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World No Tobacco Day — May 31, 2013

Approximately 6 million deaths related to tobacco use occur each year, including 600,000 in persons who breathe secondhand smoke. Unless trends reverse, by 2030, approximately 8 million persons will die from tobacco use each year. Approximately 80% of these deaths are expected to occur among person living in low-income and middle-income countries (*1*).

In 1987, the World Health Organization (WHO) created World No Tobacco Day to draw global attention to the health risks of tobacco use. Another important contribution of WHO to conceiving a long-term solution to the global tobacco problem is the development of the WHO Framework Convention on Tobacco Control. The treaty was adopted by the World Health Assembly in 2003 and is one of the most widely embraced treaties in United Nations history (*2*).

The treaty commits countries to protect the public's health by adopting various measures to reduce demand for tobacco. One measure of the treaty requires countries to provide widely accessible, comprehensive information regarding the addictive nature, risks, and health threats of exposure to tobacco smoke (*3*). Antismoking messages in the mass media are one means to accomplish this goal. This issue of *MMWR* includes a review of data from 17 countries, finding an association between awareness of antismoking messages and intention to quit smoking.

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Antismoking Messages and Intention to Quit — 17 Countries, 2008–2011

Antismoking mass media campaigns can help reduce the prevalence of smoking by discouraging young persons from initiating smoking and by encouraging current smokers to quit (*1,2*). Smoking cessation is a multistage process; intention to quit smoking precedes quit attempts (*3*). To assess whether awareness of anti-cigarette smoking information in four mass media channels (television, radio, billboards, and newspapers or magazines) was significantly associated with a current cigarette smoker's intention to quit, CDC analyzed data from 17 countries that participated in the Global Adult Tobacco Survey (GATS). Logistic regression was used to analyze the relationship between awareness of antismoking messages and intent to quit smoking; odds ratios were adjusted to control for demographic factors, awareness of warning labels on cigarette packages, and awareness of tobacco advertisements. In nine of 17 countries, intent to quit was significantly associated with awareness of antismoking messages in a single media channel versus no awareness, with adjusted odds ratios ranging from 1.3 to 1.9. In 14 countries, intent to quit was significantly associated with awareness of messages in multiple channels versus no awareness, with adjusted odds ratios ranging from 1.5 to 3.2. Antismoking information in mass media channels can help reduce tobacco consumption by encouraging smokers to contemplate quitting and might be more effective when presented in multiple channels.

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GATS is an ongoing, nationally representative household survey of noninstitutionalized adults aged ≥15 years (*4*). This report used data from current cigarette smokers in 17 countries that participated in GATS during 2008–2011. Current smokers who were categorized as intending to quit included 1) persons who indicated they planned to quit smoking in the next month and 2) persons who indicated they were thinking about quitting smoking in the next 12 months. Survey questions asking whether current smokers noticed anti-cigarette smoking information during the last 30 days in any of four media channels (television, radio, billboards, and newspapers or magazines) were used to measure awareness of the messages.

Logistic regression was used to analyze the relationship between awareness of antismoking messages and intention to quit smoking. Awareness of antismoking messages was classified into three categories: 1) did not notice antismoking information in any media channels; 2) noticed antismoking information in one of the four channels; and 3) noticed antismoking information in more than one of the channels. Because intention to quit and exposure to antismoking information might both be associated with demographic characteristics, variables for sex, age, residence, education, and socioeconomic status (*5*) were entered into the model. Additionally, to control for media influence, two indicators were entered into the model: whether the respondent noticed warning labels on cigarette packages in the last 30 days and whether the respondent was aware of protobacco marketing in the last 30 days. Awareness of protobacco marketing was measured by affirmative responses to a series of questions asking whether the respondent had noticed protobacco advertisements, promotions, or sponsorships in the last 30 days in various marketing channels (*6*).

A total of 265,564 persons participated in the 17 country surveys. Response rates for the surveys ranged from 65.1% in Poland to 97.7% in Russia, with a median response rate of 93.6%.*

Of the participants, 50,209 reported they were current smokers.† In all 17 countries, these respondents noticed antismoking information during the last 30 days in all four of the media channels (television, radio, billboards, and newspapers or magazines). More than half of respondents noticed antismoking information in at least one of the four media channels in all countries, and more noticed antismoking information on television compared with the other three media channels. Awareness of antismoking information on television was reported by >80% of smokers in four countries: Turkey (87.8%), Malaysia (86.7%), Vietnam (85.6%), and Mexico (82.8%). Awareness for radio was highest in Mexico (47.9%), followed by Malaysia (47.0%) and Uruguay (43.0%). Awareness for billboards ranged from 17.6% in Brazil to 73.9%

* Response rates for the 17 country surveys were as follows: Bangladesh 93.6%, Brazil 94.0%, China 96.0%, Egypt 97.2%, India 91.8%, Indonesia 94.3%, Malaysia 85.3%, Mexico 82.5%, Philippines 94.7%, Poland 65.1%, Romania 89.1%, Russia 97.7%, Thailand 94.2%, Turkey 90.9%, Ukraine 76.1%, Uruguay 95.2%, Vietnam 92.7%.

† Current cigarette smokers included those who smoked manufactured cigarettes, hand-rolled cigarettes, or kreteks, daily or less frequently than daily.

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What is already known on this topic?

Mass media antismoking messages can help reduce tobacco consumption.

What is added by this report?

Among current smokers in nine of 17 countries surveyed, the association between intent to quit and awareness of antismoking messages in a single media channel versus no awareness was significant, with adjusted odds ratios ranging from 1.3 to 1.9. In 14 of the countries, the association between intent to quit and awareness of messages in multiple media channels versus no awareness was significant, with adjusted odds ratios ranging from 1.5 to 3.2.

What are the implications for public health practice?

Antismoking information in the mass media can reduce tobacco consumption by encouraging smokers to contemplate quitting and might be even more effective when presented in multiple media channels.

in Malaysia, while awareness for newspapers or magazines ranged from 9.4% in Indonesia to 74.3% in Malaysia (Table 1).

Among the respondents, 10,439 said they intended to quit. In five of the 17 countries, the number of respondents intending to quit was >30% (43.8% in Bangladesh, 34.6% in Mexico, 33.7% in Uruguay, 31.7% in Poland, and 30.2% in Vietnam). Intention to quit smoking was <20% in five countries (18.7% in Brazil, 16.0% in China, 14.5% in Russia, 14.2% in Malaysia, and 10.5% in Indonesia). The proportion of respondents who noticed a warning label in the last 30 days was high in all countries, ranging from 70.7% in India to 97.9% in Romania. Wide variation was observed in the percentage of respondents who noticed any type of protobacco marketing in the last 30 days, ranging from 0.0% in three countries (Egypt, Thailand, and Vietnam) where all forms of tobacco advertising, promotions, and sponsorship are banned to 87.3% in Indonesia, where only the distribution of free samples of cigarettes is banned (*6,7*) (Table 1).

In nine of the 17 countries, the association between intent to quit and awareness of antismoking messages in a single channel versus no awareness was significant, with adjusted odds ratios ranging from 1.3 to 1.9. The association between intent to quit and awareness of messages in multiple channels versus no awareness was significant in 14 of the 17 countries, with adjusted odds ratios ranging from 1.5 to 3.2. The strongest association (adjusted odds ratio: 3.2) was in Bangladesh (Table 2).

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Editorial Note

The World Health Organization Framework Convention on Tobacco Control requires countries to provide widely accessible, comprehensive information about the addictiveness, risks, and harms of exposure to tobacco smoke. Antismoking messages in the mass media are one means to accomplish this goal. Whereas awareness of antismoking messages demonstrates that the information has reached the public, smokers' intentions to quit are an indicator of the effectiveness of those messages. Campaign reach, intensity, duration, and the content of messages might influence effectiveness (*8*).

Research has shown that mass media campaigns might be ineffective if they do not meet a threshold for sufficient population exposure. Among the GATS countries included in this study, such a threshold might be difficult to overcome without the use of television, the primary media channel associated with the greatest exposure. The content of the messages also matters; messages that convey the adverse health effects of tobacco use and secondhand smoke exposure have been found to be more effective than other message types (*8*).

