired (%)	12.5	12.0	11.6	11.7	10.3	9.7	19.8
Unemployed (%)	5.0	6.0	6.3	4.6	6.2	2.6	4.2
No high school Diploma (%)	7.1	9.5	8.0	6.5	5.6	7.0	6.0
Single parent households (%)*	22.5	28.0	16.0	25.8	22.5	22.7	20.1
*Low income households** (%)*	21.9	31.6	19.3	22.9	23.0	16.9	17.6
*Minority** (%)*	8.2	12.7	5.1	3.6	13.3	7.7	7.11

* Denominator is all households who have children less than 18.
** For definition of "low income" and "minority" see Appendix V.

SURVEY FINDINGS

The tabulated results of the analysis of all survey questions are summarized in Appendix IV. Some of the highlights of the results are discussed here with further analyses of some parameter prevalences in specific sub-populations.

General Health

As previously reported (14), most Snohomish County residents consider themselves to be in good to excellent health. The population's perception of their own health has on the average been about the same as Washington State's residents as a whole. About 12% of the county population perceived their general health as 'fair' or 'poor'; for Washington this proportion was 11% in 1996 (14). When looking at subgroups of the population, we find significant differences across age groups on their perception of one's health. Generally younger adults perceive themselves as being healthier than older adults. A higher proportion of women said their health was 'fair' or 'poor' than men, but the difference is not statistically significant (Table 1, Appendix IV.)

How is general health related to access to health care? Usually it is assumed that access to health care should mean better general health. Insurance coverage, among other factors--such as having transportation, understanding the language of the health care provider, and having a usual place to go for care-- increases access to health care. However, factors like age significantly affect health; older adults typically have more medical needs than those younger. In Snohomish County, as with the rest of the country, because of Medicare, virtually all older adults (65+) had medical insurance in 1996; yet this age group had the highest proportion of individuals who perceived their health as 'fair' or 'poor' (Figures 7). Although younger adults were more likely to be uninsured (Table 2, Appendix IV), they rated their overall health highly (Table 1, Appendix IV). Comparing those with and without insurance coverage, within each age group, there was no significant difference in self-perceived health between the two. In other words, having insurance was not a statistically significant factor in predicting self-perceived general health in our sample. This finding does not contradict the assumption that better access to health care means better health, as having health insurance is only one of the venues to better access. Access to health care includes factors such as having a regular and reliable health care provider, having transportation and being able to communicate with the provider.

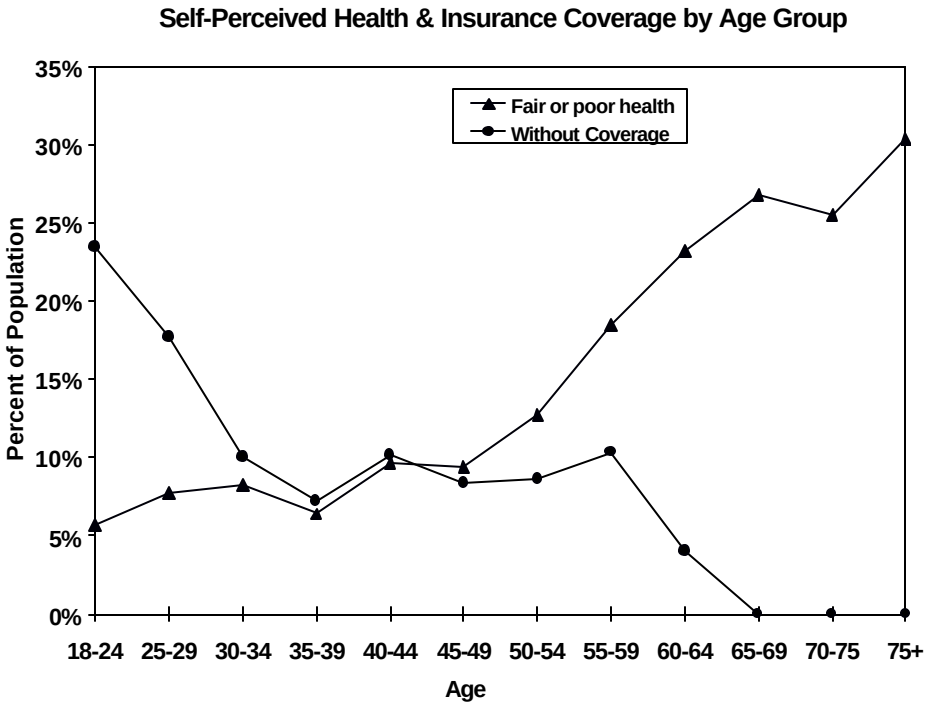


Figure 7

Health Planning Areas There were no statistically significant differences between any of the health planning areas and the county as whole, although a higher proportion classified their health as less optimal in the South Central HPA (Table 1 Appenidx IV). The South Central HPA did not have a disproportionate percentage of older adults (Appendix III), so age does not play a significant role in this perception.

Health Care Insurance Coverage In Snohomish County

According to the behavioral model of health services, health insurance coverage and having a "regular source of care" are "enabling factors" which make health care accessible (15). Presence of health insurance is a strong predictor of the use of health care services and therefore, insurance is often a strong predictor of having a "usual source of care" (15). Thus it is important to evaluate the availability of health insurance as an enabling factor for Snohomish County residents. Most of the adult residents of Snohomish County do have some type of health insurance, although for some this insurance may not cover all of their health care needs. More men than women lacked insurance coverage in 1996, but the difference was not statistically significant (Table 2 Appendix IV). Based on this survey, 10% of the county population had no coverage whatsoever. This compares with 12% uninsured in all of Washington State (14). It is important to note that this survey was conducted over a period of approximately one month. The survey that yielded the uninsured rate for Washington State was conducted over a period of one year. The rate of the uninsured fluctuates during the year.

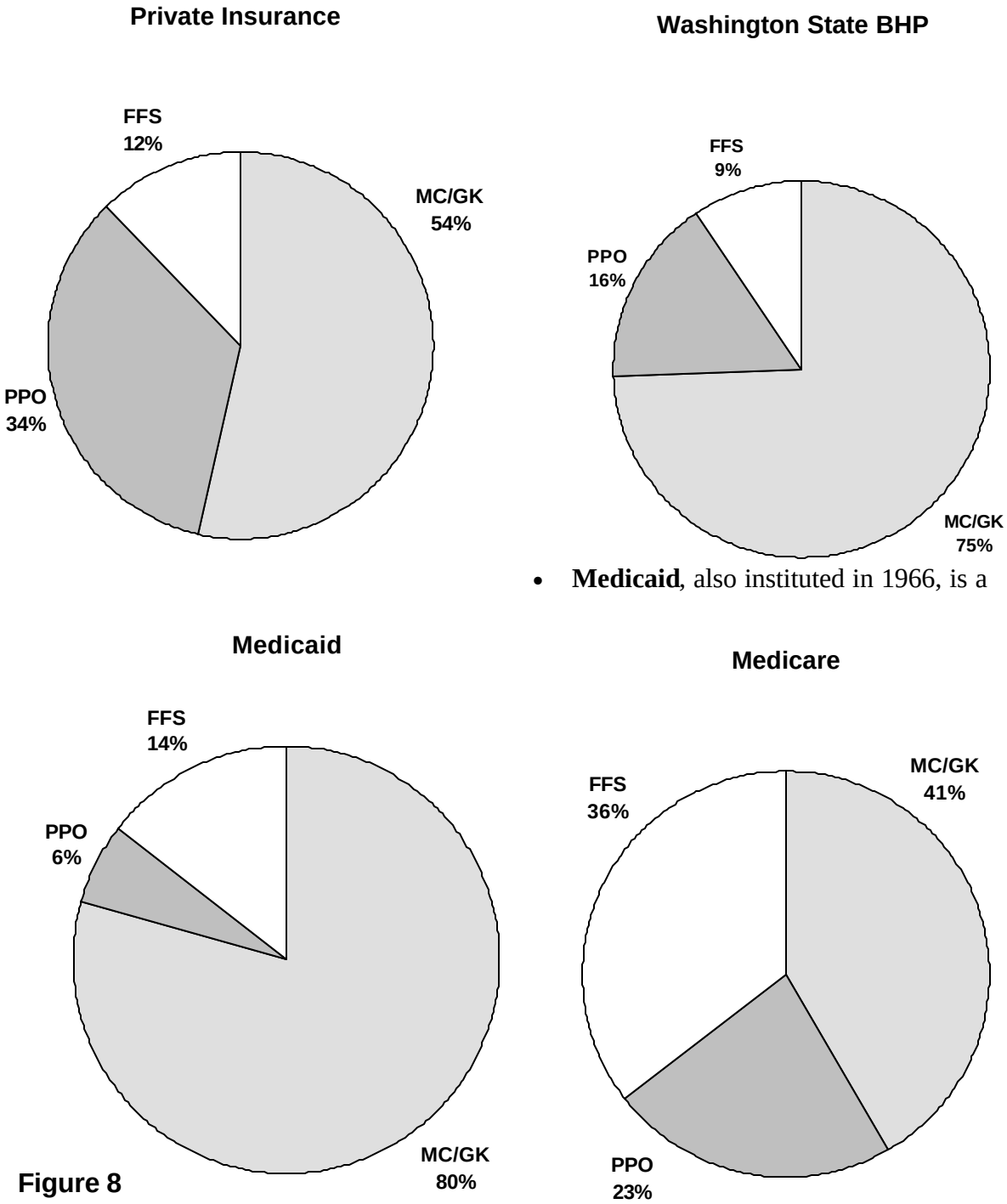
Types of Insurance Coverage Respondents were asked about the specifics of their health care coverage. Since some individuals have more than one source of coverage, the respondents were asked to describe the insurance coverage that pays for *most* of their medical needs. Four major categories of coverage, based on the payer of the premiums, are defined; private, Washington State Basic Health Plan, Medicaid, and Medicare. The latter three are publicly funded health insurance programs. In addition, there is the Indian Health Service (IHS) which provides coverage for members of Native American tribes. Only one survey respondent was covered by the IHS, representing less than 0.1% of the county population, although 12 survey respondents (1%) identified themselves as Native American. Most Snohomish County residents had private insurance, about 71%. Overall, 19% (15% of men and 22% of women) had some type of publicly funded coverage, and the rest (10%) did not have any type of coverage (Table 3, Appendix IV).

Each of the types of insurance coverage may be under one of three kinds of medical plans: managed care organizations--sometimes referred to as 'gate-keeper plans' (MC/GK), preferred provider organizations (PPO), or fee for service (FFS). For example, a person who has Medicare as the payer for his/her coverage may have a plan with an MC/GK, a PPO, or an FFS plan. Based on this survey, among all Snohomish County residents with insurance, 54% were with MC/GK organizations, 31% were with PPO's, and 15% were with FFS plans. Figure 8 shows the proportion of the plan types within each of the different kinds of insurance coverage: private insurance, Washington State BHP, Medicaid and Medicare. Medical plans are discussed further later in this report.

