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Trends in Preventive Visits Among U.S. Youth Where Weight and Height Were Recorded: 2005–2016

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INTRODUCTION

In the U.S., 18.5% of U.S. youth aged 2–19 years have obesity.¹ Since 2003, the American Academy of Pediatrics has recommended measurement of weight and height at each preventive visit for all children and adolescents to screen for obesity; current guidelines apply to those aged ≥ 2 years.^{2–4}

This study analyzed trends and differences by age in preventive visits of U.S. youth aged 2–19 years to pediatricians and family medicine physicians in which weight and height were recorded between 2005 and 2016.

METHODS

The National Ambulatory Medical Care Survey is an annual, nationally representative survey of patient visits made to nonfederal, office-based physicians in the U.S., conducted by the National Center for Health Statistics. The response rate (the percentage of in-scope physicians for whom at least one-half of their expected number of visit records was completed) ranged from 32.7% in 2016 to 61.5% in 2005. Detailed information regarding the survey is available elsewhere (www.cdc.gov/nchs/ahcd/).

The unit of analysis was ambulatory care visits (number of visits rather than the number of people) and multiple visits for the same person could be represented in the data. Preventive visits were defined as any visit reported for general medical examination, well-baby examination, or physical examination required for school or employment to family practice physicians or pediatricians. Overall, 82.8% of the preventive visits were to pediatricians. Pregnant female patients were excluded from analysis.

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The percentage of preventive visits with recorded weight and height along with 95% CIs are reported. Because there are differences by age in obesity prevalence,¹ trends by age (2–11 and 12–19 years) were analyzed. Annual percentage point change and 95% CI were reported from the linear regression models. Differences between age groups were evaluated with two-tailed *t*-tests using $p < 0.05$ as the level of significance. Statistical analyses accounted for the complex survey design. Analyses were conducted in 2018 using SAS, version 9.4 and SUDAAN, version 11.0.

RESULTS

The overall percentage of preventive visits in which weight and height were recorded increased from 87.6% (95% CI=81.6%, 92.3%) in 2005 to 95.6% (95% CI=88.4%, 99.0%) in 2016 ($p < 0.001$). Among children aged 2–11 years, the percentage increased from 86.9% (95% CI=79.5%, 92.4%) in 2005 to 96.5% (95% CI=88.1%, 99.5%) in 2016 ($p = 0.007$). Among adolescents, the percentage increased from 89.0% (95% CI=81.0%, 94.4%) in 2005 to 94.1% (95% CI=85.3%, 98.4%) in 2016 ($p < 0.001$) (Table 1).

DISCUSSION

These results expand on earlier analyses^{5,6} with more recent data, a wider age range, and a focus on preventive visits to family practice physicians or pediatricians. Weight and height were recorded during almost all (95.6%) preventive visits in 2016, higher than the 87.6% in 2005. However, it is unknown whether BMI was calculated from weight and height and obesity screening occurred during these preventive visits. Trends among visits to family practice physicians and pediatricians were similar and there was no consistent difference between the specialty groups. Small sample size precluded further subgroup analysis. Future data will determine whether these trends continue.

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Table 1. Percentage^a of Visits in Which Weight and Height Were Recorded Among All Preventive Visits Made by U.S. Youth Aged 2 to 19 Years, by Age Group, 2005 to 2016*

Survey year	Overall			2–11 years			12–19 years		
	Visits, <i>b</i> n	% (95% CI)	Visits, <i>b</i> n	% (95% CI)	Visits, <i>b</i> n	% (95% CI)	Visits, <i>b</i> n	% (95% CI)	
2005	478	87.6 (81.6, 92.3)	314	86.9 (79.5, 92.4)	164	89.0 (81.0, 94.4)			
2006	410	91.1 (85.5, 95.1)	268	91.1 (84.6, 95.5)	142	91.2 (83.2, 96.2)			
2007	554	85.7 (80.9, 89.7)	358	87.4 (80.9, 92.4)	196	82.1 (74.1, 88.5)			
2008	586	94.1 (91.3, 96.3)	394	95.5 (92.6, 97.5)	192	91.1 (85.3, 95.2)			
2009	549	94.4 (89.9, 97.4)	358	96.4 (92.9, 98.5)	191	90.6 (81.5, 96.2)			
2010	629	92.2 (87.9, 95.3)	436	93.3 (87.6, 96.9)	193	89.6 (82.6, 94.5)			
2011	553	96.2 (92.5, 98.4)	376	95.4 (90.8, 98.2)	177	97.7 (93.5, 99.5)			
2012	1,763	94.0 (92.0, 95.7)	1,166	93.9 (91.4, 95.9)	597	94.3 (91.2, 96.5)			
2013	1,570	97.1 (95.1, 98.4)	1,015	97.1 (95.3, 98.4)	555	96.9 (94.1, 98.7)			
2014	1,234	94.4 (89.4, 97.6)	790	95.3 (91.9, 97.6)	444	93.0 (82.6, 98.2)			
2015	580	92.9 (87.7, 96.4)	398	90.7 (84.1, 95.1)	182	97.7 (92.5, 99.6)			
2016	207	95.6 (88.4, 99.0)	136	96.5 (88.1, 99.5)	71	94.1 (85.3, 98.4)			
Annual percentage point change (95% CI)		0.64 (0.29, 0.98) <i>p</i><0.001		0.54 (0.15, 0.93) <i>p</i>=0.007		0.84 (0.37, 1.30) <i>p</i><0.001			

Note: The annual percentage point change, 95% CI, and *p*-values were calculated using linear regression models. Boldface indicates statistical significance (*p*<0.05).

^a Percentages are weighted to represent the visits to nonfederally employed office-based physicians made by U.S. youth aged 2 to 19 years.

^b Unweighted sample size.

Data source: National Center for Health Statistics, National Ambulatory Medical Care Survey (NAMCS).