

CHILDHOOD ASTHMA AND RELATED SYMPTOMS AROUND THE SALTON SEA:

A Focus on Childhood Skin Symptoms



School of Medicine
CENTER FOR HEALTH DISPARITIES RESEARCH



Table of Contents

Executive Summary.....	2
Introduction	4
History of the Salton Sea.....	4
Methods.....	5
Results.....	6
Demographics	6
Age, Gender, Race, and Ethnicity.....	6
Income and Poverty Level.....	8
Skin Symptoms.....	10
Itchy Rash	10
Itchy Rash in Last 12 Months	11
Itchy Rash Location	12
Age When Rash First Occurred	13
Conclusion.....	14

Executive Summary

Introduction

This special report provides survey results about childhood skin symptoms from a symptom-based survey that documented breathing, nose, and skin symptoms of children living around the Salton Sea. This is one of three special reports that focus on specific questions from the survey; two other special reports provide survey results on breathing symptoms and nose symptoms. There are also more analyses of the survey results available in a report submitted to the Bureau of Reclamation (with findings from all survey questions) and a regional report (focused on specific geographies and advanced analyses).

The survey was conducted in the communities surrounding the Salton Sea: eastern Riverside County (i.e., that part comprising the Eastern Coachella Valley) and northern Imperial County (i.e., that part comprising the northern Imperial Valley). This project was funded by the Center for Health Disparities Research at UC Riverside (referred to as HDR@UCR) through a grant from the U.S. Bureau of Reclamation. HDR@UCR contracted with HARC, Inc., which conducted the survey, analyzed the data, and developed this report.

Methods

Results are from an address-based survey of households in eastern Riverside County and northern Imperial County. Households likely to have children were mailed a “survey package,” which included an invitation letter (in English and Spanish), a paper survey in English, a paper survey in Spanish, a pre-paid return envelope, and a \$2 bill as a pre-incentive that the recipient could keep regardless of whether they took the survey. Further, the invitation letter explained that the first 1,000 households to complete and submit the survey would receive a \$20 Visa card as compensation. In addition, a flyer with a URL link and QR code (to take the survey online) was mailed to an additional 18,000 households (regardless of whether they were likely to have children or not). These flyers likewise offered a \$20 Visa card.

The survey was launched on August 18, 2023, and the survey was closed on October 31, 2023. A total of 840 completed surveys were received.

Results

Demographics

A total of 93.8% of the children surveyed were Hispanic/Latino, a majority were boys (55.8%), and the average age was 12. Further, a majority (50.9%) of households were at or below the federal poverty level.

Skin Symptoms

A total of 18.2% of children have had an itchy rash that was coming and going for at least 6 months. Among these children, 87.2% have had this itchy rash in the last 12 months. Further, among those with the rash in the last 12 months, 73.0% have had this rash affect a specified part of the body (behind the knees, in the inner part of the elbows, in front of the ankles, under the buttocks, or around the neck, ears or eyes). Among those who had the rash in the last 12 months, 59.8% had the rash start when they were age 5 years or older.

Conclusion

Most children surveyed come from underserved communities, with over ninety percent identifying as Hispanic/Latino and over half living below the federal poverty level. Almost one fifth of children have had an itchy rash, and the vast majority have had this rash in the last 12 months. Among those, most had the rash start at age 5 years or older.

Introduction

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History of the Salton Sea

The Salton Sea is a large inland body of water, largely fed by excess irrigation water from the surrounding farm fields of the Imperial Valley (Imperial County) and the Coachella Valley (Riverside County), as well as runoff from the Mexicali Valley (Municipality of Mexicali, Baja California, Mexico). In recent years (due at least in part to water policy changes in the Colorado River Basin), the water flowing into the Salton Sea has been decreasing, resulting in the continuing receding of the shoreline and the subsequent exposure of dried lakebed, known as playa. This playa threatens to expose fine particulate matter into the air, as well as airborne toxins and microorganisms. The primary concern for the Salton Sea is thus not water but air—the increase of air pollution in the region and subsequent impacts on public health.

