

The background of the header section is a photograph of several pink water lilies in bloom, surrounded by large green lily pads on a pond. The text is overlaid on this image.

Survey Shows...
The Hawaii Behavioral Risk Factor Surveillance System
Special Report
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Exposure to Second Hand Cigarette Smoke at Home

Florentina R. Salvail, M.Sc.

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About the Hawaii Behavioral Risk Factor Surveillance System (HBRFSS)

The HBRFSS is an ongoing land-based random telephone survey of randomly selected adult residents 18 years and older on behaviors that affects health directly and indirectly. The HBRFSS is funded by the Centers for Disease Control and Prevention (CDC) as part of the national Behavioral Risk Factor Surveillance System (BRFSS). The HBRFSS has been going on since 1986. For more information about the results of the HBRFSS visit the following website: <http://www.state.hi.us/doh/stats/surveys/brfss.html>. If the information you are looking is not on the website, you may contact the state BRFSS coordinator via e-mail at brfsshi@health.state.hi.us or via phone at 808-586-4509.

Exposure to Second Hand Cigarette Smoke at Home

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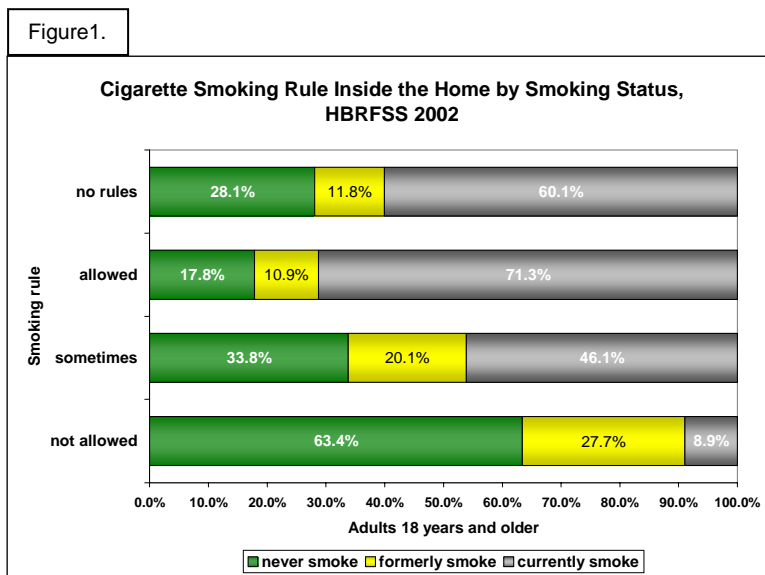
Introduction

Smoking not only affects the person smoking but also other individuals physically near smokers. This is better known as second hand cigarette smoke. Studies have shown that prolonged exposure to second hand cigarette smoke is just as bad to one's health as actually smoking cigarettes¹. However, many of us have probably been exposed to second hand smoke or are at risk of being exposed even in areas we thought of as safe places ... our own homes. This report attempts to measure the population at risk of second hand cigarette smoke from adults inside the home using the state added question in the Hawaii Behavioral Risk Factor Surveillance System (HBRFSS) year 2002. This question is

Which statement best describes the rules about smoking inside your home?

- 1 Smoking is not allowed anywhere inside your home
- 2 Smoking is allowed in some places or at some times
- 3 Smoking is allowed anywhere inside the home
- 4 There are no rules about smoking inside the home
- 7 Don't know/Not sure
- 9 Refused

The results showed that about three in four adults reported that smoking is not allowed inside their home (74.96%). In addition, there is a significant association when the presence of smoking rules inside the home is examined against the smoking status of the adults in the state (significant at alpha=5%). Figure 1 shows that nearly 71% who reported that smoking is allowed inside their home are current smokers. In sharp contrast, about 9% of those that said smoking is not allowed at home are current smokers. In addition, the largest proportion of former smokers resides in these homes. The data also suggests that having no rules about smoking at home is like allowing smoking. 60% of the adults who stated no rules about smoking at home are current smokers.