- **Private coverage** is defined as insurance that is paid for by an employer, a former employer, a family member's employer, a college or university, by the insured, or paid by a combination of funds from the employer and the insured. CHAMPUS and CHAMP-VA (Armed-Forces-related coverage) are also classified as private insurance in this report. Private insurance was the most common type of insurance coverage in Snohomish County; about 71% of the adult population had privately funded insurance. Particularly in the population under age 65, private insurance was more widespread; 79% of all working-age (18-64) adults had private insurance, whereas only 21% of senior citizens used private insurance as their primary source of coverage.

- **Medicare** is a Federal government program, instituted in 1966, that guarantees basic health insurance for adults 65 years of age and older. In addition, Medicare provides coverage for certain disabled individuals of any age. Medicare includes two types of coverage, 'Part A'--the basic coverage for all enrollees, and 'Part B'--an optional supplemental plan partially paid for by the enrollee. In 1996 over 59,000 Snohomish County residents were enrolled in Medicare's Part A, about 51,000 of them senior citizens. Among the senior citizens 90% were enrolled in Part B. Among those under 65, including children, 97% had Medicare's Part B (16). Based on this survey, in Snohomish County, Medicare was the primary source of health coverage for 75% of the adults 65 years of age and older. Only 2% of the adult population under the age of 65 had Medicare as their primary source of insurance. This proportion represents those individuals that qualify for Medicare based on a disability.

Proportion of Plan Types within Private Insurance, Washington State BHP, Medicaid and Medicare



- **Medicaid**, also instituted in 1966, is a

Figure 8

Federal government program that provides coverage for disadvantaged families with children and household incomes below the federal poverty level (see Appendix V.) The actual monthly average number of residents enrolled in Medicaid in Snohomish County in 1996 was just over 49,000 (9% of the entire county). Over 50% of this population were children under the age of 18. About 24, 000 adults (6% of the adult population) had Medicaid in Snohomish County in 1996 (17). Based on this survey, about 2% of the adult population of Snohomish County used Medicaid as a primary source of coverage. Significantly more women than men, 3.6% versus less than 1%, were covered by Medicaid at the time of this survey. It is noteworthy to recall that more men were uninsured than women. It is probable that very low income women are more likely to apply for Medicaid than very low income men, especially if they have dependent children.

- **The Washington State Basic Health Plan (BHP)** provides subsidized coverage for qualified Washington State residents. The Washington BHP was instituted in Snohomish County in 1990, and was gradually phased into all areas of the county. In June of 1996 there were 12,495 BHP recipients in the county (18). In this survey, among adult BHP recipients who said BHP is their primary source of coverage, 96% were working-age adults, versus only 4% who were 65 or older. The goal of the state BHP is to provide coverage for the residents of Washington State who are not poor enough to qualify for the federal assistance programs, i.e. Medicaid, but do not have employer-funded private insurance and cannot afford to buy insurance for themselves if they are self-employed. This segment of the population is often referred to as the 'working poor'. The working poor are more likely than other segments of the population to be uninsured (9). The Washington State BHP has filled some of the gap in insurance coverage for the working poor. In 1996 there was a waiting list of eligible Washington residents to enroll in BHP; but effective May of 1998, there has been no waiting list. BHP is further discussed under 'Working Age Adults' and the 'Working Poor'.

Health Planning Areas: Snohomish County's Health planning areas do not significantly differ from the county overall with respect to the proportion of individuals without health care insurance (Table 2, Appendix IV). The proportion of those covered by private insurance is slightly different in each of the health planning areas from the average of 71% in all of Snohomish County. The Everett HPA had the lowest proportion of privately insured (60%); View Corridor had the highest proportion (79%). Publicly funded health coverage was lowest in the South Central and View Corridor HPA's, at 13% and 14% respectively. The highest proportions of publicly funded coverage were found in the North County and Everett HPA's, 26% and 25% respectively (Figure 9). The HPA's differed slightly with respect to the proportions of residents' use of three kinds of publicly funded coverage: Medicare, Medicaid and the Washington BHP (Figure 10). But the differences were not statistically significant.

Proportions of the Uninsured, Publicly Insured and Privately Insured in the Health Planning Areas

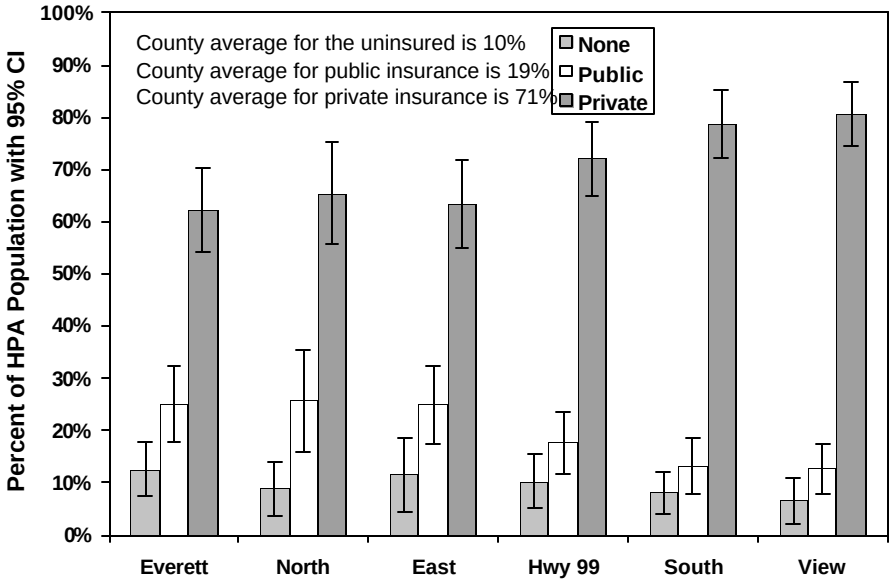


Figure 9

Proportion Enrolled in Washington BHP, Medicaid & Medicare by Health Planning Area

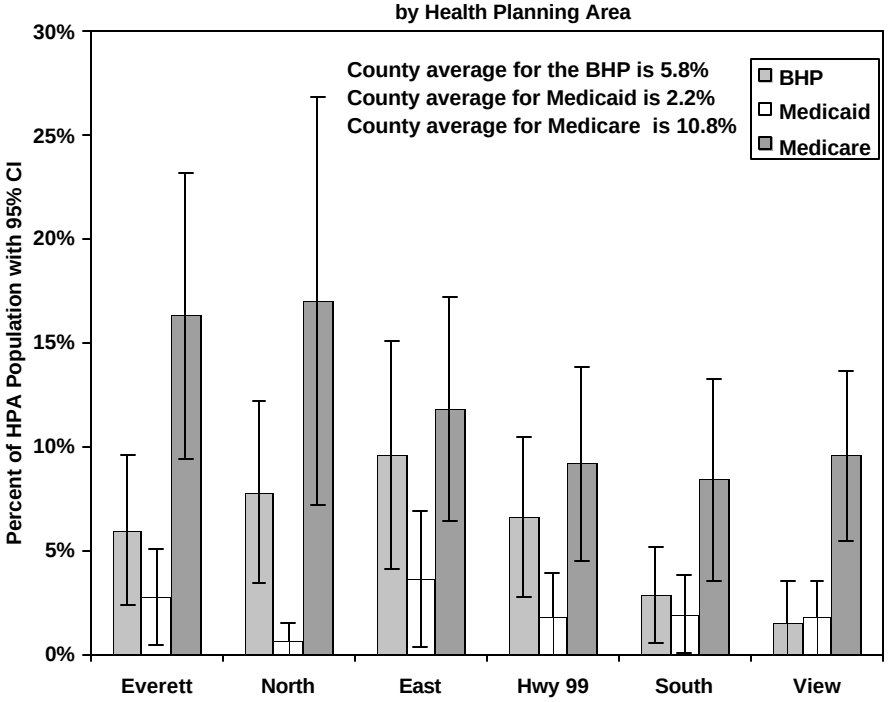


Figure 10

The Effect of Lack of Health Insurance on Access to Health Care: Unmet Needs

Lack of health insurance decreases the accessibility of health care. In 1996 some Snohomish County residents faced barriers to health care due to lack of health insurance. Even when other known factors are taken into consideration, lack of insurance is a statistically significant factor in the decreased use of some health care services. Tables 2 and 3 compare the use of health care services by the insured and the uninsured. A significantly smaller proportion of the uninsured visited a doctor or a clinic in the year prior to the survey. The uninsured said they needed to see specialists less often, but if they did need to see specialists, they were not able to get needed referrals as often as the insured. Significantly fewer uninsured individuals sought medical advice or help on the phone during normal office hours and evenings and weekends.

Table 2. Differences between insured[6] and uninsured working-age adults[7] with respect to

some indicators of the use of and satisfaction with health care services.

† In the past 12 months ‡ At last visit

* Statistically significant difference at p-value < 0.05, between the insured and the uninsured -- after controlling for self-perceived health status, income, age and gender.

	Insured n=931 (%)	**Uninsured n=101 (%)**
Rated self-perceived health as "fair" to "poor"	12.1	7.6
Went to a doctor or clinic in the past year †	82.0	58.2**
Got needed referrals to specialists †	92.1	67.7**
Changed usual place of medical care †	15.1	12.5
Needed emergency care but did not get it †	1.0	2.0
Needed non-emergency care but did not get it †	4.8	7.6
Was refused by a provider when tried to obtain medical care or surgery †	1.3	3.3
Rated the way doctor listened to patient as "good" to "excellent" ‡	91.1	82.4*
Rated the way doctor explained things as "good" to "excellent" ‡	91.3	85.0
Rated confidence in doctor as "good" to "excellent" ‡	90.5	77.5**
Doctor involved patient in decisions ‡	84.2	71.7*
Was very satisfied with all aspects of last visit ‡	71.8	50.1**
Had problems with the convenience of office hours for appointments †	12.9	19.0
Sought medical information or advice on the phone during office hours †	51.7	26.9**
Had problems getting phone advice during regular office hours †	24.5	23.1
Sought medical advice for sickness or injury on phone after hours/weekends †	26.2	8.9**
Had problems getting phone help in the evening or weekends †	25.1	18.8
Had problems with choice of physicians †	7.9	6.8*
Needed to see a specialist †	39.2	16.6**
Had problems getting to see a specialist †	9.4	7.9
Thought routine care health professional always acts in their best interest	85.1	80.6
Thought "specialists" always act in their best interest	84.6	67.0

** Statistically significant difference at p-value < 0.005, after controlling for confounding factors above. In rows with no symbols on the percentage of the uninsured, the differences are not statistically significant. See notes on "statistical significance" relating to this table in Appendix V.

[6] Insurance status at time of survey. A percentage of the insured may have been uninsured at some time in the year preceding the survey (see Table 10 Appendix IV). Also, a percentage of the uninsured were insured sometime in the year preceding the survey (see Table 15 Appendix IV). These factors were not controlled for in the analysis, making the present estimates conservative. Controlling for these factors could make the observed differences even stronger.

[7] Since all senior citizen have medical insurance only insured and uninsured working-age adults (18-64) are compared in this table.

Table 3. Comparison of the insured and uninsured‡; all ages.

