

# The Illegal Sale of Cigarettes to US Minors: Estimates by State

## ABSTRACT

Data available from recent national surveys on the cigarette consumption and purchasing practices of teenage smokers were used to generate state-specific estimates of the number of teenage smokers and cigarette sales to minors. In 1991, approximately 2.7 million teenage cigarette smokers consumed an average of 28.3 million cigarettes per day (516 million packs per year). An estimated 255 million packs of cigarettes were sold illegally to minors in 1991. To make cigarettes and other tobacco products less accessible to minors, policymakers should consider implementing various legislative and economic measures such as banning cigarette vending machines and raising tobacco excise taxes. (*Am J Public Health*. 1994;84:300-302)

K. Michael Cummings, PhD, MPH, Terry Pechacek, PhD, and Donald Shopland

### Introduction

Cigarette smoking kills more than 400 000 Americans each year.<sup>1</sup> Most tobacco victims are over the age of 35<sup>1</sup>; however, the addiction that fosters tobacco use begins for a majority of smokers during adolescence.<sup>2</sup> In an effort to deter minors from initiating and sustaining tobacco use, most states have enacted laws that restrict the sale of tobacco to minors.<sup>3</sup> Despite the existence of these laws, evidence indicates that most teenage smokers buy their own cigarettes with little difficulty.<sup>4-10</sup>

In an effort to promote greater awareness of the problem of youth tobacco use and access, this study presents estimates of teenage smoking and the illegal sale of cigarettes to minors in each of the 50 states and the District of Columbia.

### Methods and Materials

Data collected in the 1989 Teenage Attitudes and Practices Survey of 12- to 18-year-old youth, sponsored by the Centers for Disease Control, the National Cancer Institute, and the American Cancer Society, were used to generate state-specific estimates of the number of teenage smokers.<sup>11</sup> The survey is based on a representative national sample of 9965 young people. Since our main interest in this study was estimating the sale of cigarettes to teenagers, we restricted our definition of a smoker to anyone who reported having smoked in the last week. This definition provides a conservative estimate of teenage smoking but is more likely to capture those who regularly purchase their own cigarettes.<sup>7,10</sup>

Table 1 shows the age-specific prevalence estimates obtained from the Teenage Attitudes and Practices Survey. Teenagers who reported having smoked in the last week were asked to indicate the amount they smoked daily. Daily cigarette consumption among current smokers is also reported in Table 1.

Census figures from 1990 were used to estimate the number of teenagers in each age group by state. Multiplying the cigarette use prevalence figures shown in Table 1 by the number of teens in each age

group yields an estimate of the number of smokers between the ages of 12 and 18 years in each state. Multiplying the average number of cigarettes consumed daily from Table 1 by the number of teenage smokers in each age group provides an estimate of the number of cigarettes consumed daily by teens in each state.

Data from a 1989 study on the cigarette purchasing habits of teenage smokers conducted by the National Automatic Merchandising Association<sup>5</sup> (a trade association for companies that sell cigarettes from vending machines) were used to estimate the percentage of cigarettes consumed by teens that represent sales to minors. In that study, the purchasing habits of 1015 teenage smokers interviewed in shopping malls in 20 US cities were assessed. Seventy-two percent of teenage smokers indicated that they obtain their cigarettes by purchasing them, while an additional 19% reported that they depend on friends to supply them. Since the friends of most teenagers are themselves minors, this study indicates that 91% (72% + 19%) of all cigarettes consumed by teens are sold to minors. These findings are consistent with results from other studies that have examined the cigarette purchasing habits of teenage smokers.<sup>10,12</sup>

State laws vary in regard to the minimum age for selling cigarettes to minors.<sup>3</sup> The estimated number of packs of cigarettes illegally sold to minors was calculated separately by state according to each state's minimum age law (see Table 2). Multiplying the number of packs of cigarettes consumed by teens by 0.91 provides an estimate of the number of packs sold illegally to minors each day. Sales and tax

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K. Michael Cummings is with the Department of Cancer Control and Epidemiology, Roswell Park Cancer Institute, Buffalo, NY. Terry Pechacek is with the Department of Social and Preventive Medicine, School of Medicine, State University of New York at Buffalo. Donald Shopland is with the National Cancer Institute, Rockville, Md.

