

# **Evaluation of the National Youth Anti-Drug Media Campaign: 2003 Report of Findings Executive Summary**

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**A report based on the National Survey of Parents and Youth**

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2003 Report of Findings  
Executive Summary**

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# Highlights of the Report

The National Youth Anti-Drug Media Campaign was funded by the Congress to reduce and prevent drug use among young people by addressing youth directly as well as indirectly, and by encouraging their parents and other adults to take actions known to affect youth drug use. The major intervention components include television, radio, and other advertising, complemented by public relations efforts including community outreach and institutional partnerships. This evaluation report covers the current phase (Phase III) of the project, from September 1999 through June 2003. For the youth component of the Campaign, it focuses on evidence concerning the possible effects of the Marijuana Initiative, which began in late fall 2002.

- Recall of Campaign Messages:

Most parents and youth recalled exposure to Campaign anti-drug messages. About 70 percent of parents and nearly 80 percent of youth report exposure to one or more messages through all media channels every week. Recall of television advertising has climbed across the 3.5 years of the Campaign. In 2000, 24 percent of parents and 37 percent of youth recalled weekly exposure to specific TV ads; in 2002 before the Marijuana Initiative, recall among parents reached 51 percent and among youth reached 52 percent; in 2003 after the launch of the Marijuana Initiative recall, rates had climbed to 58 percent and 76 percent respectively. Both parents and youth also reported substantial recognition of the Campaign's "anti-drug" brand phrases. The 2003 youth component of the campaign focused on strong marijuana Negative Consequences ads; they were evaluated positively by youth at a level comparable to most of the previous ads.

- Effects on Parents:

There continues to be evidence consistent with a favorable Campaign effect on parents. Overall, there is evidence of some favorable Campaign effects on four of five parent belief and behavior outcome measures including talking with children about drugs, doing fun activities with children, and beliefs about monitoring of children. The evidence for Campaign effects on parents' monitoring behavior was much weaker. The lack of influence on monitoring behavior is a concern because it has been the focus of the parent Campaign for much of Phase III and is the parent behavior most associated with youth nonuse of marijuana. In addition, there is no evidence for favorable indirect effects on youth behavior or beliefs as the result of parent exposure to the Campaign.

- Effects on Youth:

There is little evidence of direct favorable Campaign effects on youth, either for the Marijuana Initiative period or for the Campaign as whole. The trend data in marijuana use is not favorable, and for the primary target audience, 14- to 16-year-olds, past year use increased from 2000 through 2003, although this increase was already in place before the start of the Marijuana Initiative. However, an independent source of trend information, the Monitoring the Future Survey, showed a decline in use for some age groups. In any case, youth who were more exposed to Campaign messages are no more likely to hold favorable beliefs or intentions about marijuana than are youth less exposed to those messages, both during the Marijuana Initiative period and over the entire course of the Campaign.

Because the Marijuana Initiative began just before the final wave of data collection, it is not possible to supplement the same time comparisons of exposure and outcomes with delayed-effect comparisons of Marijuana Initiative exposure with later outcomes. These delayed-effect analyses will be examined in the next report.

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# Executive Summary

The number one goal of the revised *National Drug Control Strategy* is to stop drug use before it starts through education and community action. Under the Treasury-Postal Appropriations Act of 1998, Congress approved funding (P.L. 105-61) for “a national media campaign to reduce and prevent drug use among young Americans.” Pursuant to this act, the Office of National Drug Control Policy (ONDCP) launched the National Youth Anti-Drug Media Campaign (the Media Campaign). The Media Campaign is a key part of efforts by the Office of National Drug Control Policy (ONDCP) to stop drug use before it starts. The Media Campaign is the first fully comprehensive Federal Government communications campaign to focus on youth drug use. It combines paid commercial advertising, grassroots public outreach, and specialized supporting communications efforts. Other important Media Campaign goals are to convince youth who are occasional users of drugs to stop using them, to enhance adult perceptions of harm associated with the use of marijuana and other drugs, and to emphasize to parents and influential adults that their actions can make a vital difference in preventing youth drug use.