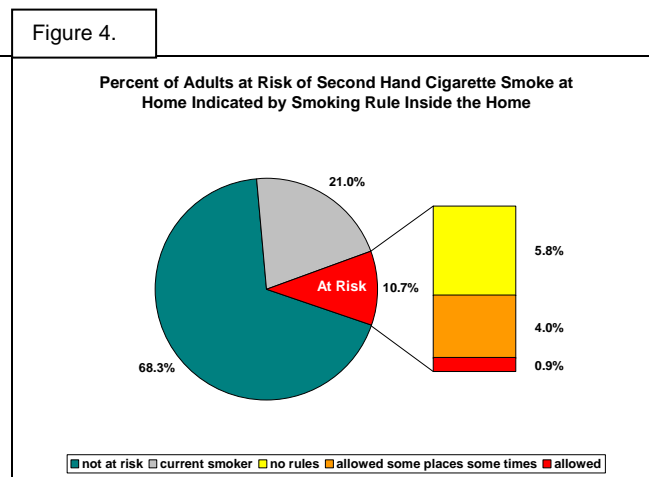
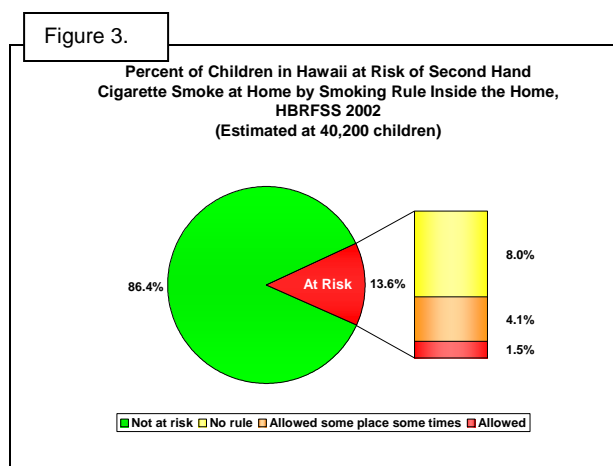
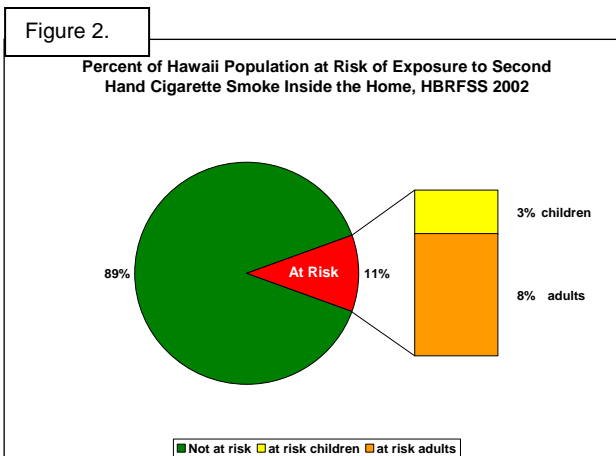
Definition of at risk for second hand cigarette smoke exposure

Non-smokers residing with smokers who are allowed to smoke anywhere or in certain locations within the home as well as in homes where there are no rules with regard to smoking inside the home are *at risk of being regularly exposed to second hand cigarette smoke* or for brevity in this article will be called *at risk*. This study is limited in that the source of second hand smoke are adults 18 years and older since second hand smoke from youth cigarette smoking cannot be measured from the HBRFSS.