	Insured	Uninsured
Needed dental care but did not get it † (%) *(denominator)*	5.6 (789)	13.4** (400)
Needed prescription drugs but didn't get them † (%) *(denominator)*	4.7 (961)	5.1 (210)
Needed eyeglasses but didn't get them † (%) *(denominator)*	4.0 (741)	11.1** (423)
Needed mental health care/counseling but didn't get it † (%) *(denominator)*	2.9 (584)	9.9** (219)

† In the past 12 months

** Statistically significant difference, after controlling for confounding factors above (p-value < .005)

‡ Insurance status at time of survey. Each row shows the insured or uninsured for the type of service provided. Those who did not know if they were insured for these services are not included.

Although those who lacked insurance had more unmet needs than those insured, a proportion of the insured also did not receive services they needed. It is important to note that access to health care is not simply a matter of having insurance. Other factors barring access include inability to make co-payments, transportation problems, and various scheduling conflicts related to work, school and the care of children. Tables in Appendix IV provide summaries of reasons respondents cited for not getting needed emergency care (Table 26), non-emergency medical care (Table 30), dental care (Table 34), prescription drugs (Table 36), vision care (Table 38), and mental health care or counseling (Table 40) in the year prior to the survey.

Working-Age Adults

Working-age adults (18-64) constitute the majority of the adult population of Snohomish County. Of all adults in Snohomish County 86% are working-age. Since *all* adults 65 years of age or older are eligible for Medicare, it is appropriate to examine the inequalities in obtaining health insurance among the working-age population separately. Some of the general characteristics of working-age adults are summarized in Table 4.

Table 4. Characteristics of Working-Age adults (18-64), n = 931.

Characteristic	*Mean or proportion*	*95% CI*
Mean Age (years)	39.0	± 0.9
Fair or poor self-perceived health (%)	9.8	± 2.0
Female gender (%)	49.8	± 3.4
Ever married (%)	83.9	± 2.9
Unemployed (%)	6.6	± 2.0
No high school diploma (%)	6.6	± 1.9
Single parent households (%)*	20.4	± 4.2
*Low income households** (%)*	20.0	± 3.0
*Minority** (%)*	10.3	± 2.2

*Denominator is households with children 18 or younger
** See Appendix V for the definition of minority and low income.

In 1996 the working-age adults in the survey were for the most part insured; 79% had private insurance as their primary insurance, and 10% had publicly funded insurance. Table 5 shows a breakdown of insurance type by employment status.

Table 5. Percentage of working-age adults with private, publicly funded, and no insurance, by employment status.

	% of all working -age adults	*% with Private Insurance*	*% with Publicly Funded Insurance*	*% with No Insurance*
All working-age adults	- -	78.9	9.6	11.5
Employed full time	57.8	88.2	5.6	6.3
Employed part time	11.3	76.8	7.1	16.1
Self-employed	8.7	72.2	8.1	19.8
Unemployed > 1yr.	2.7	28.9	52.7	18.4
Unemployed < 1 yr.	3.9	32.9	20.0	47.0
Homemaker	6.6	74.2	13.1	12.7
Student	4.5	55.6	22.7	21.7
*Retired**	3.3	86.5	9.3	4.2
Unable to work	1.3	34.3	55.7	10.0

* Some working-age adults do retire before the age of 65.

Nationally, in 1993, approximately 18% of the working-age population was uninsured (Calculated based on U.S. Census (19) and Bloom (15)). At the time of this survey, in 1996, approximately 11.5% of Snohomish County's working-age adults were uninsured. About 6% of Snohomish County working-age adults had the Washington State Basic Health Plan (BHP) at the time. Thus, if the national figures have not changed substantially between 1993 and 1996, our survey data indicate that the Washington State BHP has successfully filled some of

the gap in health insurance coverage. Without the state BHP it is possible that there would have been approximately 17% uninsured adults of working age as opposed to the 11.5% observed during the survey.

The Working Poor The 'working poor' or the 'near poor' are the most vulnerable segment of the population when it comes to obtaining health insurance. Of all working-age adults in Snohomish County, whether or not they were employed at the time of the survey, 20% were in the lowest income category--below 200% of Federal poverty guidelines for 1996 (see definition of income categories Appendix V). Often times the working poor are in employment positions that may be seasonal or temporary (20). Since this survey was conducted at one point in time, it is not possible to estimate the true proportion of the working poor in the county. But of all working-age adults in Snohomish County *who were working full time, part time or were self-employed* at the time of the survey, 15.5% were in the lowest income category -- the 'working poor'.

Some of the characteristics of the working poor are summarized in Table 6.

Table 6. Characteristics of employed low-income working-age adults -- the "Working Poor", n= 101.

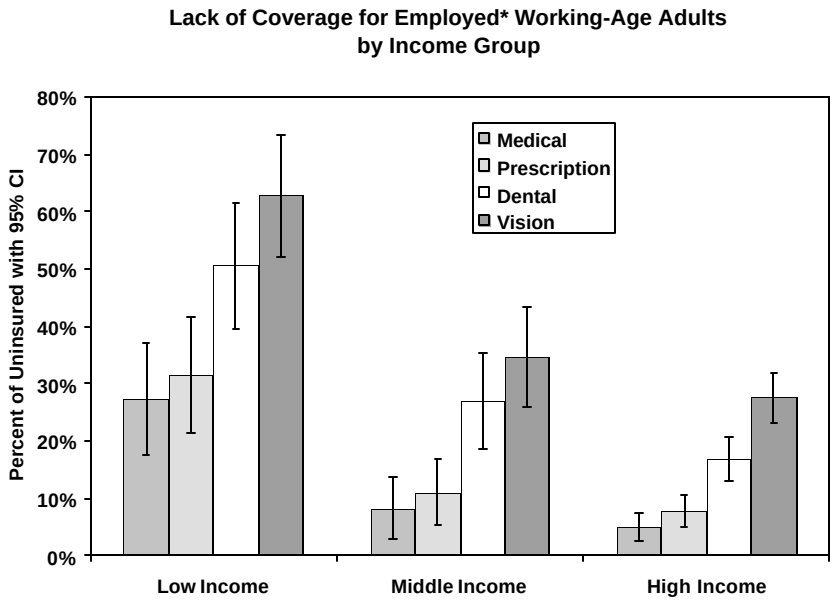
Characteristic	*Mean or proportion*	*95% CI*
Mean Age (years)	36.1	± 2.8
Fair or poor self-perceived health (%)	9.6	± 5.7
Male gender (%)	56.1	± 10.7
Ever married (%)	73.1	± 10.0
No high school diploma (%)	17.7	± 8.5
Single parent households (%)*	33.4	± 13.2

*Denominator is households with children 18 or younger

Of all employed[8] low-income working-age adults, 27.4% did not have medical insurance coverage. This rate is significantly different from the rate of the uninsured among middle-income and high-income groups. Indeed, the working poor disproportionately lack not only medical, but also prescription drugs, dental and vision coverage (Figure 11.)

[8] Employed full-time, part-time, or self-employed.

Figure 11



*Employed full-time, part-time, or self-employed.

55-to-64-year-olds Among working age adults, the 55 to 64 year-old group is of special interest at this time. Since adults in this age group are sometimes retired or are close to retirement, it has recently been proposed, nationally, to qualify this group for Medicare by virtue of age, provided that the insured pays the premium. This proposition is said to increase the accessibility of affordable health insurance to adults in this age bracket since the premium for Medicare would be less than otherwise expected for this age group.

Among our survey participants 105 respondents were in this age group. The majority of these individuals (68%) were in the work force at the time of the survey; 21% were retired; and 11% said they were unemployed or not able to work. Most, 80%, had private insurance, 12% had publicly funded insurance and 8% were uninsured. Among the privately insured, 22% said they buy their own insurance and the rest said they had insurance through an employer or a previous employer. For those in this age group who had publicly funded insurance, the Washington BHP was the most common type (60%). The majority of the adults in this age group (80%) said their health was good to excellent. Some of the general characteristics of 55-to-64-year-olds and senior citizens (65+) are summarized in Table 7.

Senior Citizens

Among adults in Snohomish County, 14% are 65 years of age or older. Nationally, in 1993, 12% of the US population was over 65. At the turn of the century, elderly adults comprised only 4% of the US population (21). Advances in medicine, public health, and healthier lifestyles have contributed to prolongation of life. Still, on the average, senior citizens are more likely to report fair or poor health than younger age groups. At the same time, *all* senior citizens in our survey reported that they did have some type of health insurance, albeit the coverage may not be as comprehensive as desired for everyone.

In the US, 96% of all adults 65 or older had Medicare in 1993 (21). Medicare covers the basic health needs of the elderly. Many Medicare recipients also have supplemental private insurance that covers what is not covered by Medicare. In our survey, senior respondents were asked what type of insurance pays for most of their medical expenses; 75% cited Medicare as the primary insurance that pays for most of their health care expenses. Private insurance covered about 21% of the older adults, and the remaining 4% used Medicaid and the Washington State BHP as their primary source of coverage.

Although senior citizens were far more likely than working age adults to have some type of insurance, on the average their coverage was not as comprehensive as that of working-age adults with insurance. For example, Medicare does not cover prescription drugs for senior citizens. Furthermore, senior citizens are more likely than working-age adults to have lower income levels--42% of the senior citizens responding to this survey were in the lowest income category, versus 20% of the working-age group in the lowest income category. Because other sources of assets were not asked about in this survey, it is possible that this higher level of low income among senior citizens is not a complete depiction of their overall socioeconomic status. Also, among senior citizens, 60% of those in the lowest income group and 61% of those in the mid-level income group had more comprehensive insurance that covered prescription drugs, versus 44% in the highest income group. Most likely, supplemental plans, held by lower income groups who have Medicare as their primary insurance, cover prescriptions.

Table 7. Characteristics of 55-to-64-year-olds, and senior citizens (65+).

Characteristic	*55-to-64-year-olds n =105*	*Senior Citizens n =148*
Mean Age (years)	58.9	73.6
Fair or poor self-perceived health (%)	20.5	27.9
Retired (%)	21.1	76.0*
Male gender (%)	49.5	44.2
Ever married (%)	96.9	98.3
No high school diploma (%)	9.0	20.5*
Low Income † (%)	25.5	42.4*
Minority † (%)	2.5	2.0
Do not have medical coverage (%)	7.5	0.0*
Do not have prescription coverage (%)	12.4	38.1*
Do not have dental coverage (%)	42.5	75.6*
Do not have vision coverage (%)	43.8	37.4

†See Appendix ? for definition of Low Income & Minority

* Statistically significant difference at 0.05 level.

Women

In 1996, approximately 8% of all women did not have health insurance in Snohomish County. All uninsured women (like uninsured men), were below the age of 65, as all senior citizens have coverage through Medicare if not through private insurance. Table 8 summarizes the characteristics of working-age women (18-64) with and without medical coverage.

Table 8. Characteristics of women (18-64) with and without medical coverage, 1996.

	With coverage n=521	*Without coverage n=47*
Mean age (years)	39.8	36.3
No high school diploma (%)	4.9	18.7*
Had children under 18 (%)	53.5	50.4
Were Single parents (%)	11.7	12.2
Were unemployed (%)	5.8	21.4*
*Were low income** (%)*	18.2	57.5*
*Were minority** (%)*	8.7	5.4
Fair or poor self-perceived health (%)	12.2	9.3

* Statistically significant difference between the insured and the uninsured.

