Socioeconomic Status Report

UTAH DEPARTMENT OF
HEALTH
Asthma Program

Introduction

The Utah Asthma Program examined socioeconomic status (SES) among Utah's asthmatic population, in relation to access to care and asthma morbidity. Traditional SES indicators included education, occupation,[1] and income.[2] Health insurance coverage, which is highly related to these indicators, may also be used as an indirect measure of socioeconomic status[3] and is highlighted in this report.

Table 1: Traditional Socioeconomic Status Indicators

	Utah Adults with Current Asthma (95% CI)	**All Utah Adults** (95% CI)
Unemployed	6.3% (4.5-8.1)	4.6% (4.2-5.1)
< High School Education	8.8% (6.5-11.0)	6.8% (6.2-7.4)
Annual Household Income< $25,000	21.0% (18.1-23.9)	17.6% (16.7-18.5)

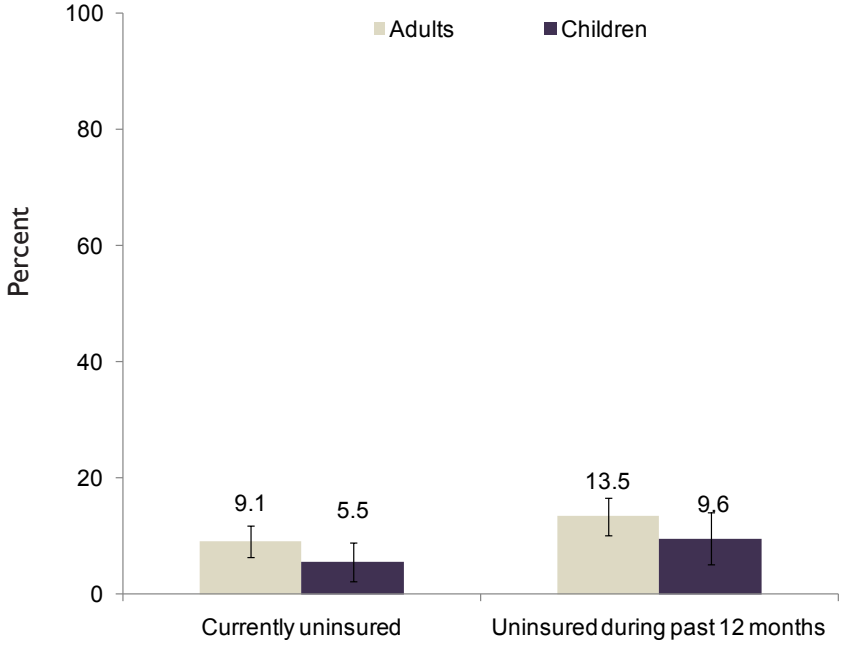
Data source: BRFSS Core, 2007-2009

Table 1 includes measures of socioeconomic status for Utah's adult asthmatic population compared to the general adult population. Traditional measures (employment, education, and income) among the asthmatic population were similar to those of the general adult population.

Chi-square tests of association between these traditional SES indicators and health insurance measures (currently without health insurance, and having experienced a health insurance gap during the past 12 months) were significant ($p<0.0001$). These findings confirm a relationship between health insurance and traditional SES measures and support the use of health insurance as a surrogate measure of SES in Utah.