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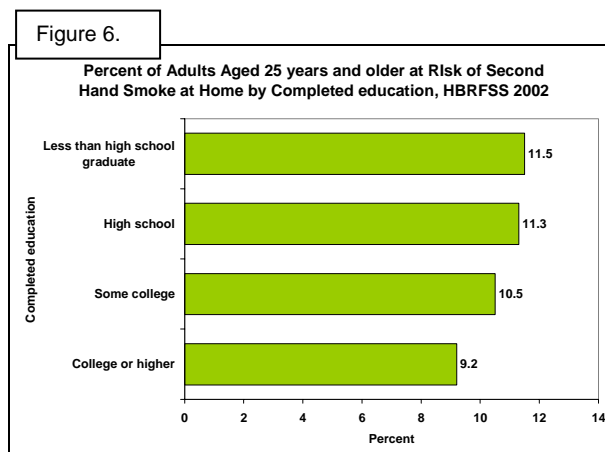
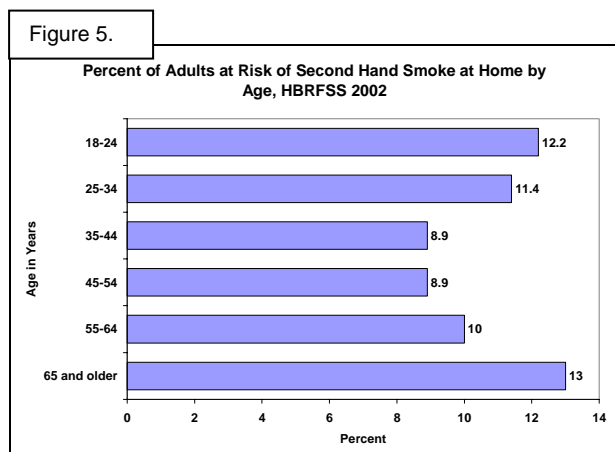
How many are at risk statewide

It is estimated that 140,000 residents or 11% of the state population are at risk for second hand smoke exposure inside the home (Figure 2). The majority of those at risk are adults (8%) 18 years and older rather than children 17 years and younger (3%). Using Hawaii's child population as the base, about 14% of children are at risk of exposure to second hand smoke as shown in Figure 3. Many of the children at risk live in homes that have no rules about cigarette smoking (8%). Similarly, using Hawaii's adult population as the base, close to 11% of the adults are at risk of being exposed to second hand smoke (Figure 4). Similar to the children's second hand smoke distribution pattern, many of the adults that are at risk live in homes that have no rules about cigarette smoking (5.8%). The results suggest that having no rules at home about smoking may endanger non-smoking residents by increasing their risk of exposure to second hand smoke.



Demographic patterns

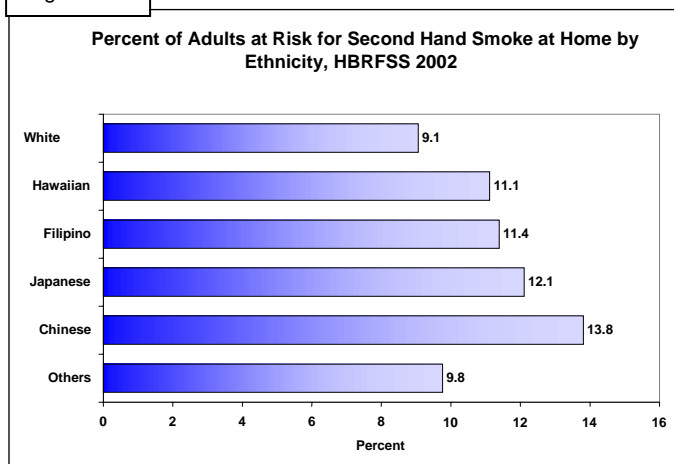
Age. It appears that adults that belong to the younger and older age groups are at greater risk for second hand smoke compared to those in the middle age group of 35-54 years as reflected in Figure 5.



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Education. The percent of adult at risk for second hand smoke decline slightly with increasing education level as reflected in Figure 6. However, these rates are not statistically different from each other.

Figure 7.