Requests for reprints should be sent to K. Michael Cummings, PhD, MPH, Department of Cancer Control and Epidemiology, Roswell Park Cancer Institute, Elm and Carlton Sts, Buffalo, NY 14263.

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**TABLE 1—Teenagers' Reported Cigarette Use in the Previous 7 Days and Average Daily Cigarette Consumption, by Age**

| Age, y | Teenagers Reporting Smoking during Preceding Week <sup>a</sup> |            | No. of Cigarettes Smoked per Day <sup>a</sup> |              |
|--------|--|------------|---|--------------|
|        | 95% Confidence Interval  |            | 95% Confidence Interval                       |              |
|        | %  | Interval   | Mean  | Interval     |
| 12     | 0.7  | 0.3, 1.1   | 8.42  | 3.37, 13.47  |
| 13     | 2.5  | 1.6, 3.4   | 4.50  | 2.84, 6.16   |
| 14     | 7.1  | 5.6, 8.6   | 6.50  | 5.06, 7.94   |
| 15     | 11.6   | 9.8, 13.4  | 8.28  | 7.01, 9.54   |
| 16     | 13.7   | 11.8, 15.6 | 9.49  | 8.31, 10.67  |
| 17     | 17.9   | 15.8, 20.0 | 10.88   | 9.84, 11.92  |
| 18     | 25.4   | 22.8, 28.0 | 12.29   | 11.19, 13.39 |

Note. The mean number of cigarettes smoked daily was computed only for those who responded to the telephone survey. Software for Survey Data Analysis<sup>23</sup> was used in calculating confidence intervals.

Source. Data are from the 1989 Teenage Attitudes and Practices Survey.<sup>11</sup>

<sup>a</sup>As of November 1, 1989.

data compiled by the Tobacco Institute<sup>13</sup> for 1991 were used to determine estimates of sales and tax revenue generated from the illegal sale of cigarettes to minors on a state-by-state basis.

## Results

Table 2 shows the estimated number of smokers 12 to 18 years of age by state and the District of Columbia. Overall, we estimate that approximately 2.7 million teenagers smoked an average of 28.3 million cigarettes per day (516 million packs of cigarettes per year).

Table 2 also provides estimates of sales and tax revenue derived from the illegal sale of cigarettes to minors. In 1991, four states, Louisiana, Missouri, Montana, and New Mexico, did not have tobacco age sale restriction laws (since 1991, Louisiana and Missouri have passed laws banning the sale of tobacco to those under the age of 18) and thus did not contribute to the overall estimate for illegal sales to minors. Taking into account differences in state laws regarding minimum age restrictions for selling cigarettes to minors, we estimate that, in 1991, 255 million packs of cigarettes were sold illegally to minors.

## Discussion

The results of this analysis show that US teenagers spent \$962 million on ciga-

**TABLE 2—Estimated Number of Teenage Cigarette Smokers and Illegal Sales to Minors, by State and the District of Columbia in 1991**