Uninsured Asthma Population

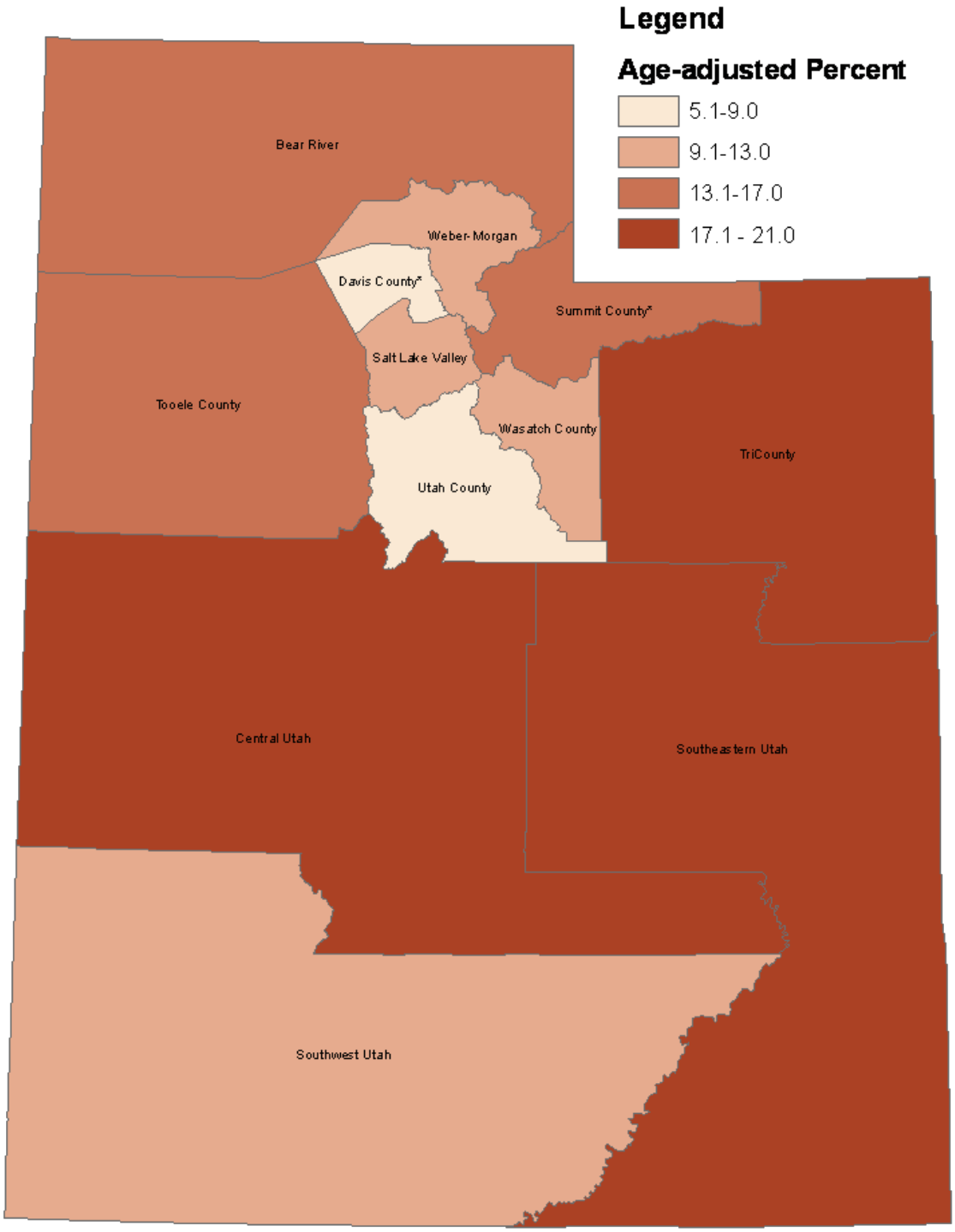
Figure 1. Percentage of Uninsured Adults and Children with Current Asthma, Utah, 2007-2009



Data Source: BRFSS Callback Survey 2007-2009. Crude percentages.

Combined years 2007-2009 of the Behavioral Risk Factor Surveillance System (BRFSS) survey indicate that 9.1 percent of adults and 5.5 percent of children with asthma were without health insurance. This represents approximately 14,000 uninsured adults and 3,500 uninsured children with asthma in Utah.[4] Higher percentages of adults and children, though not statistically significant, reported having experienced a gap in health insurance during the 12 months prior to the survey.

Figure 2. Percentage of Uninsured Adults with Current Asthma by Local Health District, Utah, 2005-2010



Data Source: BRFSS 2005-2010. Age-adjusted percentages. *Coefficient of variation is >30% and does not meet Utah Department of Health standards for reliability. Interpret with caution.