** See Appendix V for the definition if low income and minority.

The differences between insured and uninsured women are generally typical of all residents of Snohomish County, men and women. Although uninsured women tended to be a little older than uninsured men (mean age 36.3 vs. 33.6 years), and tended to be in the lowest income bracket (definition in Appendix V) more often than uninsured men (57.5% vs. 42.5%), there were no statistically significant differences between uninsured men and women with respect to the characteristics summarized in Table 8. The total number of uninsured individuals in this survey's sample is just over 100. A larger sample of uninsured individuals may have revealed significant differences between the genders.

The survey did find differences between men and women however. Although most of the women in Snohomish County, like most men, have private insurance, significantly more women than men obtain their private insurance through a family member's employer--typically their spouse's, not their own. Should a spouse pass away, separate, or lose employment, medical coverage for dependents may be lost. Table 9 shows the primary payer of premium for men and women with private insurance.

Table 9. Men and women with private insurance: who pays the premium?

	Men (%)	*Women (%)*
Own employer	70	49*
Someone else's Employer	13	33*
Buy own	11	13
CHAMPUS, etc.	6	5

* Statistically significant difference between men & women.

It is true that slightly more working-age men than women do not have any insurance coverage at all; but it is worth noting that if it were not for Medicaid and the Washington State Basic Health Plan, more women than men would be uninsured in Snohomish County. National data also show the same phenomenon (22).

In general, women were significantly more likely than men to have publicly funded insurance. Table 10 summarizes the results of chi-square analysis comparing men and women with regard to publicly funded insurance. Within this survey population working-age women were significantly more likely than men to be on publicly funded insurance. Older women were not significantly different from men with regard to publicly funded insurance, as all senior citizens are eligible for Medicare. However, in Snohomish County, as with national trends (22), slightly more women than men have Medicare since women live longer.

Table 10. Proportion of men and women on publicly funded health insurance

	Men (%)	*Women (%)*
All ages	16	22*
Working age (18-64)	7.5	12.8 *
Senior (65 +)	76.3	76.3

* Statistically significant difference between men & women.

Women's special health care needs--Mammography. Although breast cancer can be found in men in extremely low rates, the disease is about 100 times more common in women than in men (23). Modern mammography has been in existence since 1969 (23) and it has been shown to be of benefit for detecting early stage breast cancer, but there is controversy surrounding the age at which screening by mammography should be initiated (24, 25). In 1980, The American Cancer Society recommended that women undergo a baseline mammography at age 35 (25). Currently the American Cancer Society recommends mammography for women 40 years of age and older (23). However, because of higher false positive results in younger women, the benefits of screening women who are between 40 and 49 are still unclear (24). For this age group, it has been suggested, by the National Institutes of Health Consensus De-

velopment Conference Panel, that "each woman should decided for herself whether to undergo mammography" (25).

Whether a woman decides for herself, consults a physician, or follows the recommendations of the American Cancer Society, *access* to mammography is the key determinant of whether or not a woman actually receives it. Again, health care insurance plays a major role in facilitating access to this health service.

Based on our survey, among Snohomish County women who are 40 years old and over, 10.5% (±3.4%) were either uninsured or knew that their insurance does not cover the cost of mammograms. An additional 6.5% (± 2.8%) of women in this age group were insured, but did not know whether or not their insurance covered the cost of mammograms. Although there were no statistically significant differences between insured 40+ women who did and did not know if they were covered, within the sample, women who did not know were more often less educated and had lower incomes. This finding calls for familiarizing women, particularly women of lower socioeconomic status, with the concept of mammography, its benefits and possible adverse outcomes (false positive results).

Children

An estimated 13% of US children under the age of 18 did not have health insurance in 1993-1994. Uninsured children are more likely than insured children not to have a regular place where they go for medical care (26). Although uninsured children may go for doctor's visits when necessary, they are not as likely as insured children to receive wellchild care, and their parents may not receive other necessary preventive care information. A survey of parents of children under the age of 3 revealed that what parents want for their young children is a place where they can receive comprehensive care for the child, from physicians who know the family background, telephone advice on behavioral problems, to getting timely immunizations (27) Without insurance it is unlikely that a family with children could receive this type of service.

Although the present study did not concentrate on the important issue of children's access to health care, some of the aspects of children's health care can be gleaned from the survey. Based on the survey, approximately 44% of the households in Snohomish County had children under the age of 18 in 1996. Table 11 shows the proportion of households with children in the entire sample and HPA samples. Some of the characteristics of these households are also summarized in the Table 11.

Table 11. Households with children under the age of 18 in Snohomish County and it's HPA's; and some of the characteristics of these households.

	Entire County	*Everett HPA*	*North County*	*East County*	*Hwy 99*	*South Central*	*View Corridor*
Households with children (%)*	44.3	43.5	52.1	49.8	38.5	48.3	33.4
Low income household (%)	24.3	41.0	22.1	31.9	27.7	12.9	10.2
Single-parent (%)	21.1	23.3	13.6	25.0	16.7	22.5	24.2
*No medical coverage** (%)*	10.5	12.3	10.7	13.1	7.2	10.5	7.7
No dental coverage (%)	26.3	24.4	26.4	28.1	29.1	23.0	27.4
No vision coverage (%)	33.1	36.6	29.4	31.8	35.9	30.1	38.9
No well-child care (%)	24.0	26.3	24.2	26.4	17.1	26.0	26.7
Had medical coverage, but did not know if they had well-child care (%)	7.3	8.7	7.2	7.4	5.7	6.1	8.8

* Denominator for the first row is all households in the County, for the remainder of the rows the denominator is households with children.

** Parent's (survey respondent's) insurance status for medical, dental, vision, and wellchild care.

Respondents who did not have health care coverage were asked if other members in their immediate household were uninsured. Of the 101 uninsured respondents, 43 (43% of the uninsured) said they had other household members who were uninsured (Table 17, Appendix IV). In all, the uninsured respondents had 95 household members who were uninsured. Of these, 39 (41%) were children less than 18 years of age. Among these children 19 (21%) were less than 10 years of age. Although these data do not allow the estimation of the percentage of uninsured children in Snohomish County, they do reflect the fact that there *were* indeed uninsured children in the county in 1996.

There were 24 household members who needed emergency medical care sometime in the 12 months preceding the survey, who did not get the needed care. Among these, eleven (46%) were children under the age of 18, eight were less than 6 years old (Tables 27-28 Appendix IV.)

Not only were there children who were uninsured, there were insured children who did not have access to wellchild care through their insurance organization (Table 8, Appendix IV). Wellchild care refers to visits to the doctor for routine checkups or immunizations. Another finding is that there are parents who are insured but do not know if their insurance covers well-child care or not. About 61% of the parents who said they did not know about wellchild care were over 40 years old--meaning that although they had children under 18, they may not have had very young children. Still this finding calls for parent education on the necessity of well-child care and in particular the timely administration of childhood immunization. The health planning areas of Snohomish County were not significantly different from the county as a whole with respect to the proportion of families that have access to wellchild services through their insurance (Table 8, Appendix IV).

Socioeconomic Indicators: Education, Employment and Income

Socioeconomic status (SES) has been linked with poor health in numerous studies (e.g. 29, 30, 31, 32). Oftentimes low income and less education are associated with presence of unhealthy behavioral risk factors such as smoking, lack of exercise and excess weight. However, the presence of these behavioral risk factors is not the sole cause of increased mortality among lower SES groups. A national longitudinal survey (see definition, Appendix V) of over 3500 US men and women showed that behavioral risk factors among the socioeconomically disadvantaged explained only 12% of the attributable risk for overall mortality. Overall mortality was still almost 3 times higher in the lowest study income group than the highest income group, after adjusting for demographic factors such as age, gender, race, and behavioral risk factors (33). The study concluded that "While reducing the prevalence of behavioral risk factors is an important and critical public health goal, socioeconomic differentials in mortality are due to a wider array of factors and, therefore, would persist even with improved health behaviors. Increasing health promotion and disease prevention among the disadvantaged is not a magic policy bullet for reducing persistent socioeconomic disparities in mortality."

Additional psychosocial factors that affect overall mortality can range from personality dispositions such as lost sense of optimism and control, to living in dangerous neighborhoods and the lack of social supports (33). These factors, combined with behavioral risk factors and the relative *lack of access* to health care when problems arise, clearly contribute to increased mortality among the disadvantaged.

Regardless of the segment of the population one looks at, whether it is senior citizens, children, men, women, or minorities, certain socioeconomic conditions --less education, low income and/or lack of sufficient employment--are associated with limited access to health care services, and less optimal self-perceived health status. The effects of these disparities were evident in Snohomish County during the survey period. Tables 12 and 13 summarize the relationship of these socioeconomic conditions with self-perceived health status and lack of sufficient insurance to cover medical expenses.

Table 12. Income as determinant of health and access to health care insurance.
* Significantly different from middle and high income groups after controlling for age and gender

Characteristics	*County Overall*	*Low Income** n= 229*	*Middle Income n= 233*	*High Income n= 595*
Perceived health as "fair" or "poor" (%)	12.2	24.6*	9.6	7.3
Did not have medical insurance (%)	10.0	20.2*	10.0	4.9
Did not have dental coverage (%)	34.6	58.2*	38.8	22.8
Did not have vision coverage (%)	35.2	52.1*	38.2	29.0
Did not have prescription coverage (%)	18.4	29.7*	17.3	12.4

(p-value<0.01).
** For definition of income levels see appendix V.

Table 13. Education level as a determinant of self-perceived health and access to health care.

* Significantly different from the county as a whole (univariate).

	County Overall	*No high school Diploma n=83*	*Finished HS, and Beyond n=1100*
Perceived health as "fair" or "poor" (%)	12.2	29.0*	10.6
Did not have medical insurance (%)	10.0	23.9*	8.7
Did not have dental coverage (%)	34.6	68.4*	32.1
Did not have vision coverage (%)	35.2	54.7*	34.8
Did not have prescription drug coverage (%)	18.4	36.7*	16.7

Employment status affects access to health insurance. Figure 12 compares employment groups with respect to medical, dental, and vision care coverage. Previously in this report, in Table 5 we examined the insurance status of specific employment groups. Those who were unemployed, were employed part-time or were self-employed, lacked insurance more often than those who were employed full-time.

Individuals who had been unemployed for less than six months were more likely to be uninsured than those who had been unemployed for more than 1 year. Among those who had been unemployed for more than one year, the majority had publicly funded coverage. Although our survey did not cover reasons for lack of insurance, it is hypothesized that individuals unemployed for less than 6 months may be in transition and in hope of finding employment that will provide them with medical coverage, and they may not be seeking publicly funded insurance. However, even if temporary, these spells without insurance can leave one vulnerable if medical problems arise. Recent Federal legislation designed to help individuals obtain or keep their health care coverage -- especially those with pre-existing medical conditions-- when they lose or change jobs, may result in lower uninsured rates for people in transition.

