

TRIBAL ASTHMA SURVEY PROJECT (TASP)

FINAL REPORT

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ABSTRACT

Nationally, asthma disproportionately affects American Indians and Alaska Natives (AIANs), where prevalence estimates are 25% higher than White persons¹. There are very few studies documenting the prevalence of asthma in California AIANs. According to the California Health Interview Survey (CHIS) and the California Behavioral Risk Factor Surveillance System (BRFSS) survey, AIANs have the highest prevalence of asthma of the major race/ethnicity groups in California. However, CHIS and the BRFSS are limited in that they are both telephone surveys, do not oversample the AIAN population, and are often not representative of the rural AIAN population in California. Nonetheless, the high potential prevalence of asthma and potential exposure to harmful allergens in the home environment represents one causal pathway by which AIANs experience greater asthma when compared to Whites. The California Tribal Epidemiology Center in collaboration with the California Department of Public Health (CDPH), Environmental Health Investigations Branch, California Breathing implemented the comprehensive Tribal Asthma Survey Project (TASP). This survey gathered asthma and housing condition-specific data presented in this report, which can empower tribes to determine program priorities, direct program planning, develop new policies and culturally appropriate intervention strategies.

The specific aims of this study were to:

- 1) Determine the prevalence of self-reported asthma in AIANs in California; and
- 2) Examine the association between housing conditions and asthma in California AIANs.

Participants were recruited from Indian events such as Pow-Wows, Big Times, health fairs, and community gatherings throughout California over a 7-month period, between October 2009 and May 2010. There were a total of 610 surveys collected. The majority of the sample was female (65%) and lived in California (94%). The mean age was 42.4 years (standard deviation (SD): 15.6), the mean Body Mass Index (BMI) was 32.0 (SD: 7.4), and 57% reported they had greater than a high school education. Over half of the sample (55%) reported they lived in a one-family house.

Twenty-one percent (n=131) of the sample had been diagnosed by a doctor or other health professional with asthma. Of those diagnosed with asthma, the sample was 76% female with a mean age of 44.6 years (SD: 15.5). The prevalence of asthma was 14.3% for males and 25.3% for females. Of those who had been diagnosed with asthma (n=131), 76% still had asthma. The mean age of diagnosis was 27.1 years (SD: 17.9). Almost half (49%) reported that their asthma had been made worse by workplace conditions. In the past 30 days, the average number of days that respondents reported they had symptoms of asthma (which was defined as coughing, wheezing, shortness of breath, chest tightness, or phlegm production when you do not have a cold or respiratory infection) was 9.1 (SD: 10.2).

Among females, the prevalence of asthma was 1.67 (Confidence Interval (CI): 1.16, 2.40) times as high in those with pets with fur or feathers in the home in the past 6 months compared to those without pets with fur or feathers. The prevalences of asthma in women were also higher in those who have seen mold greater than the size of a dollar bill (Prevalence Ratio (PR): 1.84, CI: 1.28, 2.65) and have smelled a moldy or musty odor (PR: 1.54, CI: 1.07, 2.21) in their home in the past 30 days compared to those who have not seen or smelled mold in their home. As a result, educational efforts on controlling mold in the home may be beneficial to this community. Among men, there were no associations between potential allergens in housing and asthma status. No statistically significant associations between socioeconomic status and asthma were observed in both men and women.

We additionally included information on pediatric asthma and asthma morbidity in the TASP survey. The prevalence of asthma in children under the age of 18 living in a survey participant's home was 21%. Of children who had been diagnosed with asthma, 79% still had asthma. In the past 12 months, 71% of children diagnosed with asthma had symptoms, taken medication, or seen a doctor for their asthma. Among adults who were told by a doctor or other health professional that they had asthma (n=131), 17% had missed at least 1 day of school or work in the past 12 months due to asthma. Almost 23% had visited the emergency room at least once in the past 12 months for asthma-related reasons. Furthermore, in the TASP population 72% of those with doctor-diagnosed asthma reported that their usual activities had been limited due to asthma in the past 12 months. The loss of productivity in the workplace as well as preventable hospitalizations due to asthma deserve further research to accurately estimate the true "cost" of asthma in California AIAN.

Limitations of the study included its convenience sampling method, the timeline of the grant failing to overlap with the season that AIAN cultural events occur, and not verifying Indian heritage. Strengths include its popularity due to word-of-mouth, the receptiveness of the health education materials and incentives provided, and the enthusiasm of participants wanting to share personal stories about asthma and learn more about asthma management after completion of the survey. Strengths included the \$15 gift cards, which proved to be a strong incentive for event attendees to participate in the TASP study – due to both word-of-mouth and visible signage. Word-of-mouth was a key component in recruiting survey participants. Upon completion of the survey, several people informed their respective networks of the survey and incentive opportunity. A majority of participants were recruited in this manner.

While the TASP study had participants from several counties throughout California with high proportions of AIAN populations, and included both rural and urban AIAN, it may not represent the exceptionally diverse AIAN population in California. More research is needed on the prevalence of asthma, asthma morbidity and housing conditions in California AIANs.

INTRODUCTION

The Epidemiology of Asthma

Asthma, a chronic disorder of the airways that is characterized by recurring respiratory symptoms, variable airflow obstruction, airway hyperresponsiveness, and underlying inflammation², has been on the rise in recent decades worldwide, especially among children³. In the United States from 1980 to 1995 the prevalence of asthma among children 0-17 years of age increased from 3.6% to 7.5%. In 2005, 8.9% of children were reported to have current asthma, which would total 6.5 million American children⁴, while 7.7% (22.2 million) of adults were currently suffering from asthma¹. In California, 5 million have been diagnosed with asthma and almost 3 million suffer from current asthma⁵. Compared to the U.S. population overall, lifetime prevalence increased 80% from 1984 to 2005 (7.6% to 13.7%) in California residents⁵.

Nationally, asthma disproportionately affects American Indians and Alaska Natives (AIANs), where prevalence estimates are 25% higher than White persons¹. The percentage of AIAN adults 18 years of age and older with asthma was 14.2% (SE 1.66), compared to 11.65% for Whites⁶. Percentages differed by gender – with 18.2% of AIAN females and 10.1% of AIAN males having asthma, compared to 13.0% and 10.1% of Whites, respectively. The prevalence of asthma in California AIANs was 9.2% compared to 7.4% in Whites⁵. AIANs also have higher rates of lifetime asthma diagnoses than Whites, 12.1% and 10.9%, respectively. Among AIAN children, asthma prevalence, morbidity and mortality are higher compared to white children. For example, from 2001 to 2005, 9.2% of all children aged 2 to 17 years had asthma; 13% of AIAN children and 8.4% white children⁷. In fact, AIAN children are 1.82 times more likely to have asthma than White children (95% confidence interval [CI]: 1.33, 2.49)⁷. AIAN children also have the highest prevalence of asthma attacks; 67.3%, compared to 61.3% for whites and 60.7% for all U.S. children⁷. In Washington State, asthma hospitalization rates from 1987 to 1996 for children aged 0 to 17 years were similar for all children and AIANs, whereas 50% of AIAN children had multiple hospitalizations compared to 42% of all children⁸.

There are very few studies documenting the prevalence of asthma in California AIANs. According to the California Health Interview Survey (CHIS) and the California Behavioral Risk Factor Surveillance System (BRFSS) survey, AIANs have the highest prevalence of asthma of the major race/ethnicity groups in California. In 2003, CHIS reported 8% of Californian adults and children had active asthma, and the highest prevalence of active asthma in California was seen in AIAN: 17% for children and 13% for adults⁹. CHIS data for 2007 reported that 22.2% of AIAN reported a diagnosis of asthma, compared to 14.8% of non-Hispanic Whites, and 13.6% for all races. The California BRFSS data from 2005 reported that 13.5% of AIAN-only were ever told they had asthma, compared to 14.0% for Black-only, 12.8% for White-only, and 13.2% for all race/ethnicities total. However, CHIS and the BRFSS are limited in that they are both telephone surveys, do not oversample the AIAN population, and are often not representative of the rural AIAN population in California.

Housing Conditions as Potential Determinants of Asthma

Asthma is a multifactorial disease that has been associated with genetic, environmental, race/ethnicity, poverty, urbanization, psychosocial, and infectious factors¹⁰. Although, several risk factors are likely to be important determinants of asthma, the large health differences among lower-income and minority families compared with other populations suggest housing conditions may contribute to asthma in some populations. For example, asthma rates are higher among children living in low-income communities¹¹. From 2001 to 2004, asthma in children living below the federal poverty level was 10.3%, compared with 6.4–7.9% for those at or above the poverty level¹². In light of this research, it is possible that the condition of an individual's home may serve as a marker for some important underlying factors that trigger asthma beyond those of psychosocial and heredity.

Exposure to numerous allergens is common in U.S. homes. In a study using a housing environmental index survey, 82% of participants had at least one allergen risk indicator present. Risk indicators included humidity, temperature, carbon dioxide, formaldehyde, nitrogen dioxide, allergens and the occurrence of tobacco smoke and pets¹³. The National Survey of Lead and Allergens in Housing (NSLAH) found that 51.5% of surveyed homes had at least 6 detectable allergenic risk factors. In addition, race/ethnicity, income, housing type, absence of children, and presence of smokers, pets, cockroaches, rodents, and mold and moisture problems were independently associated with higher allergen levels¹⁴. Structural damage in housing facilitates the entry of cockroaches and rodents into living spaces, and water leaks trap moisture within the home, thereby supporting the growth of molds and bacteria. Furthermore, in a study of almost 1,000 homes in Connecticut and Massachusetts, low income and living in a multifamily home in a high population density area with a higher occupancy rate per room were associated with higher cockroach allergens¹⁵.

Home overcrowding can aggravate asthma conditions by making disease transmission easier and an increase in allergy levels (such as dust, smoke, dander and other contaminants). It is estimated that in tribal areas, 28% of AIAN households are overcrowded, compared to 15% of all AIAN households and a national average of just 5%¹⁶. A national survey of tribal housing estimates that the true overcrowding proportion is even higher - almost 40%. According to the US Census, a home is defined as overcrowded if there are 1.01 or more persons per room.

According to the 2000 Census, California has more AIAN than any other state,¹⁷ with 627,562 (1.9%) people self-identified as AIAN in combination with one or more races, and 333,346 (1.0%) people self-identified as being only AIAN.¹⁷ The Bureau of Indian Affairs has certified 107 federally recognized tribes, Rancherias and federations in CA.¹⁸ AIANs in CA have a median household income of \$38,764 compared to \$53,734 for non-Hispanic whites. Nearly a third of the AIAN adult population 25 years of age and older (32%) did not have a high school diploma compared to 11% of non-Hispanic whites.¹⁷ Such disparate conditions may contribute to housing conditions, and in turn asthma and asthma morbidity.

To date, there are very few epidemiological studies on housing conditions and asthma correlates in AIAN. An increased (albeit non-significant) risk for asthma was seen in AIAN children in New York when smoking occurred in the home in the past 12 months (odds ratio [OR]=1.49), where burn-barrels were within a five-minute walk from the home (Odds Ratio (OR)=1.56) and where the garage was attached to the home (OR=1.31)¹⁹.

In summary, the high prevalence of asthma and potential exposure to harmful allergens in the home environment represents one causal pathway by which AIANs experience greater asthma compared to Whites. In order to investigate this, the California Tribal Epidemiology Center in collaboration with the California Department of Public Health (CDPH), Environmental Health Investigations Branch, California Breathing implemented the comprehensive Tribal Asthma Survey Project (TASP).

The specific aims of this study were to:

1. Determine the prevalence of self-reported asthma in AIANs in California; and
2. Examine the association between housing conditions and asthma in California AIANs.

METHODS

Background

Data were collected as part of TASP: Tribal Asthma Survey Project, a statewide cross-sectional survey to examine the prevalence of asthma and correlates of asthma morbidity and related housing conditions for AIANs in California. The project was approved by the California Rural Indian Health Board (CRIHB) Executive Committee on August 9th, 2009 via teleconference. Approval for this project was granted by the California Rural Indian Health Board's Institutional Review Board on October 15, 2009, prior to initiating interviewing activities.

Survey Population

Men and women aged 18 years and older who self-identified as AIAN were eligible to participate in TASP. Specifically, participants were asked to verbally answer 'Yes' or 'No' when the survey administrator asked if they were American Indian or Alaska Native and if they were at least 18 years of age. Later, in an attempt to identify participants who had already completed a survey, an intake question was added that asked if the participant had received a \$15 gift card from CTEC or taken the Tribal Asthma Survey at another event in the last 12 months. Participants were excluded if they indicated their race was not AIAN, they were not 18 years of age, or if they had taken the Tribal Asthma Survey at another location or previous event.

Data Collection Instruments and Procedures

Survey Sites and Participants

Initially, data collection was to occur at Tribal Clinics throughout California. However, after further research it was decided that traveling to Tribal Health Programs and Clinics throughout California would not warrant a large enough sample size in such a short time frame, as the number of patients seen per day, per clinic, can be very low. Furthermore, to obtain sufficient geographic representation, multiple clinics would have to be visited for several days at a time. Instead, participants were recruited from Indian events such as Pow-Wows, Big Times, health fairs, and community gatherings throughout California over a seven-month period, from October 2009 through May 2010. This allowed for greater geographic representation (see Figures 1 and 2) in a shorter time frame.

TASP Data Collection Events (October 2009 to May 2010)

Event	Location	Date	Surveys
California Annual Tribal Leaders Consultation Conference on the Morongo Reservation	Morongo, CA	Tuesday 3/8/10 - Thursday 3/10/10	76
California Rural Indian Health Board's Annual Board Meeting	Reno, NV	Thursday 10/15/09 - Saturday 10/17/09	58
California State University Fresno Pow-Wow	Fresno, CA	Saturday 4/10/10	41
California State University Humboldt Big Time	Arcata, CA	Saturday 4/10/10	82
California State University Long Beach Pow-Wow	Long Beach, CA	Saturday 3/13/10	99
Georgetown Nature Fest	Georgetown, CA	Saturday 4/24/2010	2
Manchester-Point Arena Band of Pomo Indians Tribal Election Meeting	Point Arena, CA	Saturday 11/14/09	101
Riverside-San Bernadino Indian Health Center's Health Fair on the Soboba Reservation	Hemet, CA	Saturday 5/1/10	38
Sacramento Native American Health Center's Winter Banquet	Sacramento, CA	Saturday 12/12/09	64
Tule River Tribe's Health Fair on the Tule River Reservation	Porterville, CA	Friday 4/2/10	49

Survey Instrument

The survey instrument was created in collaboration with the CDPH California Breathing staff. Survey questions were derived from previously developed questionnaires used in research in Indian country, or developed and tested for Asthma or housing issues. Survey topics included asthma and asthma symptoms for adults and children in the home, allergens in housing, demographic variables, health conditions, and perceptions of home and community health environments. All questions included on the final instrument were pulled from the following survey instruments:

- Tribal Behavioral Risk Factor Surveillance Survey;
- California Behavioral Risk Factor Surveillance Survey;
- Behavioral Risk Factor Surveillance Survey Asthma Call-Back Survey;
- National Survey on Lead Hazards and Housing Allergens; and
- Border Allergies and Asthma Study (BASTA).

A detailed explanation of questionnaires, questions used, and modifications made, if any, can be found in Appendix A. A more robust explanation of the BASTA study can be found in Appendix B.

The survey was pilot-tested with three AIAN employees at the California Rural Indian Health Board. Although both self-administered and oral-administered surveys were initially created, the pilot-tested survey was administered orally, and elimination and modifications were made to several questions, including grammar, order, and response options. The initial survey was also piloted at the first cultural event in October 2009 at the CRIHB Annual Board Meeting. While one-on-one interviews were preferred to administer the survey and collect response data, due to staff and time limitations, in-person interviewers were deemed unfeasible. Thus in order to maximize participation, and since only 2 staff members were available to administer surveys per event, surveys were self-administered, rather than orally administered by an interviewer. Only self-

administered versions of the survey were distributed at remaining data collection sites. Questions that had a high mis-response rate were re-worded, and skip patterns were confined to one page when possible. All questions except for one were able to be modified so that they could be combined or were consistent with the final draft of the survey.

The final version of the TASP survey was 25 double-sided pages, consisted of 97 questions and 16 skip patterns, and can be found in Appendix C. The survey instrument was completely anonymous – names or any other personally identifiable information were not included. Most participants were able to complete the survey in about 20 minutes.

Survey Administration

Events were chosen according to the likelihood of AIAN populations at the events, the timeline, the geography, and the feasibility of the survey being administered at such an event. Two events were not attended because event organizers deemed a survey would not be appropriate. Other events were either too close in proximity to each other and overlap of participants was likely (i.e., the California State University Long Beach (CSULB) Pow-Wow and the University of California, Los Angeles (UCLA) Pow-Wow), or did not occur during the project time frame. Numerous AIAN-specific events occur in the months between June and October, however, the funding period was from October to June. As a result, several events were not attended.

Surveys were administered in teams of 2 people at 9 of the 10 events; at one event only 1 research staff was needed to administer surveys. At the first two data collection events, Informed Consent was obtained (see Appendix D for Informed Consent document) after an overview of the survey and its purpose were provided. Although the Informed Consent process did not appear to deter participation in TASP, we altered protocol after the Manchester-Point Arena Tribal Elections Meeting by spending more time to explain the importance of the survey to California Indians and representativeness of the respondent to their local tribe/tribal community. At all remaining events, the project coordinator or research assistant went through the Informed Consent document in detail with each participant, explaining the survey purpose, procedures and benefits, confidentiality, rights as a volunteer, and the volunteer agreement sections.

Signs were posted at the survey table, which stated that AIAN participants over the age of 18 could receive a gift card for \$15 for completing a survey.

Additional protocol modifications to the survey administration were implemented after it was determined that a high proportion of respondents listed “I Don’t Know” as responses to the majority of the questions in the survey, and several respondents followed skip patterns incorrectly at the second event in Point Arena, CA. Protocol was altered to explain skip patterns and to show examples to each participant to increase the likelihood that skip patterns would be adhered to appropriately. These protocol changes in the delivery of the survey and explanation of the informed consent document were successful in increasing the number of correctly filled out surveys at the remaining 9 events.

Participants were told that by turning in a completed survey, they would receive a gift card in the amount of \$15 for either Target, Safeway, Vons Grocery Stores, or Shell Gas Station. After a participant completed their respective survey, it was given to TASP staff who then briefly checked the survey for completeness.

Participants completed their surveys in different settings, depending on the type of event. At conferences and meetings, participants were permitted to take their survey into breakout session rooms. During Pow-Wow’s, Big Times, and Health Fairs, tables and chairs were provided behind the project staff for participants to take

the survey. Seven events occurred exclusively on the weekends, and two included at least one weekday and one weekend.