Table 2. Age-adjusted Percentage of Utah Adults Without Health Insurance, by Local Health District, BRFSS 2005-2010

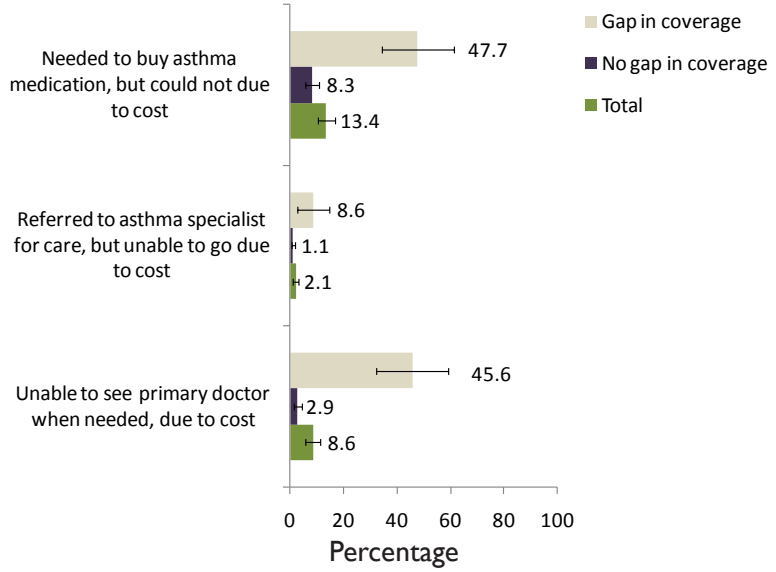
Local Health District	Adults with Asthma (95% CI)	General Utah Adult Population (95% CI)
Bear River	14.3 (8.0-24.2)	12.3 (10.6-14.1)
Central Utah	19.4 (13.0-27.9)	20.3 (17.9-23.0)
Davis County	5.1 (2.6-9.8)*	8.8 (7.6-10.3)
Salt Lake Valley	11.4 (9.3-13.9)	14.3 (13.5-15.2)
Southeastern Utah	20.9 (14.5-29.2)	19.0 (16.8-21.5)
Southwest Utah	12.1 (6.9-20.3)*	20.5 (18.1-23.1)
Summit County	15.5 (7.9-28.2)*	15.4 (13.0-18.0)
Tooele County	14.0 (9.4-20.4)	13.8 (11.9-16.0)
TriCounty	17.1 (11.6-24.6)	17.3 (15.3-19.6)
Utah County	7.3 (4.6-11.4)	12.0 (10.9-13.3)
Wasatch County	10.9 (6.2-18.5)	17.4 (14.7-20.4)
Weber-Morgan	10.1 (6.5-15.3)	11.5 (10.1-13.1)
State Total	10.6 (9.3-12.1)	13.8 (13.3-14.3)

Data Source: BRFSS 2005-2010. Age-adjusted percentages. *Coefficient of variation is >30% and does not meet Utah Department of Health standards for reliability. Interpret with caution.

A comparison of insurance status by Utah's local health districts (LHDs) suggests disparities by geographic region. After adjusting for age, Central Utah, Southeastern, and TriCounty LHDs had the highest percentages of uninsured adults with asthma when compared to other local health districts, though most differences were not statistically significant. The percentages of uninsured adults in these three LHDs were significantly higher than the percentage of uninsured adults in Davis and Utah County LHDs, both among the asthmatic and general adult populations.

Barriers to Care

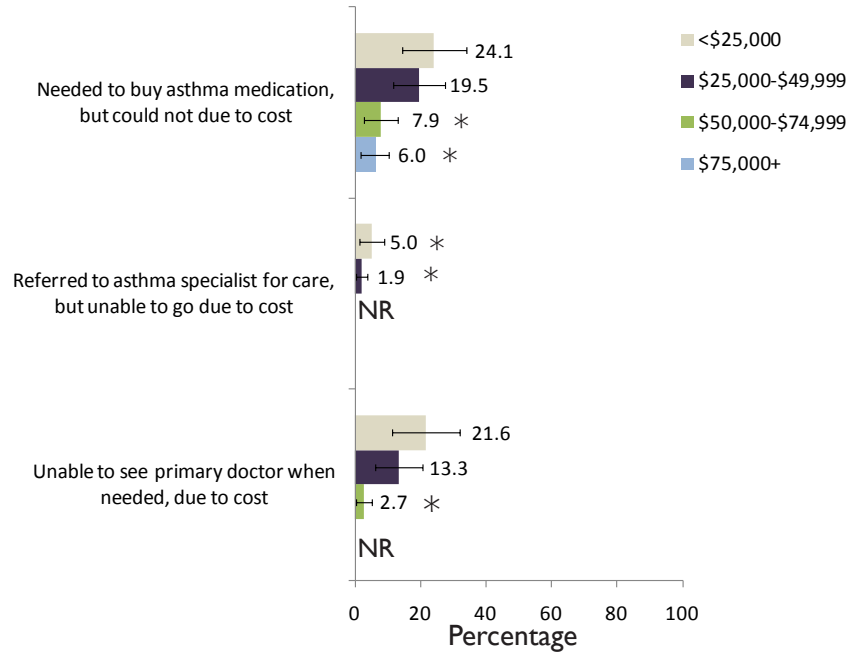
Figure 3. Adults with Current Asthma Who Experienced Barriers to Care During the Past 12 Months, by Gap in Insurance Coverage, Utah, 2007-2009