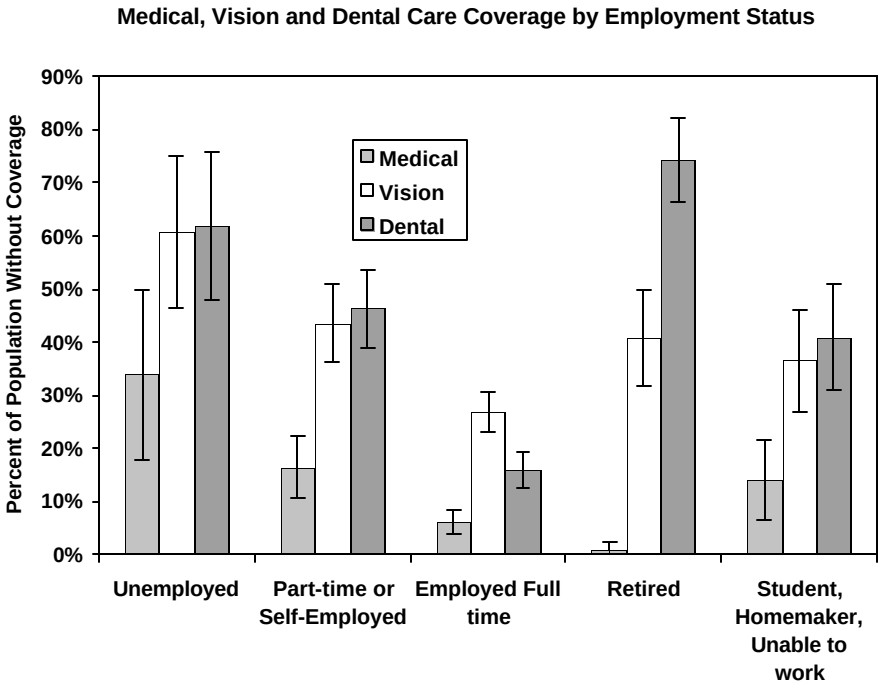


Figure 12

HPA's. Within this survey sample the health planning areas of Snohomish County were not significantly different from the county as a whole with respect to the distribution of income groups, education levels and employment groups (see Table 1). However, this may be due to the small sample sizes and rather wide 95% confidence limits around proportions, since previous analysis have found significant differences.

Perceived Quality Of Health Care In Snohomish County

Insured Snohomish County residents report wide-ranging variability in the quality of care they receive; however, most insured residents are generally satisfied with the quality of care they receive. There are many types of medical plans, and they vary in cost, availability of services and the quality of services. General statistics for survey questions relating to the quality of care are provided in Appendix IV Tables 41-66. Responses are broken down by gender, age and HPA where applicable.

Many factors can affect the quality of health care, but one of the most important determinants is the type of plan one has (34). Traditionally health care plans have been classified into 3 major types: managed care/gate-keeper plans (MC/GK), preferred provider organizations (PPO), and fee-for-service (FFS). MC/GK plans require the insured to select one primary care physician, within the organization, for all health care needs and require any visits to specialists to be approved prior to receiving the service. PPO organizations usually provide the insured with a list of preferred providers (physicians or clinics) from which the insured chooses a physician; if the insured is not satisfied with the preferred providers, he/she can select a physician from outside of the list, but there may be limitations on the amounts covered by insurance. FFS plans allow the most freedom in selecting one's physicians and specialists; the insured can usually go to any provider and receive services. One of the ways health care quality can be assessed is based on the comparison of consumer satisfaction with these major types of plans (34). There are limitations in evaluating the quality of care in this manner:

- The evolving structure of health care management has outgrown the traditional simple taxonomies of plan types. The competitive market for providing the best care for the lowest financial burden has resulted in the creation of many new types of organizations that may not fit the currently existing classifications. Therefore the current generalized definitions of types of plans may not sufficiently describe all plans. Currently, other than the major types, there is no well-established and fine-tuned taxonomy that includes all plan types (34).
- Insurance and health care organizations offer multiple options or health care products" (34).
- Due to the need for different services, various segments of the population, such as senior citizens or women may have different expectations from their physicians and medical plans. Therefore, the level of satisfaction with one kind of plan will vary from person to person.

With these limitations in mind, based on three questions on the survey, it was determined whether the respondents were under MC/GK, PPO, or FFS plans (See appendix V for the description of this classification scheme). Some of the indicators of perceived satisfaction with different plan types are summarized in Table 14.

Table 14. Summary of some indicators of satisfaction with health care plans for Snohomish County adult residents.

Indicator	*MC/GK n=579*	*PPO n=337*	*FFS n=154*
Rated provider as a "fair" to "poor" listener †	9.9	6.9	7.1
Rated provider's ability to explain as "fair" or "poor" †	9.3	6.7	8.0
Rated confidence in provider's ability as "fair" or "poor" †	10.2	9.0	8.0
Percent who said doctor did not involve them in decisions †	16.2	14.7	20.8
Were not perfectly satisfied with provider at last visit †	27.8	26.0	26.2
Had problems with the convenience of office hours ‡	11.8	13.4	9.4
Had problems getting telephone help during office hours ‡	25.8*	18.6	14.8
Had problems getting telephone help during the evening or weekends ‡	18.7	17.3	11.3
Had problems with the choice of physicians ‡	8.9*	6.0	2.0
Had problems getting to see a specialist ‡	7.9	10.0	4.3
Plan requires pre-approval for specialists	65.9*	48.2	22.0
Had difficulty receiving care while waiting for approval ‡	5.9	2.2	1.7
Had difficulty receiving care because of "insurance hassles" ‡	7.6*	6.7	1.7
Said doctors always act in one's best interest	85.5*	85.2*	94.2
Said specialists always act in ones best interest	85.5	83.6	94.1

*Plan was significantly different from FFS plans after controlling for the confounding effects of age, gender and self-perceived health (see Appendix V "confounding factors")
† At last visit
‡ In the past 12 months

Managed care/gate-keeper enrollees were more likely to have problems with their choice of physicians, and less often said that they believed doctors always act in one's best interest. The effect of increased choice of physicians on the degree of satisfaction with health care services has been documented before (35, 36, 37). Having choice of a personal physician is strongly related to having high *overall* satisfaction with health care (37). Cost to the enrollee, the amount of paperwork, and coverage of preventive care are also important measures of satisfaction with health care plans. These factors were not measured in our survey, but other studies have shown that managed care enrollees were more satisfied with their plans than FFS enrollees with respect to these three factors (35).

In our survey MC/GK plans were more often cited as covering prescription drugs and well-child care than FFS plans. Table 15 shows the proportion of enrollees within each plan type who said their insurance covers prescription drugs, mental health care, wellchild care, and mammograms.

Table 15. Comparison of plans, proportion respondents† who said their plan covers prescription drugs, mental health care, wellchild care, and mammograms.

Service	*MC/GK n=579*	*PPO n=337*	*FFS n=154*
Prescription Drugs	93.9*	91.3	79.3
Mental health	83.7	84.5	76.9
Wellchild care	87.5*	78.4*	73.1
Mammograms	95.6	95.6	91.5

*Statistically significant difference between plan and FFS plans

† Respondents who did not know whether or not the service was provided have not been included in the percentages. Denominator is those who said "yes" or "no". For wellchild care, only respondents with children under 18 are included. Only women answered the question of mammograms. (see Tables 4, 5, 8 and 9, Appendix IV.)

Health Planning Area's and Satisfaction with Health Care The health planning area's of Snohomish County were not significantly different from the county as a whole with respect to the proportion covered by the different plan types. The View Corridor had the smallest proportion of MC/GK enrollees and the highest proportion of FFS enrollees (Figure 13). For each HPA, satisfaction with health care quality parameters were not significantly different from the county as a whole. A portion of the observed variation in satisfaction with health care quality was due to different plan types, age, gender, and self-perceived health status. Based on this survey, none can be attributed to geographical variation in the place of residence.

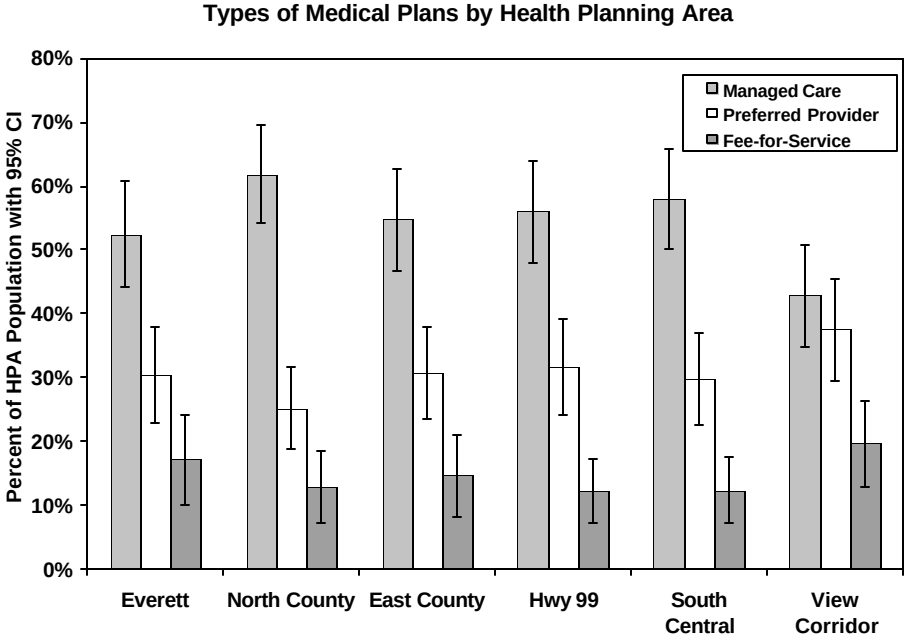


Figure 13

DISCUSSION

Limitations This report has touched upon one of the determinants of access to health care: insurance coverage. Access to health care involves a wide range of factors. Many factors that affect access to health care were not discussed in this report, among them a regular source of care, transportation, cultural barriers, financial arrangements etc. A recent study (38 Sox) showed that among patients presenting to emergency departments, having a relationship with a regular physician was a stronger predictor of access to care than insurance status. Our survey did not cover the financial details of what proportion of premiums were paid by the insured, and what co-payments were involved if any. We discussed the characteristics of the plan that paid for most of the medical needs of the insured; supplemental plans were not discussed. The limitations involved in categorizing plan types were discussed in the previous section. Finally, the quality of care may be measured in ways other than the degree of consumer satisfaction: actual health outcomes, early detection of problems and the amount of preventive care provided by plans are strong indicators of quality as well.

The Future Although access to health care is still a major concern among many Americans, current observations may reflect a shift in the public's view about which level of government, if any, should deal with health care reform, or if there should be a major reform.

A 1997 national survey by the Center for Studying Health System Change (39) shows that various regions within the US substantially differ from each other with respect to the rates of uninsured. The survey covered US metropolitan areas with populations over 200,000, including the Seattle area. Average uninsured rates ranged from a low of 9% in the Seattle, Washington area to a high of 23% in the Miami, Florida area. Various reports give national average rates of uninsured, but the rates for smaller regions remain widely unknown.

