

2013 YOUTH RISK BEHAVIOR SURVEY – ASTHMA & BEHAVIORAL RISK FACTORS

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MICHIGAN YOUTH RISK BEHAVIOR SURVEY (YRBS)

- ▶ www.michigan.gov/yrbs
- ▶ Michigan's component of a nationwide survey developed by the Centers for Disease Control and Prevention (CDC) in collaboration with:
 - ▶ Representatives from state and local departments of education and health,
 - ▶ Other federal agencies, and
 - ▶ National education and health organizations.
- ▶ Representative of all students in grades 9-12.

YRBS

- Completed by 4,266 students in 45 public high schools in Michigan during the spring of 2013.
- Response Rates:
 - School - 90%.
 - Student - 86%.
 - Overall - 77%.
- Self-administered, anonymous, voluntary 99-item questionnaire.
- Local parental permission procedures were followed before survey administration.

YRBS

- Designed to monitor students' health risks and behaviors in six categories identified as most likely to result in adverse outcomes:
 1. Unintentional injury and violence,
 2. Tobacco use,
 3. Alcohol and other drug use,
 4. Sexual behaviors that contribute to unintended pregnancy or disease,
 5. Dietary behaviors, and
 6. Physical inactivity.

SAMPLE SIZE AND RISK FACTORS

- ▶ Investigate the association between current asthma among Michigan high school students and each of the following potential risk factors separately:
 - ▶ Smoking status,
 - ▶ Weight status,
 - ▶ Drinking status,
 - ▶ Physically active status and
 - ▶ Whether or not eating breakfast.
- ▶ Sample size - 4157 students with data for current asthma.

QUESTIONS

- ▶ Asthma – “Has a doctor or nurse ever told you that you have asthma?”
- ▶ Smoking status – “During the past 30 days, on how many days did you smoke cigarettes?”
- ▶ Weight status – “How much do you weigh without your shoes on?” and “How tall are you without your shoes on?”
 - ▶ Body mass index (BMI) was calculated with self-reported weight and height. Analysis was based on BMI percentiles as defined by CDC growth charts¹: underweight/normal weight(<85th percentile), overweight ($\geq 85^{\text{th}}$ to $< 95^{\text{th}}$ percentile) and obese ($\geq 95^{\text{th}}$ percentile).