Methods

HARC and HDR@UCR drafted a survey with 42 questions, which was modeled on a standardized questionnaire from the Global Asthma Network, originating from the International Study of Asthma and Allergies in Childhood (ISAAC) program.¹

Results are from an address-based survey of households in eastern Riverside County and northern Imperial County. HARC (via Ace Printing) mailed a “survey package,” which included an invitation letter (in English and Spanish), a paper survey in English, a paper survey in Spanish, a pre-paid return envelope, and a \$2 bill as a pre-incentive that the recipient could keep regardless of whether they took the survey. Further, the invitation letter explained that the first 1,000 households to complete and submit the survey would receive a \$20 Visa card as compensation. Ace Printing purchased a list of 6,941 households likely to have children and mailed the survey package to these households. In addition, a flyer with a URL link and QR code (to take the survey online) was mailed to an additional 18,000 households (regardless of whether they were likely to have children or not). These flyers likewise offered a \$20 Visa card.

The mailed instructions asked the adult in the household most familiar with the child to take the survey (the survey thus was often completed by the child’s parent or grandparent). If a household had more than one child, the survey questions concerned the oldest child under the age of 18 in the home.

The survey was launched on August 18, 2023, and the survey was closed on October 31, 2023. A total of 840 completed surveys were received. All paper survey results were entered into the online survey platform Sogolytics. The final results were downloaded, cleaned, and analyzed using SPSS (Statistical Package for the Social Sciences).

¹ Ellwood, P., Asher MI., and the Global Asthma Network Steering Group. August 2015. Global Asthma Network Phase I Manual. <http://www.globalasthmanetwork.org>