The fact that there is variation in uninsured rates across the country has significant implications on how the problem is addressed in different regions (39). One solution may work well in Florida, but it may not be the right solution for Michigan. The economy of a region plays a significant role in how the problem of access to health care is addressed. For example, a region with higher than average proportion of small employers and self-employed individuals may need a system of health care different from a region with a high proportion of large company industrial workers, or a region of farming communities. Other variations between regions, such as geography and culture also have to be considered in successful delivery of health care services to people.

The debate on how a successful health care delivery system should work has been ongoing in medical journals while the media hype comes and goes. Some authors (40) have argued that "universal access" is the key and not "universal insurance." Many have debated the pros and cons of adopting a system like the Canadian health care system (e.g. 41, 42, 43). Others have exemplified some of the European systems (e.g. 44). For the most part, what is gleaned from the vast literature on health care access, health insurance and quality of care, confirms the complexity of issues involved in providing quality medical and preventive care. It is impor-

tant to recognize the uniqueness of regions, and the uniqueness of various segments of the population: be it the elderly, children, or recent immigrants; and to recognize that one solution may not be the answer for all.

Should states or local governments take the lead in ensuring quality health care accessibility for all their citizens? Washington State is already a leader in establishing state programs that address the lack of health insurance for some state residents. In 1995, Washington was one of only 12 states that funded both the development and the operation of primary medical care practices for their medically underserved populations (6). The health care system in the United States is immensely dynamic at this time; employers, government agencies, and the insured: senior citizens, families etc. are all looking for better insurance situations leading to lower expenses and better quality of care.

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Related World Wide Web Sites

Agency for Health Care Policy and Research. http://www.ahcpr.gov

Center for Studying Health System Change. http://www.hschange.com

Duke University Center for Health Policy, Law and Management. Health Policy cyberexchange. http://hpolicy.duke.edu/cyberexchange

Appendix I

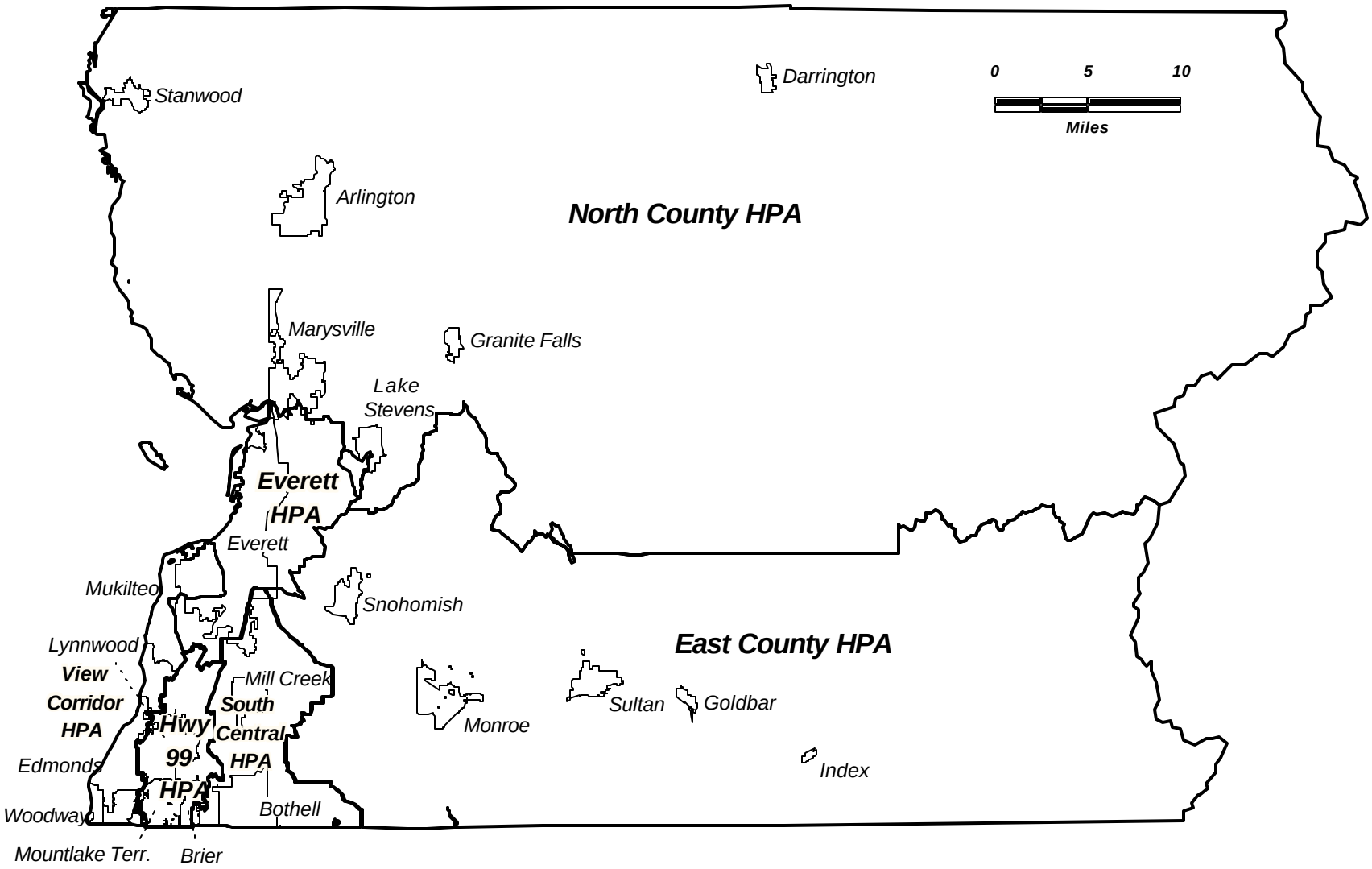
Map of Snohomish County and its Health Planning Areas

Health Planning Areas by Zip Code

Everett	East County	South Central
98201	98251*	98012
98203	98256*	98021
98204	98272	98072
98205	98290	98208
98206*	98293*	
	98294	
	98296	View Corridor
North County		98020
98223		98026
98241	Hwy 99	98275
98252	98036	
98258	98037	
98259*	98043	
98270		
98271		
98287*		
98292		

* - P.O. Boxes Only.

Snohomish County Health Planning Areas and Major Cities



Appendix II

Methodology

Weighting

The sample population was weighted according to CDC procedures in order to adjust for differences in gender/age distribution between the sample population and the population of Snohomish County. This procedure is necessary because generally younger adults (18 to 29 years old), older adults (over 75 years old), and men, tend to respond to surveys less frequently than middle age adults and women. Therefore these groups would be under represented if the sample is not weighted.

The parameters necessary for the calculation of weights were gender, age, number of adults in the household, and the number of telephone lines in the household. Most of the sample population provided the interviewers with this information. However, thirteen (13) respondents refused to reveal their age, three (3) refused to reveal the number of telephone lines in their home, and one (1) respondent did not reveal age and the number of phone lines. Therefore, these seventeen (17) respondents could not be included in any of the weighted analyses.

The CDC weighting procedure:

1) For each survey respondent, the number of adults in the household is divided by the number of telephone lines on which the household can be called. This is called the "raw weight". For example, a household with one adult and one telephone line has a raw weight of 1. A household with two adults and one telephone line has a raw weight of 2.

2) For each age/gender specific group (see age groups in Appendix III,) in the sample the sum of raw weights (sum of all observations in the group) is calculated.

3) County population over the age of 18 is divided by the sum of raw weights for each age/gender group. This figure is referred to as the "post-stratification adjustment" or "postrata".

4) The final weight is calculated by multiplying the raw weight by the postrata. The final weight assigned to each participant shows the number of county residents represented by the respondent. An example of this procedure is provided in the 1996 Snohomish County BRFS Report on page 52 (14).

Small Area Weights Two separate weights were calculated for each respondent who provided the necessary information: one for county-wide analyses, and another for HPA level analyses. For county-wide analyses the 1996 estimated age/gender distribution of the entire county was used as the weighting standard. For HPA analyses the estimated age/gender distribution of each HPA was used as standard.

Population Data Source The 1996 estimated age and gender distributions of the population of Snohomish County and it's HPA's are available in VISTA©, a software program developed by Seattle-King County Department of Public Health. The estimates are produced by the projection of the 1990 census data.

Unweighted data Not all of the analyses are performed with weighted data. The tables in Appendix IV specify if the data were not weighted for a particular analysis. Generally, in two situations the data are not weighted: 1) when a question refers to members of the household other than the respondent -- in such cases the weighting procedures are not valid since the weights only apply to the individuals who respond to the survey; and, 2) when the denominator for a specific question is smaller than about 100 cases and/or the numerators are smaller than about 50. In analyses of data characterized by the second scenario, the reason for not weighting is twofold. First, since the sample size is small the confidence intervals are sometimes wider than the range of the measured parameter. The interpretation of such a statistic is difficult. While the statistic is representative of the sample population, the results may only cautiously be generalized for the population of the county. Secondly, for questions with small sample sizes it is beneficial to use every piece of data available by not excluding the respondents who did not provide us with the information necessary for weighting. However, it is re-assuring to know that since our sample age distribution generally followed that of the county closely, the overall results of the survey questions are very similar, weighted or unweighted.

Comparison of Weighted and Unweighted Analysis & Design Effect: Table II-1 shows the statistics related to the proportion of respondents with dental insurance, weighted and unweighted. The weighted statistics exhibit slightly greater variation. "Design effect" is a statistic often used to represent the variation due to study design features such as weighting the data. The design effect is the ratio of the weighted variance (the square of the standard error) and the unweighted variance. In the case of the example below the design effect is 1.31. The closer the design effect is to 1 the less the effect of weighting.

Table II-1. The effect of weighted data.

	Weighted	*Unweighted*
Percent with dental insurance (%)	65.02	66.56
Standard error	.016	.014
95% Confidence interval	61.9-69.3	63.9-69.3

Design effect is 1.31

Sample Size in Relation to Statistical Analysis Results
(Refer to text discussion of Sample Size in Methods Section).

Table II-2. Half the width of a 95% confidence interval (probability ± %), given specific sample size, and specific probability of prevalence of a parameter.

	Sample Size				
Probability of parameter (%)	*1200*	*1000*	*500*	*200*	*100*
5 (or 95)	1.2	1.4	1.9	3.0	4.3
10 (or 90)	1.7	1.9	2.6	4.2	5.9
15 (or 85)	2.0	2.2	3.1	4.9	7.0
20 (or 80)	2.3	2.5	3.5	5.5	7.8
25 (or 75)	2.4	2.7	3.8	6.0	8.5
30 (or 70)	2.6	2.8	4.0	6.4	9.0
35 (or 65)	2.7	3.0	4.2	6.6	9.3
40 (or 60)	2.8	3.0	4.3	6.8	9.6
45 (or 55)	2.8	3.1	4.4	6.9	9.8
50	2.8	3.1	4.4	6.9	9.8

Statistical Analysis

Descriptive analyses were performed with SPSS and STATA statistical packages. Survey analysis features of STATA were used where the data were weighted. STATA accounts for the effects of survey design, primarily the weighting of the data in the case of our survey. The proportions themselves are generally not affected much by the weighting, but the variances are affected. STATA provides a measure of the effect of weighting on the variance by calculating a 'design effect' statistic. 'Design effect' is the ratio of the weighted variance to the unweighted variance for any variable. In an ideal situation the design effect is equal to one (1), which means the weighting of the data had absolutely no effect on the results. But generally there is some effect, although minuscule at times. Table II-1 above shows the design effect in the examples provided.