The findings in this report are subject to at least six limitations. First, awareness of mass media antismoking messages does not directly measure the frequency or duration of exposure to specific messages. The extent of the mass media campaigns in the countries studied was not reported. Second, differences in content can be found in antismoking media messages as well as in protobacco marketing and warning labels on cigarette packages; these differences might account for differences in their association with intention to quit. Third, additional factors (e.g., increases in tobacco prices or smokefree laws) not controlled for in this analysis might influence whether smokers intend to quit (*8*). Fourth, different types of smoked tobacco products other than cigarettes are common in several countries (e.g., bidis in Bangladesh and India and shisha in Egypt, Turkey, and Ukraine). This report is limited to anti-cigarette smoking messages specifically and does not consider media messages aimed at the use of other types of smoked tobacco. Fifth, although intention to quit has been correlated with actual quit behavior (*3,8*), it is not a direct measure of quit behavior. Finally, the survey design is cross-sectional, and causality cannot be inferred from the associations described in this report.

TABLE 1. Prevalence of current smoking and selected characteristics of current cigarette smokers* aged ≥15 years — Global Adult Tobacco Survey, 17 countries, 2008–2011

	Bangladesh (N = 9,629)		Brazil (N = 39,425)		China (N = 13,354)		Egypt (N = 20,924)		India (N = 69,296)		Indonesia (N = 8,305)	
Characteristic	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
All persons aged ≥15 yrs												
Current cigarette smoking prevalence	14.2	(13.2–15.2)	16.9	(16.5–17.4)	27.7	(26.2–29.2)	16.3	(15.7–17.0)	5.8	(5.5–6.2)	34.8	(33.2–36.4)
Current cigarette smokers												
% who intend to quit†	43.8	(39.6–48.2)	18.7	(17.3–20.3)	16.0	(12.9–19.7)	27.9	(25.7–30.2)	27.8	(25.2–30.6)	10.5	(8.2–13.3)
% who noticed antismoking information in last 30 days												
On television	45.3	(40.6–50.0)	64.8	(63.2–66.3)	47.1	(41.3–52.9)	54.4	(51.7–57.1)	39.3	(36.7–41.9)	38.8	(34.6–43.2)
On radio	16.8	(13.4–20.8)	32.3	(30.8–33.8)	6.3	(4.2–9.2)	17.1	(15.3–19.1)	17.9	(15.9–20.0)	5.5	(4.3–7.0)
On billboards	22.6	(19.4–26.3)	17.6	(16.3–18.8)	20.8	(16.8–25.5)	28.3	(25.9–30.9)	25.2	(23.0–27.5)	32.1	(28.2–36.3)
In newspapers or magazines	12.8	(10.8–15.2)	36.3	(34.7–37.9)	22.3	(18.5–26.6)	16.0	(14.5–17.8)	32.7	(30.2–35.3)	9.4	(7.8–11.3)
In any of the above four media channels	55.1	(50.2–59.9)	72.0	(70.5–73.4)	56.7	(50.7–62.6)	65.3	(62.8–67.8)	58.6	(55.8–61.4)	51.6	(47.0–56.1)
% who noticed warning labels on cigarette packaging	90.7	(88.5–92.6)	87.9	(86.8–88.9)	87.5	(82.9–91.0)	98.6	(97.9–99.0)	70.7	(68.0–73.2)	72.2	(67.4–76.6)
% who noticed protobacco marketing	54.9	(50.0–59.6)	37.7	(36.0–39.3)	17.3	(14.1–21.1)	0.0§	—	18.8	(16.8–21.1)	87.3	(84.9–89.4)

	Malaysia (N = 4,250)		Mexico (N = 13,617)		Philippines (N = 9,701)		Poland (N = 7,840)		Romania (N = 4,517)		Russia (N = 11,406)	
Characteristic	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
All persons aged ≥15 yrs												
Current cigarette smoking prevalence	22.9	(21.0–25.0)	15.6	(14.5–16.8)	27.9	(26.8–29.2)	30.2	(28.8–31.5)	26.7	(25.0–28.4)	38.8	(37.4–40.2)
Current cigarette smokers												
% who intend to quit†	14.2	(10.9–18.3)	34.6	(31.5–37.9)	20.7	(18.6–23.0)	31.7	(29.2–34.3)	23.5	(20.9–26.4)	14.5	(12.7–16.4)
% who noticed antismoking information in last 30 days												
On television	86.7	(83.0–89.8)	82.8	(80.4–84.9)	57.1	(54.1–60.0)	58.2	(55.1–61.2)	75.1	(71.2–78.6)	38.2	(35.6–40.9)
On radio	47.0	(42.1–52.0)	47.9	(44.2–51.5)	40.3	(37.5–43.2)	26.9	(24.5–29.4)	22.3	(19.6–25.4)	10.1	(8.7–11.8)
On billboards	73.9	(70.0–77.6)	36.3	(33.6–39.2)	23.9	(21.5–26.5)	23.5	(21.2–26.0)	29.8	(26.7–33.1)	27.8	(24.8–31.0)
In newspapers or magazines	74.3	(69.8–78.4)	51.6	(48.1–55.1)	29.4	(26.9–32.1)	37.4	(34.5–40.3)	35.2	(32.2–38.4)	31.7	(29.4–34.2)
In any of the above four media channels	91.2	(87.7–93.8)	89.6	(87.9–91.2)	70.2	(67.4–72.8)	67.7	(64.6–70.6)	81.1	(77.4–84.2)	60.8	(57.8–63.7)
% who noticed warning labels on cigarette packaging	93.0	(90.3–94.9)	84.5	(82.2–86.5)	89.1	(87.1–90.8)	96.7	(95.6–97.4)	97.9	(96.5–98.8)	94.5	(93.0–95.7)
% who noticed protobacco marketing	4.6	(2.6–7.9)	53.7	(50.5–56.9)	66.3	(63.4–69.2)	20.0	(17.8–22.3)	48.6	(45.0–52.3)	70.1	(67.5–72.6)

	Thailand (N = 20,566)		Turkey (N = 9,030)		Ukraine (N = 8,158)		Uruguay (N = 5,581)		Vietnam (N = 9,925)	
Characteristic	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)
All persons aged ≥15 yrs										
Current cigarette smoking prevalence	23.5	(22.6–24.5)	31.1	(29.9–32.5)	28.6	(27.5–29.8)	24.7	(23.1–26.4)	19.9	(18.7–21.1)
Current cigarette smokers										
% who intend to quit†	24.1	(22.0–26.3)	27.8	(25.5–30.2)	25.9	(23.6–28.3)	33.7	(30.4–37.1)	30.2	(27.2–33.3)
% who noticed antismoking information in last 30 days										
On television	71.6	(69.1–73.9)	87.8	(85.8–89.5)	44.6	(41.4–47.9)	68.3	(64.6–71.7)	85.6	(82.4–88.3)
On radio	32.3	(29.7–34.9)	24.9	(22.3–27.6)	10.6	(9.2–12.1)	43.0	(38.8–47.3)	27.1	(24.6–29.7)
On billboards	37.4	(34.6–40.2)	43.9	(40.6–47.3)	26.4	(23.5–29.5)	52.4	(49.0–55.9)	41.2	(38.2–44.4)
In newspapers or magazines	21.8	(20.1–23.7)	53.7	(50.7–56.6)	26.5	(24.1–29.0)	33.9	(30.7–37.1)	31.1	(28.2–34.1)
In any of the above four media channels	81.2	(79.1–83.2)	91.4	(89.7–92.8)	57.5	(54.3–60.6)	82.3	(79.3–85.0)	89.7	(86.6–92.1)
% who noticed warning labels on cigarette packaging	93.4	(92.2–94.5)	94.5	(93.1–95.7)	96.4	(95.1–97.4)	96.4	(94.7–97.5)	95.0	(93.5–96.2)
% who noticed protobacco marketing	0.0§	—	3.8	(3.0–5.0)	37.4	(34.4–40.4)	21.2	(18.2–24.5)	0.0§	—

Abbreviation: CI = confidence interval.
* Current cigarette smokers included those who smoked manufactured cigarettes, handrolled cigarettes, or kreteks, daily or less frequently than daily.
† Current smokers who were categorized as intending to quit included 1) persons who indicated they planned to quit smoking in the next month and 2) persons who indicated they were thinking about quitting smoking in the next 12 months.
§ All forms of tobacco advertising, promotions, and sponsorship are banned in Egypt, Thailand, and Vietnam.