Results

Demographics

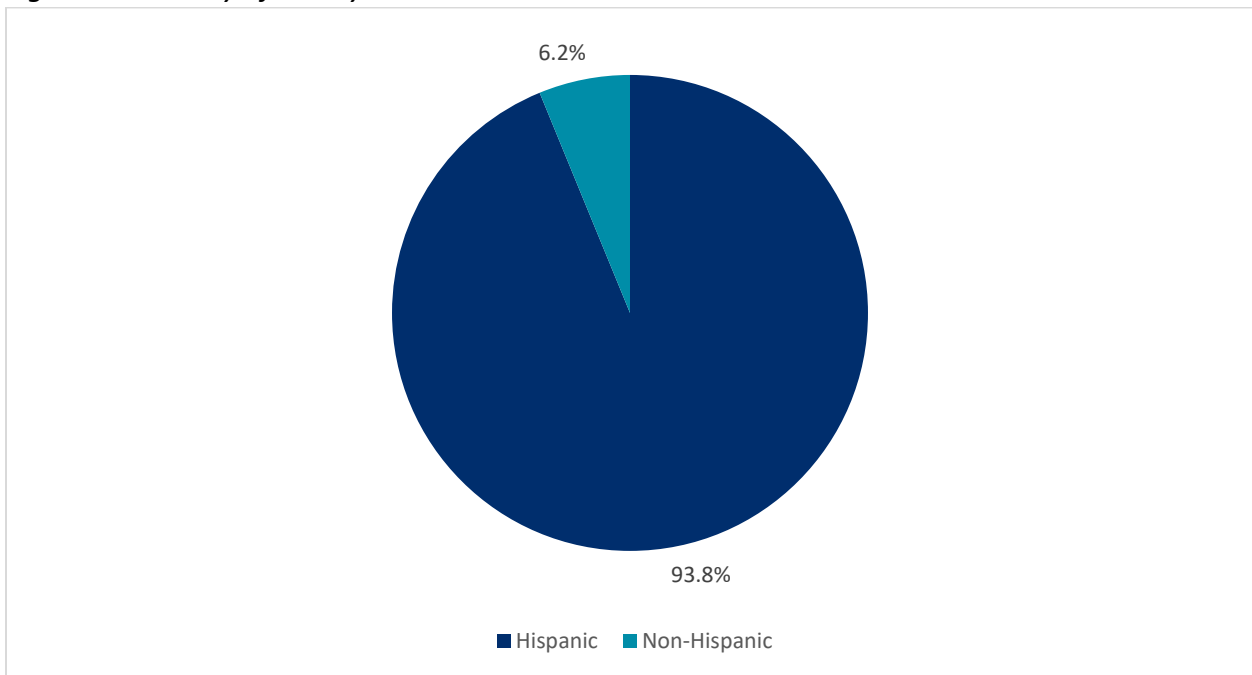
Age, Gender, Race, and Ethnicity

For the child for whom the survey was completed, ages ranged from less than one year old to 17 years old. The average age for surveyed children was 12 years old.

Survey participants were asked about the gender of the child. A total of 55.8% were boys, and 44.2% were girls.

Survey participants were asked about the race and ethnicity of the child. As illustrated below, 93.8% of the children surveyed were Hispanic/Latino.

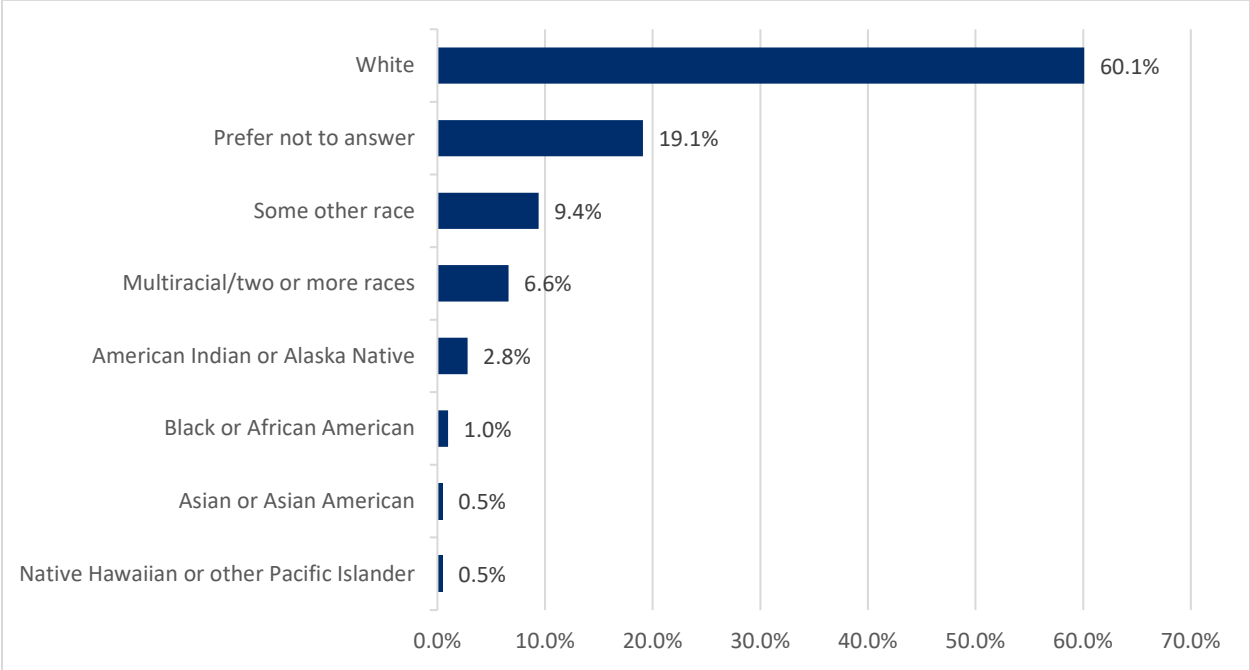
Figure 1. Ethnicity of Surveyed Children



Note: $n = 808$.

Survey participants were also asked about the race of the child and were told that “for the purposes of this survey, Hispanic is not a race.” As illustrated below, 60.1% identified as White, followed by 19.1% who “preferred not to answer,” 9.4% who identified as “some other race” and 6.6% who identified as multiracial/two or more races.