Data Source: BRFSS Callback Survey 2007-2009. Crude percentages.

Significantly higher percentages of adults with a gap in insurance coverage during the previous 12 months reported also experiencing barriers to care, compared to adults who did not have a gap in insurance coverage. Reliable estimates were unavailable for children with asthma.

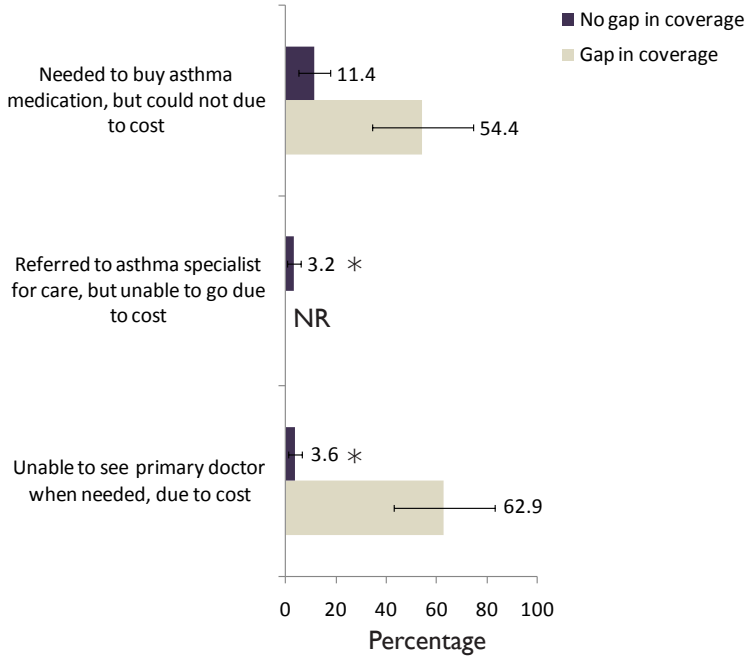
Figure 4. Adults with Current Asthma Who Experienced Barriers to Care During the Past 12 Months, by Household Income Level, Utah, 2007-2009



Data Source: BRFSS Callback Survey 2007-2009. Crude percentages. *Coefficient of variation is >30% and does not meet Utah Department of Health standards for reliability. Interpret with caution. NR = Numbers were not reportable due to insufficient sample size to give reliable estimates.

Significantly higher percentages of adults with a household income of <$25,000 or $25,000-$49,999 per year experienced cost barriers to buying asthma medications or seeing a doctor when needed, compared to adults with a household income of at least $50,000 per year. Household income was inversely related to experiencing cost barriers to asthma treatment.

Figure 5. Percentage of Adults with Current Asthma, with Household Income <$25,000 per Year, Who Experienced Cost Barriers During the Past 12 Months