Health Education Materials

Six free health education materials on asthma were available to all TASP participants and event attendees. Two of the health education materials [*Myths about Asthma* and *Guidelines for an Asthma Friendly Home*] were from the California Department of Public Health, and were adapted aesthetically and content-wise to be culturally-competent and Indian-specific. Three of the health education materials were provided by Blue Shield of California [*Asthma Home Checklist*, *Your Asthma Action Plan*, and *Living With Asthma – A DVD*], and one was provided from the Minnesota Department of Public Health [*Asthma Triggers*]. All health education materials can be found in Appendix E.

Data Entry and Management

All data were entered by the California Tribal Epidemiology Center Research Assistant. Paper forms were entered into a Microsoft 2007 Access database. All data were entered exactly how the participant filled out the survey. If a participant did not follow a skip pattern correctly, it was adjusted for in analysis. The Access database was exported into Excel, where 20% of the entered surveys were cross-referenced with the hard copy by the project coordinator to determine accuracy of data entry. Corrections or discrepancies were noted and sent to the Research Assistant, who then made corrections and modifications to the Access database if necessary. The Access database was then imported into Statistical Package for the Social Sciences (SPSS) for data cleaning. SPSS version 17.0 and Statistical Analysis Software (SAS) version 9.2 were used to analyze data.

Analysis to address Aim 1

Determine the prevalence of self-reported asthma in AIANs in California.

Study Population

The study population includes all participants of the Tribal Asthma Survey Project (n=610) described in the Results section. Asthma was defined as answering “yes” to the question “Have you ever been told by a doctor or other health professional that you have asthma?”

Analysis to Address Aim 2

Association between Allergens in Housing and Asthma Status

Study Population

The Tribal Asthma Survey Project (n=610) includes self-identified AIAN participants, 18 years of age and older. Of the 610 participants, we excluded those who indicated that they resided in cars (n=1) or were homeless (n=18). Our final sample size was 591.

Ascertainment of Allergens in Housing

- Type of home lived in (one-family house, trailer (including mobile home), or other (including apartment, duplex, condo, or townhouse)
- Had a dog, cat, bird, chicken, pet mice or rats, gerbils, hamsters, rabbits, or other pet with fur or feathers living in home in the past six months (yes or no)
- Home near (within 200 feet) an open, dusty area (yes or no)
- Uses an exhaust fan in the kitchen when cooking (yes or no)
- Uses a mattress cover made especially for controlling dust mites (yes or no)
- Has had water or dampness in their home from broken pipes, leaks, heavy rain, or floods (yes or no)

- Has had mold in the home greater than the size of a dollar bill in the past 30 days, not including mold found on food (yes or no)
- Has seen or smelled mold or a musty odor inside their home in the past 30 days, not including mold found on food (yes or no)
- Has seen a cockroach inside their home in the past 30 days (yes or no)
- Has seen mice or rats inside their home in the past 30 days, not including mice or rats kept as pets (yes or no)

Covariates

- Age (years)
- Gender (male or female)
- Body Mass Index (reported weight (pounds) was multiplied by 703 and then divided by total inches squared)
- Level of Education (\leq High school graduate or $>$ high school diploma)
- Current employment status (employed or not employed)
- Income ($<$ \$30,000, \geq \$30,000)
- Ever smoked 100 cigarettes (yes or no)

Statistical Analysis

We assessed for the presence of effect measure modification ($p < 0.10$) and determined that gender was a significant modifier of the housing issues-asthma status relation; thus all multivariable model results were stratified by gender. The strength of associations between various housing issues and asthma were estimated by prevalence ratios (PRs) and 95% confidence intervals. Models were adjusted for age and smoking status.

RESULTS

There were 610 surveys collected over the course of 7 months at 10 Indian events. Figure 1 shows the frequency of home zip codes for TASP survey participants; figure 2 shows the frequency of workplace zip codes. The Census 2000 American Indian/Alaska Native (AIAN) population (alone or in combination with one or more races) is displayed by county in both figures. In selecting events for survey dissemination, attempts were made to travel to counties with high AIAN populations. Additionally, survey locations that represented participants from Northern, Central, and Southern California geographic locations were prioritized.

Figure 1: Frequency of Home Zip Codes for TASP Participants

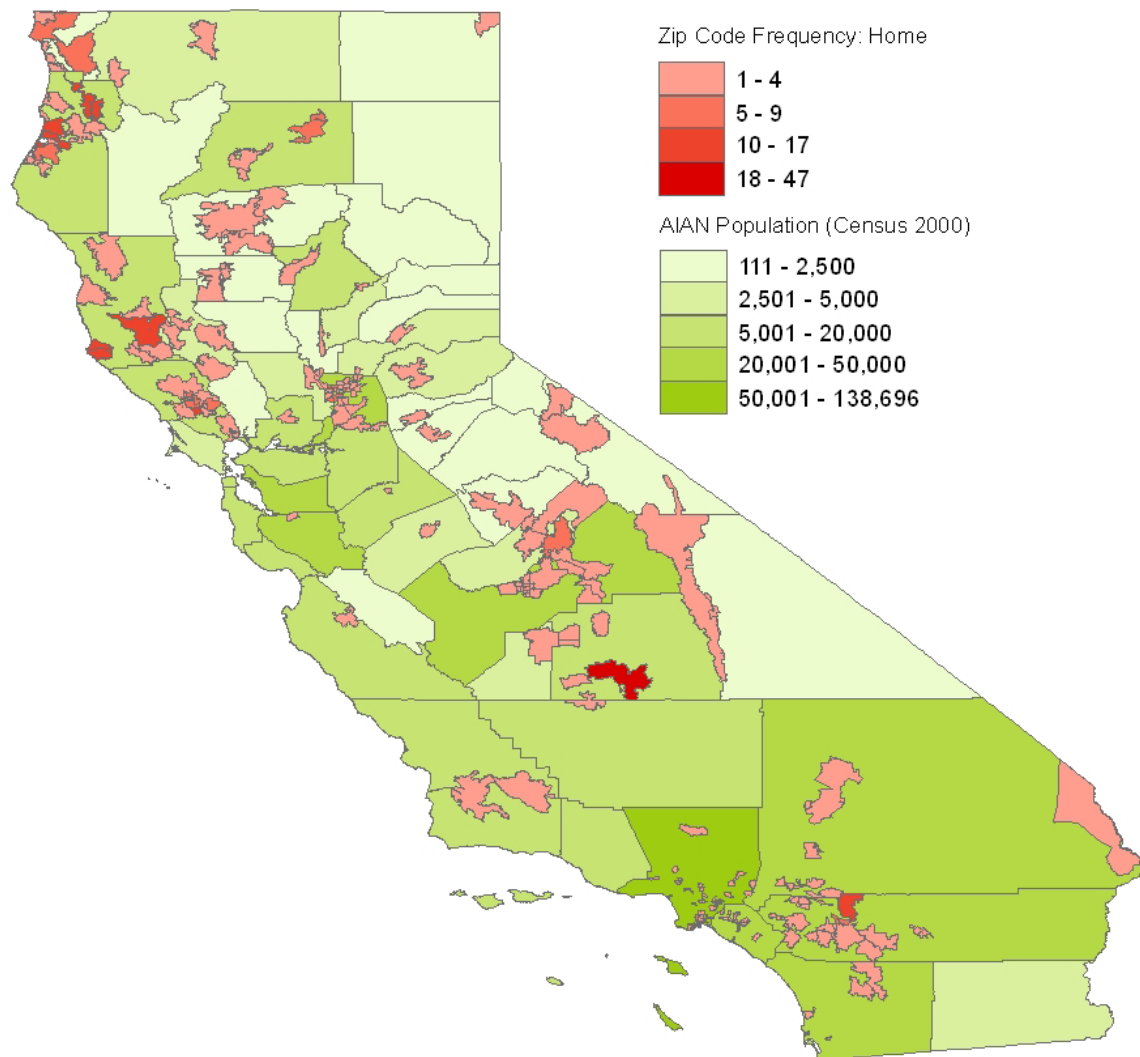
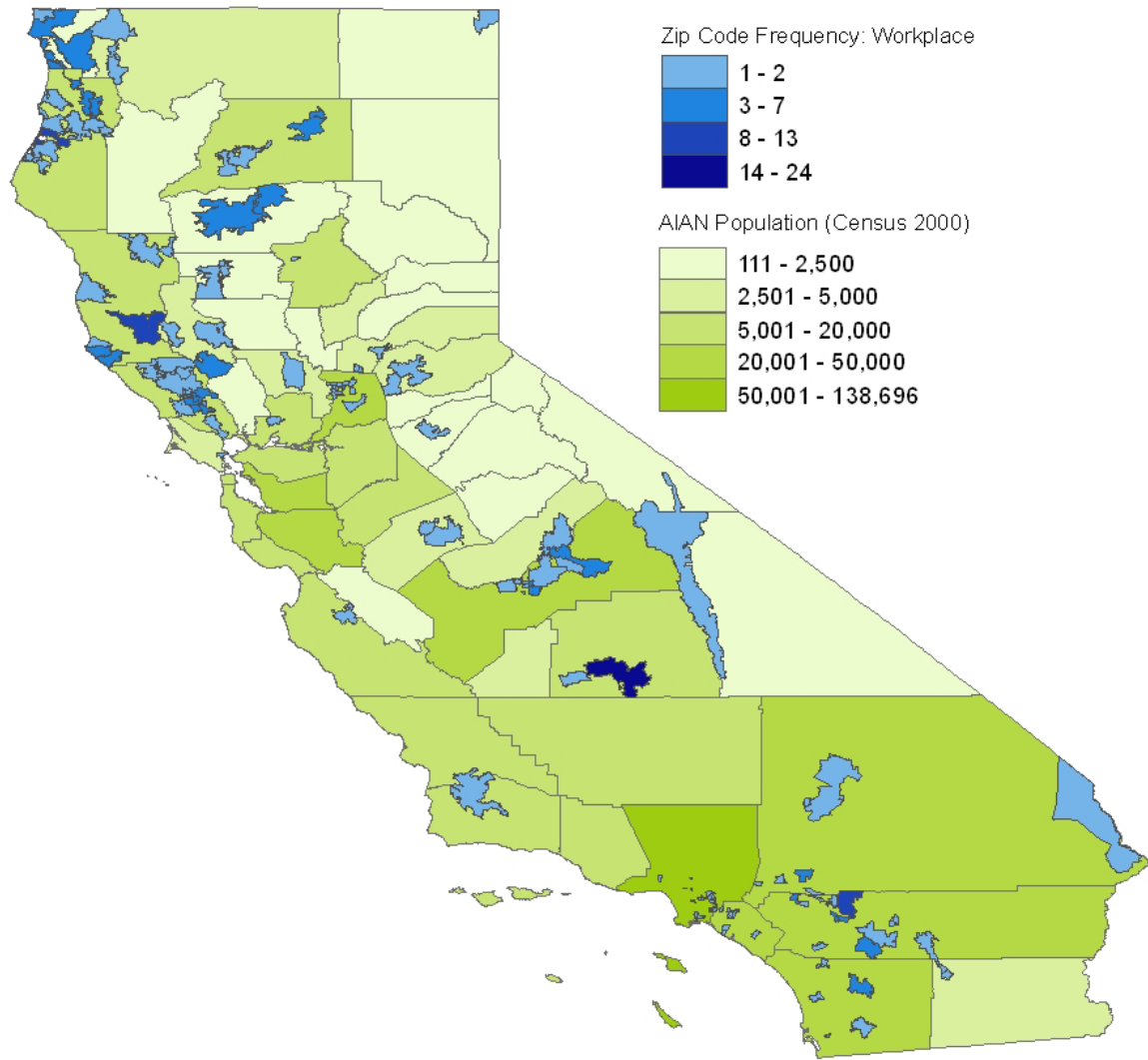


Figure 2: Frequency of Workplace Zip Codes for TASP Participants



CHARACTERISTICS OF THE TASP SAMPLE

The characteristics of the participants are reported in Table 1. The majority of the sample was female (65%) and lived in California (94%). The mean age was 42.4 years (standard deviation (SD): 15.6), the mean Body Mass Index (BMI) was 32.0 (SD: 7.4), and 57% reported they had greater than a high school education. Over half of the sample (55%) reported they lived in a 1-family house (Table 2A).

Table 1. Characteristics of Tribal Asthma Survey Project (TASP) population (n=610)

Variable	n	%	Mean (SD)
Sex			
Male	196	32%	
Female	395	65%	
Missing	19	3%	
Age (years)			
18-29	151	25%	
30-39	112	18%	
40-49	119	20%	
50-59	96	16%	42.4 (15.6)
60-69	77	13%	
70+	22	4%	
Missing	33	5%	
Race/Ethnicity other than AIAN¹			
White	118	19%	
Black or African American	20	3%	
Latino or Hispanic	136	22%	
Asian	5	<1%	
Native Hawaiian	22	4%	
Pacific Islander	13	2%	
Other	32	5%	
No Other Race - AIAN Only	231	38%	
Body Mass Index (BMI) ²			
Normal Weight (18.0-24.9)	80	13%	
Overweight (25.0-29.9)	132	22%	
Obese (30.0-39.9)	210	34%	32.0 (7.3)
Morbidly Obese (≥40.0)	67	11%	
Missing	121	20%	
State of Residence			
California	571	94%	
Other State	24	4%	
Missing	15	3%	

SD = Standard Deviation.

Table 1 Continued. Characteristics of Tribal Asthma Survey Project (TASP) population (n=610)

Variable	n	%
Education Completed		
High School Graduate or Less	246	40%
Greater than High School	346	57%
Missing	18	3%
Currently Employed		
Yes	299	49%
No	287	47%
Missing	24	4%
Industry³		
Farming, Fishing and Forestry	1	0%
Construction	12	4%
Management , Professional and Related Occupations	108	36%
Production & Transportation	21	7%
Sales and Office	67	22%
Service Occupations	63	21%
Missing	27	9%
Occupation³		
Accommodation and Food Services	10	3%
Administration	6	2%
Agriculture	5	2%
Arts, Design, Entertainment, Sports & Media	16	5%
Construction	8	3%
Education	17	6%
Finance and Insurance	5	2%
Health Care and Social Assistance	111	37%
Information	2	1%
Manufacturing	3	1%
Other Service	4	1%
Professional, Scientific, and Technical Services	5	2%
Public Administration	51	17%
Retail	12	4%
Transportation and Warehousing	3	1%
Utilities	1	0%
Wholesale Trade	3	1%
Missing	37	12%
Household Income, Past Year		
≤\$20,000	204	33%
\$20,001 - \$40,000	159	26%
>\$40,000	139	23%
Missing	108	18%

¹ Not mutually exclusive.

² BMI was computed by converting reported heights to total inches. The reported weight (in pounds) was multiplied by 703 and then divided by height in total inches squared. One person was classified as being "underweight" and had not been diagnosed with asthma.

³ For those respondents who answered "yes" to "are you currently employed", n=299. Occupation and industry are based on the North American Industry Classification System (2002).

Missing: All participants who responded don't know, I prefer not to answer, or who left the question blank.

The TASP population demographics were compared to California statewide Census 2000 data (data not shown). The average per capita income for AIAN statewide by 1999 was \$15,226, whereas for the TASP population, 33% of household incomes in the past year were \$20,000 or less. More than a quarter of California AIANs (28.3%) currently in the labor force are in management, professional and profession-related occupations, compared to 35% of the TASP population. The proportion (18%) of California AIANs in service occupations was comparable to the TASP population (21%). California AIANs are more likely to work in the production, transportation, and material moving industry (14.1%), to not have a high school diploma (26%), to have a bachelors degree (16%), and to indicate Hispanic or Latino ethnicity (46%), compared to the TASP population, 7%, 12%, 12%, and 22%, respectively. More than half (57.6%) of California AIANs are under the age of 35, whereas the mean age of the TASP population was 42.4 years (SD: 15.6). Only 22% of the TASP population indicated Hispanic or Latino ethnicity, compared to 46% of California AIANs.

Table 2A. Home Characteristics of TASP Population (n=610)

Variable	n	%
What best describes the building you live in?		
Mobile home/trailer	74	12%
One-family house	334	55%
Other	153	25%
Missing	49	8%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

"Other" includes those who indicated they lived in a duplex, townhouse, or apartment complex.

Of participants who had a permanent non-mobile residence (n=591), the average number of years at their current residence was 8.6 (SD: 10.5); there was an average of 3.7 (SD: 3.0) other people living in the home (Table 2B). Twenty-eight percent lived on a reservation or Rancheria, and 38% were homeowners.

Table 2B. Home Characteristics of TASP Population (n=591)

Variable	n	%	Mean (SD)
Year home built			
1949 or earlier	47	8%	
1950 to 1977	161	27%	
1978 to present	273	46%	
Missing	110	19%	
How long have you lived in this home? (years)			
≤2	163	28%	
2 to less than 5	102	17%	
5 to less than 10	115	20%	
10 to less than 25 Years	114	19%	2.7 (1.2)
≥25 Years	51	9%	
Missing	46	8%	
How many other people live in the home?			
None	20	3%	
1	88	15%	
2	101	17%	
3	102	17%	
4	78	13%	
5	65	11%	3.7 (3.0)
6	45	8%	
7	22	4%	
8+	30	5%	
Missing	40	7%	
Home on a reservation or Rancheria			
Yes	164	28%	
No	403	68%	
Missing	24	4%	
Own or rent home			
Own	226	38%	
Rent	304	51%	
Rent-to-Own	6	1%	
Other	36	6%	
Missing	19	3%	
Home owned by a public housing authority¹			
Yes	58	16%	
No	275	75%	
Missing	32	9%	

¹ Asked of those who did not own their home, n=365

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Over a third (38%) of the sample reported that their home was less than 100 feet away from heavy traffic (Table 2C). Sixteen percent reported that trash was burned near their home; of those, 72% reported that trash was burned less than 100 feet away from home.

Table 2C. Home Characteristics of TASP Population: Potential Air Contaminants (n=591)

Variable	n	%	Mean (SD)
Distance between location of heavy traffic and home			
Right in front, behind, or beside the home	153	26%	
Less than 100 feet	72	12%	
100-300 feet	112	19%	
More than 300 feet	212	36%	
Missing	42	7%	
Rail yard near the home?			
Yes	46	8%	
No	509	86%	
Missing	36	6%	
Home near an open, dusty area?			
Yes	225	38%	
No	349	59%	
Missing	17	3%	
Home within 1/4 mile of a farm, ranch, or agricultural field?			
Yes	191	32%	
No	375	64%	
Missing	25	4%	
Trash burned near home¹			
Yes	95	16%	
No	464	79%	
Missing	32	5%	
Distance between where trash is burned and home (feet) ¹			
≤100	31	51%	1563 (5330)
>100	45	29%	
Missing	19	20%	

¹ Asked of those who said they burned trash near their home (n=95)

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Over half (56%) of the sample used an exhaust fan regularly when cooking in the kitchen; almost half used an exhaust fan in the bathroom (48%) (Table 2D). Fourteen percent used an air cleaner or air purifier in the home.