Figure 2. Race of Surveyed Children

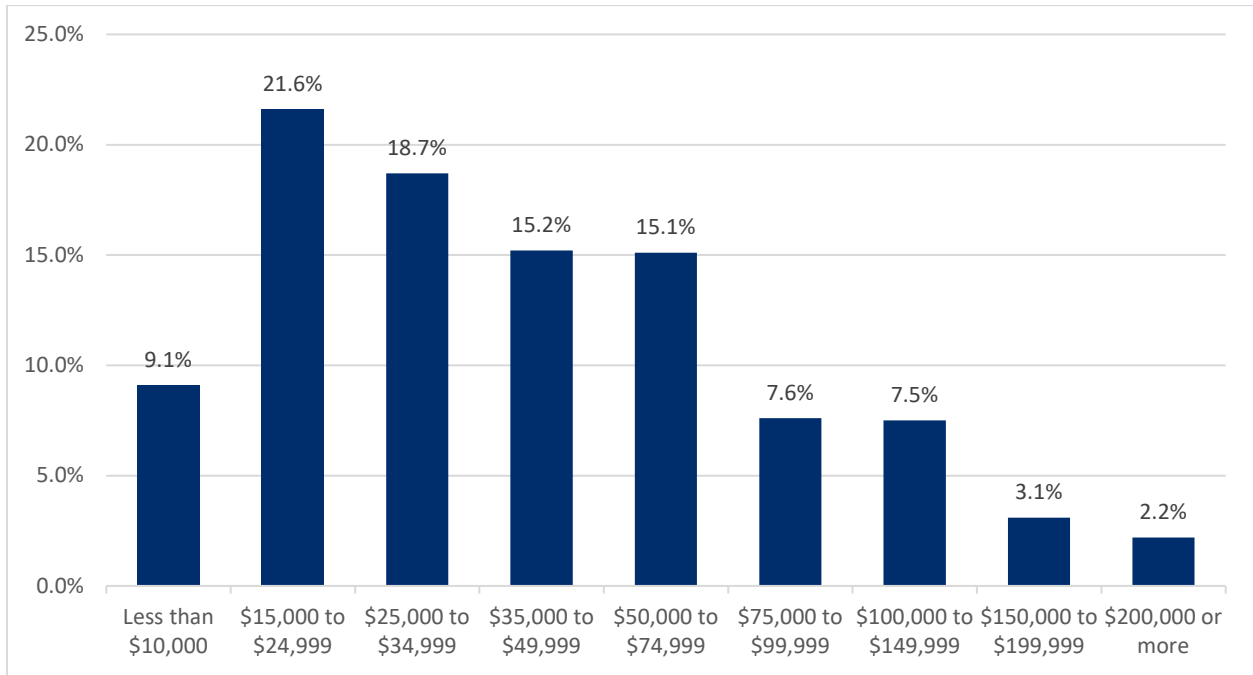


Note: n = 787.

Income and Poverty Level

Survey participants were asked what their household income was last year. As illustrated below, 21.6% of households made between \$15,000 and \$24,999, and 18.7% of households made between \$25,000 and \$34,999 last year. Nearly half (49.4%) of households made less than \$35,000 last year.