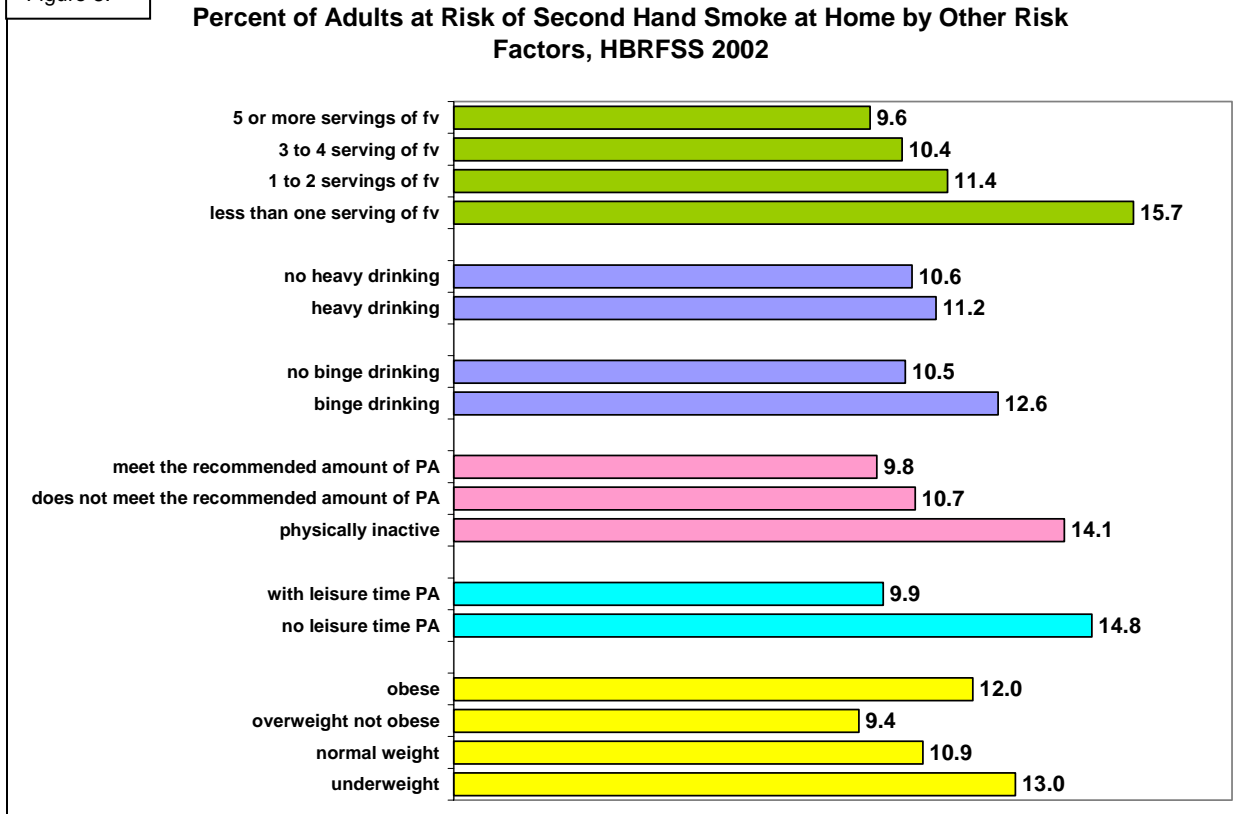


Ethnicity. Figure 7 shows the percent at risk for second hand smoke by ethnic groups. Chinese and Japanese adults have higher proportions at risk and are significantly greater than that of Whites at alpha=5%.

Children. It can be assumed that homes with children would have a no smoking policy at home to protect the youth from the dangers of second hand smoke exposure. However, the percent at risk of second hand smoke for adults with children at home is not significantly different from adults with no children residing at home (10.1% vs. 11.2% respectively).

Other risk factors

Figure 8.



It is interesting to examine whether those adults at risk of second hand smoke exposure have other risk factors which may jeopardize their health in the long run. Figure 8 shows the percent at risk of second hand smoke by other risk factors or co-morbidities. Adults who consume fewer servings of fruits and vegetables (fv) daily have a higher percent at risk compared to those who consume more fv, i.e. those consuming the least versus consuming the most

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(15.7% vs. 9.6%, significant difference at alpha=10%). Similarly, adults who meet the recommended amount of physical activity (PA) and those with leisure time physical activity have lower at risk percentages compared to those who are physically inactive or have no leisure time physical activity (9.8% vs. 14.1% and 9.9% vs. 14.8%, significant difference at alpha=5%). The percent at risk for second hand smoke by body size of adults show that those who are in the extreme weight category, i.e., obese or under weight have slightly higher percentages than those who are normal weight or who are overweight but not obese adults.