Table 2D. Home Characteristics of TASP Population: Ventilation (n=591)

Variable	n	%
Exhaust fan regularly used when cooking in kitchen		
Yes	332	56%
No	217	37%
Missing	42	7%
Exhaust fan regularly used in bathroom		
Yes	286	48%
No	273	46%
Missing	32	5%
Air cleaner/purifier used in home		
Yes	81	14%
No	463	78%
Missing	47	8%
What kind of air cleaner or purifier do you use¹		
Ozone generating/Ozonator	5	6%
Ionizing/Ionic Cleaner/Electrostatic Cleaner	14	17%
HEPA Filter Cleaner	21	26%
Missing	41	51%
How often do you change or wash the air filter(s)¹		
Once a week	2	3%
Every 1-4 months	38	47%
More than 4 months, up to 12 months	17	21%
More than 12 months	6	7%
Never	3	4%
Missing	15	19%
Dehumidifier regularly used to reduce moisture in home?		
Yes	35	6%
No	517	87%
Missing	39	7%

¹ Asked of those who used an air cleaner or purifier in the home (n=81)

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Almost 70% of the sample used bleach or bleach products to clean their home (Table 2E), and half of the sample did not use pesticides either outdoors or in the home, respectively, to eliminate pests. For those who did use pesticides, chemicals, or sprays, the average number of days they were used was 7.9 (SD: 33.6) in the home and 7.2 (SD: 29.3) outdoors.

Table 2E. Home Characteristics of TASP Population: Sprays used in or around home (n=591)

Variable	n	%	Mean (SD)
Cleaning products used in home ¹			
Bleach/Bleach Products	409	69%	
Disinfectant sprays, wipes or solutions	451	76%	
Air Fresheners	272	46%	
Green or non-toxic products	161	27%	
Other	33	6%	
Days pesticides, chemicals or sprays applied in home to kill bugs, mice, or other pests (past 12 months)			
No Days	324	55%	7.9 (33.6)
1 - 10 Days	68	12%	
11 - 20 Days	21	4%	
21 - 50 Days	21	4%	
More than 50 Days	15	3%	
Missing	142	24%	
Days pesticides, chemicals or sprays applied in yard or garden to kill bugs, mice, or other pests (past 12 months)			
No Days	295	50%	7.2 (29.3)
1 - 10 Days	55	9%	
11 - 20 Days	13	2%	
21 - 50 Days	20	3%	
More than 50 Days	16	3%	
Does not have a yard/garden	54	9%	
Missing	138	24%	

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Half of the sample had at least one pet living indoors in the past 6 months (Table 2F). In the past 30 days, 11% (n=66) had seen a cockroach in their home and 14% (n=85) had seen a mouse or rat in the home.

Table 2F. Home Characteristics of TASP Population: Animals in the Home (n=591)

Variable	n	%
Had any pets living in home in past 6 months?¹		
Dogs	218	37%
Cats	136	23%
Birds or Chickens	23	4%
Pet mice or rats	8	1%
Gerbils, hamsters or rabbits	14	2%
None	287	48%
Missing	11	2%
Seen cockroach in home (past 30 days)		
Yes	66	11%
No	492	83%
Missing	33	6%
Seen mice/rat in home (past 30 days, not including pets)		
Yes	85	14%
No	479	81%
Missing	27	5%

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

A fifth of the sample used a mattress cover to control for dust mites, and 13% used a pillow cover for the same purpose (Table 2G). Two-thirds of the sample vacuumed their carpets or rugs within the last week.

Table 2G. Home Characteristics of TASP Population: Bed and Carpet (n=591)

Variable	n	%
Use mattress cover made for controlling dust mites?		
Yes	117	20%
No	434	73%
Missing	40	7%
Use pillow cover made for controlling dust mites?		
Yes	79	13%
No	480	81%
Missing	32	5%
Temperature used to wash sheets and pillowcases		
Cold	133	23%
Warm	176	30%
Hot	223	38%
Varies	45	8%
Missing	14	3%
When was carpet/rug last vacuumed?		
1 to 6 Days Ago	368	62%
7 days to 2 weeks ago	72	12%
More than 2 weeks to 1 month ago	23	4%
More than 1 month to 2 months ago	9	2%
More than 2 months ago	24	4%
Does not have carpet/rugs	61	10%
Missing	34	6%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Over 40% of the sample reported water damage in their home, and over a quarter had seen mold in their home in the past 30 days (Table 2H). A quarter of the sample used a wood burning stove or fireplace to heat their home; the average number of days a wood stove, fireplace, or kerosene heater was used in the home in the past year was 39.3 (SD: 74.2).

Table 2H. Home Characteristics of TASP Population: Heating & Conditions (n=591)

Variable	n	%	Mean (SD)
When it's cold, how do you heat your home?¹			
Gas or electric central heating	429	72%	
Space Heaters	65	11%	
Wood burning stove or fireplace	154	26%	
No source of heat	15	3%	
Other	21	4%	
How many days used a wood stove, fireplace, or kerosene heater in the home (past 12 months)?			
None	243	41%	39.3 (74.2)
1 -10	25	4%	
11 - 50	28	5%	
51 - 100	31	5%	
More than 100	62	11%	
No wood stove, fireplace or kerosene heater	130	22%	
Missing	72	12%	
Gas used for cooking			
Yes	424	72%	
No	150	25%	
Missing	17	3%	
Ever been water or dampness in home from broken pipes, leaks, heavy rains, or floods?			
Yes	246	41%	
No	300	51%	
Missing	45	8%	
Mold in home greater than the size of a dollar bill in the past 30 days?			
Yes	152	26%	
No	387	65%	
Missing	52	9%	
Anyone seen or smelled mold or a musty odor in the home in the past 30 days?			
Yes	158	27%	
No	394	66%	
Missing	39	7%	

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

LEVEL OF CONCERN FOR POTENTIAL ALLERGENS IN THE HOME

Respondents were asked to rank their level of concern on eight potential allergens in the home (Table 3A). Almost half of the sample (48%) reported that they were “very concerned” about pests (rodents or cockroaches) and mold or moisture in the home (47%).

Table 3A. Level of Concern for Potential Allergens in the Home of the TASP Population (n=610)

	n	%
Mold or Moisture		
Not at all concerned	107	18%
Not too concerned	71	12%
Somewhat concerned	123	20%
Very Concerned	286	47%
Missing	23	4%
Outdoor Air Pollution		
Not at all concerned	80	13%
Not too concerned	88	14%
Somewhat concerned	169	28%
Very Concerned	247	41%
Missing	26	4%
Old Carpeting		
Not at all concerned	131	22%
Not too concerned	96	16%
Somewhat concerned	129	21%
Very Concerned	230	38%
Missing	24	4%
Fumes from New Furniture, Flooring or Carpeting		
Not at all concerned	156	26%
Not too concerned	148	24%
Somewhat concerned	114	19%
Very Concerned	165	27%
Missing	27	4%
Pests (such as rodents or cockroaches)		
Not at all concerned	140	23%
Not too concerned	73	12%
Somewhat concerned	81	13%
Very Concerned	292	48%
Missing	24	4%
Cleaning Chemicals		
Not at all concerned	115	19%
Not too concerned	116	19%
Somewhat concerned	145	24%
Very Concerned	209	34%
Missing	25	4%

Table 3A Continued. Level of Concern for Potential Allergens in the Home of the TASP Population (n=610)

Variable	n	%
Commercial Tobacco smoked in the home		
Not at all concerned	191	31%
Not too concerned	79	13%
Somewhat concerned	57	9%
Very Concerned	250	41%
Missing	33	5%
Second-hand smoke drifting in to the home		
Not at all concerned	175	29%
Not too concerned	86	14%
Somewhat concerned	62	10%
Very Concerned	257	42%
Missing	30	5%

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, or who left the question blank.

Participants were also asked if they thought the issues mentioned for concern would be issues of concern for other people in their neighborhood (Table 3B). Of those who responded yes (n=243), Mold or Moisture and Pests were the two highest responses 74% and 68% agreed that these issues were of concern for others in their neighborhood, respectively.

Table 3B. Do you think any of the following issues are health concerns for others in your neighborhood (n=243)?

Variable	n	%
Mold or Moisture	179	74%
Outdoor Air Pollution	162	67%
Old Carpeting	135	56%
Fumes from New Furniture, Flooring or Carpeting	92	38%
Pests (such as rodents or cockroaches)	165	68%
Cleaning Chemicals	124	51%
Commercial Tobacco smoked in the home	119	24%
Second-hand smoke drifting in to the home	124	51%

Missing: All participants who responded don't know, I prefer not to answer, or who left the question blank.

Asked of those who did not answered "yes" to the question "of the issues we just mentioned, do you think any of these are health concerns for others in your neighborhood?", n=243.

Note: Percentages and frequencies are not mutually exclusive.

ASTHMA STATUS

Twenty-one percent (n=131) of the sample had been diagnosed by a doctor or other health professional with asthma (Table 4). Of those diagnosed with asthma, the sample was 76% female with a mean age of 44.6 years (SD: 15.5). The crude prevalence of asthma was 14.3% for males and 25.3% for females.

Table 4. Characteristics of Tribal Asthma Survey Project (TASP) population by Asthma Status (n=582)

Variable	Ever Diagnosed with Asthma					
	Yes (n=131)			No (n=451)		
	n	%	Mean (SD)	n	%	Mean (SD)
Sex						
Male	28	22%		159	36%	
Age (years)						
18-29	25	20%	44.6 (15.5)	121	28%	41.5 (15.5)
30-39	27	22%		84	20%	
40-49	21	17%		92	21%	
50-59	22	18%		70	16%	
60-69	26	21%		47	11%	
70+	4	3%		16	4%	
Race/Ethnicity other than American Indian/Alaska Native (AIAN)¹						
White	31	24%		83	18%	
Black or African American	6	5%		14	3%	
Latino or Hispanic	26	20%		105	23%	
Asian	2	2%		3	1%	
Native Hawaiian	3	2%		16	4%	
Pacific Islander	4	3%		9	2%	
Other	8	6%		30	7%	
No Other Race - AIAN Only	47	36%		175	39%	
Body Mass Index (BMI)²						
Normal Weight (<25)	20	20%	32.2 (8.1)	52	15%	32.0 (7.2)
Overweight (25.0-29.9)	21	21%		94	28%	
Obese (30.0-39.9)	42	42%		146	43%	
Morbidly Obese (≥40.0)	17	17%		47	14%	
State of Residence						
California	122	95%		426	95%	
Education						
High School Graduate or less	43	34%		190	43%	
Currently Employed						
Yes	70	54%		223	51%	
Household Income						
≤\$20,000	40	35%		152	42%	
\$20,001 - \$40,000	40	35%		114	31%	
>\$40,000	36	31%		99	27%	

¹ Not mutually exclusive.

² BMI was computed by converting all respondent reported heights (in feet and inches) to total inches (inches + (feet*12)). The reported weight (in pounds) was multiplied by 703 and then divided by the total inches squared. One person was classified as being "underweight" and had not been diagnosed with asthma.

SD = Standard Deviation

ASTHMA CO-MORBIDITIES

Of those who had been diagnosed with asthma (n=131, see Table 4), 76% still had asthma (Table 5). The mean age of diagnosis was 27.1 years (SD: 17.9). Almost half (49%) reported that their asthma had been made worse by workplace conditions. In the past 30 days, the average number of days that respondents reported they had symptoms of asthma (which was defined as coughing, wheezing, shortness of breath, chest tightness, or phlegm production when you do not have a cold or respiratory infection) was 9.1 (SD: 10.2).

Table 5. Asthma morbidity in TASP population ever diagnosed with asthma (n=131)

Variable		n	%	Mean (SD)
Age Diagnosed with Asthma (years)				
	Infant - 12	32	24%	27.1 (17.9)
	13-18	19	15%	
	19-30	23	18%	
	31-50	31	24%	
	51+	14	11%	
	Missing	12	9%	
Still have asthma				
	Yes	99	76%	
	No	21	16%	
	Missing	11	8%	
Asthma made worse by chemicals, smoke, fumes, or dust in the workplace				
	Yes	64	49%	
	No	42	32%	
	Missing	25	19%	
How many times seen doctor for routine asthma checkup in the past 12 months				
	None	27	21%	6.2 (14.5)
	1 time	16	12%	
	2 times	13	10%	
	3 - 10 times	31	24%	
	More than 10 times	11	8%	
	Missing	33	25%	
How long since last asthma medication				
	Never	4	3%	
	Less than 1 day ago	27	21%	
	1-6 days ago	27	21%	
	1 week to less than 3 months ago	14	11%	
	3 months to less than 1 year ago	20	15%	
	1 year to less than 3 years ago	13	10%	
	3 years to less than 5 years ago	6	5%	
	More than 5 years	16	12%	
	Missing	4	3%	

Table 5 Continued. Asthma morbidity in TASP population ever diagnosed with asthma (n=131)

Variable	n	%	Mean (SD)
How long since last symptoms of asthma?			
Never	7	5%	9.1 (10.2)
Less than 1 day ago	21	16%	
1-6 days ago	38	29%	
1 week to less than 3 months ago	19	15%	
3 months to less than 1 year ago	24	18%	
1 year to less than 3 years ago	5	4%	
3 years to less than 5 years ago	2	2%	
More than 5 years	10	8%	
Missing	5	4%	
How many days with symptoms of asthma (past 30 days) ¹			
None	4	5%	9.1 (10.2)
1 Day	8	10%	
2-5 Days	25	31%	
6-10 Days	6	7%	
More than 10 Days	22	27%	
Missing	17	21%	
How many days with symptoms of asthma made it difficult to sleep (past 30 days) ¹			
None	23	37%	5.4 (8.5)
1 Day	6	10%	
2-5 Days	10	16%	
6-10 Days	6	10%	
More than 10 Days	10	16%	
Missing	7	11%	
How many asthma attacks or episodes (past 3 months) ²			
None	22	28%	5.6 (14.9)
1 Day	13	17%	
2-5 Days	21	27%	
6-10 Days	6	8%	
More than 10 Days	6	8%	
Missing	10	13%	

Table 5 Continued. Asthma morbidity in TASP population ever diagnosed with asthma (n=131)

Variable	n	%	Mean (SD)
How many times visited emergency room because of asthma (past 12 months) ³			
None	74	67%	1.4 (5.6)
1 Day	5	5%	
2-5 Days	15	15%	
6-10 Days	1	<1%	
More than 10 Days	2	2%	
Missing	5	9%	
How many times overnight stay in hospital because of asthma (past 12 months) ³			
None	92	90%	0.05 (0.27)
1 Day	3	3%	
2 Days	1	<1%	
Missing	6	6%	
How many days work/school missed because of asthma (past 12 months) ³			
None	77	71%	1.6 (5.0)
1-5 Days	10	10%	
6-30 Days	7	7%	
Missing	8	13%	
Did asthma limit usual activities (past 12 months) ³			
Not at all	22	22%	
A little	50	49%	
A Moderate Amount	13	13%	
A Lot	10	10%	
Missing	7	7%	
What do you usually do when you have symptoms of asthma? ⁴			
Take prescribed medicine (i.e., inhaler)	98	75%	
Take non-prescription medicine	16	12%	
Go to a doctor, clinic, or hospital	31	24%	
Go to a native healer/medicine man	3	2%	
Use traditional medicines	9	7%	
Wait until it passes	29	22%	
Missing	5	4%	

¹ Asked of respondents who reported they had symptoms of asthma in the past 30 days (n=62).

² Asked of respondents who reported they had symptoms of asthma in the past 3 months (n=78).

³ Asked of respondents who reported they had symptoms of asthma in the past 12months (n=102).

⁴ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, or who left the question blank.

SD = Standard Deviation

ASTHMA STATUS AND HOUSING CONDITIONS

Table 6A. Home Characteristics in TASP Population by Asthma Status (n=582)

Variable	Ever Diagnosed with Asthma			
	Yes (n=131)		No (n=451)	
	n	%	n	%
What best describes the building you live in?				
Mobile home/trailer	13	10%	60	15%
One-family house	85	66%	234	57%
Other	27	24%	108	29%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

"Other" includes those who indicated they lived in a duplex, townhouse, or apartment complex.