TABLE 2. Odds ratios for current cigarette smokers* who intend to quit†, by awareness of anti-cigarette smoking information — Global Adult Tobacco Survey, 17 countries, 2008–2011

	Unadjusted OR		OR adjusted by demographic variables§		OR adjusted by demographic variables and noticing warning labels		OR adjusted by demographic variables, noticing warning labels, and noticing protobacco marketing	
Awareness of anti-cigarette smoking information	**OR**	**(95% CI)**	**AOR**	**(95% CI)**	**AOR**	**(95% CI)**	**AOR**	**(95% CI)**
Bangladesh								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.3	(0.9–1.8)¶	1.3	(0.9–1.9)¶	1.3	(0.9–2.0)¶	1.4	(0.9–2.1)¶
Noticed anti-cigarette smoking information in multiple channels	2.8	(1.9–4.1)	2.9	(1.9–4.4)	3.0	(2.0–4.5)	3.2	(2.1–4.8)
Brazil								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.6	(1.2–2.1)	1.7	(1.3–2.2)	1.6	(1.2–2.1)	1.6	(1.2–2.1)
Noticed anti-cigarette smoking information in multiple channels	2.0	(1.6–2.5)	2.1	(1.6–2.6)	1.9	(1.5–2.4)	2.0	(1.6–2.5)
China								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.5	(1.0–2.1)	1.6	(1.1–2.2)	1.6	(1.1–2.3)	1.6	(1.1–2.2)
Noticed anti-cigarette smoking information in multiple channels	1.7	(1.2–2.4)	2.0	(1.4–2.9)	2.1	(1.5–3.0)	2.1	(1.5–3.0)
Egypt								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.1	(0.8–1.3)¶	1.1	(0.8–1.4)¶	1.1	(0.8–1.4)¶	1.1	(0.8–1.4)¶
Noticed anti-cigarette smoking information in multiple channels	1.7	(1.3–2.2)	1.6	(1.3–2.1)	1.6	(1.3–2.1)	1.6	(1.3–2.1)
India								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.7	(1.2–2.2)	1.8	(1.3–2.4)	1.7	(1.3–2.4)	1.8	(1.3–2.4)
Noticed anti-cigarette smoking information in multiple channels	1.9	(1.5–2.5)	2.1	(1.6–2.8)	2.1	(1.6–2.8)	2.1	(1.6–2.8)
Indonesia								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.8	(1.2–2.7)	1.8	(1.2–2.8)	1.7	(1.1–2.6)	1.9	(1.2–3.1)
Noticed anti-cigarette smoking information in multiple channels	1.8	(1.2–2.8)	1.8	(1.2–2.7)	1.7	(1.1–2.6)	1.9	(1.2–3.0)
Malaysia								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	0.3	(0.1–1.2)¶	0.4	(0.1–1.4)¶	0.4	(0.1–1.3)¶	0.4	(0.1–1.3)¶
Noticed anti-cigarette smoking information in multiple channels	1.1	(0.4–3.1)¶	1.2	(0.4–3.7)¶	1.1	(0.4–3.2)¶	1.1	(0.4–3.0)¶
Mexico								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.1	(0.7–1.7)¶	1.0	(0.7–1.7)¶	1.0	(0.6–1.6)¶	1.0	(0.6–1.6)¶
Noticed anti-cigarette smoking information in multiple channels	1.4	(1.0–2.1)¶	1.4	(0.9–2.1)¶	1.4	(0.9–2.1)¶	1.3	(0.9–2.0)¶
Philippines								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.8	(1.2–2.5)	1.7	(1.2–2.4)	1.7	(1.2–2.4)	1.7	(1.2–2.4)
Noticed anti-cigarette smoking information in multiple channels	1.9	(1.4–2.6)	1.7	(1.2–2.3)	1.7	(1.2–2.3)	1.7	(1.2–2.3)

See table footnotes on page 422.

This report adds to the body of evidence showing that awareness of mass media antismoking messages can be associated with intent to quit smoking. Mass media campaigns also can help reduce smoking prevalence by stimulating discussion and changing social norms regarding tobacco use and secondhand smoke exposure and are a crucial element of comprehensive tobacco control programs (*8,9*). These global findings provide additional support for CDC's Tips from Former Smokers mass media campaign (*10*).

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TABLE 2. (*Continued*) Odds ratios for current cigarette smokers* who intend to quit†, by awareness of anti-cigarette smoking information — Global Adult Tobacco Survey, 17 countries, 2008–2011

Awareness of anti-cigarette smoking information	Unadjusted OR		OR adjusted by demographic variables§		OR adjusted by demographic variables and noticing warning labels		OR adjusted by demographic variables, noticing warning labels, and noticing protobacco marketing	
	OR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Poland								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.9	(1.4–2.6)	1.9	(1.4–2.7)	1.9	(1.4–2.6)	1.9	(1.4–2.6)
Noticed anti-cigarette smoking information in multiple channels	2.0	(1.5–2.7)	2.1	(1.6–2.7)	2.0	(1.5–2.7)	2.0	(1.5–2.6)
Romania								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.8	(1.1–2.9)	1.8	(1.1–3.0)	1.9	(1.1–3.0)	1.9	(1.1–3.1)
Noticed anti-cigarette smoking information in multiple channels	2.4	(1.5–3.7)	2.4	(1.5–3.7)	2.4	(1.5–3.7)	2.4	(1.5–3.7)
Russia								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.4	(1.1–1.9)	1.4	(1.0–1.8)	1.4	(1.0–1.8)	1.3	(1.0–1.7)
Noticed anti-cigarette smoking information in multiple channels	1.8	(1.3–2.5)	1.8	(1.3–2.4)	1.8	(1.3–2.4)	1.7	(1.3–2.3)
Thailand								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.6	(1.2–2.1)	1.6	(1.2–2.1)	1.5	(1.1–2.1)	1.5	(1.1–2.1)
Noticed anti-cigarette smoking information in multiple channels	2.1	(1.5–2.8)	2.0	(1.5–2.7)	2.0	(1.4–2.7)	2.0	(1.4–2.7)
Turkey								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.4	(0.9–2.2)¶	1.4	(0.9–2.2)¶	1.4	(0.9–2.2)¶	1.4	(0.9–2.2)¶
Noticed anti-cigarette smoking information in multiple channels	1.5	(1.0–2.3)	1.5	(1.0–2.3)	1.5	(1.0–2.3)	1.5	(1.0–2.3)
Ukraine								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.3	(1.0–1.8)¶	1.2	(0.9–1.7)¶	1.2	(0.9–1.7)¶	1.2	(0.9–1.7)¶
Noticed anti-cigarette smoking information in multiple channels	2.0	(1.5–2.7)	1.8	(1.3–2.4)	1.8	(1.3–2.4)	1.8	(1.3–2.4)
Uruguay								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.0	(0.6–1.7)¶	1.0	(0.6–1.8)¶	1.0	(0.6–1.8)¶	1.0	(0.6–1.8)¶
Noticed anti-cigarette smoking information in multiple channels	1.2	(0.8–1.8)¶	1.2	(0.8–1.7)¶	1.2	(0.8–1.7)¶	1.2	(0.8–1.7)¶
Vietnam								
Did not notice anti-cigarette smoking information	1.0		1.0		1.0		1.0	
Noticed anti-cigarette smoking information in one channel	1.9	(1.0–3.7)	2.1	(1.0–4.1)	2.0	(1.0–4.0)¶	2.0	(1.0–4.0)¶
Noticed anti-cigarette smoking information in multiple channels	2.8	(1.5–5.2)	2.9	(1.5–5.7)	2.8	(1.4–5.5)	2.8	(1.4–5.5)

Abbreviations: OR = odds ratio; AOR = adjusted odds ratio; CI = confidence interval.
* Current cigarette smokers included those who smoked manufactured cigarettes, handrolled cigarettes, or kreteks, daily or less frequently than daily.
† Current smokers who were categorized as intending to quit included 1) persons who indicated they planned to quit smoking in the next month and 2) persons who indicated they were thinking about quitting smoking in the next 12 months.
§ Demographic variables were sex, urban/rural residence, age group, education, and socioeconomic status. Data for Brazil were not adjusted for education because measures of education were not comparable with the other countries.
¶ The association between intent to quit smoking and awareness of anti-cigarette smoking information was not significant (p≥0.05).