Health Conditions

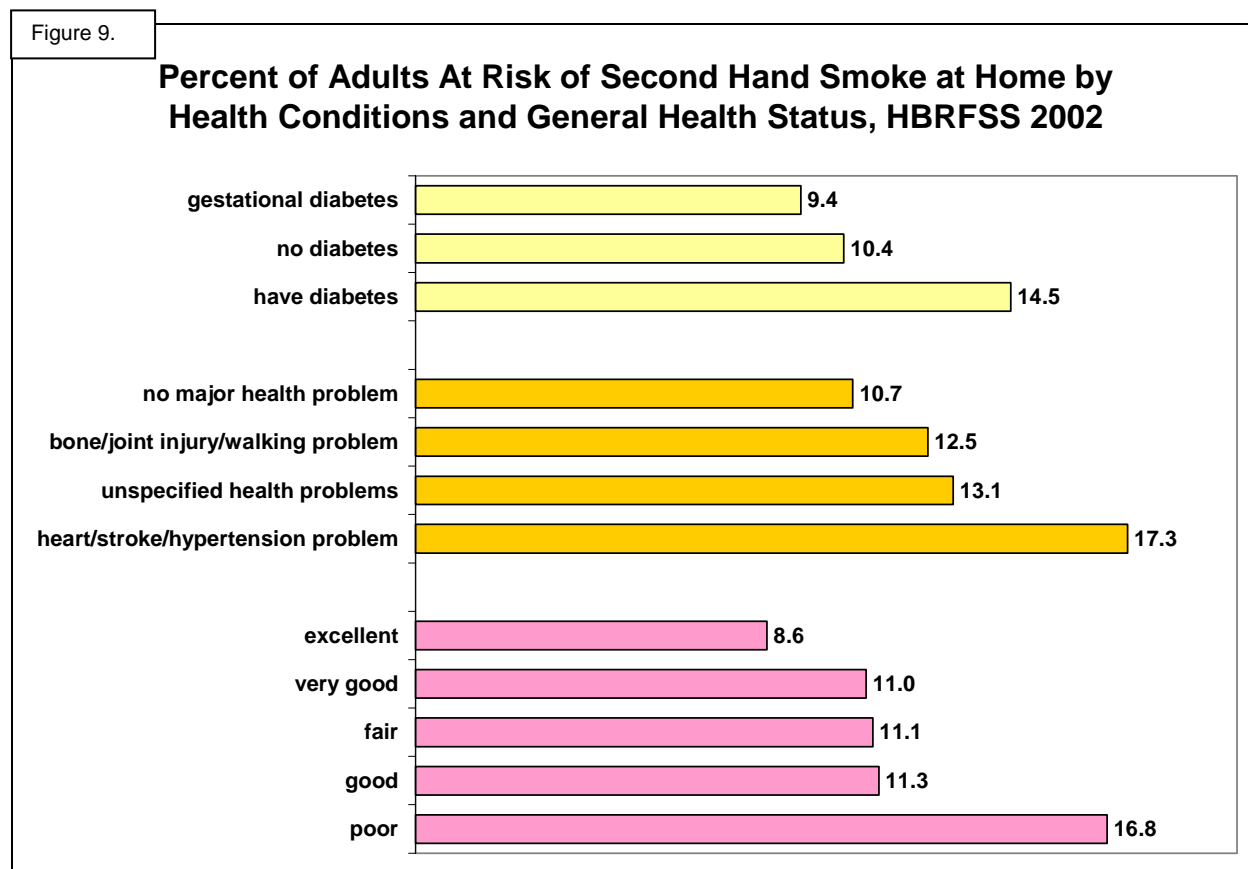


Figure 9 shows the percent at risk for second hand smoke by presence of health problems or perceived general health status. It appears that adults who have a chronic health condition such as diabetes and those with heart/stroke/hypertension problem are at greater risk for second hand smoke at home than adults who do not suffer from those chronic conditions/problems, (14.5% vs. 10.4% and 17.3% vs. 10.7%, significant difference at alpha=10%). In addition, adults who perceive themselves in poor health have a significantly higher at risk rate than those who perceive themselves in excellent health (16.8% vs. 8.6%, significant difference at alpha=5%).