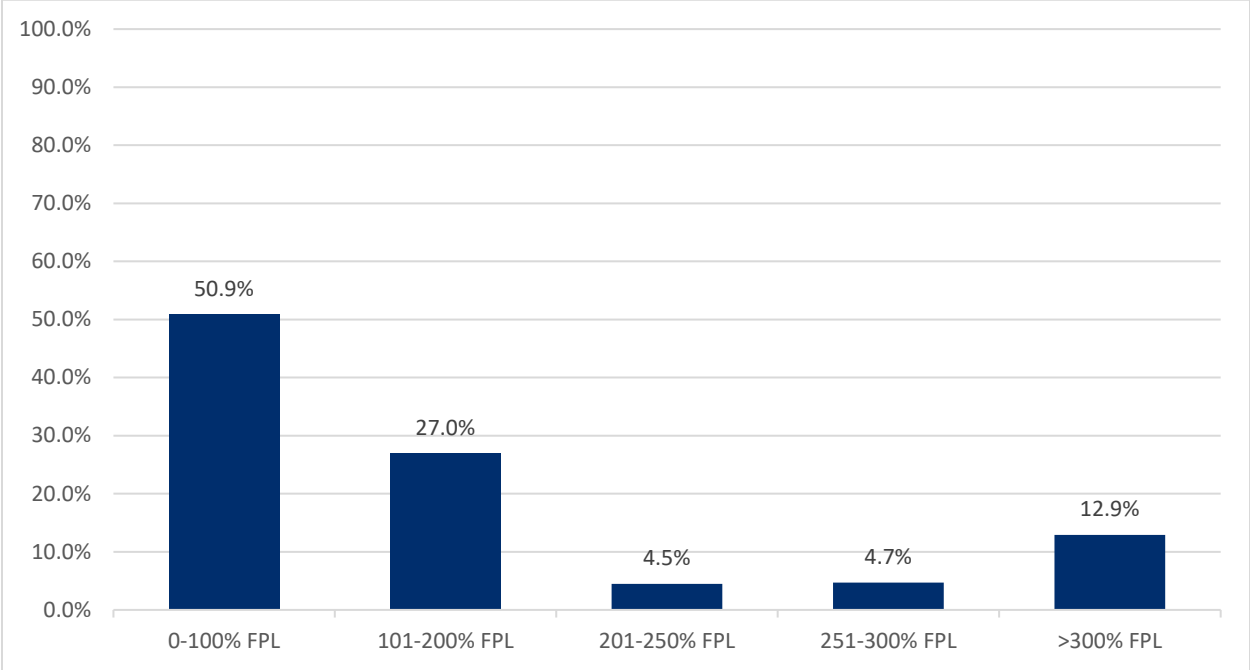
Figure 3. Household Income



Note: $n = 684$.

Household income was compared with household size to calculate the federal poverty level (FPL). As illustrated below, a majority (50.9%) of households were at or below the FPL (0-100% FPL), and 27.0% were 101-200% FPL.

Figure 4. Federal Poverty Level



Note: n = 684.