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CDC Grand Rounds: Preventing Unsafe Injection Practices in the U.S. Health-Care System

Background

Injectable medicines commonly are used in health-care settings for the prevention, diagnosis, and treatment of various illnesses. Examples include chemotherapy, intravenous antibiotics, vaccinations, and medications used for sedation and anesthesia. Medical injections often are administered in conjunction with surgical procedures, endoscopy, imaging studies, pain control, and cosmetic or complementary and alternative medicine procedures. Safe manufacturing and pharmacy practices are essential because every injection must begin with sterile medication. The appropriate medication must then be safely prepared (typically drawn up in a syringe), then administered in a manner that maintains sterility and minimizes risk for infection. Safe administration depends on adherence to the practices outlined in CDC's evidence-based Standard Precautions guideline (*1*). Health-care providers should never 1) administer medications from the same syringe to more than one patient, 2) enter a vial with a used syringe or needle, or 3) administer medications from single-dose vials to multiple patients. They also should maintain aseptic technique at all times and properly dispose of used injection equipment.

Scope of the Problem

Traditionally, injection safety has been recognized as a public health issue mainly in low- and middle-income country settings. Estimates of the global burden of disease associated with unsafe injections in the year 2000 included approximately 20 million new hepatitis B virus (HBV) infections, 2 million new hepatitis C virus (HCV) infections, and 250,000 new human immunodeficiency virus (HIV) infections (*2*). The U.S. experience with outbreaks attributed to unsafe injection practices has grown substantially over recent years. Since 2001, at least 49 outbreaks have occurred because of extrinsic contamination of injectable medical products at the point of administration (*3*; CDC, unpublished data, 2013). Twenty-one of these outbreaks involved transmission of HBV or HCV; the other 28 represented outbreaks of bacterial infections, primarily invasive bloodstream infections. Approximately 90% of these known outbreaks occurred in outpatient settings. Pain management clinics, where injections often are administered into the spine and other sterile spaces using preservative-free medications, and cancer clinics, which typically provide chemotherapy or other infusion services to patients who might be immunocompromised, are represented disproportionately relative to the overall volume of outpatient care.

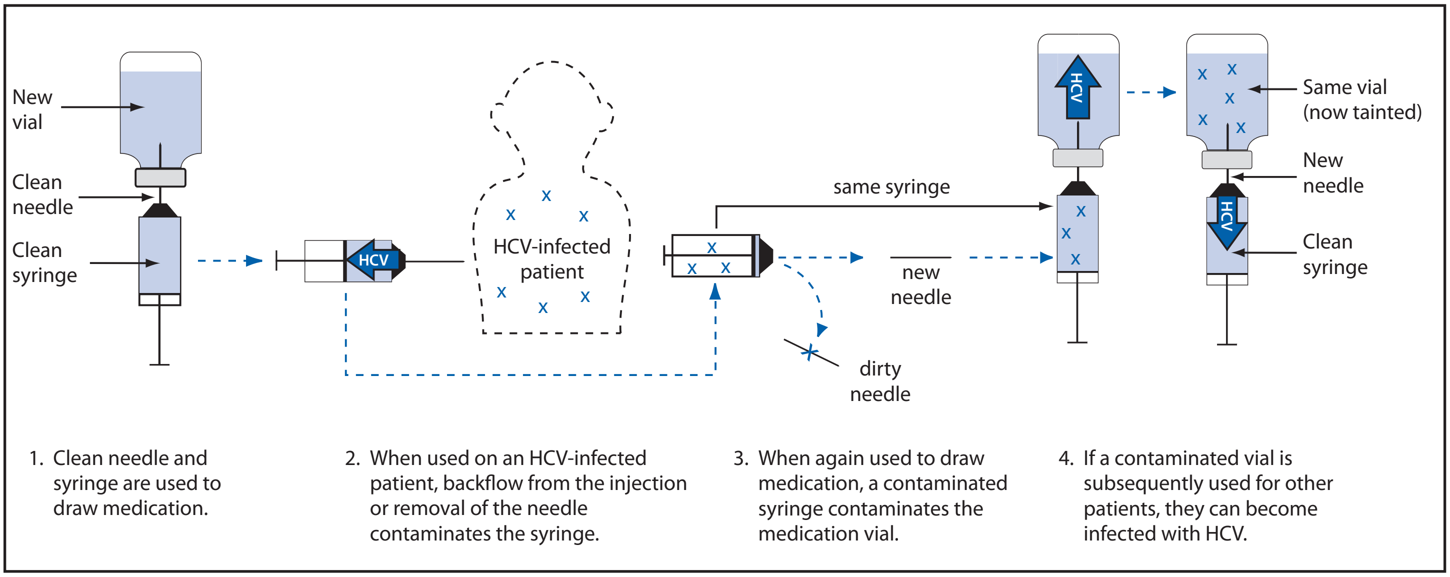
Although hundreds of patients became infected in the outbreaks described, there is the additional burden of the estimated 150,000 patients during 2001–2012 who required notification advising them to undergo bloodborne pathogen testing after their potential exposure to unsafe injections (*3*; CDC, unpublished data, 2013).

Unsafe injection practices fall into two overlapping categories: reuse of syringes and mishandling of medications. "Direct" syringe reuse occurs when a single syringe is used for more than one person, as when the same syringe is used to inject via intravenous tubing or only the needle is changed between patients. These unsafe practices are still encountered; recently, several large patient notification events have stemmed from reuse of insulin injection pens for multiple patients (*3,4*). There is also growing recognition of provider-to-patient HCV transmission in the context of narcotics theft. In these scenarios, HCV infection is transmitted to patients as a consequence of overt syringe reuse (after the HCV-infected health-care provider had self-injected) or from contamination of medication that was accessed with a used syringe. Outbreaks involving infected health-care providers who obtained injectable drugs illicitly have affected large numbers of patients (*5*). "Indirect" syringe reuse (i.e., accessing shared medication vials with a used syringe) often is identified during outbreak investigations. Mishandling of medications primarily involves reuse of single-dose vials, which are intended for single-patient use only, to obtain medication for multiple patients. Because single-dose vials typically lack preservatives, this practice carries substantial risks for bacterial contamination, growth, and infection. Similarly, intravenous solution bags often are mishandled, for example, when inappropriately used as a common source of supply for multiple patients.

Case Study

Outbreaks investigated by CDC and state and local health departments have illustrated that the U.S. health-care system is susceptible to the dangers of unsafe injections. The investigation of an HCV outbreak in Nevada in 2008 revealed that reuse of syringes on multiple patients and use of single-use medication vials on multiple patients was the likely mechanism by which HCV infections were transmitted (*6*). The ambulatory surgical center (ASC) under investigation used the sedative, propofol, which is supplied in single-dose vials, during endoscopy procedures (Figure). At the start of a procedure, a new, clean needle and syringe were used to draw up medication. When used on an HCV-infected patient, backflow contaminated the syringe. Patients typically required additional medication to maintain sedation, and instead of using a new needle and syringe, nurses in this clinic reused the patient's syringe to draw up this medication,

FIGURE. Unsafe injection practices and circumstances that likely resulted in transmission of hepatitis C virus (HCV) at a clinic — Las Vegas, Nevada, 2007



Source: CDC. Acute hepatitis C virus infections attributed to unsafe injection practices at an endoscopy clinic—Nevada, 2007. MMWR 2008;57:513–7. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5719a2.htm.

after replacing the needle. By putting the reused syringe in contact with the vial, contamination was transferred to the vial. This clinic routinely reused these single-dose vials for multiple patients, which established a pathway for the spread of HCV from one patient to another. Changing the needle in this situation did not prevent contamination of the vial; however, it did expose the nurse to the risk for a sharps injury and occupational disease transmission. To avoid this risk, a new needle and syringe should be used every time a vial is accessed to withdraw medication.