The Media Campaign has progressed through three phases of increasing complexity and intensity. Phases I and II are not discussed in this report. ONDCP has available other reports that evaluate those phases. This report focuses on Phase III, which began in September 1999 and is planned to run at least through spring 2004. An evaluation of Phase III is being conducted under contract to the National Institute on Drug Abuse (NIDA) by Westat and its subcontractor, the Annenberg School for Communication at the University of Pennsylvania. Funding of the evaluation is provided by ONDCP from the appropriation for the Media Campaign itself. This is the sixth report of the Westat and Annenberg evaluation of Phase III of the Media Campaign.

The primary tool for the evaluation is the National Survey of Parents and Youth (NSPY). This survey is collecting initial and followup data from nationally representative samples of youth between 9 and 18 years of age and parents of these youth. This sixth report presents analyses from the first seven waves of NSPY, covering the period from September 1999 through June 2003.

This executive summary focuses on evidence for Campaign effects on youth and parent outcomes. For the youth, it focuses almost exclusively on examining evidence concerning the Marijuana Initiative, a refocusing of the Campaign to emphasize marijuana use among youth.

This report by Westat and Annenberg provides six types of information about the campaign and its effects:

- A brief update and description of the Media Campaign’s activities to date, including a description of the Marijuana Initiative.
- A review of the logic and approach of the evaluation.
- Statistics on the level of exposure to messages achieved by the Media Campaign during Phase III.
- Estimates of change in the drug use behaviors of youth between 2000 and the first half of 2003.

- Estimates of Campaign effects on youth. These include estimates of trends between 2000 and the first half of 2003, as well as changes between 2002 and 2003 in outcomes including use, attitudes, beliefs, and intentions, and estimates of association between exposure to the Campaign and simultaneously measured outcomes with statistical controls for confounders, both for youth measured after the Marijuana Initiative and in comparison to youth measured before the Marijuana Initiative. The report also includes analyses of trends and of associations for various subgroups of the population.
- Estimates of Campaign effects on parents. These include estimates of trends between 2000 and the first half of 2003 in the parent outcomes; estimates of association between exposure to the Campaign and parents talking about drugs with their children; parents monitoring their children's behavior; and parents engaging in fun activities with their children, as well as their beliefs and attitudes about talking and about monitoring, and estimates of association between parents' exposure and youth's beliefs and drug use behavior. Both change and association data are reported for various subgroups of the population. In addition, the delayed-effects associations of early parent exposure to Campaign advertising with later parent and youth outcomes are presented.

## Background on the Media Campaign

The Media Campaign has three goals:

- Educate and enable America's youth to reject illegal drugs;
- Prevent youth from initiating use of drugs, especially marijuana; and
- Convince occasional users of these and other drugs to stop using drugs.

The Media Campaign originally targeted paid advertising to youth aged 9 to 18 (with a current focus on youth aged 14 to 16), parents of youth in these age ranges, and other influential adults. Phase III advertising is being disseminated through a full range of media or "channels" following a *Communications Strategy* developed by and later revised by ONDCP. Phase III also includes components other than advertising. There are outreach programs to the media, entertainment, and sports industries, as well as partnerships with civic, professional, and community groups. These other components, which are being coordinated by a public relations firm, include encouraging entertainment programs with anti-drug themes, coverage of the anti-drug campaign in the news media, community activities, corporate co-sponsorship, and special interactive media programming on the Internet.

ONDCP performs overall management of the Media Campaign in collaboration with the following groups:

- The Partnership for a Drug-Free America (PDFA), which provides the creative advertising for the Media Campaign through its existing relationship with leading American advertising companies;
- A Behavioral Change Expert Panel (BCEP) of outside scientists who help to inform the content of the advertisements to reflect the latest research on behavior modification, prevention, and target audiences;

- Ogilvy, a national advertising agency, which has responsibility for media buying (as well as for carrying out some supportive research and assuring a coherent advertising strategy);
- Fleishman-Hillard, a public relations firm, which coordinates the nonadvertising components of the Media Campaign; and
- The Ad Council, a coordinator of national public interest advertising campaigns, which supervises distribution of donated advertising time to other public service agencies under the “pro bono match” program (see below).