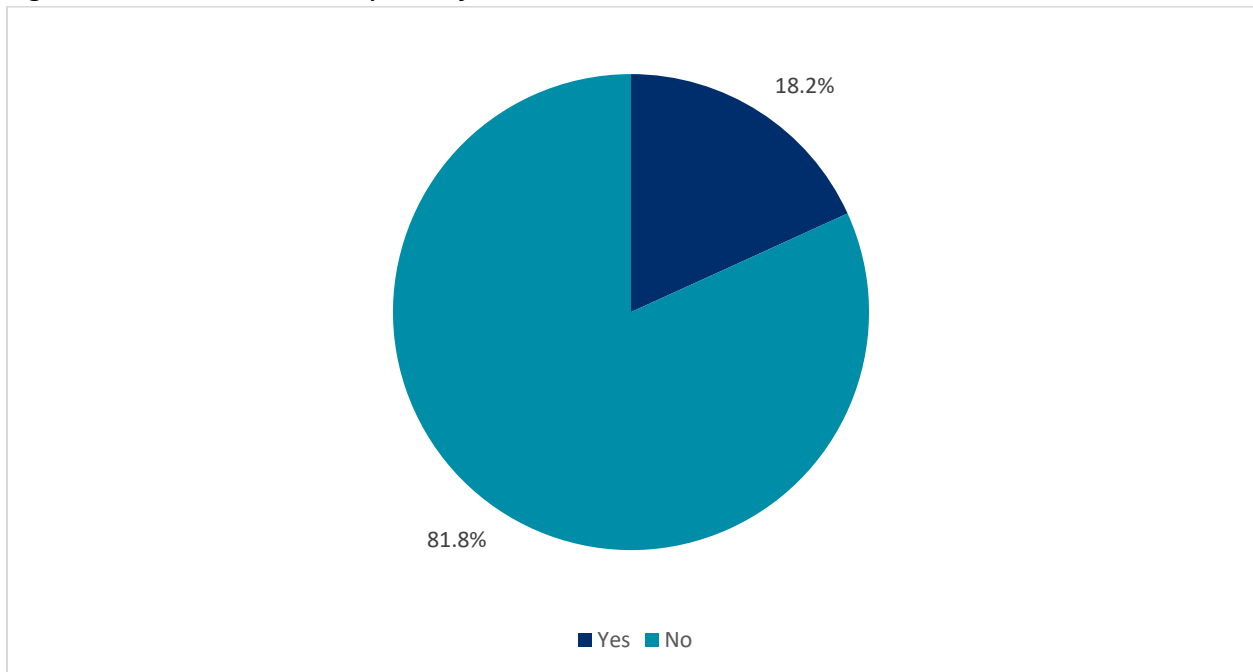
Skin Symptoms

Survey participants were asked about the child’s eczema symptoms (“about the child’s skin”).

Itchy Rash

All survey participants were asked, “Has your child ever had an itchy rash which was coming and going for at least 6 months?” As illustrated below, 18.2% of children have had an itchy rash that was coming and going for at least six months, and 81.8% of children have not had such a rash.

Figure 5. Child Ever Had Itchy Rash for at Least Six Months?

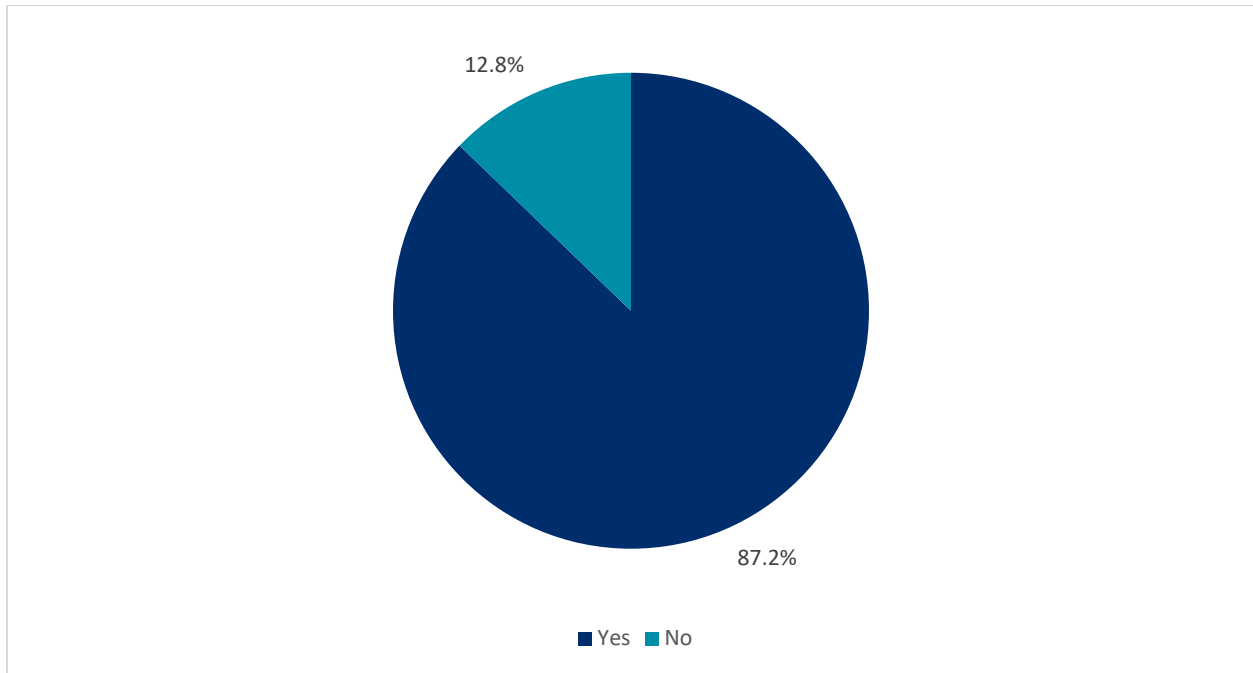


Note: $n = 817$.