State and Federal Responses

Several states are addressing the public health issue of unsafe injection practices, including New York. Since 2002, the New York State Department of Health (NYSDOH) has conducted 11 investigations of known or potential bloodborne pathogen transmissions that involved notification of nearly 10,000 persons (NYSDOH, unpublished data, 2012). The predominant modes of exposure or transmission discovered were related to unsafe injection practices similar to those described in the Nevada outbreak. NYSDOH also has implemented policy and educational initiatives as part of a comprehensive public health response to the investigations. These include 1) changes to the public health law in 2008 to strengthen the ability of the health department to investigate and hold physicians accountable for poor infection control practices and to update infection control and barrier precautions training mandated by NYSDOH (*7*), and 2) partnering with CDC on the One & Only campaign, a health-care provider and public education campaign targeting injection safety (*4*).

The Centers for Medicaid & Medicare Services (CMS), the single largest purchaser of health care in the United States, seeks to promote innovation and the consistent advancement of safety and quality of health care. Many, but not all, types of facilities that participate in Medicare or Medicaid are subject to unannounced, onsite inspections by state or federal surveyors to be certified under those programs. Examples of such regulated facilities are ASCs, clinical laboratories, dialysis facilities, hospitals, and nursing homes (*8*). ASCs are one of the fastest growing types of facility among Medicare-participating providers and suppliers. Characteristics of ASCs, such as the large number of facilities and the variety of their size, scope, and complexity of practice, make them particularly challenging settings for government oversight to ensure proper infection control procedures. Physician offices and specialty clinics that do not seek CMS status as a certified ASC typically are not subject to survey and certification.

CDC, CMS, and the state of Nevada began an intense collaboration during the 2008 HCV outbreak (*6*) investigation. CMS strengthened the requirements for infection control to require that ASCs maintain ongoing infection control programs, adhere to professional standards (*1*), designate a qualified infection control professional, and implement nationally recognized infection control guidelines. Out of the experience in Nevada, a worksheet that CMS surveyors could use to better identify lapses in infection control, including injection safety, was developed.* The effectiveness of the worksheet in identifying infection control lapses was tested in a pilot study involving three volunteer states (Maryland,

* Additional information available at http://www.cms.gov/surveycertificationgeninfo/downloads/scletter09_37.pdf.

North Carolina, and Oklahoma). Of the ASCs surveyed in these states, 67.6% had infection control lapses, 57.4% were cited for some type of deficiency in meeting CMS infection control requirements, and 29.4% were cited specifically for deficiencies in medication usage (e.g., multipatient use of single-dose medication vials was identified in 28.1% of ASCs) (*9*). Results from surveys of a randomly selected national sample of ASCs in 2010 showed that the findings from the pilot study could be generalizable to the rest of the country (CMS, unpublished data, 2012). Although recent data from surveys from the national sample of randomly selected ASCs reveal some improvements (with 51.3% of surveyed ASCs being cited for CMS deficiencies in infection control in 2010 nationally versus 43.5% in 2011), the overall national risk profile was very similar to the risks identified in the 2008 three-state pilot study (CMS, unpublished data, 2012).

The Role of Public Health in Addressing Gaps in Injection Safety

Injection safety is a complex public health issue that requires a multidimensional approach. The four "E's" for ensuring safe injections include 1) epidemiologic surveillance, reporting, monitoring, and investigation of outbreaks potentially related to unsafe injections; 2) educational initiatives to promote understanding and use of safe injection and basic infection control practices; 3) enforcement and oversight by federal and state authorities; and 4) engineering of devices, equipment, and processes to reduce or eliminate disease transmission risks.

Since 2009, CDC has worked to improve epidemiologic capacities at state health departments by supporting the formation and development of state programs that address health-care–associated infections (*10*). To bridge the education gap, CDC and its partners in the Safe Injection Practices Coalition developed the One & Only campaign. CDC's Standard Precautions form the basis for the One & Only campaign's messages. The ultimate goal of the campaign is to prevent outbreaks, infections, and the need for patient notification (*4*). Recognizing that education is necessary but not always sufficient, policies and mechanisms must be in place to 1) support and ensure that injection safety and infection control procedures are followed, and 2) mandate corrective action. Examples of proposed engineering solutions aimed at preventing syringe reuse include the redesign of syringes to change color after use or the incorporation of tamper-evident packaging. Implementation of the four "E's" should help minimize unsafe injections practices; however, the One & Only campaign encourages patients to ask their health-care provider about bloodborne pathogen safety as part of increased patient involvement in medical decision making (*4*).

Unsafe injection practices put patients at risk for infection and have been associated with various procedures and settings. Unsafe injections also increase the financial and emotional burden borne by patients, health-care providers, and public health and medical-care systems. This harm is entirely preventable. To eliminate the problem of unsafe injections, injection safety interventions need to be implemented in all settings where injections are delivered. Many outpatient facilities, including oncology clinics, pain management clinics, and physician offices, typically do not fall within the purview of federal and state regulatory oversight of health-care facilities, thus making it difficult to monitor injection safety and other infection control practices. Unsafe injection practices have resulted in disease transmission and the need for notification of hundreds of thousands of patients. The risks of unsafe injections practices are unacceptable. The goal of public health and health-care systems should be to eliminate such risks immediately and definitively through comprehensive preventive actions.

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Obesity in K–7 Students — Anchorage, Alaska, 2003–04 to 2010–11 School Years

Childhood obesity is a major public health concern in the United States. National data indicate that from 1999 to 2010, obesity stopped increasing among females aged 2–19 years but continued to increase among males (*1*). Other reports have suggested that obesity is decreasing in certain geographic areas (*2*) or among certain groups of children (*3*). In the metropolitan area of Anchorage, Alaska, during the 2003–04 school year, an estimated 16.8% of children in the Anchorage and Matanuska-Susitna Borough school districts in grades K, 1, 3, 5, and 7 were obese, similar to a 2003–2006 national estimate of 17.0% for youths aged 6–11 years (*4*). To determine whether trends in the two Anchorage-area school districts mirror those in the rest of the United States, the Alaska Department of Health and Social Services analyzed body mass index (BMI) data for public schoolchildren in grades K, 1, 3, 5, and 7 for the 2003–04 to 2010–11 school years. This report summarizes the results of that analysis, which found that, overall, the prevalence of obesity decreased by 3.0% from 2003–04 to 2010–11, and the decline varied widely by subgroup. The decrease was significant among boys (5.5%), white students (15.1%), students in grades K, 1, and 3 (5.4%), and students in schools where ≤50% of students were receiving subsidized lunches (8.2%). Efforts are needed to further reduce the prevalence of childhood obesity in the Anchorage area and to focus on poorer schools and those groups with the highest prevalence of obesity.

School-based measurement of student height and weight to calculate BMI is widely accepted for obesity surveillance to assess prevalence, monitor trends, and evaluate outcomes of interventions (*5*). Nationally, 20 states require school districts to measure students' height and weight (*6*). Alaska does not require school districts to measure height and weight; however, measurements are taken and recorded as part of routine health screenings in many Alaska school districts that employ school nurses. The findings in this report are based on data obtained by the Alaska Department of Health and Social Services from the two school districts in the Anchorage metropolitan statistical area: Anchorage School District (ASD) and Matanuska-Susitna Borough School District (MSBSD). The records include information on student height, weight, race/ethnicity, age, sex, and grade level. School-level information also was obtained on the proportion of students enrolled in the subsidized lunch program, which was used as a proxy for whether the school had lower or higher socioeconomic status (SES).

BMI of the students was analyzed overall and by sex, grade level, and race/ethnicity. Students were categorized as non-Hispanic American Indian/Alaska Native (AI/AN), non-Hispanic white, or as all other race/ethnicities. Data cleaning resulted in the exclusion of approximately 6% of the total measurements reported in both school districts, leaving 152,803 valid records, reflecting an average of 19,100 students measured each year. In ASD, height and weight measures accounted for 86% of total student enrollment in the represented grades during the 8-year period. In MSBSD, height and weight measurements were available for only 52% of total student enrollment in the represented grades during the 8 years because of a lack of school nurses and training. BMI percentiles for age and sex were calculated using growth charts from CDC (*7*). Obesity was defined as BMI ≥95th percentile for age and sex.