For Phase III, advertising space has been purchased on television, radio, newspapers, magazines, billboards, transit ads, bus shelters, movie theaters, video rentals, Internet sites, Channel One broadcasts in schools, and other venues as appropriate. The television buys include spot (local), network, and cable television. One of the requirements in the Media Campaign appropriations language is that each paid advertising slot must be accompanied by a donation of equal value for public service messages from the media, known as the pro bono match. The pro bono match involves one-to-one matching time for public service advertisements or in-kind programming. The pro bono spots may include both supplemental transmission of the Campaign’s anti-drug ads, but also ads addressing other themes including anti-alcohol, anti-tobacco, and mentoring, but such themes are not part of the paid advertising.

The previous two reports in this series (Hornik et al., 2002a; Hornik et al., 2002b) suggested that the Campaign was not achieving its major objective of affecting youth marijuana use, and even showed some evidence of an unfavorable delayed effect of the Campaign on youth. Partly in response to these results, the Campaign initiated a major revision of the youth component of the Campaign, entitled the Marijuana Initiative. The Marijuana Initiative made several core changes:

- For youth, it focused all advertising effort on strong, Negative Consequences of marijuana use ads, rather than the mix of Negative Consequence, Positive Alternative/Normative Education and Resistance Skills ads that had been featured over the previous waves;
- It shifted its primary target audience from 11- to 14-year-olds to 14- to 16-year-olds; and
- It implemented more rigorous copy–test procedures, requiring each television advertisement to undergo pretesting before being aired to a national audience, with increased oversight by the ONDCP in guiding the development and production of advertisements.

## Methodology

The report presents results from seven waves of the National Survey of Parents and Youth (NSPY), an in-home survey designed to represent youth living in homes in the United States and their parents. Each of the first three waves of NSPY enrolled nationally representative samples of youth aged 9 to 18 and their parents. The respondents at these waves represent the approximately 40 million youth and 43 million of their parents who are the target audience for the Media Campaign. Wave 1 included 3,299 youth aged 9 to 18 years old and 2,284 of their parents, who were interviewed between November 1999 and May 2000; Wave 2 included 2,362 youth and 1,632 of their parents interviewed between July and December 2000. Wave 3 included 2,458 youth and 1,680 of their parents interviewed between January and June 2001.

Sampling of eligible youth in Waves 1, 2, and 3 was designed to produce approximately equal-sized samples within three age subgroups (9 to 11, 12 to 13, 14 to 18). One or two youth were randomly selected from each eligible sample household. One parent was randomly chosen from each eligible household. A second parent was selected in the rare event when two youths who were not siblings were sampled.

Wave 4 conducted followup interviews with the youth who were sampled in Wave 1 and were still eligible, and with their parents. Wave 6 followed up with this same cohort. Similarly, Wave 5 included interviews with eligible youth first sampled in both Wave 2 and Wave 3 and their parents, and Wave 7 followed up with this cohort. Later waves will follow up both of these samples for a fourth time. While the focus of the Campaign in the past has been on youth age 11 or older, the inclusion of 9- and 10-year-old children at Waves 1, 2, and 3 provided a sample of those who will age into the primary target audience at the times of the followup interviews. Wave 4 comprised followup interviews with 2,477 youth and 1,752 parents of those sampled at Wave 1; Wave 5 included 4,040 youth and 2,882 parents, and the interviews were conducted between January and June 2002. The new data included in this report come from Wave 6, which included 2,267 youth and 1,640 parent interviews conducted between July and December 2002, and from Wave 7, which included 3,587 youth and 2,621 parent interviews conducted between January and June 2003.