Cigarette smoke can trigger the onset of asthmatic attack in persons suffering from asthma. Hence, it might be assumed that smoking is not allowed in the homes where some members have asthma. However, that is not the case in this state. Residents with asthma have about the same proportion at risk of second hand smoke exposure as those with no asthma as shown in Table 1.

Table 1. Percent at Risk of Second Hand Cigarette Smoke at Home

At risk	Ever had asthma	Never had asthma
Children	14.0%	13.5%
Adults	10.4%	10.8%

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Geographic pattern

County. The risk of second hand smoke at home varies by geographic location. Maui County has the lowest percentage of children at risk of second hand smoke at home (12.6%) followed by Honolulu County (12.9%), Hawaii County (16.6%) and Kauai County (18.3%). The children in Hawaii and Kauai counties are at significantly greater risk of second hand smoke exposure at home than the children in Honolulu and Maui County at alpha=5%. The adult at risk percentages for second hand smoke at home do not vary much by county. Maui County, Honolulu County and Kauai County percent at risk are not significantly different from each other at alpha=5% (9.0% vs. 10.6% vs. 10.9% respectively). However, the percent of adults at risk in Hawaii County is significantly different from Maui County (13.1% vs. 9.0% respectively) at alpha=5%.

Population Group	Maui	Honolulu	Hawaii	Kauai	State
Children 17 years and under	12.6%	12.9%	16.6%	18.3%	10.7%
Adults 18 years and older	9.0%	10.6%	13.1%	10.9%	13.8%

Community. Knowing the percent at risk for second hand smoking at the local level is essential for prioritizing communities in need of health education and promotion. Lessons can be learned from communities with the lowest rates. The definition of these communities is according to aggregate of adjacent zip codes with at least one school complex in the area. The list of these zip codes is in appendix A but can also be found at the following web site

<http://www.state.hi.us/doh/stats/surveys/2001/subarea.html>.

The map of the county sub-areas can also be located at this site.

Figure 10 shows that the percent of children at risk of second hand smoke exposure varies from 4% to 27%. Children in Waialae / Kahala Hawaii Kai area have the lowest percent at risk of second hand smoke (4.4%), and this is significantly lower compared to communities with at risk rates of 10.9% to 26.8% at alpha=5%. On the other hand, the Molokai youth at risk rate (26.8%) is the highest and is significantly higher compared to communities with at risk rates of 4.4% to 14.4%. Although the Puna/Kau youth at risk rate is lower (13%) than that of North Hawaii (21.1%), it is not significantly lower. Similarly, Puna/Kau youth at risk rate is not significantly higher than that of Mililani/Wahiawa (7.6%).

Figure 10.