Table 6B. Home Characteristics in TASP Population by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma					
	Yes (n=131)			No (n=437)		
	n	%	Mean (SD)	n	%	Mean (SD)
Year home built						
1949 or earlier	12	11%		31	9%	
1950 to 1977	36	32%		120	34%	
1978 to present	65	58%		200	57%	
How long have you lived in this home? (years)						
≤ 1	19	16%		73	18%	
1 to less than 5	32	26%		132	33%	
5 to less than 10	30	25%	9.3 (10.8)	80	20%	8.4 (10.6)
10 to less than 25 Years	29	24%		83	20%	
≥ 25 Years	12	10%		38	9%	
How many other people live in the home?						
None	3	2%		16	4%	
1	21	17%		64	16%	
2	23	18%		74	18%	
3	25	20%		75	18%	
4	20	16%	3.4 (2.4)	57	14%	3.7 (3.2)
5	20	16%		43	11%	
6	6	5%		37	9%	
7	4	3%		17	4%	
8+	3	2%		26	6%	
Home on a reservation or Rancheria						
Yes	34	27%		126	30%	
No	91	73%		297	70%	
Own or rent home						
Own	55	43%		165	39%	
Rent	65	50%		227	54%	
Rent-to-Own	0	0%		6	1%	
Other	9	7%		25	6%	
Home owned by a public housing authority¹						
Yes	13	18%		37	16%	
No	58	82%		198	84%	

¹ Asked of those who did not own their home, n=332

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 6C. Home Characteristics in the TASP Population: Potential Air Contaminants by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma					
	Yes (n=131)			No (n=437)		
	n	%	Mean (SD)	n	%	Mean (SD)
Distance between location of heavy traffic and home						
Right in front, behind, or beside the home	32	26%		113	28%	410
Less than 100 feet	21	17%		51	12%	
100-300 feet	27	22%		80	20%	
More than 300 feet	43	35%		166	40%	
Rail yard near the home?						
Yes	12	10%		33	8%	
No	109	90%		381	92%	
Home near an open, dusty area?						
Yes	56	46%		161	37%	
No	66	54%		271	63%	
Home within 1/4 mile of a farm, ranch, or agricultural field?						
Yes	45	36%		140	33%	
No	81	64%		283	66%	
Trash burned near home						
Yes	19	15%		73	17%	
No	106	85%		349	83%	
Distance between where trash is burned and home (feet)¹						
≤100	6	46%	3309	24	39%	1221
>100	7	54%	(10213)	38	61%	(3688)

¹ Asked of those who said they burned trash near their home (n=92)

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 6D. Home Characteristics in the TASP Population: Ventilation by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma			
	Yes (n=131)		No (n=437)	
	n	%	n	%
Exhaust fan regularly used when cooking in kitchen				
Yes	85	69%	235	58%
No	39	31%	172	42%
Exhaust fan regularly used in bathroom				
Yes	68	53%	210	51%
No	60	47%	202	49%
Air cleaner/purifier used in home				
Yes	20	16%	54	13%
No	104	84%	351	87%
What kind of air cleaner or purifier do you use¹				
Ozone generating/Ozonator	1	13%	3	10%
Ionizing/Ionic Cleaner/Electrostatic Cleaner	1	13%	12	41%
HEPA Filter Cleaner	6	75%	14	48%
How often do you change or wash the air filter(s)¹				
Once a week	0	0%	2	5%
Every 1-4 months	10	53%	26	62%
More than 4 months, up to 12 months	7	37%	8	19%
More than 12 months	1	5%	5	12%
Never	1	5%	1	2%
Dehumidifier regularly used to reduce moisture in home?				
Yes	10	8%	19	5%
No	114	92%	392	95%

¹ Asked of those who used an air cleaner or purifier in the home (n=74)

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 6E. Home Characteristics in the TASP Population : Sprays used in or around home by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma					
	Yes (n=131)			No (n=437)		
	n	%	Mean (SD)	n	%	Mean (SD)
Cleaning products used in home¹						
Bleach/Bleach Products	92	70%		303	69%	
Disinfectant sprays, wipes or solutions	99	76%		340	78%	
Air Fresheners	62	47%		205	47%	
Green or non-toxic products	38	29%		118	27%	
Other	8	6%		24	5%	
Days pesticides, chemicals or sprays applied in home to kill bugs, mice, or other pests (past 12 months)						
No Days	68	64%		245	75%	
1 - 10 Days	16	15%		48	15%	
11 - 20 Days	10	9%	15.7 (51.4)	11	3%	6.5 (30.5)
21 - 50 Days	7	7%		14	4%	
More than 50 Days	6	6%		9	3%	
Days pesticides, chemicals or sprays applied in yard or garden to kill bugs, mice, or other pests (past 12 months)						
No Days	59	45%		226	52%	
1 - 10 Days	13	10%		39	9%	
11 - 20 Days	7	5%	12.8 (43.3)	6	1%	4.7 (17.6)
21 - 50 Days	7	5%		12	3%	
More than 50 Days	7	5%		9	2%	
Does not have a garden or yard	15	11%		39	9%	

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 6F. Home Characteristics in the TASP Population: Animals in the Home by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma			
	Yes (n=131)		No (n=437)	
	n	%	n	%
Had any pets living in home in past 6 months?¹				
Dogs	56	43%	155	35%
Cats	37	28%	92	21%
Birds or Chickens	7	5%	15	3%
Pet mice or rats	2	2%	5	1%
Gerbils, hamsters or rabbits	6	5%	6	1%
None	48	37%	232	53%
Seen cockroach in home (past 30 days)				
Yes	14	11%	46	11%
No	111	89%	369	89%
Seen mice/rat in home (past 30 days, not including pets)				
Yes	18	14%	64	15%
No	108	86%	354	85%

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 6G. Home Characteristics in the TASP Population: Bed and Carpet by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma			
	Yes (n=131)		No (n=437)	
	n	%	n	%
Use mattress cover made for controlling dust mites?				
Yes	34	28%	77	19%
No	89	72%	331	81%
Use pillow cover made for controlling dust mites?				
Yes	20	16%	51	12%
No	106	84%	361	88%
Temperature used to wash sheets and pillowcases				
Cold	26	20%	103	24%
Warm	37	30%	133	31%
Hot	53	41%	162	38%
Varies	13	10%	31	7%
When was carpet/rug last vacuumed?				
1 to 6 Days Ago	95	74%	267	65%
7 days to 2 weeks ago	12	9%	54	13%
More than 2 weeks to 1 month ago	7	5%	16	4%
More than 1 month to 2 months ago	1	1%	5	1%
More than 2 months ago	2	2%	22	5%
Does not have carpet/rugs	12	9%	45	11%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 6H. Home Characteristics in the TASP Population: Heating & Conditions by Asthma Status (n=568)

Variable	Ever Diagnosed with Asthma					
	Yes (n=131)			No (n=437)		
	n	%	Mean (SD)	n	%	Mean (SD)
When it's cold, how do you heat your home?¹						
Gas or electric central heating	96	73%		316	72%	
Space Heaters	17	13%		46	11%	
Wood burning stove or fireplace	31	24%		120	27%	
No source of heat	6	5%		8	2%	
Other	6	5%		14	3%	
How many days used a wood stove, fireplace, or kerosene heater in the home (past 12 months)?						
None	56	48%		181	47%	
1 -10 Days	7	6%		16	4%	
11 - 50 Days	9	8%		19	5%	
51 - 100 Days	5	4%	25.0 (55.2)	25	6%	44.4 (79.1)
More than 100 Days	9	8%		54	14%	
No wood stove, fireplace or kerosene heater	31	26%		92	24%	
Gas used for cooking						
Yes	96	76%		308	72%	
No	31	24%		118	28%	
Ever been water or dampness in home from broken pipes, leaks, heavy rains, or floods?						
Yes	65	53%		176	43%	
No	57	47%		232	57%	
Mold in home greater than the size of a dollar bill in the past 30 days?						
Yes	48	39%		97	24%	
No	74	61%		303	76%	
Anyone seen or smelled mold or a musty odor in the home in the past 30 days?						
Yes	49	40%		102	25%	
No	74	61%		309	75%	

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

LEVEL OF CONCERN FOR HOME AIR CONTAMINANTS BY ASTHMA STATUS

Table 7. Level of Concern for Home Air Contaminants in the TASP Population by Asthma Status (n=582)

Variable		Ever Diagnosed with Asthma			
		Yes (n=131)		No (n=437)	
		n	%	n	%
Mold or Moisture					
	Not at all concerned	18	14%	84	19%
	Not too concerned	14	11%	55	13%
	Somewhat concerned	32	25%	87	20%
	Very concerned	65	50%	209	48%
Outdoor Air Pollution					
	Not at all concerned	17	13%	60	14%
	Not too concerned	12	9%	75	17%
	Somewhat concerned	34	26%	128	30%
	Very concerned	66	51%	169	39%
Old Carpeting					
	Not at all concerned	18	14%	107	25%
	Not too concerned	20	15%	76	18%
	Somewhat concerned	32	25%	93	21%
	Very concerned	60	46%	158	36%
Fumes from New Furniture, Flooring or Carpeting					
	Not at all concerned	33	26%	116	27%
	Not too concerned	34	26%	111	26%
	Somewhat concerned	18	14%	89	21%
	Very concerned	44	34%	115	27%
Pests (such as rodents or cockroaches)					
	Not at all concerned	33	25%	102	24%
	Not too concerned	17	13%	54	12%
	Somewhat concerned	14	11%	63	15%
	Very concerned	66	51%	214	49%
Cleaning Chemicals					
	Not at all concerned	23	18%	87	20%
	Not too concerned	19	15%	96	22%
	Somewhat concerned	30	23%	108	25%
	Very concerned	57	44%	142	33%
Commercial Tobacco smoked in the home					
	Not at all concerned	39	31%	144	34%
	Not too concerned	16	13%	61	14%
	Somewhat concerned	11	9%	42	10%
	Very concerned	60	48%	181	42%
Second-hand smoke drifting in to the home					
	Not at all concerned	32	25%	136	32%
	Not too concerned	16	13%	68	16%
	Somewhat concerned	16	13%	42	10%
	Very concerned	63	50%	184	43%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, or did not answer Yes or No to the question "have you ever been told by a doctor or other health professional that you have asthma?".

Table 8. Children under the age of 18 living at home (n=652).

Variable	n	%	Mean (SD)
Sex			
Male	283	43%	
Female	301	46%	
Missing	68	10%	
Age			
1 year old or younger	34	5%	
2 - 5 years old	76	12%	
6-10 years old	95	15%	
11-15 years old	102	16%	
16 - 18 years old	48	7%	
Missing	297	46%	
Race¹			
American Indian or Alaska Native	89	14%	
White	65	10%	
Black	32	5%	
Asian	3	0%	
Native Hawaiian/Pacific Islander	14	2%	
Hispanic	127	19%	
Some other race	8	1%	
Has child been diagnosed with asthma?			
Yes	138	21%	
No	469	72%	
Missing	45	7%	
Does child still have asthma?²			
Yes	109	79%	
No	22	16%	
Missing	7	5%	
Had symptoms, taken medication, or seen a doctor for asthma in the past 12 months?²			
Yes	98	71%	
No	37	27%	
Missing	3	2%	

¹ Not mutually exclusive.

² Includes only those who answered "yes" to "child has been diagnosed by a doctor or other health professional with asthma", n=138.

SD = Standard Deviation

PUBLIC HOUSING

Table 9A. Home Characteristics in the TASP Population by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority			
	Yes (n=63)		No (n=326)	
	n	%	n	%
What best describes the building you live in?				
Mobile home/trailer	5	9%	29	10%
One-family house	35	62%	160	53%
Duplex or Townhouse	2	4%	42	14%
Apartment complex or Condo	14	25%	69	23%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 9B. Home Characteristics of the TASP Population by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority					
	Yes (n=63)			No (n=326)		
	n	%	Mean (SD)	n	%	Mean (SD)
Year home built						
1949 or earlier	3	6%		30	12%	
1950 to 1977	12	24%		97	38%	
1978 to present	34	69%		130	51%	
How long have you lived in this home? (years)						
≤ 1	11	21%		73	24%	
1 to less than 5	15	29%		117	38%	
5 to less than 10	12	23%	7.2 (8.6)	48	16%	6.5 (9.8)
10 to less than 25 Years	11	21%		48	16%	
≥ 25 Years	3	6%		19	6%	
How many other people live in the home?						
None	2	4%		11	4%	
1	4	7%		47	15%	
2	17	31%		50	16%	
3	5	9%		63	20%	
4	6	11%	4.4 (4.5)	49	16%	3.7 (3.0)
5	7	13%		46	15%	
6	7	13%		20	6%	
7	3	5%		10	3%	
8+	4	7%		14	5%	
Home on a reservation or Rancheria						
Yes	35	59%		51	16%	
No	24	41%		263	84%	

¹ Asked of those who did not own their home, n=306

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 9C. Home Characteristics of the TASP Population: Potential Air Contaminants by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority					
	Yes (n=63)			No (n=326)		
	n	%	Mean (SD)	n	%	Mean (SD)
Distance between location of heavy traffic and home						
Right in front, behind, or beside the home	20	38%		90	29%	
Less than 100 feet	5	9%		55	18%	
100-300 feet	16	30%		58	19%	
More than 300 feet	12	23%		100	32%	
Rail yard near the home?						
Yes	5	8%		28	9%	
No	55	92%		285	91%	
Home near an open, dusty area?						
Yes	28	47%		107	34%	
No	31	53%		210	66%	
Home within 1/4 mile of a farm, ranch, or agricultural field?						
Yes	26	45%		91	29%	
No	32	55%		223	71%	
Trash burned near home						
Yes	15	25%		40	13%	
No	44	75%		271	87%	
Distance between where trash is burned and home (feet)¹						
≤100	7	64%	557	13	42%	1624
>100	4	36%	(1585)	18	58%	(6685)

¹ Asked of those who said they burned trash near their home (n=55)

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 9D. Home Characteristics: Ventilation by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority				
	Yes (n=63)			No (n=326)	
	n		%	n	%
Exhaust fan regularly used when cooking in kitchen					
Yes	42		74%	171	56%
No	15		26%	132	44%
Exhaust fan regularly used in bathroom					
Yes	34		60%	146	48%
No	23		40%	160	52%
Air cleaner/purifier used in home					
Yes	5		10%	46	15%
No	46		90%	254	85%
Dehumidifier regularly used to reduce moisture in home?					
Yes	4		17%	19	6%
No	19		83%	285	94%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 9E. Home Characteristics of the TASP Population: Sprays used in or around home by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority					
	Yes (n=63)			No (n=326)		
	n	%	Mean (SD)	n	%	Mean (SD)
Cleaning products used in home¹						
Bleach/Bleach Products	40	63%		222	68%	
Disinfectant sprays, wipes or solutions	29	45%		249	76%	
Air Fresheners	27	42%		151	46%	
Green or non-toxic products	7	11%		95	29%	
Other	6	9%		19	6%	
Days pesticides, chemicals or sprays applied in home to kill bugs, mice, or other pests (past 12 months)						
No Days	31	78%		175	72%	
1 - 10 Days	5	13%		41	17%	
11 - 20 Days	1	3%	5.3 (17.1)	8	3%	10.1 (42.6)
21 - 50 Days	1	3%		10	4%	
More than 50 Days	2	5%		10	4%	
Days pesticides, chemicals or sprays applied in yard or garden to kill bugs, mice, or other pests (past 12 months)						
No Days	25	78%		158	65%	
1 - 10 Days	2	6%		30	12%	
11 - 20 Days	1	3%	2.7 (14.5)	4	2%	8.2 (37.2)
21 - 50 Days	0	0%		7	3%	
More than 50 Days	1	3%		9	4%	
Does not have a garden or yard	3	9%		35	14%	

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 9F. Home Characteristics of the TASP Population: Animals in the Home by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority			
	Yes (n=63)		No (n=326)	
	n	%	n	%
Had any pets living in home in past 6 months?¹				
Dogs	17	27%	113	35%
Cats	11	17%	64	20%
Birds or Chickens	3	5%	12	4%
Pet mice or rats	0	0%	6	2%
Gerbils, hamsters or rabbits	0	0%	8	2%
None	40	63%	168	52%
Seen cockroach in home (past 30 days)				
Yes	8	14%	42	14%
No	50	86%	265	86%
Seen mice/rat in home (past 30 days, not including pets)				
Yes	8	13%	44	14%
No	52	87%	268	86%

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 9G. Home Characteristics of the TASP Population: Bed and Carpet by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority				
	Yes (n=63)			No (n=326)	
	n	%		n	%
Use mattress cover made for controlling dust mites?					
Yes	7	12%		71	23%
No	50	88%		238	77%
Use pillow cover made for controlling dust mites?					
Yes	5	9%		45	15%
No	53	91%		265	85%
Temperature used to wash sheets and pillowcases					
Cold	11	19%		76	24%
Warm	16	27%		95	30%
Hot	24	41%		126	39%
Varies	8	14%		24	7%
When was carpet/rug last vacuumed?					
1 to 6 Days Ago	36	67%		209	67%
7 days to 2 weeks ago	3	6%		41	13%
More than 2 weeks to 1 month ago	1	2%		13	4%
More than 1 month to 2 months ago	1	2%		4	1%
More than 2 months ago	3	6%		15	5%
Does not have carpet/rugs	10	19%		31	10%

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

Table 9H. Home Characteristics of the TASP Population: Heating & Conditions by Public Housing Status (n=389)

Variable	Home owned by Public Housing Authority					
	Yes (n=63)			No (n=326)		
	n	%	Mean (SD)	n	%	Mean (SD)
When it's cold, how do you heat your home?¹						
Gas or electric central heating	48	75%		248	76%	
Space Heaters	3	5%		37	11%	
Wood burning stove or fireplace	24	38%		56	17%	
No source of heat	0	0%		9	3%	
Other	0	0%		11	3%	
How many days used a wood stove, fireplace, or kerosene heater in the home (past 12 months)?						
None	22	43%		157	54%	
1 -10 Days	3	6%		9	3%	
11 - 50 Days	5	10%	49.8 (76.9)	11	4%	29.5 (72.1)
More than 50 Days	11	22%		33	11%	
No wood stove, fireplace or kerosene heater	10	20%		79	27%	
Gas used for cooking						
Yes	51	85%		217	68%	
No	9	15%		101	32%	
Ever been water or dampness in home from broken pipes, leaks, heavy rains, or floods?						
Yes	28	49%		133	45%	
No	29	51%		164	55%	
Mold in home greater than the size of a dollar bill in the past 30 days?						
Yes	16	29%		92	30%	
No	39	71%		210	70%	
Anyone seen or smelled mold or a musty odor in the home in the past 30 days?						
Yes	13	23%		102	33%	
No	44	77%		203	67%	

¹ Not mutually exclusive.

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle'.

SD = Standard Deviation

Table 10A. Home Characteristics of the TASP Population by Home Ownership Status (n=530)

Variable	Do you own or rent your home?					
	Own (n=226)			Rent (n=304)		
	n	%	Mean (SD)	n	%	Mean (SD)
Year home built						
1949 or earlier	18	8%		22	10%	
1950 to 1977	72	33%		76	35%	
1978 to present	126	58%		121	55%	
How many other people live in the home?						
None	9	4%		10	3%	
1	47	22%		38	13%	
2	41	19%		58	20%	
3	37	17%		55	19%	
4	28	13%	3.3 (2.4)	40	14%	3.6 (2.6)
5	17	8%		41	14%	
6	18	8%		20	7%	
7	10	5%		8	3%	
8+	11	5%		16	6%	
Ever been water or dampness in home from broken pipes, leaks, heavy rains, or floods?						
Yes	106	49%		114	41%	
No	111	51%		163	59%	
Mold in home greater than the size of a dollar bill in the past 30 days?						
Yes	60	29%		78	28%	
No	146	61%		202	62%	
Anyone seen or smelled mold or a musty odor in the home in the past 30 days?						
Yes	58	27%		88	31%	
No	158	73%		197	69%	

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle', and who did not answer the question "do you rent or own your home".

SD = Standard Deviation

Table 10B. Home Characteristics of the TASP Population by Home Ownership Status (n=530)

Variable	Do you own or rent your home?					
	Own (n=226)			Rent (n=304)		
	n	%	Mean (SD)	n	%	Mean (SD)
Distance between location of heavy traffic and home						
Right in front, behind, or beside the home	49	23%		83	30%	
Less than 100 feet	17	8%		49	18%	
100-300 feet	38	18%		60	22%	
More than 300 feet	111	52%		86	31%	
Rail yard near the home?						
Yes	11	5%		33	11%	
No	197	95%		258	89%	
Home near an open, dusty area?						
Yes	107	47%		87	30%	
No	119	53%		202	70%	
Home within 1/4 mile of a farm, ranch, or agricultural field?						
Yes	90	41%		81	28%	
No	130	59%		206	72%	
Trash burned near home						
Yes	55	25%		23	8%	
No	161	75%		266	92%	
Distance between where trash is burned and home (feet)¹						
≤100	17	35%	1878	8	53%	426
>100	31	65%	(6256)	7	47%	(1358)

¹ Asked of those who said they burned trash near their home (n=78)

Missing: All participants who responded don't know, I prefer not to answer, who left the question blank, marked 'homeless' or 'lived in vehicle', and who did not answer the question "do you rent or own your home".