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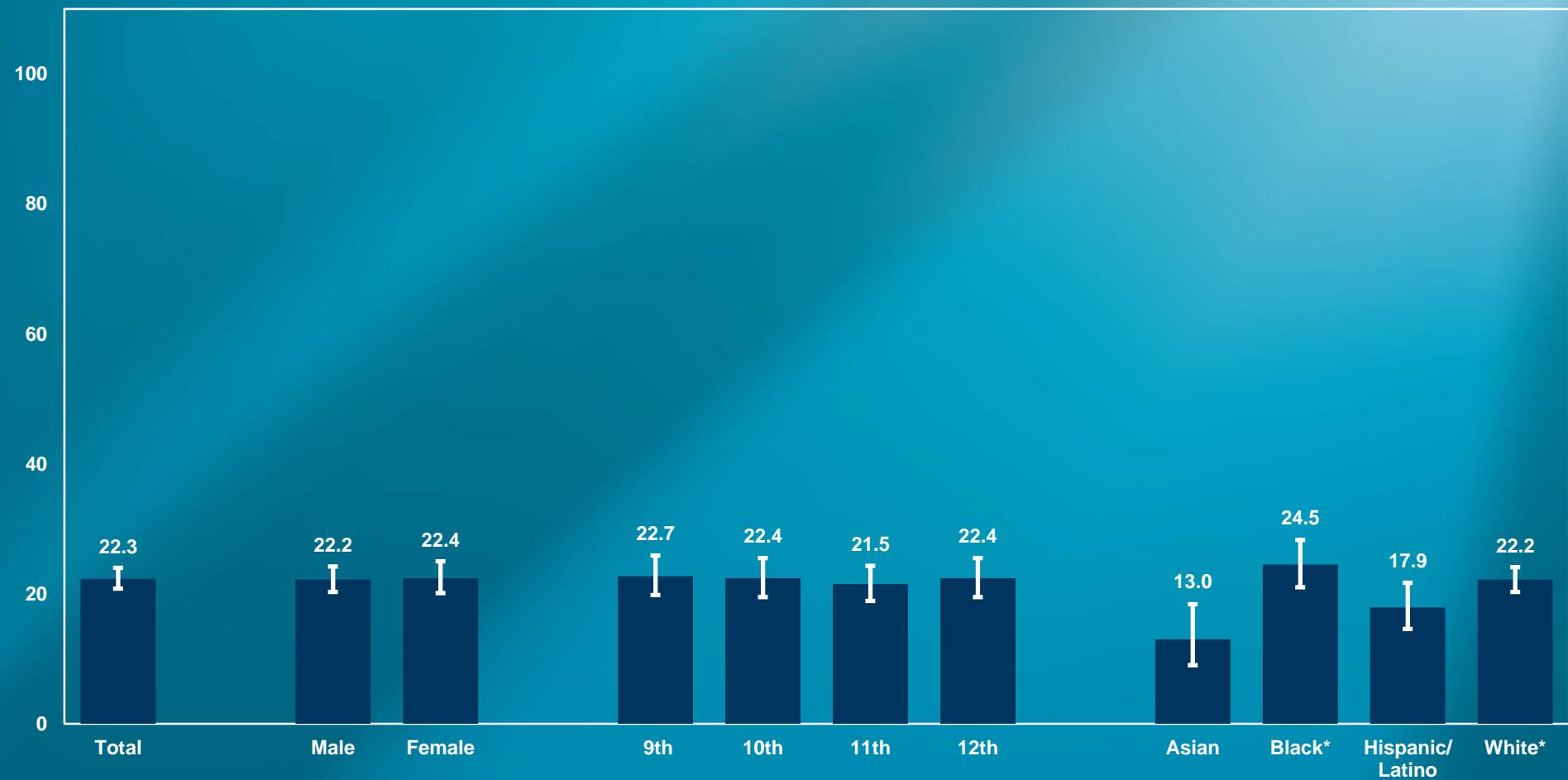
QUESTIONS

- ▶ Drinking status – “During the past 30 days, on how many days did you have at least one drink of alcohol?”
- ▶ Physically active status – “During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day?”
- ▶ Eating breakfast status - “During the past 7 days, on how many days did you eat breakfast?”