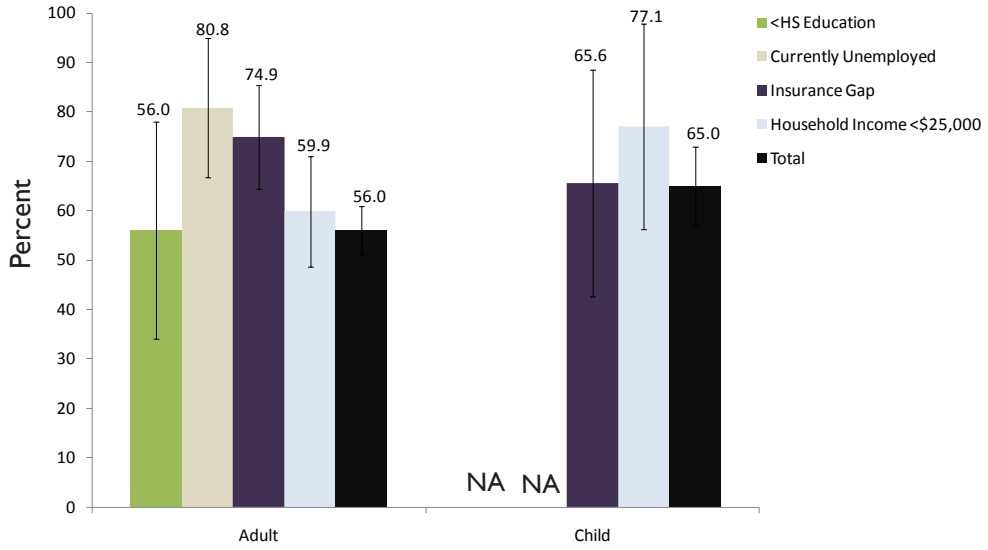


Data Source: BRFSS Callback Survey 2007-2009. Crude percentages. *Coefficient of variation is >30% and does not meet Utah Department of Health standards for reliability. Interpret with caution.

Further stratification by insurance coverage indicate that the majority of adults with low income who experienced barriers to care were those who also experienced a gap in insurance coverage. Among low-income adults who did not experience a gap in insurance coverage, relatively low percentages reported experiencing cost barriers to asthma care.

Asthma Morbidity

Figure 6. Adults and Children with Current Asthma Who Experienced an Asthma Episode or Attack During the Past 12 Months, by Socioeconomic Indicators, Utah, 2007-2009



Data Source: BRFSS Callback Survey 2007-2009. Crude percentages.

Table 3. Odds of Experiencing an Asthma Attack During the Past 12 Months Among Utah Adults and Children with Current Asthma, 2007-2009

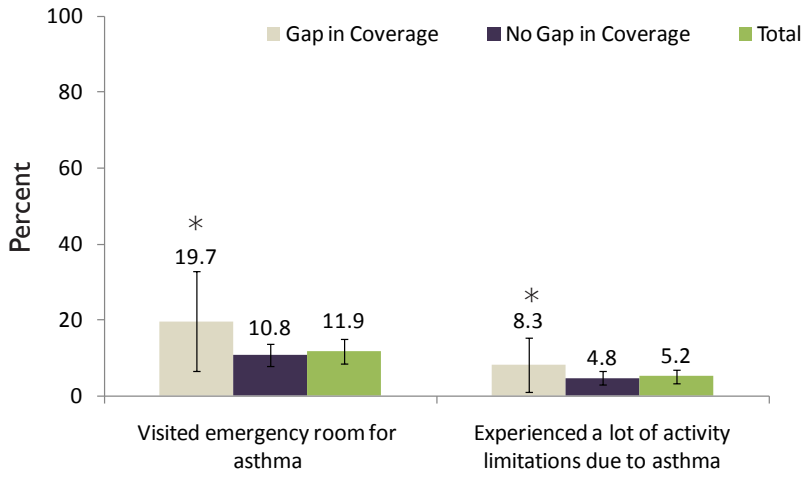
Indicator Variable	Adults Crude Odds Ratios (95% CI)	Children Crude Odds Ratio (95% CI)	Reference
Unable to see doctor due to cost	2.1 (1.0-4.6)	NR	No cost barrier
Unable to buy medications due to cost	**3.5 (1.9-6.6)**	NR	No cost barrier
Unable to see specialist due to cost	**4.4 (1.2-16.8)**	NR	No cost barrier
Experienced gap in health insurance coverage	**2.2 (1.2-4.1)**	1.2 (0.4-3.8)	No health insurance gap
Household income <$25,000 per year	1.07 (0.6-1.9)	2.6 (0.7-9.5)	Household income $75,000+ per year
<HS education	1.3 (0.5-3.6)	N/A	College graduate
Currently unemployed	2.2 (0.9-5.7)	N/A	Currently employed

Data Source: BRFSS Call-back Survey, 2007-2009.
NR = Numbers were not reportable due to insufficient sample size to give reliable estimates.