SD = Standard Deviation

MULTIVARIABLE ANALYSIS

After adjusting for age and smoking status, the prevalence of asthma in women was 1.67 (CI: 1.16, 2.40) times as high in those with pets with fur or feathers in the home in the past 6 months compared to those without pets with fur or feathers (Table 11B). The prevalences of asthma in women were also higher in those who have seen mold greater than the size of a dollar bill (PR: 1.84, CI: 1.28, 2.65) and have smelled a moldy or musty odor (PR: 1.54, CI: 1.07, 2.21), in their home in the past 30 days compared to those who have not seen or smelled mold in their home. Among men, there were no associations between potential allergens in housing and asthma status (Table 11A). No statistically significant associations between socioeconomic status and asthma were observed in both men and women.

Table 11A. Adjusted prevalence ratios and 95% confidence intervals of asthma status by housing issues and socioeconomic status in males. The Tribal Asthma Survey Project (TASP) (n=186).

Housing issue	PR	95% CI	CLR
Type of home			
Other	0.59	(0.23, 1.47)	6.39
Trailer	0.52	(0.13, 2.02)	15.5
One-family	1	.	.
Pets living inside your home, past 6 months			
Yes	1.75	(0.84, 3.63)	4.32
No	1	.	.
Home near dusty field			
Yes	1.51	(0.72, 3.15)	4.38
No	1	.	.
Use exhaust fan when cooking			
Yes	0.60	(0.27, 1.29)	4.78
No	1	.	.
Use a mattress cover			
No	0.49	(0.23, 1.08)	4.70
Yes	1	.	.
Ever dampness in home			
Yes	1.69	(0.78, 3.68)	4.72
No	1	.	.
Mold greater than dollar bill, past 30 days			
Yes	1.45	(0.70, 3.03)	4.33
No	1	.	.
Seen or smelled mold, past 30 days			
Yes	2.00	(0.93, 4.26)	4.58
No	1	.	.
Seen mice or rats, past 30 days			
Yes	0.76	(0.28, 2.08)	7.43
No	1	.	.
Seen cockroach, past 30 days			
Yes	0.79	(0.26, 2.41)	9.27
No	1	.	.
Socioeconomic Status			
Household income, past year			
<\$30,000	0.91	(0.42, 1.97)	4.69
\$30,000 and greater	1	.	.
Highest education completed			
High school or less	0.54	(0.25, 1.17)	4.68
Greater than high school	1	.	.
Currently employed			
Yes	1.30	(0.62, 2.71)	4.37
No	1	.	.

*Asthma status is defined as self-reported ever diagnosis by a physician. The referent group is no-asthma status.

†PR = prevalence ratio

‡CI= confidence interval

§CLR = confidence limit ratio

"Other" type of home includes those who indicated they lived in a duplex, condo, townhouse, or apartment complex.

** Models adjusted for age and smoking status.

Table 11B. Adjusted prevalence ratios and 95% confidence intervals of asthma status by housing issues and socioeconomic status in females. The Tribal Asthma Survey Project (TASP) (n=186).

Housing issue	PR	95% CI	CLR
Type of home			
Other	0.94	(0.62, 1.42)	2.29
Trailer	0.66	(0.37, 1.17)	3.16
One-family	1	.	.
Pets living inside your home, past 6 months			
Yes	1.67	(1.16, 2.40)	2.07
No	1	.	.
Home near dusty field			
Yes	1.22	(0.85, 1.75)	2.06
No	1	.	.
Use exhaust fan when cooking			
Yes	0.80	(0.55, 1.16)	2.11
No	1	.	.
Use a mattress cover			
No	0.69	(0.46, 1.04)	2.26
Yes	1	.	.
Ever dampness in home			
Yes	1.19	(0.83, 1.69)	2.04
No	1	.	.
Mold greater than dollar bill, past 30 days			
Yes	1.84	(1.28, 2.65)	2.07
No	1	.	.
Seen or smelled mold, past 30 days			
Yes	1.54	(1.07, 2.21)	2.07
No	1	.	.
Seen mice or rats, past 30 days			
Yes	1.08	(0.65, 1.80)	2.77
No	1	.	.
Seen cockroach, past 30 days			
Yes	1.07	(0.59, 1.94)	3.29
No	1	.	.
Socioeconomic Status			
Household income, past year			
<\$30,000	0.96	(0.67, 1.39)	2.07
\$30,000 and greater	1	.	.
Highest education completed			
High school or less	0.87	(0.60, 1.26)	2.10
Greater than high school	1	.	.
Currently employed			
Yes	0.96	(0.67, 1.36)	2.03
No	1	.	.

*Asthma status is defined as self-reported ever diagnosis by a physician. The referent group is no-asthma status.

†PR = prevalence ratio

‡CI= confidence interval

§CLR = confidence limit ratio

"Other" type of home includes those who indicated they lived in a duplex, condo, townhouse, or apartment complex.

** Models adjusted for age and smoking status.

DISCUSSION

Using the methods listed above, 610 surveys were collected at multiple AIAN cultural events in California. Due to the limitations in the methods used to administer the surveys, this was an acceptable number of surveys to collect. Further collection of additional surveys at additional cultural events could have led to a risk of duplicate surveys, since there are potentially several people traveling to multiple events (e.g. vendors travel to Pow-Wows and Big Times at locations throughout California and there is overlap with Board, Tribal, and Annual consultation meetings with elected tribal officials). Given more time and funding to pursue in-person interviews would have allowed us to collect additional surveys while minimizing duplicate surveys. CTEC collected 610 surveys, exceeding the original goal of 450.

Limitations

The study population was a sample of convenience. Non-California residents were included (n=24; 4%). However, results did not change when non-California residents were removed from analysis. Non-California residents were retained in the sample because there are a small number of reservations in California that extend into Arizona.

Many California cultural events happen between the months of May and October. Several events were missed due to the time frame in which funding was available (October – June). In addition to administering the survey, creating the survey instrument and entering, cleaning, and analyzing the data exhausted a majority of the time between October and June.

Participants were self-identified AIAN. Staff administering the survey at cultural events did not check tribal enrollment cards or Certificates of Degree of Indian Blood (CDIB) papers from the Bureau of Indian Affairs (BIA). Since approximately 50 tribes in California are not federally recognized and are seeking restoration or recognition, it was likely individuals from these tribes would not have tribal enrollment cards. Additionally, it is not common for AIAN individuals to carry CDIB papers. In California, descendants of Indians on the 1852 Census Rolls are eligible for health care benefits, regardless of their tribal federal recognition status.

Strengths

This study gathered asthma and housing condition data, which can empower tribes to determine program priorities, direct program planning, develop new policies and culturally appropriate intervention strategies.

Word-of-mouth was a key component in recruiting survey participants. Upon completion of the survey, several people informed their respective networks of the survey and incentive opportunity. A majority of participants were recruited in this manner. The \$15 gift cards proved to be a strong incentive for event attendees to participate in the TASP study – due to both word-of-mouth and visible signage.

Upon completion of the survey, several participants had anecdotal stories to tell regarding their experience with asthma, whether they, a friend or family member had suffered from the condition. Several participants related their experiences with attempting to obtain medical care for their asthma with little success. Many commented that the survey “really made them think” about asthma and potential housing allergens as precipitators of asthma morbidity. The distribution of free, culturally-specific health education materials on asthma, asthma morbidity, and home environment proved to be a great strength of the project.

Recommendations

The prevalence of asthma in California AIANs is greater than the national prevalence in both AIANs and Whites. From 2004-2008, the national prevalence of asthma was 14.2% for AIAN and 11.6% for non-Hispanic

Whites. For AIAN and non-Hispanic White males the prevalence was 10.1%; for females it was 18.2% for AIAN and 13.0 for non-Hispanic Whites, respectively ⁶. Whereas 21% (n=131) of the TASP sample had been diagnosed by a doctor or other health professional with asthma; the crude prevalence of asthma was 14.3% for males and 25.3% for females. The prevalence of asthma in children under the age of 18 living in a survey participant's home was 21%. Of children who had been diagnosed with asthma, 79% still had asthma. In the past 12 months, 71% of children diagnosed with asthma had symptoms, taken medication, or seen a doctor for their asthma.

Educational efforts on controlling mold in the home would be beneficial to this community, as women who had seen and smelled mold in their home were more likely to have asthma than women who had not seen or smelled mold. Mold is a known trigger for aggravating asthma and asthmatic conditions. Many participants expressed gratitude after completing the survey, explaining it had "opened their eyes" to potential asthma triggers in their home. Educational efforts tailored to the AIAN community in California would likely be welcome. Of the TASP population, 28% lived on a reservation or Rancheria and 51% were renters. Because tribal housing policies can differ from more common housing policies, and because the majority of the community does not own their home, there is likely little control over housing structure and repair work. Thus, culturally competent educational efforts on having an asthma-friendly home would assist the AIAN community in reducing and preventing home asthma triggers.

Cost of Asthma in California

The cost of asthma to the AIAN population in California cannot be accurately estimated with the TASP survey, but days of productivity lost in the workplace as well as potentially preventable hospitalization stays can help direct future analysis for the true cost of asthma. According to CHIS (2007), 29% of AIAN in California missed at least 1 day of school due to asthma. In the TASP population who had been told by a doctor or other health professional that they had asthma (n=131), 17% had missed at least 1 day of school or work in the past 12 months due to asthma. Almost 23% had visited the emergency room at least once in the past 12 months for asthma-related reasons. In 2003, Korenbrot and colleagues found that hospitalizations and avoidable hospitalization rates are higher for the AIAN population served by California Tribal Health Programs than the non-Indian general population; age-adjusted relative risk hospitalization ratios were higher for men (RR: 1.72, 95% confidence interval (CI): 1.40, 2.12) and 52% higher for women (RR: 1.52, CI: 1.36, 1.92), and the comparable ratios for avoidable hospitalizations were 136% higher for men (RR: 2.36, CI 1.52, 3.29) and 106% higher for women (RR: 2.06, CI: 1.32, 3.50) ²⁰. Furthermore, in the TASP population 72% of those with doctor-diagnosed asthma reported that their usual activities had been limited due to asthma in the past 12 months. The loss of productivity in the workplace as well as preventable hospitalizations due to asthma deserve further research to accurately estimate the true "cost" of asthma in the California AIAN population.

Future Research

While the TASP study had participants throughout California in several counties with high AIAN populations, and included both rural and urban AIAN, the study may not be representative of the exceptionally diverse AIAN population in California. More research is needed on asthma status, asthma conditions, and housing conditions for AIAN.

Due to time limitations and funding constraints, TASP was not able to conduct face-to-face interviews. Face-to-face interviews can help increase the number of questions answered correctly, reduce errors associated with skip-patterns, and increase the overall quality of survey responses received. Future surveys at tribal events would benefit from face-to-face, rather than self-administered surveys.

Anecdotally, many participants commented after completing the survey about barriers they faced in receiving effective asthma services, including methods for controlling their asthma symptoms. Many participants, also,

commented on tribal policies or policies in the house or apartment they faced that were beyond their control, and feared could aggravate asthma or allergies (such as cigarette smoke from other apartments and trash being burnt near windows). Conducting focus groups that can help identify perceived and/or actual barriers in controlling asthma symptoms, receiving effective medical care, and improving housing conditions and/or housing policies could help inform future interventions on asthma and housing conditions.

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APPENDIX A: SURVEY QUESTION SOURCES

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APPENDIX B: THE BORDER ASTHMA AND ALLERGIES STUDY (BASTA)

BASTA

Border Asthma & Allergies Study

Summary of Findings

November 2009

Background

Imperial County has the highest rate of childhood asthma hospital admissions in California. In 2003, children 0–14 years old were admitted to the hospital because of asthma more than three times the state average. Nearly 85% of these hospital admissions occurred among Latino children.

In May 2005, the California Department of Public Health conducted a health survey in Imperial County called the Border Asthma and Allergies study or BASTA. The purpose of the survey was to:

- determine the amount of asthma and asthma symptoms in young teenagers, and
- examine family and environmental factors that might be related to asthma.

Participants

In total, 3,224 students from 10 schools completed the survey. Students were from 7th and 8th grade classrooms, and most were 13 or 14 years old. The students attended large and small schools in cities and in rural areas.

About 76% of the students who took the survey were of Mexican heritage and described themselves as Mexican or Mexican-American. Another 11% called themselves “Other Latino,” specifically Black Latino, Mexican Indian, or other. Almost 7% said that they were White, and 6% said that they were either Black, Asian or another race. Students reported that they spoke Spanish (42%), English (34%), or both languages (23%) at home.

Asthma Results

Of all the students surveyed, about one in five (20%) had been diagnosed with asthma at some point in their life. Of these students, one in eight (12.5%) said that they had symptoms of asthma, such as wheezing, chest tightness, or repeated coughing, at some point during the past year.

When compared with children of all races in California and the United States at that time, BASTA participants had a higher percentage of asthma.

The National Survey looked at young people ages 5–14, whereas BASTA students were 12–15 years old. These numbers are not exactly comparable because we would expect to see a higher percentage of asthma in BASTA students than in younger children who were included in the National Survey. An exact national comparison group for BASTA students is not available.

2005 Study Groups Children of All Races	Percent with asthma
BASTA Survey	20.2%
California Survey ¹	19.3%
National Survey ^{2*}	13.7%

¹ California Health Interview Survey (CHIS), 2005

² National Health Interview Survey (NHIS), 2005

* Note: NHIS asthma percentage is for ages 5–14, whereas CHIS and BASTA are for ages 12–15.

Asthma among Students of Mexican Heritage

Almost 1 in 5 (18.6%) students of Mexican heritage had asthma in the BASTA survey.

2005 Study Groups Children of Mexican Heritage	Percent with asthma
BASTA Survey	18.6%
California Survey ¹	14.6%
National Survey ^{2*}	12.1%

Asthma in Students of All Racial Groups

Students of all racial groups in BASTA had higher percentages of asthma than compared with the rest of California or the United States. However, it's important to note that, except for those of Mexican heritage, these percentages are based on very small numbers of students and therefore

Race/Ethnicity of BASTA Students	Percent with asthma
White	34%
Asian, Black, Other	22.2%
Other Latino	21.7%
Mexican Heritage	18.6%

could be different if measured in a larger population. This table shows the percentages of students in the BASTA survey with asthma broken down by race or ethnicity.

Schools

Of the ten schools participating in BASTA, most had relatively large percentages of students who had ever had asthma among the 7th and 8th graders who took the survey. Some schools had percentages as high as 25% (1 in 4 students). We are providing these percentages because local community groups and schools have expressed an interest in this information. However, these numbers represent a snapshot in time of the asthma percentages among young teenagers who took this survey, and these numbers may

School	Number of students taking survey	Percent with asthma
Barbara Worth	700	25.2%
Frank Wright	220	21.2%
Heber	148	16.1%
Holtville	216	18.0%
Kennedy	462	12.4%
Meadows	106	23.9%
San Pasqual	85	13.7%
Westmorland	91	23.4%
William Moreno	279	17.4%
Wilson	917	21.8%

be different now. More importantly, for the smaller schools, these numbers may be less accurate. We have much more confidence in the results of the overall BASTA survey, which is based on responses of thousands of students from all of the schools. Nevertheless, these findings highlight the need for more school-based asthma programs in Imperial County.

Allergies

About 57% of the students reported allergy-related conditions other than asthma in the BASTA survey. These included runny nose without a cold, symptoms of "hay fever" (such as stuffy or runny nose, and itchy or watery eyes), or an itchy rash and eczema. More than

1 in 3 (34%) of the students reported that they had been diagnosed with allergies at some point in their lives by a doctor. Based on BASTA findings, children in Imperial Valley may suffer from a wide range of allergies. In addition, among children who have both allergies and asthma, their allergies can make asthma worse.

Breathing Problems in Students without Asthma

A large number of BASTA students who had never been diagnosed with asthma said that they had symptoms similar to those due to asthma in the year before the BASTA survey. Though some breathing problems, such as wheezing, are common in childhood, it is possible that a number of children in Imperial County have undiagnosed or untreated asthma. Based on the BASTA survey, the percentage of children who might have undiagnosed asthma could be as low as 2% or as high as 23%, depending on how many asthma symptoms were counted. The following table shows the types and percentages of asthma-like symptoms reported by students who did not have a doctor's diagnosis of asthma.

Symptoms of asthma in last year among students without asthma	Percent with Symptoms*
Wheeze without a cold or flu AND Wheeze that interrupts sleep	2%
Wheeze without a cold or flu	6%
Wheeze	11%
Dry cough at night without a cold or chest infection	11%
In the last 12 months, any of the following: (i) wheeze, (ii) dry cough at night without cold or flu, or (iii) repeated dry cough for more than three weeks.	23%

* percentage based on 2,650 students who had not been diagnosed with asthma by a doctor or nurse.

These findings suggest that there may be a need for more widespread screening programs to detect asthma in this age group and possibly others.

Family and Environment

Based on the BASTA findings, family and personal health played a large role in whether a student was likely to have asthma. Students were more likely to have asthma if they had:

- a history of allergies or bronchitis;
- a runny nose without a cold;
- a parent or family member with asthma.

Free-time activities also influenced who was likely to have asthma. Students were more likely to have asthma if they:

- spent three hours or more watching television on the weekends; and if
- they spent six hours or more using the computer on the weekends.

The location and condition of students' homes were related to whether a child reported having had asthma. Children were more likely to have asthma if they lived in:

- houses or apartments that had rats; or
- homes located near open and dusty areas.

Students of Mexican Heritage

Among students of Mexican heritage, those who ate more fruit had a lower risk of wheeze.

Students who only spoke Spanish at home had the lowest risk of asthma. The risk of having asthma increased in proportion to the amount of English spoken at home.

Eating fruit and speaking Spanish at home indicate that diet, as well as family or cultural influences, may play a role in asthma.

Conclusions

BASTA findings show that, overall, children in Imperial County are more likely to have asthma at some point in their lives than most other children in California.

Students in the BASTA study had:

- Higher percentages of asthma than students in other parts of California;
- Higher percentages of asthma than a national comparison group.

BASTA students of Mexican heritage had higher percentages of asthma than children of Mexican heritage in California and National Health Interview Surveys.

There are children in Imperial County with asthma-like symptoms who have never been diagnosed by a doctor as having asthma. Depending on the number of symptoms counted, the number of children who have undiagnosed (and therefore untreated) asthma could be relatively small or quite high.