2013 Youth Risk Behavior Survey Results

Michigan High School Survey

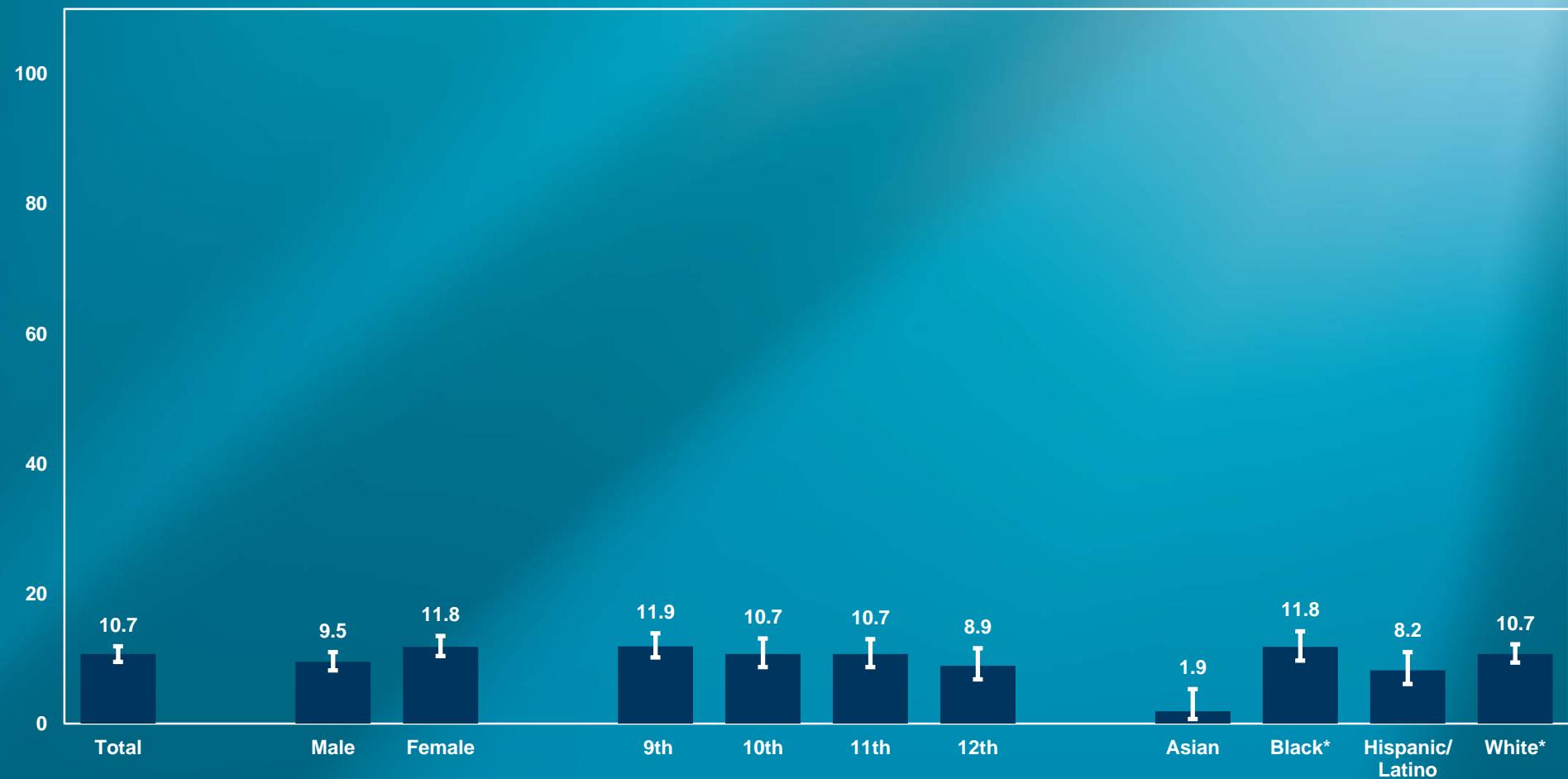
Percentage of students who had ever been told by a doctor or nurse that they had asthma



2013 Youth Risk Behavior Survey Results

Michigan High School Survey

Percentage of students who had been told by a doctor or nurse that they had asthma and who still have asthma