The strongest predictors of having an asthma attack were experiencing cost barriers to buying asthma medications or not seeing an asthma specialist during the past 12 months. After controlling for age and sex in an adjusted model (adjusted odds not shown in table), experiencing barriers to buying asthma medications remained the strongest predictor of experiencing an asthma attack (OR=3.3 [CI 1.7-6.6]).

Among children with asthma, there were no significant differences in asthma attacks based on a gap in insurance coverage or household income. No differences in asthma attacks were found among adults based on reported household income, education, or employment.

Figure 7. Asthma Morbidity Among Adults with Asthma During the Past 12 Months, by Gap in Insurance Coverage, Utah, 2007-2009



Data Source: BRFSS Callback Survey 2007-2009. Crude percentages. * The coefficient of variation is >30% and does not meet Utah Department of Health standards for reliability. Interpret with caution.

Higher percentages of adults with asthma who had a gap in health insurance coverage visited the emergency room or experienced activity limitations when compared to adults who did not have a gap in coverage. However, differences were not statistically significant, which may have been due to limited availability of data and resulting large confidence intervals. Thus, they should be interpreted with caution. Reliable estimates were unavailable for children with asthma.

Table 4. Odds of Experiencing an Emergency Department Visit During the Past 12 Months Among Utah Adults and Children with Current Asthma, 2007-2009

Indicator Variable	Adults Crude Odds Ratios (95% CI)	Children Crude Odds Ratio (95% CI)	Reference
Unable to see doctor due to cost	1.6 (0.5-4.9)	NR	No cost barriers
Unable to buy medications due to cost	2.1 (0.9-4.8)	NR	No cost barrier
Unable to see specialist due to cost	**4.4 (1.4-13.7**)	NR	No cost barrier
Experienced gap in health insurance coverage	1.4 (0.6-3.7)	0.7 (0.2-3.4)	No health insurance gap
Household income per year <$25,000	1.2 (0.5-2.6)	1.2 (0.3-5.4)	Household income $75,000+ per year
<HS education	0.4 (0.1-2.2)	N/A	College graduate
Currently unemployed	0.6 (0.2-1.9)	N/A	Currently employed

Data Source: BRFSS Call-back Survey, 2007-2009.
NR = Numbers were not reportable due to insufficient sample size to give reliable estimates.

Among Utah adults, the strongest predictor of having had to visit the emergency room for asthma during the past 12 months was experiencing cost barriers to seeing an asthma specialist. Reliable data were unavailable for children.

Conclusions

In Utah, an estimated 9.1% of adults and 5.5% of children with asthma are currently without health insurance, representing approximately 14,000 uninsured adults and 3,500 uninsured children with asthma. Lack of health insurance coverage appears to be associated with experiencing barriers to asthma care. Nearly half of adults who experienced a gap in insurance coverage reported being unable to see a doctor or buy asthma medications when needed, due to the cost. When assessing asthma outcomes, adults who reported experiencing cost barriers to buying asthma medications during the past twelve months were more than three times more likely to report experiencing an asthma attack, compared to adults who did not experience cost barriers to buying asthma medications. This finding held true even after controlling for age, sex, and other SES indicators in the model. Among children, the odds of an asthma attack or emergency department visit were not significantly increased based on available SES indicators.

Recommendations

- The Asthma Program should reach out to uninsured populations by educating them about asthma management and resources available to assist with the procurement of medications.
- Local health districts including TriCounty, Central, and Southeastern Utah reported the highest percentages of uninsured adults with asthma and may be areas where there is particular need. They should be included in focus areas for intervention.
- Because health insurance gaps appear to be more prevalent among adults than children, adults with asthma should be included in the focus population when developing educational materials and appropriate interventions.
- The Asthma Program should acknowledge differences by geographic area and age and target populations according to need.

References

1. Duncan GJ, Daly MC, McDonough P, Williams DR. Optimal Indicators of Socioeconomic Status for Health Research. Am J Public Health. 2002;92:1151–1157.

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3. Simon S. What is a good surrogate measure of socioeconomic status. http://www.pmean.com/10/ses.html accessed on July 20, 2011.

4. The Utah Population Estimates Committee (UPEC) and the Governor's Office of Planning and Budget (GOPB), 2009. Data accessed from http://ibis.health.utah.gov/query/builder/pop/PopMain/Count.html on July 20, 2011.

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