Asthma in Imperial County 2009

In the four years since the BASTA survey was conducted, children in Imperial County are still three times more likely to be admitted to the hospital for asthma than in the rest of the State. In proportion to its population size, Imperial County has the highest number of asthma-related emergency room visits for children ages 5–17; the age range that includes BASTA participants. These more recent findings lead us to believe that asthma remains a major health problem for young people in Imperial County.

What is Asthma?*

Asthma is a disease that affects the lungs. It is one of the most common long-term diseases in children, but adults have asthma too. People with asthma have it all the time, but will have asthma attacks only when something like a cold or smoke irritates their lungs. Asthma cannot be cured, but it can be controlled.

Asthma Symptoms and Signs

- Repeated episodes of wheezing or whistling in the chest
- Difficulty breathing
- Chest tightness
- Repeated coughing, especially at night or in the early morning

Approximately 20 million Americans have asthma. The dramatic increase in the number of asthma cases in the last 30 years suggests that environmental factors are at the root of the problem.

* from Asthma Basic Information www.cdc.gov/asthma/faqs.htm

Dedication

The Border Asthma and Allergies Study (BASTA) wishes to dedicate this community report to the memory of Marie Dugan Delgado. Marie was a 16-year old sophomore at Southwest High School in Imperial County who passed away on May 29, 2009, as the result of an asthma attack.

APPENDIX C: SURVEY INSTRUMENT

Date: _____ / _____ / _____

Location: _____

CTEC SURVEY OF ASTHMA & ALLERGENS IN HOUSING QUESTIONNAIRE

The California Tribal Epidemiology Center is distributing a survey to look at how housing conditions affect asthma in American Indians and Alaska Natives.

Eligibility criteria:

i. Are you American Indian or Alaska Native?

1 ☐ YES.....CONTINUE

2 ☐ NOWe appreciate your willingness to be a part of this survey, but for the study we need American Indian/Alaska Native participants. Thank you very much.

ii. Are you at least 18 years of age?

1 ☐ YES.....CONTINUE

2 ☐ NOWe appreciate your willingness to be a part of this survey, but for the study we need to talk to participants over the age of 18. Thank you very much.

iii. Have you taken the Tribal Asthma Survey, or received a \$15 gift card from the California Tribal Epidemiology Center, in the past 12 months?

1 ☐ YES We appreciate your willingness to be a part of this survey, but we can only have each participant take the survey one time. Thank you very much.

2 ☐ NOCONTINUE

Before you being the survey, please make sure you have read and signed the informed consent form which explains the study in detail and gives us permission to collect information from you. The administrator will go over each item of the form with you. You will be given a copy of the informed consent to keep.



This survey begins with some questions about your home.

1. Which best describes the building you live in? (CHECK ONLY ONE)

- 1 ☐ A MOBILE HOME OR TRAILER
- 2 ☐ A ONE-FAMILY HOUSE (NOT CONNECTED TO ANOTHER HOUSE)
- 3 ☐ A DUPLEX (A HOUSE CONNECTED TO ONE OR MORE HOUSES)
- 4 ☐ A TOWNHOUSE (A HOUSE SHARING AN OUTER WALL WITH ONE OR MORE OTHER HOUSES)
- 5 ☐ A BUILDING WITH 3 OR 4 APARTMENTS/CONDOS
- 6 ☐ A BUILDING WITH 5 OR MORE APARTMENTS/CONDOS
- 7 ☐ A VAN OR OTHER VEHICLE..... **(SKIP TO QUESTION 43)**
- 8 ☐ NO PERMANENT HOME..... **(SKIP TO QUESTION 43)**
- 9 ☐ OTHER (SPECIFY)_____
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

2. What year was your home built?

|__|__|__|__| YEAR OF CONSTRUCTION

888 ☐ I DON'T KNOW/UNSURE

999 ☐ I PREFER NOT TO ANSWER

3. If you are unsure what year your home was built, which category of years do you think most closely matches when the building was built?

1 ☐ 1949 OR EARLIER

2 ☐ BETWEEN 1950 AND 1977

3 ☐ 1978 - PRESENT

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

4. How long have you lived in this home?

|__|__|YEARS

|__|__|MONTHS

|__|__|WEEKS

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

5. How many other people live in this home, besides yourself?

|__|__|(NUMBER OF PEOPLE)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

6. Is your home on a reservation, Rancheria, or other form of tribal land?

1 ☐ YES

2 ☐ NO

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

7. Do you own or rent your home?

- 1 ☐ OWN.....**SKIP TO QUESTION 10**
- 2 ☐ RENT
- 3 ☐ OTHER: _____
- 4 ☐ RENT-TO-OWN
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

8. Is your home or apartment owned by a public housing authority or the government?

- 1 ☐ YES.....**SKIP TO QUESTION 11**
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

9. Are you currently receiving public housing subsidies (for example: Section 8 Rental Vouchers)?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

10. Have you ever received funds from your tribe for housing? (for example: Native American Housing Assistance, HUD Indian Community Development Block Grants, BIA Home Improvement Program, etc.)

1 ☐ YES

2 ☐ NO

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

The next series of questions are to collect information that can affect the levels of allergens in your home.

11. Is the home you live in now located on or within a quarter mile of a farm, ranch or agricultural field?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

12. Is there an open dusty area near your home? (For this question, "near" means within 200 feet, or 2 basketball courts.)

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

13. Is there a rail yard near your home? (For this question, "rail yard" could be an area where trains are stored, where trains pick up and/or drop off cargo, and "near" means within 200 feet, or 2 basketball courts.)

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

14. How close is your home to a street with heavy traffic? (For this question, “street with heavy traffic” could be a freeway, highway, major intersection, or a street with lots of cars, buses and trucks).

(For reference purposes, a basketball court is 100 feet long).

- 1 ☐ RIGHT IN FRONT, BEHIND, OR BESIDE MY HOME.
- 2 ☐ LESS THAN 100 FEET (LESS THAN 1 BASKETBALL COURT LENGTH)
- 3 ☐ 100-300 FEET (1 TO 3 BASKETBALL COURT LENGTHS)
- 4 ☐ MORE THAN 300 FEET (MORE THAN 3 BASKETBALL COURT LENGTHS)
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

15. When it's cold, how do you heat your home? (CHECK ALL THAT APPLY)

- 1 ☐ GAS OR ELECTRIC CENTRAL HEATING
- 2 ☐ SPACE HEATER(S)
- 3 ☐ WOOD BURNING STOVE/FIREPLACE
- 4 ☐ NO SOURCE OF HEAT
- 5 ☐ OTHER (SPECIFY)_____
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

16. During the past 12 months, on how many days have you used a wood or coal stove, wood-burning fireplace, or kerosene heater inside your home?

|__|__|__| (NUMBER OF DAYS)

- 666 ☐ DOES NOT HAVE
- 777 ☐ NO DAYS (ZERO)
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

17. Is gas used for cooking?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

18. Is an exhaust fan that vents to the outside used regularly when cooking in your kitchen?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

19. In your bathroom, do you regularly use an exhaust fan that vents to the outside? (If you have more than one bathroom, think about the bathroom you use most frequently for showering and bathing).

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

20. An air cleaner or air purifier can filter out pollutants like dust, pollen, mold and chemicals. It can be attached to the furnace or free standing. It is not, however, the same as a normal furnace filter. Is an air cleaner or purifier regularly used inside your home?

- 1 ☐ YES
- 2 ☐ NO.....**SKIP TO QUESTION 23**
- 888 ☐ I DON'T KNOW.....**SKIP TO QUESTION 23**
- 999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 23**

21. What kind of air cleaner or air purifier do you use?

- 1 ☐ OZONE GENERATING / OZONATOR
- 2 ☐ IONIZING / IONIC CLEANER / ELECTROSTATIC CLEANER
- 3 ☐ HEPA FILTER CLEANER (**HIGH EFFICIENCY PARTICULATE AIR**)
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

22. How often do you change or wash the air filter(s)? Is it...

- 1 ☐ ONCE A WEEK
- 2 ☐ EVERY 1 – 4 MONTHS
- 3 ☐ MORE THAN 4 MONTHS, UP TO 12 MONTHS
- 4 ☐ MORE THAN 12 MONTHS
- 5 ☐ NEVER
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

23. Has there ever been water or dampness in your home from broken pipes, leaks, heavy rain, or floods?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

24. In the past 30 days, did your home have mold on an area greater than the size of a dollar bill? Do not include mold on food.

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

25. In the past 30 days, has anyone seen or smelled mold or a musty odor inside your home? Do not include mold on food.

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

26. A dehumidifier is a small, portable appliance which removes moisture from the air. Is a dehumidifier regularly used to reduce moisture inside your home?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

27. In the past six months have you had any of the following pets living inside your home?
(CHECK ALL THAT APPLY)

- 1 ☐ DOG(S)
- 2 ☐ CAT(S)
- 3 ☐ BIRD(S) OR CHICKEN(S)
- 4 ☐ PET MICE OR RATS
- 5 ☐ GERBILS, HAMSTERS OR RABBITS
- 6 ☐ OTHER PET WITH FUR OR FEATHERS (SPECIFY)_____
- 7 ☐ NONE OF THE ABOVE
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

28. Do you use a mattress cover that is made especially for controlling dust mites?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

29. Do you use a pillow cover that is made especially for controlling dust mites?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

30. When was the carpet/rug last vacuumed?

- 1 ☐ 1 TO 6 DAYS AGO
- 2 ☐ 7 DAYS TO 2 WEEKS AGO
- 3 ☐ MORE THAN 2 WEEKS TO 1 MONTH AGO
- 4 ☐ MORE THAN 1 MONTH TO 2 MONTHS AGO
- 5 ☐ MORE THAN 2 MONTHS AGO
- 6 ☐ DOES NOT HAVE CARPETS/RUGS..... **SKIP TO QUESTION 32**
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

31. When was the last time the carpet/rug was shampooed or steamed cleaned?

- 1 ☐ WITHIN THE LAST MONTH
- 2 ☐ MORE THAN 1 MONTH TO 6 MONTHS AGO
- 3 ☐ MORE THAN 6 MONTHS TO 12 MONTHS AGO
- 4 ☐ MORE THAN 1 YEAR TO 2 YEARS AGO
- 5 ☐ MORE THAN 2 YEARS AGO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

32. When was the last time upholstered sofas or chairs were vacuumed?

- 1 ☐ 1 TO 6 DAYS AGO
- 2 ☐ 7 DAYS TO 2 WEEKS AGO
- 3 ☐ MORE THAN 2 WEEKS TO 1 MONTH AGO
- 4 ☐ MORE THAN 1 MONTH TO 2 MONTHS AGO
- 5 ☐ MORE THAN 2 MONTHS AGO
- 6 ☐ DOES NOT OWN ANY UPHOLSTERED FURNITURE
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

33. When was the bedding last washed?

|__|__| (NUMBER OF DAYS)

|__|__| (NUMBER OF WEEKS)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

34. Are your sheets and pillowcases washed in cold, warm, or hot water?

1 ☐ COLD

2 ☐ WARM

3 ☐ HOT

4 ☐ IT VARIES

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

35. Which of the following do you use to clean your home?

(CHECK ALL THAT APPLY)

1 ☐ BLEACH OR BLEACH PRODUCTS

2 ☐ DISINFECTANT SPRAYS, WIPES OR SOLUTIONS

3 ☐ AIR FRESHENERS

4 ☐ "GREEN" OR NON-TOXIC PRODUCTS

5 ☐ OTHER TYPES OF CLEANING PRODUCTS (SPECIFY)_____

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

Studies have shown that cockroaches may be a cause of asthma. Cockroach droppings and carcasses can also cause symptoms of asthma.

36. In the past 30 days, has anyone seen a cockroach inside your home?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

37. In the past 30 days, has anyone seen mice or rats inside your home? Do not include mice or rats kept as pets.

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

38. During the past 12 months, on how many days were pesticides, sprays, or chemicals applied inside your home to kill bugs, mice, or other pests? Include use by yourself, others, and professional exterminators.

(INCLUDE PESTICIDE POWDERS, BUT DO NOT INCLUDE PEST TRAPS, PEST STRIPS, OR HERBAL TREATMENTS).

|__|__|__| (NUMBER OF DAYS)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

39. During the past 12 months, on how many days were pesticides or chemicals applied in your yard or garden to kill plant, animal, or insect pests. Include use by yourself, others, and lawn care services professionals.

(DO NOT INCLUDE LIME OR FERTILIZER IF NO WEED OR BUG KILLER USED).

|__|__|__| (NUMBER OF DAYS)

666 ☐ DO NOT HAVE A GARDEN/YARD

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

40. Is trash burned by you or others near your home?

1 ☐ YES

2 ☐ NO.....**SKIP TO QUESTION 43**

888 ☐ I DON'T KNOW.....**SKIP TO QUESTION 43**

999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 43**

41. Approximately how far away from the home is the area where trash is burnt?

|__|__|__| (DISTANCE IN FEET)

|__|__|__| (DISTANCE IN MILES)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

42. Approximately how often is the trash burnt?

1 ☐ EVERY DAY

2 ☐ A FEW DAYS PER WEEK

3 ☐ ONCE A WEEK

4 ☐ ONCE EVERY TWO WEEKS

5 ☐ ONCE A MONTH

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

I am now going to ask you some questions about asthma and allergies.

43. Have you ever been told by a doctor or other health professional that you have asthma?

1 ☐ YES

2 ☐ NO.....**SKIP TO QUESTION 58**

888 ☐ I DON'T KNOW.....**SKIP TO QUESTION 58**

999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 58**

44. How old were you when you were first told by a doctor or other health professional that you had asthma?

|__|__|(AGE IN YEARS)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

45. Do you still have asthma?

1 ☐ YES

2 ☐ NO

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

46. Was your asthma caused or made worse by chemicals, smoke, fumes, or dust in any job you ever had?

1 ☐ YES

2 ☐ NO

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

47. During the past 12 months, how many times did you see a doctor, nurse, or other health professional for a routine checkup for your asthma?

|__|__|(NUMBER OF VISITS)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

48. How long has it been since you last took asthma medication?

- 1 ☐ NEVER
- 2 ☐ LESS THAN ONE DAY AGO
- 3 ☐ 1-6 DAYS AGO
- 4 ☐ 1 WEEK TO LESS THAN 3 MONTHS AGO
- 5 ☐ 3 MONTHS TO LESS THAN 1 YEAR AGO
- 6 ☐ 1 YEAR TO LESS THAN 3 YEARS AGO
- 7 ☐ 3 TO LESS THAN 5 YEARS AGO
- 8 ☐ MORE THAN 5 YEARS AGO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

49. Symptoms of asthma include coughing, wheezing, shortness of breath, chest tightness or phlegm production when you do not have a cold or respiratory infection. How long has it been since you last had any symptoms of asthma?

- 1 ☐ NEVER.....**SKIP TO QUESTION 57**
- 2 ☐ LESS THAN ONE DAY AGO
- 3 ☐ 1-6 DAYS AGO
- 4 ☐ 1 WEEK TO LESS THAN 3 MONTHS AGO
- 5 ☐ 3 MONTHS TO LESS THAN 1 YEAR AGO**SKIP TO QUESTION 53**
- 6 ☐ 1 YEAR TO LESS THAN 3 YEARS AGO.....**SKIP TO QUESTION 57**
- 7 ☐ 3 TO LESS THAN 5 YEARS AGO.....**SKIP TO QUESTION 57**
- 8 ☐ MORE THAN 5 YEARS AGO.....**SKIP TO QUESTION 57**
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

50. During the past 30 days, on how many days did you have any symptoms of asthma?

|__|__|(NUMBER OF DAYS)

- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

51. In the past 30 days, on how many days did symptoms of asthma make it difficult for you to stay asleep?

|__|__| (NUMBER OF DAYS)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

52. During the past 3 months, how many asthma episodes or attacks have you had?

|__|__|__| (NUMBER OF EPISODES/ATTACKS)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

53. During the past 12 months, how many times did you visit an emergency room or urgent care center because of your asthma?

|__|__|__| (NUMBER OF TIMES)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

54. During the past 12 months, how many different times did you stay in any hospital overnight or longer because of your asthma?

|__|__|__| (NUMBER OF TIMES)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

55. During the past 12 months, how many days of work or school did you miss because of your asthma?

|__|__| (NUMBER OF DAYS)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

56. During the past 12 months, would you say you limited your usual activities due to asthma not at all, a little, a moderate amount, or a lot?

1 ☐ NOT AT ALL

2 ☐ A LITTLE

3 ☐ A MODERATE AMOUNT

4 ☐ A LOT

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

57. When you have symptoms of asthma what do you usually do? (CHECK ALL THAT APPLY)

- 1 ☐ TAKE MEDICINE PRESCRIBED BY A DOCTOR (SUCH AS AN INHALER)
- 2 ☐ TAKE NON-PRESCRIPTION MEDICINE (INCLUDING OVER-THE-COUNTER MEDS)
- 3 ☐ GO TO A DOCTOR, A CLINIC, OR A HOSPITAL FOR HELP
- 4 ☐ GO TO A NATIVE HEALER (SUCH AS A MEDICINE MAN)
- 5 ☐ USE TRADITIONAL MEDICINES
- 6 ☐ WAIT UNTIL IT PASSES
- 7 ☐ OTHER: _____
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

58. Have you ever been told by a doctor or health professional that you have hay fever or allergic rhinitis?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

59. Have you ever been told by a doctor or health professional that you have eczema or skin allergies?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

60. Have you ever been told by a doctor or health professional that you have chronic obstructive pulmonary disease, also known as COPD?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

61. Are there any children under the age of 18 living in your house?

1 ☐ YES

2 ☐ NO.....**SKIP TO QUESTION 63**

888 ☐ I DON'T KNOW.....**SKIP TO QUESTION 63**

999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 63**

62. We would like to know a little more about the children under the age of 18 who live in this home.
(REMINDER: IF NO CHILDREN UNDER THE AGE OF 18, SKIP THIS QUESTION).

	a.	b.	c.	d.	e.	f.	g.
	Initials	Gender	Age	Race/ Ethnicity (circle all that apply)	Has (name) ever been diagnosed by a doctor or other health professional with asthma?	Does (name) still have asthma?	In the past 12 months, has (name) had symptoms, taken medication, or seen a health professional for their asthma?
1		Male		American Indian/Alaska Native White Black Asian Native Hawaiian/Pacific Islander Latino/Hispanic Other (Specify) Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer
2		Male		American Indian/Alaska Native White Black Asian Native Hawaiian/ Pacific Islander Latino/Hispanic Other (Specify) Don't Know Prefer not to answer REF	Yes No Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer
3		Male		American Indian/Alaska Native White Black Asian Native Hawaiian/Pacific Islander Latino/Hispanic Other (Specify) Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer	Yes No Don't Know Prefer not to answer
		Female					

	a.	b.	c.	d.	e.	f.	g.
	Initials	Gender	Age	Race/ Ethnicity (circle all that apply)	Has (name) ever been diagnosed by a doctor or other health professional with asthma?	Does (name) still have asthma?	In the past 12 months, has (name) had symptoms, taken medication, or seen a health professional for their asthma?
4		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
5		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
6		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
7		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
8		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
9		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
10		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
11		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
12		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
13		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
14		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
15		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
16		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
17		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
18		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
19		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
20		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
21		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
22		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
23		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
24		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
25		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
26		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
27		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
28		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
29		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
30		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
31		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
32		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
33		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
34		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
35		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
36		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
37		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
38		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
39		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
40		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
41		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
42		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
43		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
44		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
45		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
46		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
47		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
48		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
49		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
50		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
51		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
52		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
53		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
54		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
55		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
56		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
57		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
58		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
59		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
60		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
61		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
62		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
63		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
64		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
65		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
66		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
67		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
68		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
69		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
70		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
71		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
72		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
73		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
74		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
75		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
76		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
77		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
78		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
79		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
80		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
81		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
82		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
83		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Prefer not to answer	Prefer not to answer	
84		Male		American Indian/Alaska Native	Yes	Yes	Yes
				White			
		Black		No	No	No	
		Asian					
85		Male		Native Hawaiian/Pacific Islander			
				Latino/Hispanic			
		Other (Specify)		Don't Know	Don't Know	Don't Know	
		Don't Know		Prefer not to answer	Pre		

Not including ceremonial or sacred smoking, we want you to think of all the commercial cigarettes you ever smoked in your entire life.