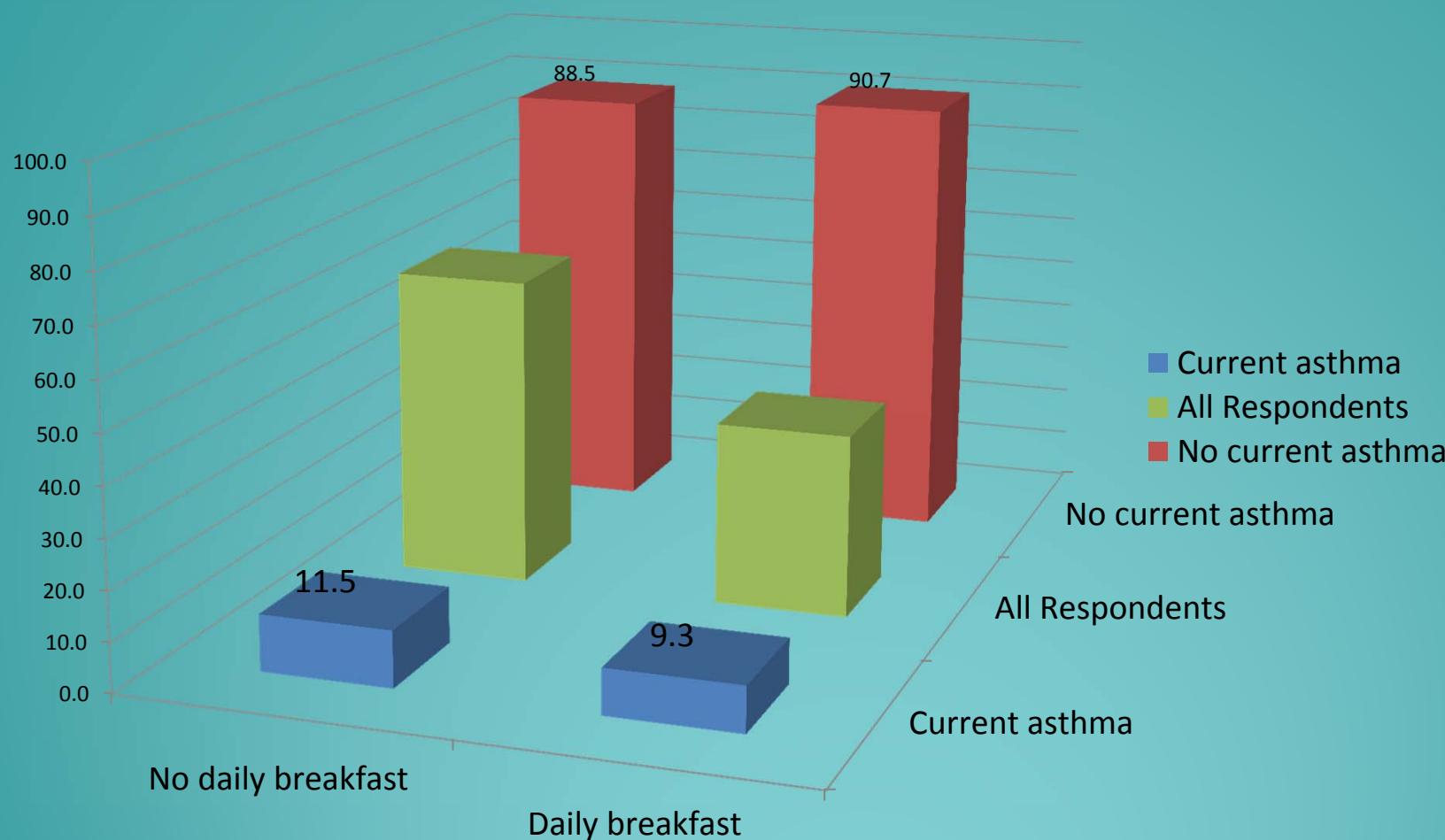
STATISTICAL ANALYSIS

- ▶ Chi-square tests - examine the unadjusted association between each exposure variable and current asthma.
- ▶ P value < 0.05 - considered statistically significant.
- ▶ Multivariate logistic regressions - estimate the adjusted odds ratios (ORs) and 95% CIs for association between each exposure variable and current asthma.
- ▶ Controlled for age, sex and race/ethnicity.