Refer to text discussion of statistical analysis in 'Methods' section, and 'Statistical Definitions' in Appendix V for additional information.

Appendix III

Sample Characteristics

Entire Sample		Everett		North		East		Hwy 99		South		View	
n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
1200		200		200		200		200		200		200	
528	(44.0)	87	(43.5)	112	(56.0)	83	(41.5)	86	(43.0)	77	(38.5)	83	(41.5)
672	(56.0)	113	(56.5)	88	(44.0)	117	(58.5)	114	(57.0)	123	(61.5)	117	(58.5)
17	(1.4)	7	(3.5)	2	(1.0)	0		0		4	(2.0)	4	(2.0)
61	(5.1)	10	(5.0)	12	(6.0)	8	(4.0)	13	(6.5)	13	(6.5)	5	(2.5)
95	(7.9)	14	(7.0)	23	(11.5)	14	(7.0)	15	(7.5)	16	(8.0)	13	(6.5)
168	(14.0)	30	(15.0)	25	(12.5)	32	(16.0)	30	(15.0)	35	(17.5)	16	(8.0)
175	(14.6)	27	(13.5)	35	(17.5)	24	(12.0)	38	(19.0)	28	(14.0)	23	(11.5)
171	(14.3)	33	(16.5)	20	(10.0)	23	(11.5)	25	(12.5)	35	(17.5)	35	(17.5)
144	(12.0)	24	(12.0)	32	(16.0)	26	(13.0)	20	(10.0)	19	(9.5)	23	(11.5)
101	(8.4)	11	(5.5)	14	(7.0)	26	(13.0)	15	(7.5)	17	(8.5)	18	(9.0)
53	(4.4)	9	(4.5)	9	(4.5)	11	(5.5)	9	(4.5)	5	(2.5)	10	(5.0)
52	(4.3)	6	(3.0)	8	(4.0)	6	(3.0)	8	(4.0)	9	(4.5)	15	(7.5)
63	(5.3)	8	(4.0)	10	(5.0)	14	(7.0)	13	(6.5)	7	(3.5)	11	(5.5)
41	(3.4)	8	(4.0)	3	(1.5)	5	(2.5)	4	(2.0)	8	(4.0)	13	(6.5)
29	(2.4)	7	(3.5)	4	(2.0)	6	(3.0)	5	(2.5)	1	(0.5)	6	(3.0)
16	(1.3)	3	(1.5)	3	(1.5)	2	(1.0)	2	(1.0)	1	(0.5)	5	(2.5)
14	(1.2)	3	(1.5)	0		3	(1.5)	3	(1.5)	2	(1.0)	3	(1.5)
735	(61.3)	104	(52.0)	146	(73.0)	129	(64.5)	119	(59.5)	122	(61.0)	115	(57.5)
191	(15.9)	44	(22.0)	19	(9.5)	37	(18.5)	32	(16.0)	31	(15.5)	28	(14.0)
68	(5.7)	13	(6.5)	6	(3.0)	11	(5.5)	11	(5.5)	9	(4.5)	18	(9.0)
23	(1.9)	3	(1.5)	5	(2.5)	3	(1.5)	1	(0.5)	3	(1.5)	8	(4.0)
153	(12.8)	27	(13.5)	19	(9.5)	17	(8.5)	32	(16.0)	32	(16.0)	26	(13.0)
24	(2.0)	8	(4.0)	5	(2.5)	2	(1.0)	4	(2.0)	2	(1.0)	3	(1.5)

6	(0.5)	1	(0.5)	0		1	(0.5)	1	(0.5)	1	(0.5)	2	(1.0)
Entire Sample		**Everett**		**North**		**East**		**Hwy 99**		**South**		**View**	
n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
1122	(93.5)	188	(94.0)	193	(96.5)	193	(96.5)	178	(89.0)	184	(92.0)	186	(93.0)
10	(0.8)	2	(1.0)	0	(0.0)	1	(0.5)	4	(2.0)	1	(0.5)	2	(1.0)
29	(2.4)	3	(1.5)	2	(1.0)	2	(1.0)	10	(5.0)	6	(3.0)	6	(3.0)
12	(1.0)	4	(2.0)	2	(1.0)	2	(1.0)	3	(1.5)	1	(0.5)	0	
9	(0.8)	2	(1.0)	0		0		0		4	(2.0)	3	(1.5)
18	(1.5)	1	(0.5)	3	(1.5)	2	(1.0)	5	(2.5)	4	(2.0)	3	(1.5)
46	(3.8)	15	(7.5)	8	(4.0)	2	(1.0)	12	(6.0)	6	(3.0)	3	(1.5)
1136	(94.7)	183	(91.5)	188	(94.0)	195	(97.5)	185	(92.5)	191	(95.5)	194	(97.0)
18	(1.5)	2	(1.0)	4	(2.0)	3	(1.5)	3	(1.5)	3	(1.5)	3	(1.5)
19	(1.6)	4	(2.0)	4	(2.0)	4	(2.0)	2	(1.0)	1	(0.5)	4	(2.0)
66	(5.5)	15	(7.5)	12	(6.0)	9	(4.5)	9	(4.5)	13	(6.5)	8	(4.0)
337	(28.1)	60	(30.0)	64	(32.0)	65	(32.5)	55	(27.5)	50	(25.0)	43	(21.5)
451	(37.6)	87	(43.5)	77	(38.5)	64	(32.0)	76	(38.0)	84	(42.0)	63	(31.5)
325	(27.1)	34	(17.0)	43	(21.5)	58	(29.0)	56	(28.0)	52	(26.0)	82	(41.0)
2	(0.2)	0		0		0		2	(1.0)	0		0	

Entire Sample		Everett		North		East		Hwy 99		South		View	
n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
251	(20.9)	54	(27.0)	29	(14.5)	38	(19.0)	40	(20.0)	38	(19.0)	52	(26.0)
390	(32.5)	67	(33.5)	64	(32.0)	63	(31.5)	72	(36.0)	60	(30.0)	64	(32.0)
204	(17.0)	33	(16.5)	34	(17.0)	39	(19.5)	35	(17.5)	33	(16.5)	30	(15.0)
221	(18.4)	30	(15.0)	40	(20.0)	40	(20.0)	35	(17.5)	41	(20.5)	35	(17.5)
93	(7.8)	11	(5.5)	26	(13.0)	11	(5.5)	14	(7.0)	17	(8.5)	14	(7.0)
31	(2.6)	4	(2.0)	6	(3.0)	8	(4.0)	3	(1.5)	5	(2.5)	5	(2.5)
5	(0.4)	1	(0.5)	0		1	(0.5)	1	(0.5)	2	(1.0)	0	
2	(0.2)	0		0		0		0		2	(1.0)	0	
2	(0.2)	0		0		0		0		2	(1.0)	0	
1	(0.1)	0		1	(0.5)	0		0		0		0	
330	(27.5)	70	(35.0)	41	(20.5)	52	(26.0)	51	(25.5)	56	(28.0)	60	(30.0)
747	(62.3)	115	(57.5)	138	(69.0)	128	(64.0)	128	(64.0)	118	(59.0)	120	(60.0)
83	(6.9)	11	(5.5)	13	(6.5)	12	(6.0)	17	(8.5)	17	(8.5)	13	(6.5)
30	(2.5)	3	(1.5)	6	(3.0)	7	(3.5)	3	(1.5)	6	(3.0)	5	(2.5)
7	(0.6)	1	(0.5)	1	(0.5)	1	(0.5)	1	(0.5)	2	(1.0)	1	(0.5)
3	(0.3)	0		1	(0.5)	0		0		1	(0.5)	1	(0.5)
672	(56.0)	118	(59.0)	100	(50.0)	103	(51.5)	120	(60.0)	103	(51.5)	128	(64.0)
189	(15.8)	37	(18.5)	29	(14.5)	41	(20.5)	26	(13.0)	32	(16.0)	24	(12.0)
232	(19.3)	32	(16.0)	44	(22.0)	41	(20.5)	42	(21.0)	40	(20.0)	33	(16.5)
78	(6.5)	10	(5.0)	21	(10.5)	9	(4.5)	10	(5.0)	18	(9.0)	10	(5.0)
24	(2.0)	3	(1.5)	6	(3.0)	6	(3.0)	1	(0.5)	3	(1.5)	5	(2.5)

3	(0.3)	0		0		0		1	(0.5)	2	(1.0)	0	
1	(0.1)	0		0		0		0		1	(0.5)	0	
1	(0.1)	0		0		0		0		1	(0.5)	0	
Entire Sample		**Everett**		**North**		**East**		**Hwy 99**		**South**		**View**	
n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
85	(7.1)	19	(9.5)	5	(2.5)	21	(10.5)	14	(7.0)	14	(7.0)	12	(6.0)
59	(4.9)	16	(8.0)	9	(4.5)	6	(3.0)	13	(6.5)	7	(3.5)	8	(4.0)
81	(6.8)	19	(9.5)	18	(9.0)	10	(5.0)	17	(8.5)	9	(4.5)	8	(4.0)
82	(6.8)	18	(9.0)	13	(6.5)	17	(8.5)	8	(4.0)	10	(5.0)	16	(8.0)
196	(16.3)	34	(17.0)	37	(18.5)	31	(15.5)	36	(18.0)	32	(16.0)	26	(13.0)
235	(19.6)	35	(17.5)	44	(22.0)	42	(21.0)	45	(22.5)	40	(20.0)	29	(14.5)
214	(17.8)	29	(14.5)	40	(20.0)	29	(14.5)	39	(19.5)	43	(21.5)	34	(17.0)
112	(9.3)	7	(3.5)	15	(7.5)	23	(11.5)	6	(3.0)	29	(14.5)	32	(16.0)
136	(11.3)	23	(11.5)	19	(9.5)	21	(10.5)	22	(11.0)	16	(8.0)	35	(17.5)
606	(50.5)	100	(50.0)	105	(52.5)	91	(45.5)	103	(51.5)	114	(57.0)	93	(46.5)
125	(10.4)	20	(10.0)	17	(8.5)	25	(12.5)	25	(12.5)	17	(8.5)	21	(10.5)
99	(8.3)	15	(7.5)	16	(8.0)	18	(9.0)	18	(9.0)	17	(8.5)	15	(7.5)
28	(2.3)	2	(1.0)	6	(3.0)	5	(2.5)	7	(3.5)	4	(2.0)	4	(2.0)
30	(2.5)	10	(5.0)	6	(3.0)	4	(2.0)	5	(2.5)	1	(0.5)	4	(2.0)
85	(7.1)	17	(8.5)	12	(6.0)	25	(12.5)	6	(3.0)	14	(7.0)	11	(5.5)
26	(2.2)	5	(2.5)	2	(1.0)	3	(1.5)	6	(3.0)	6	(3.0)	4	(2.0)
146	(12.2)	24	(12.0)	22	(11.0)	23	(11.5)	20	(10.0)	19	(9.5)	38	(19.0)
22	(1.8)	7	(3.5)	4	(2.0)	2	(1.0)	4	(2.0)	3	(1.5)	2	(1.0)
33	(2.8)	0		10	(5.0)	4	(2.0)	6	(3.0)	5	(2.5)	8	(4.0)