63. Have you smoked at least 100 cigarettes, about 5 packs, in your entire life?

- 1 ☐ YES
- 2 ☐ NO.....**SKIP TO QUESTION 65**
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

64. Not including ceremonial or sacred smoking, do you **now** smoke cigarettes every day, some days, or not at all?

- 1 ☐ EVERY DAY
- 2 ☐ SOME DAYS
- 3 ☐ NOT AT ALL / NO DAYS
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

65. During the past 7 days, on how many days were you in the same room with someone who was smoking cigarettes?

- 1 ☐ 0 DAYS
- 2 ☐ 1 OR 2 DAYS
- 3 ☐ 3 OR 4 DAYS
- 4 ☐ 5 OR 6 DAYS
- 5 ☐ ALL 7 DAYS
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

66. During the past 7 days, on how many days were you in the same car or other vehicle with someone who was smoking cigarettes?

- 1 ☐ 0 DAYS
- 2 ☐ 1 OR 2 DAYS
- 3 ☐ 3 OR 4 DAYS
- 4 ☐ 5 OR 6 DAYS
- 5 ☐ ALL 7 DAYS
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

67. Do any of the people who live in your home use any of the following commercial tobacco products inside the home? (CHECK ALL THAT APPLY).

(FOR EXAMPLE, MARLBORO, GCP, DRUM, BUGLER, NATURAL AMERICAN SPIRIT, ETC.)

- 1 ☐ COMMERCIAL TOBACCO CIGARETTES
- 2 ☐ COMMERCIAL TOBACCO CIGARS
- 3 ☐ COMMERCIAL TOBACCO PIPES
- 777 ☐ NONE
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

68. 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 YOUR HOME
- 4 ☐ THERE ARE NO RULES ABOUT SMOKING INSIDE YOUR HOME
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

69. Have you ever experienced second-hand smoke drifting into your home?

1 ☐ YES

2 ☐ NO

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

70. Do you use tobacco for ceremonial, prayer or traditional reasons?

1 ☐ YES

2 ☐ NO.....**SKIP TO QUESTION 74**

888 ☐ I DON'T KNOW**SKIP TO QUESTION 74**

999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 74**

71. When you used tobacco for ceremonial prayer or traditional reasons, what type of tobacco did you use? (CHECK ALL THAT APPLY)

1 ☐ NATIVE TOBACCO

2 ☐ COMMERCIAL TOBACCO (FOR EXAMPLE, MARLBORO, GCP, DRUM, BUGLER, NATURAL AMERICAN SPIRIT, ETC.)

3 ☐ OTHER (SPECIFY)_____

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

72. Have you ever smoked a pipe for ceremonial prayer or traditional reasons?

1 ☐ YES

2 ☐ NO.....**SKIP TO QUESTION 74**

888 ☐ I DON'T KNOW**SKIP TO QUESTION 74**

999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 74**

73. When you smoked a pipe for ceremonial prayer or traditional reasons, what type of tobacco did you use? (CHECK ALL THAT APPLY)

1 ☐ NATIVE TOBACCO

2 ☐ COMMERCIAL TOBACCO (FOR EXAMPLE, MARLBORO, GCP, DRUM, BUGLER, NATURAL AMERICAN SPIRIT, ETC.)

3 ☐ OTHER (SPECIFY)_____

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

74. This survey has asked you about issues in your house like mold and second hand smoke. Now we'd like to ask you a little more about how *concerned* you are about these home environmental issues in terms of your, or your family's, health.

How concerned are you about each of the following issues?

	Not At All Concerned	Not Too Concerned	Somewhat Concerned	Very Concerned	Don't Know	Prefer not to answer
MOLD OR MOISTURE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OUTDOOR AIR POLLUTION (SUCH AS FROM TRAFFIC, AGRICULTURAL PESTICIDES, OR DUST) DRIFTING INTO YOUR HOUSE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OLD CARPETING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FUMES FROM NEW FURNITURE, FLOORING OR CARPETING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PESTS, SUCH AS RODENTS OR COCKROACHES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLEANING CHEMICALS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
COMMERCIAL TOBACCO SMOKED IN YOUR HOUSE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SECONDHAND SMOKE DRIFTING INTO YOUR HOUSE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OTHER ISSUES NOT MENTIONED ABOVE:

75. Of the issues we just talked about, do you think any of these are health concerns for **others in your neighborhood?**

- 1 ☐ YES
- 2 ☐ NO.....**SKIP TO QUESTION 77**
- 888 ☐ I DON'T KNOW**SKIP TO QUESTION 77**
- 999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 77**

76. If yes, which issues? (CHECK ALL THAT APPLY)

- 1 ☐ MOLD OR MOISTURE
- 2 ☐ OUTDOOR AIR POLLUTION (SUCH AS FROM TRAFFIC, AGRICULTURAL PESTICIDES, OR DUST) DRIFTING INTO YOUR HOUSE
- 3 ☐ OLD CARPETING
- 4 ☐ FUMES FROM NEW FURNITURE, FLOORING OR CARPETING
- 5 ☐ PESTS, SUCH AS RODENTS OR COCKROACHES
- 6 ☐ CLEANING CHEMICALS
- 7 ☐ COMMERCIAL TOBACCO SMOKED IN YOUR HOUSE
- 8 ☐ SECONDHAND SMOKE DRIFTING INTO YOUR HOUSE
- 9 ☐ OTHER HOME ENVIRONMENTAL ISSUES:

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

The next few questions are on your health.

77. Would you say that in general your health is...

- 1 ☐ EXCELLENT
- 2 ☐ VERY GOOD
- 3 ☐ GOOD
- 4 ☐ FAIR
- 5 ☐ POOR
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

78. Have you ever been told by a doctor that you have diabetes?

- 1 ☐ YES
- 2 ☐ YES, BUT FEMALE TOLD ONLY DURING PREGNANCY
(ALSO KNOW AS GESTATIONAL DIABETES)
- 3 ☐ NO.....**SKIP TO QUESTION 81**
- 4 ☐ NO; PRE/BORDERLINE DIABETES..... **SKIP TO QUESTION 81**
- 888 ☐ I DON'T KNOW.....**SKIP TO QUESTION 81**
- 999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 81**

79. How old were you when you were told you had diabetes?

|__|__| (AGE IN YEARS)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

80. About how many times in the past 12 months have you seen a doctor, nurse, or other health professional for your diabetes?

|__|__|__| (NUMBER OF TIMES)

777 ☐ NONE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

81. About how much do you weigh without shoes?

|__|__|__| (WEIGHT, IN POUNDS)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

82. About how tall are you without shoes?

|__|__|__| (HEIGHT, IN FEET AND INCHES)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

83. Breastfeeding has been found to possibly reduce the effects of asthma. Were you breast fed as an infant?

1 ☐ YES

2 ☐ NO

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

84. What is your age?

|__|__|__| (AGE, IN YEARS)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

85. What is your sex?

1 ☐ MALE

2 ☐ FEMALE

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

86. Are you currently employed? (INCLUDE SELF-EMPLOYED WORK AND PART-TIME WORK).

1 ☐ YES

2 ☐ NO.....**SKIP TO QUESTION 89**

888 ☐ I DON'T KNOW**SKIP TO QUESTION 89**

999 ☐ I PREFER NOT TO ANSWER.....**SKIP TO QUESTION 89**

87. What is your current occupation? (If you work at more than one job, then only answer with respect to your main job, where you work the most hours)

(fill-in): _____

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

88. What kind of business do you work for? That is, what do they do or make?

(fill-in): _____

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

89. Is an Indian Health Service (IHS) funded clinic, a Tribal Health Program or an Urban Indian Clinic your usual source of care?

- 1 ☐ YES
- 2 ☐ NO
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

90. What is the highest grade or year of school you completed?

- 1 ☐ NEVER ATTENDED SCHOOL/ONLY KINDERGARTEN
- 2 ☐ GRADES 1 THROUGH 8 (ELEMENTARY)
- 3 ☐ GRADES 9 THROUGH 11 (SOME HIGH SCHOOL)
- 4 ☐ GRADE 12 OR GED (HIGH SCHOOL GRADUATE)
- 5 ☐ SOME COLLEGE, VOC/TECH SCHOOL
- 6 ☐ COLLEGE GRADUATE (4 YEARS COLLEGE OR MORE)
- 7 ☐ MASTERS DEGREE (COLLEGE GRADUATE DEGREE)
- 8 ☐ DOCTORAL DEGREE (PH.D/MD, DOCTORAL GRADUATE DEGREE)
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

91. **In addition to American Indian or Alaska Native**, would you consider yourself to be one or more additional races? (CHECK ALL THAT APPLY)

- 1 ☐ WHITE
- 2 ☐ BLACK OR AFRICAN AMERICAN
- 3 ☐ HISPANIC OR LATINO
- 4 ☐ ASIAN
- 5 ☐ NATIVE HAWAIIAN
- 6 ☐ PACIFIC ISLANDER
- 7 ☐ SOME OTHER GROUP (SPECIFY): _____
- 8 ☐ NO OTHER RACE; AMERICAN INDIAN/ALASKA NATIVE ONLY
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

92. What is your tribal affiliation?

(fill-in): _____

- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

We asked you to self-identify your race. Now I will ask how other people usually identify your race.

93. How do **other people** usually classify you? (CHECK ALL THAT APPLY)

- 1 ☐ WHITE
- 2 ☐ BLACK OR AFRICAN AMERICAN
- 3 ☐ HISPANIC OR LATINO
- 4 ☐ ASIAN
- 5 ☐ NATIVE HAWAIIAN
- 6 ☐ PACIFIC ISLANDER
- 7 ☐ AMERICAN INDIAN/ALASKA NATIVE
- 8 ☐ SOME OTHER RACE/ETHNICITY (SPECIFY): _____
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

I am going to ask about your annual household income. This information will be kept confidential.

94. Last year, what was your total household income from all sources?

- 1 ☐ \$ 5,000 OR LESS
- 2 ☐ \$ 5,001 to \$ 10,000
- 3 ☐ \$ 10,001 to \$ 15,000
- 4 ☐ \$ 15,001 to \$ 20,000
- 5 ☐ \$ 20,001 to \$ 30,000
- 6 ☐ \$ 30,001 to \$ 40,000
- 7 ☐ \$ 40,001 to \$ 50,000
- 8 ☐ \$ 50,001 to \$ 60,000
- 9 ☐ \$ 60,001 to \$ 80,000
- 10 ☐ \$ 80,001 to \$100,000
- 11 ☐ \$ 100,001 TO \$ 135,000
- 12 ☐ GREATER THAN \$ 135,000
- 888 ☐ I DON'T KNOW
- 999 ☐ I PREFER NOT TO ANSWER

95. What state and county do you live in?

STATE: |__|__|

COUNTY: _____

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

96. What is your ZIP Code where you live?

|__|__|__|__|__| (5-DIGIT ZIP CODE OF HOME RESIDENCE)

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

97. What is your ZIP Code where you work?

|__|__|__|__|__| (5-DIGIT ZIP CODE OF WORK ADDRESS)

777 ☐ DOES NOT WORK

888 ☐ I DON'T KNOW

999 ☐ I PREFER NOT TO ANSWER

THANK YOU!

Thank you for taking the time to complete this survey. Your answers will help us to identify housing conditions associated with asthma in the Native community, and to enhance currently available services and programs.

Please return your survey to the next available administrator to receive your gift card.

APPENDIX D: INFORMED CONSENT

Respondent Informed Consent Form

Purpose and Benefits

The California Tribal Epidemiology Center (EpiCenter), through funding from the California Department of Public Health (CDPH), is conducting a survey on asthma. In the general population, housing conditions are associated with asthma. We do not have enough information about asthma in American Indian populations, or the housing conditions that may influence asthma. Our main goals in this study are to learn about how common asthma is in Indian communities and to identify possible housing conditions associated with asthma. Your participation will help us to identify housing conditions associated with asthma in the community and to enhance currently available services and programs.

Procedures

If you decide to be in this study, you will be one of approximately 450 adults (18 years of age or older) in this study. The interview will take about 30 minutes to complete. The interview will include general demographics, health related questions pertaining to asthma, and questions on current housing conditions.

Confidentiality

You will not be identified with the information you give because the survey is confidential. No one but the interviewer will know how you answered questions on the survey. The interviewer has signed a pledge to keep all information about you confidential and the information will not be shared with anyone besides research personnel. The information kept in this study will be kept in a secure location. Only project staff will have access to study data. We will not use your name, or any personal identifiable information, when we report results of the study. The information we collect from you will be combined with information from other Indian people to better understand how housing conditions may influence asthma in American Indians.

Risks and Benefits

You may feel uncomfortable with some of the questions we ask on this survey. **You can refuse to answer any questions you are uncomfortable with or skip questions you do not want to answer.** You can stop the interview at any time. The likely benefits to you are minimal, however, the study is designed to benefit the American Indian community by gaining new knowledge.

Rights as a Volunteer

Your participation in this asthma survey is voluntary. If you decide not to take part or to stop the interview, you will not lose any services to which you are otherwise entitled. If you have any questions about this project, you may ask the person interviewing you, or contact the California Tribal Epidemiology Center Director, Dr. Kristal Chichlowska, at (800) 274-4288 or kristal.chichlowska@crihb.net. All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a survey respondent you may contact, anonymously if you wish, the California Rural Indian Health Board (CRIHB) Compliance Officer at (800) 274-4288 or susan.dahl@crihb.net.

Respondent Agreement

The California Indian Asthma Survey has been explained to me. I voluntarily agree to participate. I have had an opportunity for my questions to be answered. I know that I may refuse to participate or to stop the interview at any time without any consequence. I understand that if I have questions about this study or my rights as a participant, I may contact Dr. Kristal Chichlowska. I understand that as compensation for my participation and completion of the survey I will receive \$15 for my time and contribution.

Respondent (*print name*)

Date

Respondent Signature

Interviewer (*print name*)

Date

Interviewer Signature

APPENDIX E: HEALTH EDUCATION MATERIALS



California Tribal Epidemiology Center (CTEC)
4400 Auburn Blvd 2nd Floor • Sacramento CA 95841
(800) 274-4288 • (916) 929-9761
epicenter@crtihb.net

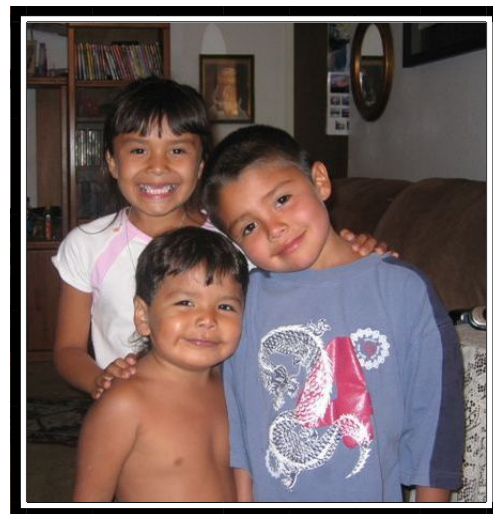


Guidelines for an Asthma-Friendly Home

- Work with your doctor to develop a written asthma plan for your child that includes your child's asthma triggers and how to avoid them.



- Never smoke around anyone who has asthma, either inside or outside.
- Cover mattresses and pillows with dust-proof ("allergen-impermeable") zippered covers. Wash sheets and blankets once a week in hot water.
- Dust with a damp cloth and vacuum carpet and fabric-covered furniture on a regular basis.
- Wash and dry hard surfaces, like tabletops, to prevent and remove mold. Replace moldy drywall, ceiling tiles and carpet.
- To avoid having cockroaches don't leave food or garbage out. Clean up messes and spills and store food in airtight containers.
- Instead of using bug spray, control bugs by using bait or traps. If you have to use a spray, make sure to get some fresh air into the room and keep anyone with asthma out of that room for several hours after spraying.
- Keep pets outside if you can.
- To avoid asthma triggers like mold, cockroaches, and dust mites, use exhaust fans, or open windows when cooking and showering. Fix leaky plumbing or other unwanted sources of water.
- Keep a scent-free home. Perfumes, scented lotions, hair products and room deodorizers may smell good, but are not good for people with asthma.
- Watch for the Air Quality Index (AQI) in your newspaper or during the local weather report. When AQI reports unhealthy levels, limit outdoor activities.





California Tribal Epidemiology Center (CTEC)
4400 Auburn Blvd 2nd Floor • Sacramento CA 95841
(800) 274-4288 • (916) 929-9761
epicenter@carihhs.net



Myths About Asthma

Are asthma medicines addictive?

No. The medicines used for asthma are not addictive. Be sure that medications are taken as directed and let a doctor know if there are any problems in taking the medicine.

Are inhaled steroids, when used as long-term control medicine, dangerous?

The inhaled steroid medicines used as long-term controllers to treat asthma are safe and effective. It is important that inhaled steroid medicine is taken exactly as prescribed by a doctor. The steroids used for medicine are NOT the same as the unsafe steroids some athletes take to build muscle.

Do asthma attacks usually sneak up on you?

Not usually. The body sends cues called “early warning signs” such as watery eyes, itchy skin or scratchy throat that alert your body that asthma symptoms such as coughing or chest tightness may soon occur or that you are near an asthma trigger.