For each school year, the weighted sample estimates matched known population totals for enrollments per year by demographic categories for the two school districts (ASD and MSBSD), two grade-range categories (grades K, 1, and 3 and grades 5 and 7), sex (male and female), and race/ethnicity (white, AI/AN, and all other races/ethnicities). Population enrollment data were obtained from the National Center for Education Statistics of the U.S. Department of Education (*8*). For each school year during 2003–2009, analysis weights were defined as the ratio of population enrollments to the sample size obtained in each demographic category. Population data were not available for 2010; therefore, 2009 population data were used for 2010 calculations.

A multivariate logistic regression model was used to test for trend in obesity prevalence. The model included a linear term for time, along with sex, grade, race/ethnicity, school district, and SES. Schools with ≤50% of students in the subsidized lunch program were considered to have higher SES, and schools with >50% students in the subsidized lunch program lower SES. The model was stratified by sex, grade, school district, and SES to examine obesity trends in subgroups. In this report, all increases and decreases described are statistically significant unless otherwise indicated. A Pearson chi-square test was used to compare prevalence estimates between subgroups at a single point in time.

From 2003–04 to 2010–11, the overall prevalence of obesity in the two Anchorage-area school districts decreased by 3.0%, from 16.8% to 16.3% (Table). The prevalence of obesity among boys decreased 5.5%, from 18.1% to 17.1%, and

TABLE. Prevalence of obesity*† among public school children in grades K, 1, 3, 5, and 7, by school year and selected characteristics — Anchorage metropolitan area, 2003–04 through 2010–11 school years (N = 152,803)

Characteristic	2003–04 % (95% CI)	2004–05 % (95% CI)	2005–06 % (95% CI)	2006–07 % (95% CI)	2007–08 % (95% CI)	2008–09 % (95% CI)	2009–10 % (95% CI)	2010–11 % (95% CI)	Adjusted p-value for trend§	% change from 2003–04 to 2010–11
No. of students	16,909	17,506	17,607	18,813	20,202	20,407	20,481	20,878		
Overall	16.8 (16.1–17.5)	16.4 (15.8–17.0)	16.2 (15.6–16.8)	16.3 (15.7–16.8)	16.2 (15.7–16.7)	16.9 (16.4–17.4)	16.3 (15.8–16.8)	16.3 (15.8–16.8)	<0.001	-3.0
Sex										
Boys	18.1 (17.1–19.0)	18.3 (17.5–19.3)	17.6 (16.7–18.5)	17.6 (16.8–18.4)	17.4 (16.7–18.2)	18.5 (17.7–19.2)	17.8 (17.1–18.5)	17.1 (16.4–17.8)	<0.001	-5.5
Girls	15.4 (14.6–16.4)	14.3 (13.6–15.2)	14.7 (13.9–15.6)	14.8 (14.1–15.6)	14.9 (14.2–15.6)	15.3 (14.6–16.0)	14.7 (14.0–15.4)	15.4 14.7–(16.1)	0.087	0.0
Race/Ethnicity¶										
White, non-Hispanic	13.9 (13.1–14.8)	13.3 (12.6–14.1)	13.0 (12.3–13.8)	13.0 (12.3–13.7)	12.9 (12.2–13.5)	12.3 (11.7–13.0)	11.9 (11.3–12.5)	11.8 (11.2–12.4)	<0.001	-15.1
AI/AN	20.8 (18.9–22.8)	21.2 (19.3–23.2)	21.0 (19.1–22.9)	21.1 (19.4–23.0)	21.8 (20.1–23.6)	21.2 (19.5–23.0)	21.0 (19.3–22.8)	20.5 (18.8–22.3)	0.528	-1.4
All other	22.5 (21.4–23.6)	22.0 (21.0–23.1)	22.0 (21.0–23.0)	22.3 (21.3–23.3)	21.9 (21.0–22.9)	22.7 (21.8–23.7)	22.0 (21.1–22.9)	22.3 (21.4–23.3)	0.870	-0.9
Grade										
K, 1, and 3	14.8 (14.0–15.7)	14.2 (13.4–15.0)	14.2 (13.5–15.0)	14.2 (13.5–15.0)	14.4 (13.8–15.1)	14.8 (14.2–15.4)	14.2 (13.6–14.8)	14.0 (13.4–14.6)	0.001	-5.4
5 and 7	19.4 (18.5–20.4)	19.4 (18.5–20.3)	19.1 (18.1–20.1)	19.2 (18.3–20.1)	18.8 (18.0–19.7)	19.9 (19.0–20.8)	19.5 (18.6–20.3)	19.8 (19.0–20.7)	0.075	2.1
Site										
Anchorage School District	18.0 (17.4–18.6)	17.3 (16.7–17.9)	17.4 (16.8–18.0)	17.3 (16.7–17.9)	17.3 (16.7–17.8)	18.2 (17.6–18.8)	17.7 (17.1–18.3)	17.6 (17.0–18.2)	<0.001	-2.2
Matanuska-Susitna Borough School District	12.5 (10.6–14.7)	13.2 (11.7–15.0)	12.3 (10.8–14.0)	12.9 (11.7–14.3)	13.3 (12.2–14.4)	12.7 (11.7–13.7)	12.1 (11.2–13.1)	12.4 (11.5–13.3)	0.781	-0.8
SES**										
Higher SES	14.6 (13.8–15.4)	14.6 (13.9–15.3)	13.9 (13.2–14.6)	13.6 (13.0–14.3)	13.8 (13.2–14.4)	13.8 (13.2–14.3)	13.4 (12.8–14.0)	13.4 (12.8–13.9)	<0.001	-8.2
Lower SES	21.5 (20.4–22.7)	20.8 (19.7–22.0)	21.2 (20.1–22.3)	22.4 (21.4–23.6)	21.9 (20.9–22.9)	23.4 (22.4–24.4)	22.4 (21.4–23.4)	22.6 (21.6–23.6)	0.843	5.1
Grade by SES by race/ethnicity										
K, 1, and 3										
Higher SES										
White, non-Hispanic	10.1 (8.9–11.5)	9.8 (8.8–11.0)	9.8 (8.8–11.0)	9.0 (8.1–10.0)	9.3 (8.5–10.2)	9.1 (8.3–9.9)	8.6 (7.9–9.4)	8.9 (8.2–9.7)	0.017	-11.9
AI/AN	15.7 (12.1–20.2)	16.7 (13.4–20.6)	16.8 (13.6–20.5)	14.9 (12.1–18.3)	18.3 (15.4–21.7)	16.3 (13.7–19.3)	16.4 (13.8–19.5)	17.2 (14.4–20.3)	0.407	9.6
All other	15.5 (13.7–17.6)	17.4 (15.6–19.4)	16.0 (14.2–18.0)	16.9 (15.3–18.8)	16.5 (14.9–18.2)	14.5 (13.0–16.1)	15.7 (14.2–17.4)	15.5 (14.0–17.1)	0.255	0.0
Lower SES										
White, non-Hispanic	18.1 (15.9–20.6)	15.5 (13.5–17.8)	14.8 (12.9–16.8)	16.9 (14.8–19.2)	16.0 (14.0–18.2)	13.5 (11.8–15.5)	13.2 (11.5–15.2)	12.7 (11.0–14.7)	0.001	-29.8
AI/AN	21.3 (18.3–24.7)	19.7 (16.7–23.1)	21.5 (18.5–24.8)	25.3 (22.0–28.8)	25.2 (21.9–28.7)	23.7 (20.4–27.2)	22.3 (19.0–25.9)	21.8 (18.6–25.4)	0.110	2.3
All other	24.0 (22.2–26.0)	22.2 (20.5–24.0)	22.6 (21.0–24.3)	23.5 (21.8–25.2)	23.2 (21.6–24.8)	25.2 (23.5–26.9)	23.8 (22.2–25.5)	22.7 (21.1–24.4)	0.633	-5.4

See table footnotes on page 428.

the prevalence among white children decreased 15.1%, from 13.9% to 11.8%. The prevalence of obesity did not decrease among girls, AI/AN children, and children in other racial/ethnic groups. Among children in grades K, 1, and 3, the prevalence of obesity decreased 5.4%, from 14.8% to 14.0%; the prevalence did not decrease among children in grades 5 and 7. The prevalence of obesity among children in ASD schools decreased 2.2%, from 18.0% to 17.6%; the prevalence among children in MSBSD schools did not decrease but was significantly lower (12.5% in 2003–04 and 12.4% in 2004–05) than the prevalence observed in ASD schools (Table).