Entire Sample		Everett		North		East		Hwy 99		South		View	
n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)	n	(%)
200	(16.7)	47	(23.5)	24	(12.0)	24	(12.0)	37	(18.5)	39	(19.5)	29	(14.5)
139	(11.6)	24	(12.0)	22	(11.0)	18	(9.0)	22	(11.0)	28	(14.0)	25	(12.5)
277	(23.1)	48	(24.0)	45	(22.5)	52	(26.0)	45	(22.5)	48	(24.0)	39	(19.5)
252	(21.0)	34	(17.0)	45	(22.5)	43	(21.5)	45	(22.5)	44	(22.0)	41	(20.5)
326	(27.2)	47	(23.5)	63	(31.5)	62	(31.0)	50	(25.0)	40	(20.0)	64	(32.0)
6	(0.5)	0		1	(0.5)	1	(0.5)	1	(0.5)	1	(0.5)	2	(1.0)
1058	(88.2)	183	(91.5)	175	(87.5)	169	(84.5)	180	(90.0)	176	(88.0)	175	(87.5)
120	(10.0)	16	(8.0)	20	(10.0)	26	(13.0)	15	(7.5)	21	(10.5)	22	(11.0)
14	(1.2)	1	(0.5)	3	(1.5)	4	(2.0)	2	(1.0)	2	(1.0)	2	(1.0)
3	(0.3)	0		1	(0.5)	1	(0.5)	0		0		1	(0.5)
1	(0.1)	0		0		0		0		1	(0.5)	0	
4	(0.3)	0		1	(0.5)	0		3	(1.5)	0		0	

Appendix IV

Survey Questions and Results

All statistics are weighted by Snohomish County's population unless otherwise specified. Statistics for HPA's are weighted by each HPA's population unless otherwise specified.

Unless otherwise indicated, all data have been weighted. For detailed description of weighting methods see Appendix II.

Appendix V

Classifications and Definitions

Household income categories:

The income categories reported in this publication were devised based on two questions on the questionnaire: annual household income and the number of household members. Table V-1 shows annual household income by the number of household members. Table V-2 is a summary of the Federal Poverty Guidelines for 1996.

Table V-1. Access Survey Sample Annual Household Income by Number of Household Members.

Number of household members	*Under 10,000*	*10,000-15,000*	*15,000-20,000*	*20,000-25,000*	*25,000-35,000*	*35,000-50,000*	*50,000-75,000*	*Over 75,000*
1	**41**	**18**	**34**	**20**	**52**	**41**	**15**	**6**
2	**21**	**22**	**19**	**38**	**63**	**75**	**64**	**34**
3	**12**	**8**	**10**	**9**	**28**	**42**	**42**	**33**
4	**6**	**6**	**12**	**10**	**36**	**49**	**55**	**26**
5	**2**	**4**	**2**	**4**	**11**	**19**	**29**	**11**
6	**2**	**1**	**4**	**1**	**4**	**8**	**7**	
7					**2**	**1**		**1**
8							**1**	
9							**1**	**1**
10	**1**							

- **Low Income**: The *area with no shading* in the table represents the groups that have household incomes below 200% of federal poverty guidelines for 1996. The respondents falling in these groups are classified as low income.

- **Middle Income**: The *dark shaded area* represents the middle income groups. Although most of the respondents within this area are above 200% of the federal poverty guidelines, a few may be under the 200% mark. It is not possible to decipher which households, if any, are below 200% of federal poverty guidelines for 1996, since the questionnaire range of income may include both incomes below and above 200% of federal poverty guidelines. Households with annual incomes of $25,000 to $35,000 that have 4 household members, and households with annual income of $35,000 to $50,000 that have 5 or 6 household members, may fall below 200% of federal poverty guidelines, depending on the exact income within the range.

- **High Income**: Respondents falling in the *striped area* are classified as high income. The distinction between middle income and high income is arbitrary and is not based on any other sources. It is a classification devised for the present data.

Table V-2. Federal Poverty Guidelines for 1996.

Size of Family Unit	*48 Contiguous States and D.C.*
1	$ 7,740
2	10,360
3	12,980
4	15,600
5	18,220
6	20,840
7	23,460
8	26,080

For each additional person, add $2,620

SOURCE: Federal Register, Vol. 61, No. 43, March 4, 1996, pp. 8286-8288.
SECONDARY SOURCE: World Wide Web, http://aspe.os.dhhs.gov/poverty/96poverty.htm

Definition of minority in this report:

All respondents who classified themselves as non-Caucasian and/or Hispanic are defined as "minority". (Appendix III)

Plan Types:

The 3 health care plan types in this survey were defined based on the following survey questions:

1. Is there a book or list of doctors associated with your health care plan? (Table 11, Appendix IV)
2. Is there a certain number you are supposed to call to find a doctor? (Table 12, Appendix IV)
3. Does your plan require you to select a certain doctor or clinic for all of your "routine care"? (Table 13)

If the respondent said "No" to all three questions, his/her plan was classified as fee-for-service (FFS). If the answer to question 1 or 2 was "yes", but the answer to question 3 was "No", the plan was classified as a preferred provider plan (PPO). If the answer to question 3 was "yes" the plan was classified as a managed care/gate-keeper plan (MC/GK). Two additional questions, "does your plan require you to select a doctor for routine care" (Table 13, Appendix IV) and "which statement best describes your plan" (Table 14, Appendix IV), were also used to verify the classifications, and to aid in classification where answers to other questions were not sufficient.

This classification scheme was modeled after Solet et al[1]. Limitations are discussed in text under 'Perceived Quality of Health Care in Snohomish County'.

[1] Solet D, Krieger J, Smyser M. King County Access to Care/Consumer Satisfaction Survey. Seattle King County Department of Public Health, Epidemiology, Planning and Evaluation Unit. Personal Communication.

Medical Insurance Coverage

All findings referring to medical insurance and type of medical insurance refer to coverage that 'pays for most of medical expenses'. There may be individuals who have two or more types of insurance. Many senior citizens have supplemental plans with their Medicare. There may be others who have both Medicaid and a private plan. Also some may have two private plans, particularly if both members of a married couple are employed full time. This survey did not ask respondents about the use of multiple insurance plans.

STATISTICAL DEFINITIONS

Statistical significance

An observation is statistically significant when the probability of its occurrence by chance is low. A "low" probability usually refers to less than 5% of the time, but this level is arbitrary.

Statistical significance can be reported in several ways:

- by reporting the actual probability that an event would occur by chance given the specific sample size and presumed rate of occurrence (see Appendix II), usually referred to as '**P-value**'. e.g. a p-value of 0.039 is significant at the 5% level.

Example from report: In Table 2, the insured and uninsured are compared with respect to the use of health care services. A significantly smaller number of the uninsured had problems with their choice of physicians than the insured. The difference in the percentages (7.9 & 6.8) is seemingly small but nevertheless statistically significant in that only less than 5% (p-value 0.049) of the time, based on the sample size, such a difference may occur by chance. In the same table the difference between the insured and the uninsured with respect to their opinion of specialist (last row) does not have statistical significance, although the difference in the percentages is seemingly large (84.6 & 67.0). But the p-value is 0.30--denoting that based on the sample size for this analysis this amount of difference would be observed by chance about 30% of the time. For the question on choice of physicians the overall sample size for this specific analysis was 923 respondents. For the question relating to opinion on specialists the overall analysis sample size was 336 respondents. See section on sample size in Appendix II.

- by simply reporting that the p-value is less than a specified **'level of significance'**, particularly if the actual probability is very small. E.g.: a p-value of 0.000056 may be reported as P-value < 0.001, meaning: "an observation such as this may occur by chance fewer than once in a thousand time, if the experiment were to be repeated."

- by reporting the '**confidence intervals'** for two observations. Confidence intervals refer to a range of values within which an observation can be expected to fall with a given level of reliability, given a specific sample size and specific presumed rate of occurrence. If the 95%

confidence intervals of two rates do not overlap, the two proportions are significantly different at the 5% level, meaning that only in 5% or less of the time such an observed difference would be due to chance. One can construct, arbitrarily, 99%, 95%, 90%, or any level of confidence intervals. Usually research findings are reported with 95% confidence intervals. The 'probabilistic' interpretation of a 95% confidence interval is that in repeated sampling from a normally distributed population, 95% of intervals constructed would include the mean of the population. The 'practical' interpretation is that we are 95% confident that a single computed confidence interval includes the mean of the population[2].

e.g. Rates with confidence intervals, statistical significance

	Rate	*95% CI, +/- %*	*Range*
Proportion 1	12%	3%	9% to 15%
Proportion 2	19%	2%	17% to 21%
Proportion 3	25%	5%	20% to 30%

Proportions 1 and 2 have a statistically significant difference. Proportions 2 and 3 are not significantly different. Proportions 1 and 3 are significantly different.

Confounding Factors:

A confounding factor is a variable that is independently associated with an outcome in conjunction with other associated factors. For example, FFS plans are associated with fewer problems with the convenience of the office hours of the provider than MCO/GK plans. But, a larger proportion of FFS enrollees are senior citizens above the age of 65. Senior citizens are more likely to be retired and have more flexible schedules to meet with their providers. Once the "confounding factor" of age -- and other potential cofounders -- are taken into account by using the appropriate statistical methods, the difference between MCO/GK and FFS plans with respect to convenience of office hours is not significant.

Potential confounding factors included in the analysis of the differences between the three plan types were: age, gender, general health, income, employment status, minority status, and HPA. There may be other known and unknown confounding factors that affect the degree of satisfaction with the providers which have not been taken into consideration.

[2] Confidence interval definitions from Daniel WW, Biostatistics: A Foundation for Analysis in the Health Sciences, Fifth Edition. John Wiley and Sons Inc. New York, 1991.

Controlling for Confounding Factors:

Confounding factors can be statistically controlled for by various statistical methods. In this report, stratification and hierarchical logistic regression models were used to control for confounding factors. *Stratification* means separate analysis within subgroups. For example, if gender were a confounder, an association between two variables may be looked at within men and women separately. A *regression model* measures the contribution of multiple factors to an outcome in conjunction with each other. The major confounding factors controlled for in some of the analyses in this report were age, gender, self-perceived health, and income. In analyses where these factors were taken into account, if a respondent had refused to provide age or income, the observation on that respondent is not included in the specific analysis.

Univariate odds ratio:

Odds ratios are one of the products of logistic regression models. "Univariate" means that only one factor, the factor of interest was place in the model. No other [confounding] factors were accounted for in the regression model. An odds ratio is a measure of association between two variables. A "univariate odds ratio" gives a measure of association between two variables without having controlled for other factors in the regression model.

Longitudinal Surveys:

Longitudinal surveys start with a cohort of participants who are followed for a specified period of time. Typically, measurements on various parameters are recorded more than once for each participant. Therefore, change of status can be documented over time as long as the participant is not lost to follow-up.