Itchy Rash in Last 12 Months

Survey participants who said that their child has had an itchy rash that was coming and going for at least six months were then asked, “Has your child had this itchy rash at any time in the last 12 months?” As illustrated below, among children who have had this itchy rash, 87.2% have had this itchy rash in the last 12 months, and 12.8% have not had this itchy rash in the last 12 months.

Figure 6. Has Child Had This Itchy Rash in the Last 12 Months?

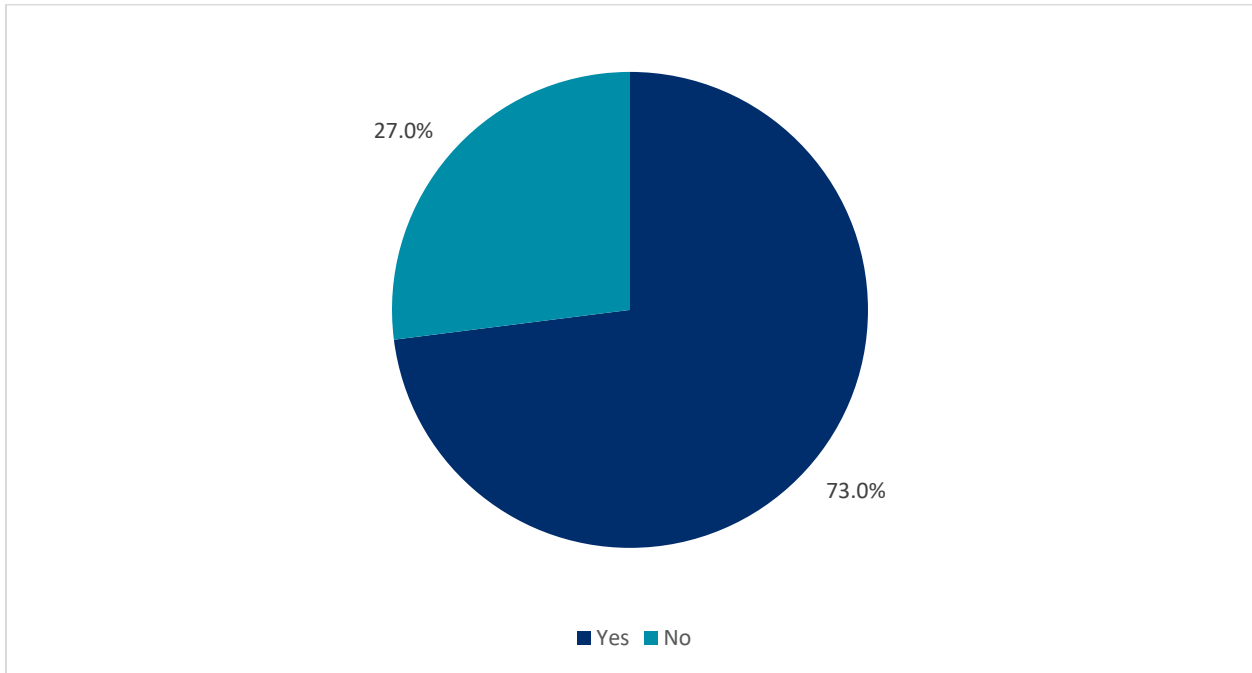


Note: $n = 699$.

Itchy Rash Location

Survey participants who said that their child has had this itchy rash in the last 12 months were then asked, “Has this itchy rash at any time affected any of the following places: behind the knees, in the inner part of the elbows, in front of the ankles, under the buttocks, or around the neck, ears or eyes?” As illustrated below, among children who have had this itchy rash in the last 12 months, 73.0% have had this itchy rash in one or more of these locations on the body, and 27.0% have not had this itchy rash in one or more of these locations on the body.

Figure 7. Has This Itchy Rash Affected Behind the Knees/Inner Elbows/etc.?