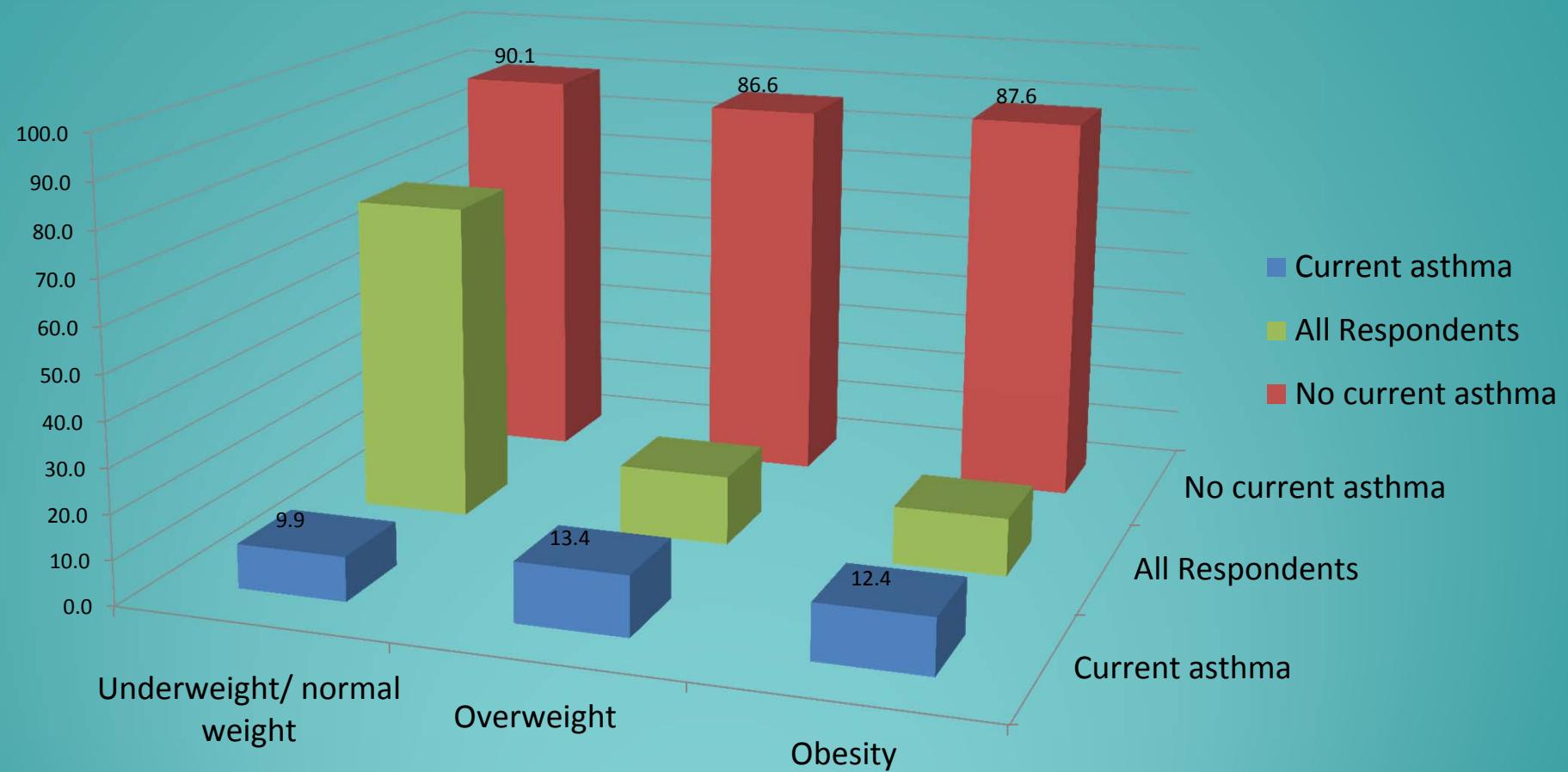
RESULTS – PREVALENCE

- ▶ 10.7% of students had current asthma.
- ▶ Prevalence current asthma varied significantly by:
 - ▶ Weight status,
 - ▶ Eating breakfast,
 - ▶ Age and
 - ▶ Sex (Table 1).

PERCENT OF RESPONDENTS IN EACH BREAKFAST CATEGORY BY ASTHMA STATUS, YRBS, 2013



PERCENT OF RESPONDENTS IN EACH WEIGHT CATEGORY BY ASTHMA STATUS, YRBS, 2013



RESULTS - MULTIVARIATE LOGISTIC REGRESSION

- ▶ Statistically significant associations between:
 - ▶ Weight status and current asthma, and
 - ▶ Eating breakfast and current asthma.
- ▶ Odds of having current asthma were significantly higher among students who were overweight (adjusted OR=1.339).
- ▶ Odds of having current asthma were significantly lower among students who ate breakfast everyday (adjusted OR=0.789).

CONCLUSION

- ▶ Being overweight was significantly associated with greater odds for current asthma among.
- ▶ Eating breakfast regularly was significantly associated with smaller odds for current asthma.
- ▶ Efforts to help high school kids keep normal weight and form the healthy habit of eating breakfast might benefit in asthma control.