|                      | Estimated No. of Cigarette Smokers 12 to 18 Years of Age | Minimum Age for Sale, <sup>a</sup> y | Estimated No. of Cigarette Packs Sold Illegally to Minors Annually, Millions | Sales Revenue, Thousands of Dollars | Tobacco Taxes, Thousands of Dollars |         |
|----------------------|--|--------------------------------------|--|-------------------------------------|-------------------------------------|---------|
|                      |  |                                      |  |                                     | State                               | Federal |
| Alabama              | 51 203   | 19                                   | 8.65   | 15 737                              | 1 427                               | 1 729   |
| Alaska               | 5 956  | 19                                   | 1.01   | 2 181                               | 293                                 | 202     |
| Arizona              | 39 441   | 18                                   | 3.87   | 6 936                               | 697                                 | 775     |
| Arkansas             | 29 714   | 18                                   | 2.99   | 5 497                               | 657                                 | 597     |
| California           | 299 131  | 18                                   | 29.60  | 62 535                              | 10 276                              | 5 872   |
| Colorado             | 35 605   | 18                                   | 3.46   | 5 882                               | 692                                 | 692     |
| Connecticut          | 33 733   | 18                                   | 3.33   | 6 865                               | 1 500                               | 667     |
| Delaware             | 7 214  | 17                                   | 0.41   | 796                                 | 100                                 | 83      |
| District of Columbia | 5 421  | 16                                   | 0.16   | 305                                 | 48                                  | 58      |
| Florida              | 125 038  | 18                                   | 12.34  | 24 552                              | 4 182                               | 2 468   |
| Georgia              | 80 346   | 17                                   | 4.75   | 7 894                               | 571                                 | 951     |
| Hawaii               | 11 734   | 18                                   | 1.12   | 2 409                               | 527                                 | 224     |
| Idaho                | 12 818   | 18                                   | 1.28   | 2 207                               | 231                                 | 257     |
| Illinois             | 130 110  | 18                                   | 12.86  | 24 555                              | 3 857                               | 2 571   |
| Indiana              | 67 576   | 18                                   | 6.68   | 11 084                              | 1 035                               | 1 335   |
| Iowa                 | 31 297   | 18                                   | 3.08   | 5 850                               | 1 108                               | 616     |
| Kansas               | 27 247   | 18                                   | 2.65   | 4 849                               | 636                                 | 530     |
| Kentucky             | 45 659   | 16                                   | 1.43   | 2 072                               | 43                                  | 523     |
| Louisiana            | 52 061   | None                                 | ...  | ...                                 | ...                                 | ...     |
| Maine                | 14 183   | 18                                   | 1.42   | 2 872                               | 469                                 | 284     |
| Maryland             | 50 065   | 18                                   | 4.93   | 8 285                               | 789                                 | 986     |
| Massachusetts        | 60 988   | 18                                   | 5.87   | 10 977                              | 1 526                               | 1 174   |
| Michigan             | 111 568  | 18                                   | 11.06  | 20 577                              | 2 766                               | 2 213   |
| Minnesota            | 47 187   | 18                                   | 4.63   | 9 812                               | 1 990                               | 926     |
| Mississippi          | 34 377   | 18                                   | 3.46   | 5 886                               | 623                                 | 692     |
| Missouri             | 57 709   | None                                 | ...  | ...                                 | ...                                 | ...     |
| Montana              | 9 119  | None                                 | ...  | ...                                 | ...                                 | ...     |
| Nebraska             | 18 053   | 18                                   | 1.76   | 3 211                               | 476                                 | 353     |
| Nevada               | 10 751   | 18                                   | 1.08   | 2 133                               | 377                                 | 215     |
| New Hampshire        | 12 572   | 18                                   | 1.20   | 2 119                               | 301                                 | 241     |
| New Jersey           | 83 251   | 18                                   | 8.26   | 16 604                              | 3 304                               | 1 652   |
| New Mexico           | 18 231   | None                                 | ...  | ...                                 | ...                                 | ...     |
| New York             | 191 104  | 18                                   | 18.71  | 39 096                              | 7 295                               | 3 741   |
| North Carolina       | 78 074   | 17                                   | 4.46   | 6 875                               | 223                                 | 893     |
| North Dakota         | 7 425  | 18                                   | 0.74   | 1 363                               | 215                                 | 148     |
| Ohio                 | 127 209  | 18                                   | 12.58  | 21 634                              | 2 264                               | 2 516   |
| Oklahoma             | 37 351   | 18                                   | 3.69   | 6 719                               | 849                                 | 738     |
| Oregon               | 29 719   | 18                                   | 2.95   | 5 556                               | 828                                 | 591     |
| Pennsylvania         | 130 450  | 18                                   | 12.87  | 23 936                              | 3 989                               | 2 574   |
| Rhode Island         | 10 409   | 18                                   | 0.99   | 1 994                               | 369                                 | 199     |
| South Carolina       | 43 567   | 18                                   | 4.32   | 6 821                               | 302                                 | 863     |
| South Dakota         | 8 070  | 18                                   | 0.79   | 1 398                               | 184                                 | 160     |
| Tennessee            | 58 684   | 18                                   | 5.83   | 9 682                               | 758                                 | 1 166   |
| Texas                | 202 871  | 18                                   | 20.22  | 38 021                              | 8 292                               | 4 045   |
| Utah                 | 23 117   | 19                                   | 3.86   | 6 452                               | 1 024                               | 773     |
| Vermont              | 6 608  | 18                                   | 0.62   | 1 056                               | 117                                 | 124     |
| Virginia             | 67 452   | 18                                   | 6.54   | 10 392                              | 163                                 | 1 307   |
| Washington           | 50 798   | 18                                   | 4.98   | 10 000                              | 1 692                               | 995     |
| West Virginia        | 22 954   | 18                                   | 2.32   | 3 711                               | 394                                 | 464     |
| Wisconsin            | 54 263   | 18                                   | 5.35   | 9 523                               | 1 658                               | 1 070   |
| Wyoming              | 5 270  | 18                                   | 0.53   | 824                                 | 63                                  | 105     |
| Total                | 2 774 813  |                                      | 255.69   | 479 738                             | 71 181                              | 51 095  |