Is asthma serious or is it all in your head?

Asthma attacks ARE dangerous. In fact, children with asthma have died from asthma attacks. This is why it is so important that children with asthma and school personnel know what the early warning signs are and know what to do in an emergency.

Does having asthma mean students can't do what their friends can do?

No. Properly managed asthma means that children can do everything their friends can do, including play sports, go on field trips or play a musical instrument.

Is it to be expected that that children will wake up in the night because they have asthma?

No. Sleeping through the night is a sign of properly managed asthma. If a child wakes up in the night because of asthma their asthma is not well-controlled. Make sure the room is cleared of triggers and talk to a doctor about adjusting medication.

Since we don't know what causes asthma, why worry about exposure to asthma triggers?

While we don't know what causes asthma in children, we do know that reducing asthma triggers in the environment, such as exposure to smoke and to strongly scented products, can prevent asthma attacks.

Does asthma or asthma medicine keep children from growing?

No. Asthma or asthma medications do not keep a child from growing. Studies show that low to medium dose of inhaled corticosteroids (used as long-term control medicine) can potentially decrease growth rate but this effect is not permanent, does not progress, and can be reversible. The potentially small risk of delayed growth is well balanced by the effectiveness of these medications.

Will an air cleaning device help remove indoor asthma triggers in the classroom or at home?

If you are considering an air-cleaning device, do your homework before investing by visiting <http://www.epa.gov/iaq/pubs/residair.html>. Your first line of defense is to reduce indoor asthma triggers and to provide proper ventilation.

Asthma Triggers

Triggers are things that make your asthma worse. Some triggers are things you are allergic to and some just irritate your airways. You can reduce how often your asthma flares up by reducing exposure to your triggers.

Triggers

What you can do to reduce your triggers

Cigarette Smoke

Tobacco smoke can make asthma worse.



- Do not allow smoking in your home, car, or around you.
- If you smoke, ask your health care provider for ways to help you quit. Ask family members to quit, too.
- Ask your health care provider for a referral to a quit smoking program, or call the US Network of Quitlines: **800-QUIT-NOW (800-784-8669)**.

Colds, Flu, Bronchitis

When you're sick, your asthma is more likely to flare up.



- Wash your hands often.
- Don't touch your eyes, nose, or mouth.
- Get a flu shot every year, preferably in the fall.
- Avoid contact with people who have colds.

Dust Mites

These tiny bugs live in cloth, carpet, and bedding and are too small to see with the naked eye.



- Get special dust mite-proof covers for your pillows and mattresses.
- Wash sheets and blankets in hot water every week.
- Wash stuffed animals frequently and dry completely.
- Avoid having carpeting, if you can.
- Vacuum carpet weekly with a HEPA vacuum cleaner.

Pollen & Outdoor Air Pollution

Some people are allergic to molds or pollen from trees, grass, and weeds.



- Try to keep your windows closed during pollen season and when mold counts are high.
- Plan to do indoor activities on high pollen days.
- Ask your health care provider about taking medicine during allergy season.
- Get daily air quality forecasts at **www.airnow.gov**

Animals

Some people are allergic to skin flakes (dander), urine, or saliva from animals and birds.



- Keep pets with fur or feathers out of your home.
- If you can't keep a pet outdoors, then keep the pet out of your bedroom, and keep the bedroom door closed.
- Keep pets off upholstered furniture and away from stuffed toys.
- Wash your hands after petting or playing with pets.

Mice, Rats, and Cockroaches

Some people are allergic to the droppings from these pests.



- Do not leave food or garbage uncovered.
- Clean up spills and food crumbs right away.
- Store food in airtight containers.
- Store cooking grease in the refrigerator.
- Keep food out of the bedroom.

Indoor Mold

This can be a trigger if your home has high moisture.



- Fix leaking faucets, pipes, or other sources of water.
- Clean moldy surfaces with hot water and soap.
- Use a dehumidifier in the basement if it is damp and smelly.

Wood Smoke, Strong Odors, and Sprays

These can reduce air quality and irritate airways.



- Avoid strong odors and sprays, like perfume, powders, hair spray, paints, incense, cleaning products, candles, and new carpeting.
- Avoid inhaling smoke from burning wood.

Exercise or Sports

These can trigger an asthma attack for some people.



- Take your rescue medicine before sports or exercise to prevent symptoms if directed by your health care provider.
- Warm up / cool down for 5-10 minutes before and after sports or exercise.

Other Triggers

Cold air, changes in weather, and strong emotions can set off an asthma attack!



- Cover your nose and mouth with a scarf when it gets cold.
- Sometimes laughing or crying can be a trigger.
- Some medicines and foods can trigger asthma.



Blue Shield
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Center
for Health
Improvement

Reach Your
Peak

Your Asthma Action Plan

Insert A

This worksheet is designed to help you and your doctor develop an asthma action plan. The goal of this plan is to give you control over your asthma by listing the actions you should take if symptoms occur. Monitoring breathing, using medications, controlling asthma triggers and exercising regularly are all parts of this plan.

Work with your doctor to determine your individual plan to control asthma. Once completed, keep this action plan with you at all times and take it to all doctor visits.

Name _____ Date _____

Doctor _____ Doctor's phone number _____

Your best actual or predicted peak flow number is _____

Symptoms your doctor advises you to report _____

GAIN CONTROL OF ASTHMA BY OBSERVING THE SIGNS

To understand your asthma signs, imagine the three peak flow zones as the three colors of a traffic light:



GREEN means GO. Your air can move at full capacity. Use preventive medicines as prescribed.



YELLOW means CAUTION. Slow down when symptoms occur. Use your quick-relief medicine as prescribed by your physician to get your symptoms under control.



RED means STOP. You're in danger, so take your medications immediately and follow the action plan prescribed by your doctor.

continued on reverse

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YOU ARE DOING WELL. TAKE YOUR MEDICATIONS AS PRESCRIBED.

Goal: To stay in the green zone every day. PEAK FLOW is 80 to 100 percent of your best peak flow or _____ to _____.

Symptoms:

- No symptoms of an asthma episode
- No interruptions in activity or sleep related to asthma

Action:

Continue your normal medications.

MEDICINE

DOSE

FREQUENCY

COMMENTS

☐ Take _____ 10 to 15 minutes before exercise.

SPECIAL INSTRUCTIONS:



SLOW DOWN. YOU ARE NOT BREATHING YOUR BEST.

Goal: Act quickly and get yourself back into the green zone. PEAK FLOW is 50 to 80 percent of your best peak flow or _____ to _____.

Symptoms that may lead to an episode if left untreated:

- Coughing, wheezing, shortness of breath or tightness in your chest, especially at night
- Fatigue
- Mood changes
- Symptoms that restrict your activities, disrupt your sleep or stop you from attending work or school
- Needing asthma medication more often than usual
- Medications not helping as they usually do
- Peak flow measurements below your best peak flow number, despite increased asthma medications

Action:

1. Take the quick-relief medications as prescribed below.
2. If your symptoms stay in this zone for more than 24 hours, call your doctor.
3. Let your doctor know if your peak flow readings keep going into the yellow zone. Your green zone medications may need to be changed to get your asthma under better control.

MEDICINE

DOSE

FREQUENCY

COMMENTS

SPECIAL INSTRUCTIONS:



YOU ARE HAVING AN ASTHMA EPISODE. ACT IMMEDIATELY!

Goal: Avoid episodes and get back to control quickly. PEAK FLOW is below 50 percent of your best peak flow or _____ to _____.

Symptoms:

- Coughing, very short of breath and/or your chest or neck area feel tight
- Trouble walking or talking

Action:

1. You are having an asthma episode and should follow your Action Plan immediately.
2. Call your doctor as he or she has directed you below.

MEDICINE

DOSE

FREQUENCY

COMMENTS

SPECIAL INSTRUCTIONS:

Reach Your Peak

an asthma
self-management
program



Home Environment Assessment Checklist

Home Environment Assessment Checklist

This checklist will help you identify items in your home, work and school environments that may trigger asthma symptoms. Refer to this checklist as you evaluate your environments.

Identifying potential triggers is the first step toward long-term control of asthma. Avoiding, modifying or eliminating triggers may dramatically reduce the frequency and severity of your asthma symptoms. Please read all of the following questions carefully and check the appropriate box that best describes your response. We have included some health tips that are designed to help you understand and anticipate problems related to these common asthma triggers. Share your checklist responses with your doctor at your next check-up.

HOME COOLING, HEATING AND VENTILATION

Question	Yes	No	Not Sure	Asthma Health Tips
Do you have air conditioning in your home?				Install home air conditioning if possible. This can filter out half of the pollen in the air. Put the setting on "recirculate" or "clean" and change the filter regularly. Avoid the "ventilate" or "fresh" settings that bring air from the outdoors into your home. You should check and change the filter on your cooling and heating systems at least four times a year. Use a High Efficiency Particle Air (HEPA) filter. Check the manufacturer's recommendation to determine the best filter to use. Filters are available in medical supply stores.
Do you regularly check or change the filters of the cooling and heating systems in your home?				
Do you have a fireplace in your home?				Fireplaces that burn wood can release smoke into the air. Wood smoke is one of the worst irritants for a person with asthma. Make sure the fireplace is properly vented to ensure that all smoke escapes through the chimney. Consider converting your wood-burning fireplace to a gas fireplace.
Do you heat your home with kerosene or oil?				Oil and kerosene heat may aggravate asthma.
Do you monitor the level of humidity in your home?				Ideal humidity is between 25 and 40 percent. Consider installing a dehumidifier, especially in the room where you sleep. Air that is too moist will encourage mold growth. Air that is too dry can also bring on asthma symptoms.
Do you use a humidifier or dehumidifier in your home?				Humidifiers and dehumidifiers can grow mold. Clean and change the water in your units daily. Their filters should be changed regularly as well.
Do you keep your windows closed year-round?				Keep windows closed when possible. This is especially important during peak allergy seasons. Tree pollen is highest in the spring. Grass pollen is highest in late spring and early summer. Weed pollen is highest in late summer and early fall.

GENERAL QUESTIONS ABOUT YOUR HOME ENVIRONMENT

Question	Yes	No	Not Sure	Asthma Health Tips
Do you currently smoke?				Cigarette, cigar or pipe smoke is one of the most aggravating and irritating substance that a person with asthma can breathe. Your healthiest solution is not to smoke and to declare your home a "No Smoking Zone." If you currently smoke, get help to quit. When you are traveling, request nonsmoking hotel rooms and rental cars.
Does anyone you live with smoke in your home?				
Do you allow guests to smoke in your home?				
Do you have any pets that live in your home?				Pets with fur or feathers – dogs, cats or birds – are sources of animal dander. It is best not to have a furry or feathered pet. If you allow pets inside your home, they must be kept off furniture and out of the bedroom. Give your dog or cat a bath once a week to reduce the amount of allergens it produces. Wash your hands after handling your pet. Fish make good pets, although large aquariums can raise room humidity and increase mold growth.
Do you have any plants in your home?				Houseplants that grow in moist soil are a source of mold. It is best to remove indoor plants. If you must have indoor plants, place them in clay or ceramic pots. Do not use wicker planters because they grow mold. Plants that require moist soil should be grown outside the home.
Are any of the floors in your home carpeted?				Wood, tile or linoleum floors are preferable to carpeted floors. Carpeting collects dust and dust mites. It is best not to have carpet, especially in the bedroom. If you install carpeting, choose a tight weave rather than a thick shag. If you use throw rugs, wash them often. Carpet over cement is certain to grow mold and should be removed.
Are the floors in your home cleaned regularly?				You should vacuum your floor and furniture frequently to minimize dust. Using a filter on the exhaust port of your vacuum can keep dust and dirt from recycling into your environment. It's best that the person with asthma refrains from dusting or vacuuming. If the person with asthma must do the cleaning, he or she should always wear a mask to minimize exposure to dust and other particles.
Do you wear a mask when vacuuming dusting or doing other tasks that expose you to dust?				

GENERAL QUESTIONS ABOUT YOUR HOME ENVIRONMENT, *CONTINUED*

Question	Yes	No	Not Sure	Asthma Health Tips
Do you have upholstered furniture?				Fabric-covered furniture attracts dust and dust mites, so it should be vacuumed frequently. Avoid sleeping on upholstered furniture.
Do you have curtains in your home?				Curtains or drapes tend to collect a lot of dust. Use window coverings that can be taken down and washed easily. Vertical blinds make a better window covering than curtains as long as they are cleaned often.
Do you store anything in your home that has a strong smell?				Scented air fresheners, cleaning products, perfumes and aerosols can affect your breathing. Avoid these products or use them in a well-ventilated area.
Have you had any water damage to your home in the past six months?				Water damage can cause mold growth. Clean with a water and bleach solution or disinfectant to minimize the amount of mold growth in these areas.
Living Room				
Do you have dust-covered items in your living room?				Remove dust collectors from your living room, including stuffed animals, books, knickknacks, ornate furniture and wool blankets. Remember to clean fabric-covered furniture frequently. Curtains attract dust and should be washed regularly.
Do you dust frequently?				Dust often with a damp cloth. Dry dusting circulates more particles into the air.
Bathroom				
Do you use disinfectants or a water and bleach solution when cleaning your bathtub or sink area?				Control mold growth in sinks and tubs with bleach. Countertops should be wiped down with a disinfectant or water and bleach solution. Use drapes or window coverings that can be taken down and washed easily. Consider wearing a bandana or mask while cleaning bathroom areas that do not have good ventilation.
Does your bathroom tend to steam up while you bathe?				High humidity can make breathing difficult. Use an exhaust fan if possible. Humid bathrooms tend to grow mold much more quickly.
Do you have any strongly scented products in your bathroom?				Hair spray, nail polish and remover, cleaning products and perfumes typically have strong odors that can irritate your airways.

GENERAL QUESTIONS ABOUT YOUR HOME ENVIRONMENT, *CONTINUED*

Question	Yes	No	Not Sure	Asthma Health Tips
Bedroom				
Is the air in your bedroom moist?				Consider installing a dehumidifier, especially in the room where you sleep.
Do you make your bed every day?				Bed linens attract dust. Cover your bed with a sheet or spread during the day and remove it just before bedtime to keep dust off the bedding and pillows.
Does your pillow have a plastic covering on it?				Pillows and mattresses soak up body perspiration and can promote mold growth. Consider plastic coverings or encasings for each. Feathers and foam rubber pillows should be avoided because they tend to attract dust. It is better to use pillows that are nonallergenic, such as foam or fiberfill pillows.
Are your pillows filled with feathers or down?				Change them once a year.
Kitchen				
Do any of the foods in your kitchen have a strong odor?				Strong cooking odors can irritate your airways and make breathing more difficult. Using an exhaust fan may help. You should avoid exposure to foods with strong odors.
Do you use disinfectant or a water and bleach solution when cleaning your kitchen?				Food particles left on countertops or in sinks will grow mold. Sinks and countertops should be cleaned with a water and bleach solution or a disinfectant.
Does your refrigerator have mold on its seal or in its water pan?				Mold can grow in any moist place. Clean your refrigerator seal and water pan with a water and bleach solution or disinfectant frequently.
Basement, Attic and Garage				
Does your basement, attic or garage get full sunlight daily?				Areas that get very little sunlight are usually spawning grounds for mold. If areas are damp or musty, mold growth will occur much more rapidly. These areas also tend to collect a lot of dust. Vacuum and thoroughly clean damp or musty areas regularly.
Are these areas ever damp or musty?				
Do you keep or use any strongly scented products in your basement, attic or garage?				These areas tend to be less ventilated than other areas of the home. Be aware that odors of chemicals, paints and other products may intensify with age. When using scented products, make sure you have adequate ventilation and protection from strong odors.

GENERAL QUESTIONS ABOUT YOUR HOME ENVIRONMENT, *CONTINUED*

Question	Yes	No	Not Sure	Asthma Health Tips
Yard and Garden				
Are your asthma symptoms worse after the lawn has been mowed?				Stay indoors for several hours after the lawn has been cut because lawn mowing releases irritating molds into the air.
Do you remove dead plants from your garden regularly?				Dispose of dead plants and dried flowers that can release airborne debris. Exposure to these items can make your asthma symptoms worse.
Cold Air				
Does exposure to cold air aggravate your asthma symptoms?				Cold air is a common trigger for asthma symptoms. Wearing a mask or scarf that covers your nose and mouth will warm the air and make it easier to breathe.
Foods				
Do you ever experience difficulty breathing after you eat certain foods?				<p>Food allergies sometimes cause asthma symptoms. However, the most problematic foods include nuts and shellfish, monosodium glutamate (MSG), yellow food dye #5 or mold-containing foods such as beer, wine or cheese. Sulfites – preservatives used in processed potatoes, shrimp, dried fruits and some medications – may also aggravate symptoms. Milk may aggravate post-nasal drip that may trigger asthma symptoms. Check food labels for these ingredients and try to avoid foods that contain them. In the space below, list the foods that may trigger your asthma symptoms.</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

EMOTIONS

Question	Yes	No	Not Sure	Asthma Health Tips
<p>Do any of the following strong emotions trigger your asthma symptoms?</p> <ul style="list-style-type: none"> • fear • worry • excitement • joy • anger 				<p>Strong emotions can sometimes trigger asthma symptoms. Try breathing techniques to help you relax and prevent the onset of these symptoms.</p>

WORK AND SCHOOL ENVIRONMENT

Many of the same things that trigger your asthma symptoms at home may trigger them at work or school. Take the same actions you would at home to reduce triggers in your work or school environment. Circle any of the following triggers that are present in your work or school environment and refer to the corresponding health tips listed on the previous pages.

Ventilation-Related Triggers	General Environmental Triggers	Smell-Related Triggers	School-Specific Triggers
<p>air conditioning heating units and vents poorly ventilated areas high humidity open windows</p>	<p>molds smoke plants, trees or shrubs carpeting dust upholstered furniture curtains or drapes bathrooms showers air pollution or smog animals</p>	<p>strong odors cleaning products perfumes strong cooking odors chemicals grassy lawns</p>	<p>school pets chalk dust cafeteria strong-smelling glue scented markers</p>

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Living with Asthma

(2nd edition)

DVD
DVD-R VIDEO

This DVD explains that although asthma is a chronic condition, it can be managed and those living with it can lead full lives. The anatomy and physiology of breathing, and how asthma interferes with it is explained. The DVD introduces the various elements of a management plan, including taking medications, controlling things that can make asthma worse, and monitoring the condition. It explains two classifications of medication—long-term control and quick relief. How to use metered dose inhalers is demonstrated. Throughout the program, asthma patients discuss how they have learned to live with their condition.



Living with Asthma (2nd ed.)



Living with Asthma

(2nd edition)

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LIVING WITH ASTHMA

2nd edition

Running Time: 16:41