Among children in schools with higher SES, the prevalence of obesity decreased 8.2%, from 14.6% to 13.4%; the prevalence did not decrease among children in schools with lower

TABLE. (*Continued*) **Prevalence of obesity*† among public school children in grades K, 1, 3, 5, and 7, by school year and selected characteristics — Anchorage metropolitan area, 2003–04 through 2010–11 school years (N = 152,803)**

Characteristic	2003–04 % (95% CI)	2004–05 % (95% CI)	2005–06 % (95% CI)	2006–07 % (95% CI)	2007–08 % (95% CI)	2008–09 % (95% CI)	2009–10 % (95% CI)	2010–11 % (95% CI)	Adjusted p-value for trend§	% change from 2003–04 to 2010–11
Grade by SES by race/ethnicity										
5 and 7										
Higher SES										
White, non-Hispanic	16.2 (14.9–17.7)	15.3 (14.1–16.5)	15.0 (13.7–16.4)	15.2 (14.1–16.5)	14.8 (13.7–16.0)	14.1 (13.0–15.3)	14.6 (13.5–15.8)	13.8 (12.8–15.0)	0.003	-14.8
AI/AN	22.6 (18.9–26.8)	25.6 (21.9–29.7)	21.8 (18.2–26.0)	23.6 (20.1–27.5)	21.7 (18.3–25.6)	23.6 (20.1–27.4)	21.3 (18.1–25.0)	18.9 (15.8–22.4)	0.216	-16.4
All other	22.8 (20.7–25.1)	22.3 (20.3–24.5)	21.4 (19.4–23.6)	22.2 (20.2–24.4)	23.5 (21.5–25.6)	22.6 (20.7–24.7)	20.8 (19.0–22.8)	22.9 (20.9–25.0)	0.966	0.4
Lower SES										
White, non-Hispanic	17.3 (14.7–20.2)	21.8 (18.6–25.2)	20.9 (17.9–24.2)	22.7 (19.8–25.9)	21.4 (18.8–24.3)	22.3 (19.5–25.4)	20.7 (17.7–24.0)	22.4 (19.4–25.7)	0.067	29.5
AI/AN	25.4 (20.7–30.8)	24.9 (19.5–31.2)	25.7 (20.9–31.1)	20.1 (16.1–24.9)	23.1 (18.8–28.0)	22.6 (18.4–27.4)	26.8 (22.2–32.0)	26.0 (21.6–30.9)	0.982	2.4
All other	29.1 (26.3–32.2)	29.2 (26.1–32.4)	29.8 (27.2–32.7)	28.4 (26.0–31.1)	26.9 (24.4–29.4)	31.4 (28.9–34.1)	29.0 (26.6–31.4)	31.1 (28.7–33.6)	0.332	6.9

Abbreviations: CI = confidence interval; AI/AN = American Indian/Alaska Native; SES = socioeconomic status.
* Defined as a body mass index in ≥95th percentile.
† Weighted percentages; unadjusted obesity prevalence.
§ Logistic regression model included a linear term for trend in obesity, adjusted for sex, race/ethnicity, grade, and site.
¶ Race/ethnicity categories are mutually exclusive. All other races/ethnicities category contains Asian/Pacific Islander, black, Hispanic, and multiple races.
** Subsidized lunch is a school-level indicator for the percentage of students in the free and reduced lunch program. High socioeconomic status (SES) schools are those with a low percentage of students in the free and reduced lunch program (0%–50%). Low socioeconomic status schools are those with a high percentage of students in the subsidized lunch program (51%–100%).

SES. In 2010–11, by SES and grade level group, the highest prevalences of obesity by racial/ethnic group were among children in grades 5 and 7 in schools with lower SES: AI/AN (26.0%), white (22.4%), and all other racial/ethnic groups (31.1%) (Figure). In 2010–11, the prevalence of obesity was significantly higher (22.6%) among students in schools with lower SES than among students in schools with higher SES (13.4%) (Table).

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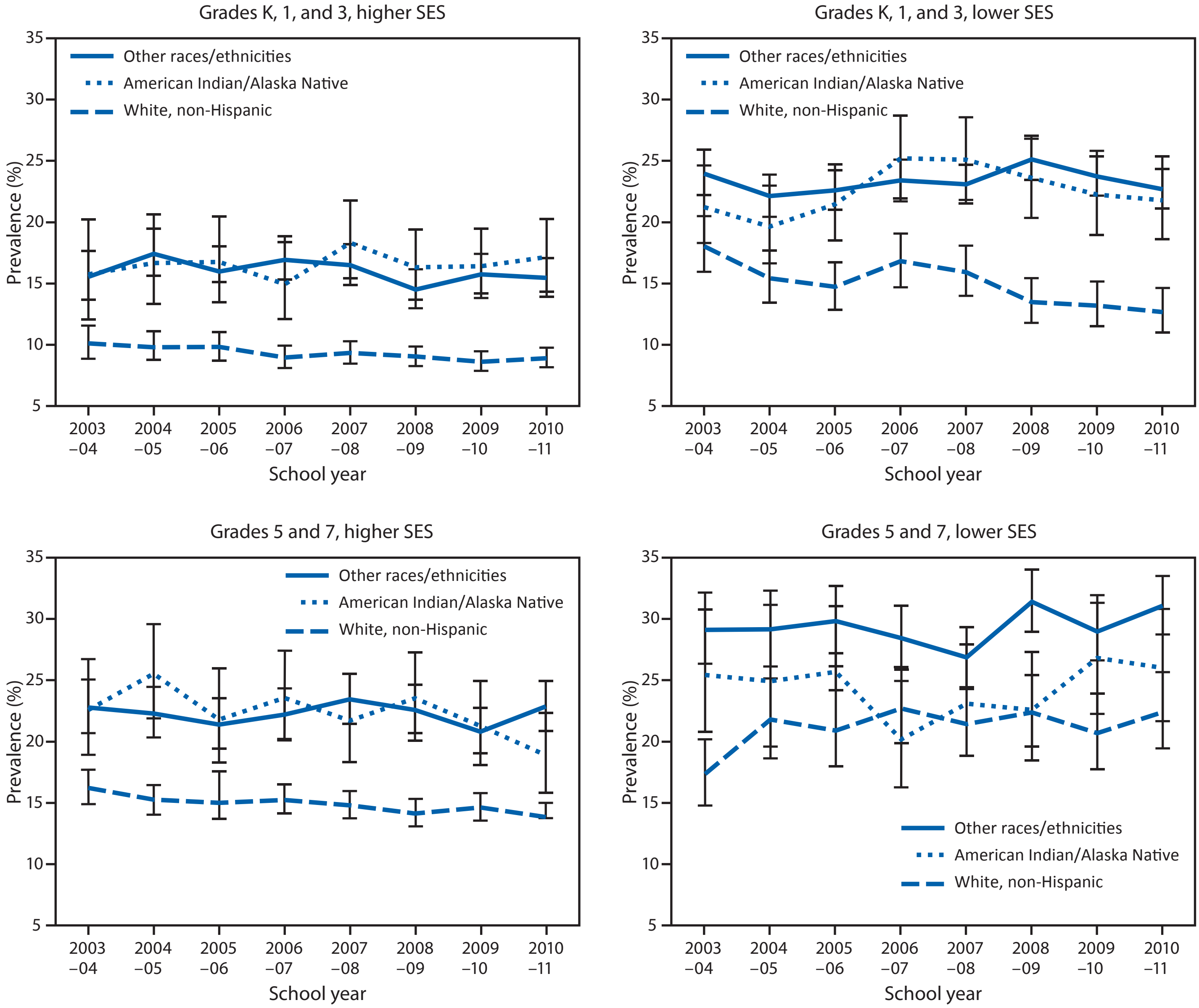
Editorial Note

The findings in this report indicate that, from 2003–04 to 2010–11, the prevalence of obesity among public school students in grades K–7 in the Anchorage metropolitan area decreased overall and within certain demographic subgroups. Declines in obesity prevalence were observed among children in schools with higher SES, boys, white children, and children in grades K, 1, and 3. No statistically significant decreases in obesity were observed among AI/AN or other racial/ethnic minorities. This report underscores the persistent differences in the prevalence of obesity among children of different race/ethnicities. Of particular concern is the continued high prevalence of obesity among AI/AN children.