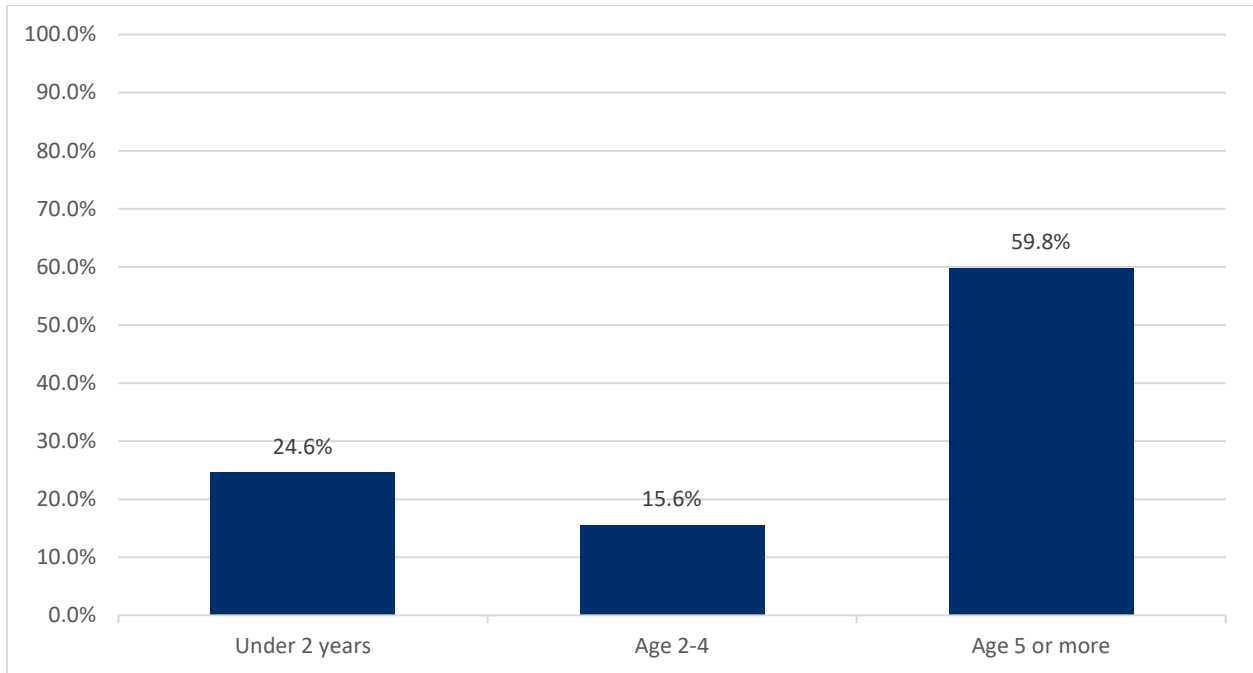


Note: $n = 122$.

Age When Rash First Occurred

Survey participants who said that their child has had this itchy rash in the last 12 months were also asked, “At what age did this itchy rash first occur?” As illustrated below, among children who have had this itchy rash in the last 12 months, 59.8% had the rash first occur at age five or older, 24.6% had the rash first occur under two years of age, and 15.6% had the rash first occur between the ages of 2 and 4 years.

Figure 8. At What Age Did This Itchy Rash First Occur?



Note: $n = 122$.

Conclusion

This survey of asthma and related symptoms has aimed to capture the prevalence of regional childhood asthma symptoms more accurately among both those who are diagnosed and those who are not diagnosed with asthma. The vast majority of children surveyed come from underserved communities, with over ninety percent identifying as Hispanic/Latino and over half living below the federal poverty level.

A total of 18.2% of children have had an itchy rash that was coming and going for at least six months, among whom 87.2% have had this itchy rash in the last 12 months. Further, among those with the rash in the last 12 months, 73.0% have had this rash affect a specified part of the body. Among those who had the rash in the last 12 months, 59.8% had the rash start when they were age five years or older.