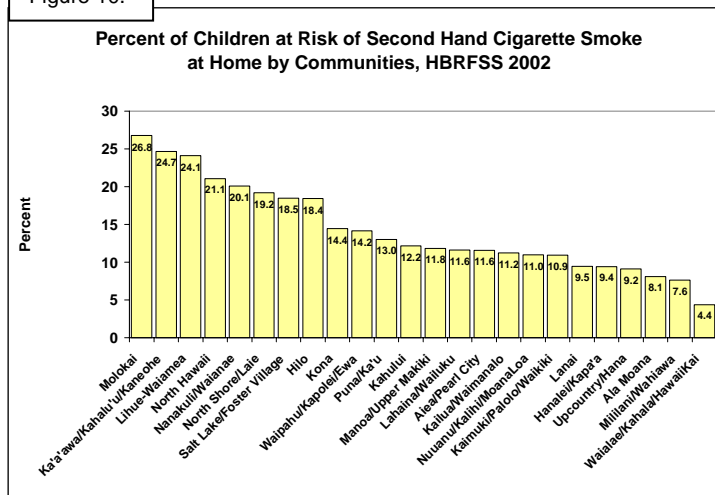
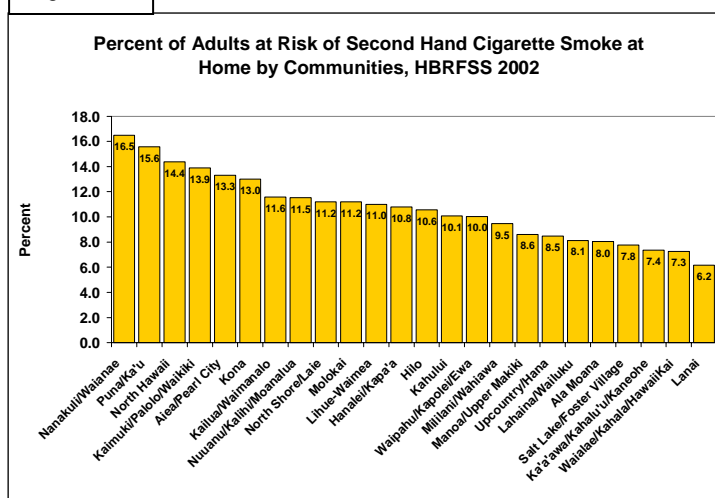


Figure 11 shows that the percent of adults at risk of second hand smoke exposure varies from 6% to 17%. Lanai's rate, while the lowest is significantly lower only in communities with adult at risk rate of 11.6% to 16.5%. On the other hand, the Nanakuli/Waianae adult at risk rate (16.5%) is the highest but only significantly higher in communities with adult at risk rates of 6.2% to 8.5% at alpha=5%. Molokai's adult at risk rate of 11.2% is not significantly different from the Nanakuli/Waianae rate or the Lanai rate.

Figure 11.



Summary

Approximately 140,000 residents are estimated to be at risk of second hand cigarette smoke exposure inside the home. Nearly 40,200 of those exposed to cigarette smoke are children 17 years and younger representing almost 14% of Hawaii's children. More than half of those at risk for second hand smoke are in homes with no rules about smoking.

The results showed a strong association between current smoking and homes with no rules about smoking. This suggests that having no rules at home about smoking may endanger non-smoking residents by increasing their risk of exposure to second hand smoke.

There are variations in second hand cigarette smoke exposure by geographic locations or communities. The county of Hawaii has high proportion at risk of second hand smoke exposure among children and adults. At the sub-county level, for both youth and adult groups, the Nanakuli/Waianae and North Hawaii areas consistently rank higher relative to the other communities in percent at risk for second hand smoke. In contrast, Waialae/Kahala/Hawaii Kai, and Ala Moana communities as well as Upcountry/Hana and Lanai consistently rank lower.

Second hand smoke exposures have compounding effects on persons that are already at risk because of their negative health life styles and/or the presence of health conditions. The data results showed that adults who do not regularly engage in physical activity or who consume fewer servings of fruits and vegetables in addition to those who suffer from chronic health conditions like diabetes or are in poor health are more likely to be at risk for second hand smoke exposure than those who engage in healthful lifestyle behaviors and/or have no existing health problems.

Recommendations

The best remedy to remove the danger of second hand smoke exposure at home is to encourage smoking home members to stop smoking totally. Another alternative is to have a consensus among home members to have a no smoking policy inside the home and in the areas in close proximity to the home. This can only be accomplished through consistent and constant education and media campaigns about the dangers of smoking and second hand smoke targeting special populations and geographic areas at greatest risk.

¹For those interested about the dangers of second hand smoke, see the following references:

1. National Cancer Institute. *Health Effects of Exposure to Environmental Tobacco Smoke: The Report of California Environmental Protection Agency. Smoking and Tobacco Control Monograph no. 10.* Bethesda, MD. U.S. Department of Health and Human Services, National Institutes of Health, National cancer Institute, NIH Pub. No. 99-4645, 1999.
2. <http://www.epa.gov/iaq/ets/publications.html>