Table 1. Selected characteristics of respondents and associations between respondents' characteristics and current asthma status among Michigan high school students, Youth Risk Behavior Survey, 2013

Characteristic	Current Asthma						
	All Respondents		No		Yes		P value
	%	95% CI	%	95% CI	%	95% CI	
Total sample (N=4157)	100		89.3	88.1-90.5	10.7	9.5-11.9	
Smoking status (N=3955)							
No	88.3	85.1-91.6	89.4	88.2-90.5	10.6	9.5-11.8	0.7995
Yes	11.7	8.4-15.0	88.8	84.6-93.1	11.2	7.0-15.4	
Weight status (N=4015)							
Underweight/normal weight	71.4	68.7-74.1	90.1	88.9-91.3	9.9	8.7-11.1	0.0064
Overweight	15.6	14.3-17.0	86.6	83.9-89.4	13.4	10.6-16.1	
Obesity	13.0	11.2-14.8	87.6	84.3-91.0	12.4	9.0-15.7	
Drinking status (N=3783)							
No	71.9	68.2-75.6	89.9	88.7-91.1	10.1	8.9-11.3	0.1803
Yes	28.1	24.4-31.9	88.3	86.0-90.6	11.7	9.4-14.0	
Physically active (N=4133)							
No	50.0	45.9-54.2	89.7	87.9-91.5	10.3	8.5-12.1	0.5315
Yes	50.0	45.8-54.1	88.9	87.2-90.6	11.1	9.4-12.8	
Eating breakfast (N=4130)							
No	62.7	59.3-66.1	88.5	87.0-90.0	11.5	10.0-13.0	0.0136
Yes	37.3	33.9-40.7	90.7	89.2-92.1	9.3	7.9-10.8	
Age (N=4156)							
14 years old or younger	11.6	8.6-14.6	90.6	88.2-93.1	9.4	6.9-11.8	0.0306
15 years old	26.0	22.4-29.7	87.1	85.0-89.2	12.9	10.8-15.0	
16 years old	25.6	21.6-29.5	89.4	87.8-91.1	10.6	8.9-12.2	
17 years old	23.5	20.5-26.5	89.6	87.4-92.0	10.4	8.1-12.6	
18 years old or older	13.3	10.1-16.5	91.8	88.6-95.0	8.2	5.0-11.4	
Sex (N=4142)							
Female	49.8	47.0-52.6	88.2	86.6-89.7	11.8	10.3-13.4	0.0107
Male	50.2	47.4-53.0	90.5	89.1-91.9	9.5	8.1-10.9	
Race/ethnicity (N=4079)							
Non-Hispanic white	72.8	58.7-87.0	89.3	87.9-90.7	10.7	9.3-12.1	0.1523
Non-Hispanic black	16.3	2.5-30.1	88.2	86.0-90.4	11.8	9.6-14.0	
Hispanic	5.3	3.8-6.8	91.8	89.4-94.1	8.2	5.9-10.6	
Non-Hispanic other	5.6	4.5-6.6	90.7	86.6-94.8	9.3	5.2-13.4	

Table 2. The relationship between current asthma and exposures among Michigan high school students, Youth Risk Behavior Survey, 2013

	Respondents with Current Asthma			
	Crude odds ratio	95% CI	Adjusted odds ratio	95% CI
Smoking status				
No	Reference	-	Reference	-
Yes	1.058	0.685-1.633	1.186	0.762-1.845
Weight status				
underweight/normal weight	Reference	-	Reference	-
overweight	1.404	1.115-1.769	1.339	1.026-1.748
obese	1.284	0.948-1.738	1.356	0.970-1.897
Drinking status				
No	Reference	-	Reference	-
Yes	1.179	0.927-1.500	1.209	0.947-1.544
Physically active				
No	Reference	-	Reference	-
Yes	1.089	0.834-1.420	1.15	0.857-1.543
Eating breakfast				
No	Reference	-	Reference	-
Yes	0.791	0.657-0.953	0.789	0.649-0.960