Over the past decade, various practices, programs, and policies have been created in Alaska, by the state government and by ASD and MSBSD, to address childhood obesity. In 2002, the Alaska Department of Health and Social Services established its Obesity Prevention and Control Program. The following year, the program convened the first statewide Obesity Summit and initiated the Alaska-specific Obesity Prevention and Control Plan. In 2003, the program published its *Burden of Overweight and Obesity in Alaska* report (*9*), and later developed Alaska's Statewide Physical Activity and Nutrition Plan.

The overall decline in obesity from 2003–04 to 2010–11 coincides with some obesity-related interventions in ASD and MSBSD. For example, in 2006, ASD adopted and implemented a wellness policy that banned the sale or provision of soda and junk food in vending machines, school stores, school and administrative offices, school cafeteria fountain drink machines, and fundraisers. In 2007–08, ASD adopted a revised elementary student schedule that increased health instruction, including nutrition education, by 30 minutes each week. The following year, the elementary student schedule was revised

FIGURE. Prevalence of obesity* among public school children in grades K, 1, 3, 5, and 7, by grade, race/ethnicity, and socioeconomic status (SES) — Anchorage metropolitan area, 2003–04 through 2010–11 school years (N = 152,803)



* Unadjusted weighted obesity prevalence. 95% confidence intervals are indicated by brackets.

again to provide a 50% increase in physical education instruction. In 2005, MSBSD adopted a policy that set nutrition standards for any snack or beverage sold outside the federally subsidized meal program. In 2005–06, MSBSD designated a district wellness coordinator to maintain an ongoing active school wellness council that involved students, parents, food service personnel, school boards, school administrators, health professionals, and community members. Additional policies were adopted during 2005–2008 that included limiting the use of food as a reward, marketing only those foods and beverages that met nutrition standards, limiting physical education from being withheld for disciplinary purposes, and implementation of a universal, no-cost school breakfast policy.

The findings in this report are subject to at least one limitation. Height and weight measurements were not collected through a statistically valid sampling procedure, using regularly calibrated equipment, but were obtained as part of the routine school health screening process. However, because efforts were made to screen all students in grades K, 1, 3, 5, and 7, it is unlikely that the prevalence of overweight and obesity was

What is already known on this topic?

After many decades of increases in the prevalence of childhood obesity in the United States, recent reports indicate a stabilization of obesity prevalence in female children and adolescents nationally and a decline in obesity in selected areas of the country.

What is added by this report?

Childhood obesity prevalence among public school children in grades K, 1, 3, 5, and 7 in the metropolitan area of Anchorage, Alaska, decreased by 3.0%, from 16.8% in 2003–04 to 16.3% in 2010–11. Although obesity decreased significantly overall, the decline in obesity prevalence was not observed among children in all racial/ethnic groups, nor among children in schools serving children with lower socioeconomic status.

What are the implications for public health practice?

The lack of progress in reducing the prevalence of obesity among racial/ethnic minorities and children in schools with lower socioeconomic status highlights the need to implement targeted, culturally specific interventions to population subgroups to reduce childhood obesity.

subject to a bias that resulted in the disproportionate selection of more obese students. In addition, prevalence estimates were weighted to be representative of the entire enrollment for each year, further minimizing bias.

The objectives of this study were to examine trends in obesity prevalence estimates that are representative of the public school population in the Anchorage metropolitan statistical area. Although a causal relationship cannot be inferred between the reduction in prevalence and school-based policies, programs, and practices implemented by ASD and MSBSD, the trend toward reduced prevalence of obesity is consistent with findings described in other reports (*2,3*). The declines in obesity prevalence among white children and children in schools with higher SES suggest that changes in the school environment, if they are effective in reducing obesity, might not be reaching all students. The lack of progress among AI/AN children and those of lower SES highlights the need for further targeted measures to reduce childhood obesity.

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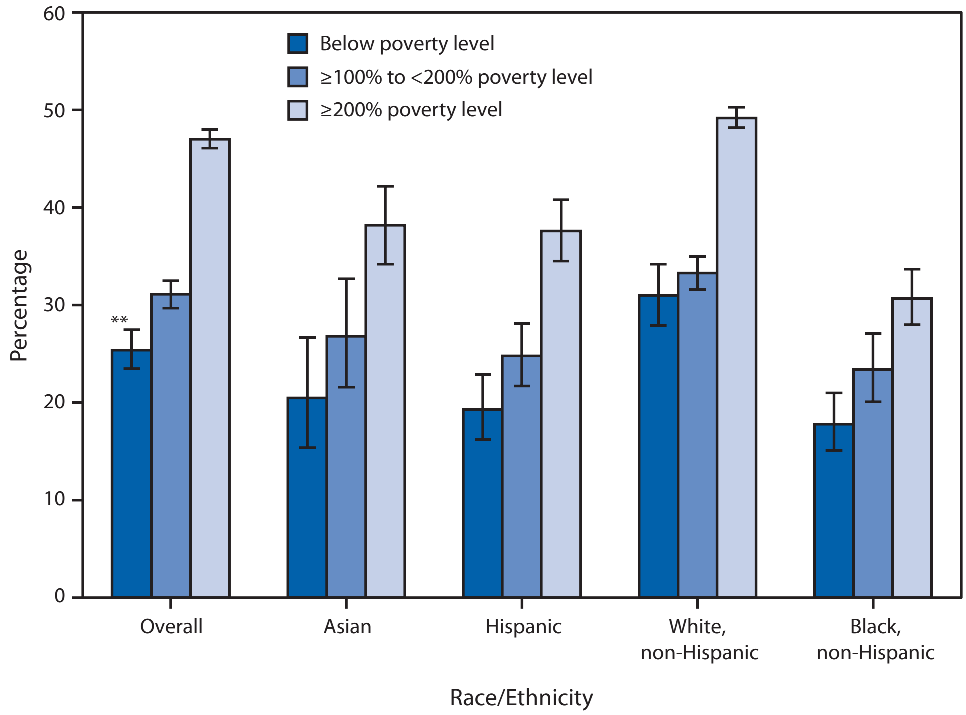
QuickStats

FROM THE NATIONAL CENTER FOR HEALTH STATISTICS

Percentage of Adults Aged ≥65 Years Who Reported Excellent or Very Good Health,* by Selected Race/Ethnicity† and Poverty Status§ — National Health Interview Survey, 2009–2011¶



* Respondents were asked, "Would you say your health in general is excellent, very good, good, fair, or poor?"
† Persons of Hispanic ethnicity might be of any race or combination of races.
§ Poverty status is based on family income and family size using the U.S. Census Bureau poverty thresholds. Family income was imputed when information was missing, using multiple imputation methodology.
¶ Estimates are based on household interviews of a sample of the noninstitutionalized U.S. civilian population. Estimates are age adjusted using the projected 2000 U.S. population as the standard population and three age groups: 65–74 years, 75–84 years, and ≥85 years.
** 95% confidence interval.

During 2009–2011, approximately 41% of adults aged ≥65 years reported their health to be excellent or very good. The percentage reporting excellent or very good health was higher among those in families with higher income compared with families with lower income. Non-Hispanic whites aged ≥65 years were more likely to report excellent or very good health at each income level compared with Asians, Hispanics, or non-Hispanic blacks.

Sources: National Health Interview Survey, 2009–2011. Available at http://www.cdc.gov/nchs/nhis.htm.

CDC. Health Data Interactive. Available at http://www.cdc.gov/nchs/hdi.htm.

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