<sup>a</sup>As of July 1, 1991.

rettes in 1991. Our estimate of cigarette expenditures by teens is probably conser-

vative since we did not consider tobacco use by teenagers who smoke less fre-

quently than once per week. However, even using this conservative approach to computing cigarette expenditures by teenagers, we estimate that, in 1991, the cigarette industry derived approximately \$190 million in profit from sales to minors (\$94.8 million from illegal sales). Of course, the profit derived from cigarette sales to teenagers is tiny in comparison with the profits obtained from sales to adults. The financial incentive for the tobacco industry to persuade teenagers to smoke is not the short-term profit gained from selling cigarettes to them but the expected stream of profit to be gained over a smoker's lifetime.

The federal government and state governments also benefit financially from tobacco sales to teenagers. In 1991, we estimate that combined federal and state taxes collected on the sale of cigarettes to teens between the ages of 12 and 18 years exceeded \$240 million (\$122 million derived from illegal sales to minors). The federal and state governments should consider earmarking tax revenues collected from the illegal sale of cigarettes to minors to programs enforcing tobacco age restriction laws.

The public supports stronger limits on children's access to and use of tobacco products.<sup>14-16</sup> Evidence from several studies<sup>9,17,18</sup> indicates that when tobacco age restriction laws are enforced, tobacco sales to minors can be sharply reduced. Two recent studies<sup>19,20</sup> also provide evidence that active enforcement of age restriction laws on tobacco sales can lower the prevalence of smoking among teenagers. Unfortunately, active enforcement of tobacco age restrictions laws is the exception rather than the rule in most US communities.

Until recently, the federal government had taken no action to regulate the access of minors to tobacco. In July 1992, Congress passed an important amendment to the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) Reorganization Act designed to discourage tobacco use by young people. The Synar Amendment (named for Congressman Mike Synar, who offered this amendment to the ADAMHA bill) provides that, as a condition of receiving block grant funds for substance abuse prevention and treatment, states must enact and enforce a law prohibiting the sale or distribution of to-

bacco products to individuals under 18 years of age. Specifically, states are required to check retailer compliance with the tobacco age sale law by conducting random, unannounced inspections of locations at which tobacco products are sold and to submit a report to the secretary of health and human services describing their activities aimed at enforcing the law during the preceding year. If a state fails to demonstrate a reasonable effort to enforce the law preventing tobacco sales to minors, then it will lose between 10% and 40% (depending on the year) of its ADAMHA funds. ADAMHA block grant awards tentatively set for fiscal year 1993 range from \$2.0 million for Wyoming to \$201.2 million for California. Since no state wishes to risk losing substantial federal funding, the Synar Amendment provides a new impetus for state governments to enact meaningful legislation and enforce existing laws to curtail tobacco sales to minors.

Finally, policymakers should also consider increasing taxes on cigarettes as a strategy to reduce teenage smoking. In comparison with adults, teenagers have relatively little disposable income and are therefore more sensitive to increases in prices.<sup>21</sup> A recently completed Canadian study found that a 10% increase in the relative price of cigarettes (over and above inflation) resulted in a 14% decline in the prevalence of smoking by 15- through 19-year-old teenagers.<sup>22</sup> □

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