NSPY achieved a response rate of 65 percent for youth and 63 percent for parents across Waves 1 through 3 of data collection (the recruitment waves), with little response rate variation by wave. In Waves 4 and 5, respectively, NSPY successfully reinterviewed 82 percent of youth first interviewed in Wave 1, and 89 percent of youth first interviewed in Waves 2 and 3 who were still eligible for the survey (primarily still under age 19). Similarly, 80 percent of Wave 1 parents and 88 percent of Wave 2 and 3 parents were successfully reinterviewed, respectively. Wave 6 included successful reinterviews with 93 percent of the Wave 4 eligible youth and 93 percent of the Wave 4 eligible parents. Wave 7 included 92 percent of the eligible youth and 91 percent of the eligible parents from the Wave 5 sample. The cumulative response rates for Waves 6 and 7 were necessarily lower than the rates for the prior waves due to the followup nature of the latter waves. In preparing the respondent data for analysis, adjustments were made at all seven waves to compensate for nonresponse and to make certain survey estimates conform to known population values. Confidence intervals for survey estimates and significance tests are computed in a manner that takes account of the complex sample design.

NSPY questionnaires were administered in respondents' homes using touch-screen laptop computers. Because of the sensitive nature of the data to be collected during the interviews, a Certificate of Confidentiality was obtained for the survey from the Department of Health and Human Services, and confidentiality was promised to the respondents. All sensitive question and answer categories appeared on the laptop screen and were presented orally to the respondent over headphones by a recorded voice that could be heard only by the respondent. The responses were chosen by touching the laptop screen.

The NSPY questionnaire for youth included extensive measurement of their exposure to Media Campaign messages and other anti-drug messages. It also included questions about their beliefs, attitudes, intentions, and behaviors with regard to drugs and a wide variety of other factors either known to be related to drug use or likely to make youth more or less susceptible to Media Campaign messages.

The NSPY questionnaire for parents also included measures about exposure to Media Campaign messages and other anti-drug messages. In addition, it included questions about parents' beliefs, attitudes, intentions, and behaviors with regard to their interactions with their children. These included talking with their children about drugs, parental monitoring of children's lives, and involvement in activities with their children. The responses of a parent and his or her child are directly linked for some analysis, for example those that look at the effects of parent exposure to the Campaign on youth attitudes and beliefs about marijuana.

Ad exposure was measured in NSPY for both youth and parents by asking about recall of specific current or very recent TV and radio advertisements. The TV and radio advertisements were played for respondents on laptop computers in order to aid their recall. Youth were shown or listened only to youth-targeted ads, and parents were shown or listened only to parent-targeted ads. In addition, both youth and parents were asked some general questions about their recall of ads seen or heard on TV and radio, and in other media such as newspapers, magazines, movie theaters, billboards, and the Internet.

## Media Purchases and Evidence about Exposure

### Media Purchases

Across its multiple media outlets, the Media Campaign reports that it purchased enough advertising time over the 46-month period covered by this report (September 1999 through June 2003) to achieve an expected exposure to 2.5 youth-targeted ads per week for the average youth and to 2.1 parent-targeted ads per week for the average parent. These estimates include Campaign advertisements intended for either all youth or all parents; they do not include exposure by youth or parents to advertisements intended for other audiences, often called "spill," or separate advertising targeted to specific race- or ethnicity-defined audiences. During the period of the Marijuana Initiative, from October 2002 through June 2003, enough time and space was purchased to produce an expected 2.7 youth-targeted exposures to ads per week, a small increase over the full Campaign average.

- Figures ES-1 and ES-2 present the weekly totals for expected youth-targeted and parent-targeted exposures, respectively, where 100 means that the average person in the audience would be exposed once per week. Both the actual weekly media purchases and a smoothed line averaging over 3-week periods are presented. Both graphs show that purchases varied a good deal, both between and within the periods corresponding to the NSPY waves of data collection.
- Table ES-1 summarizes the variations across broad 6-month periods. The table shows that expected weekly exposures of 2.5 per week in 2000 and 2001 were followed by a decline to 2.2 exposures per week in purchases during the first 9 months of 2002, and then rebounded during the period of the Marijuana Initiative to 2.7. The first 10 weeks of the Marijuana Initiative were particularly high. Purchases of ad time for parents were at their highest during Wave 1 (2.8) and have bounced around 2.0 expected exposures per week since that time.

Figure ES-1. Weekly youth-targeted general market GRPs (September 1999 through June 2003)

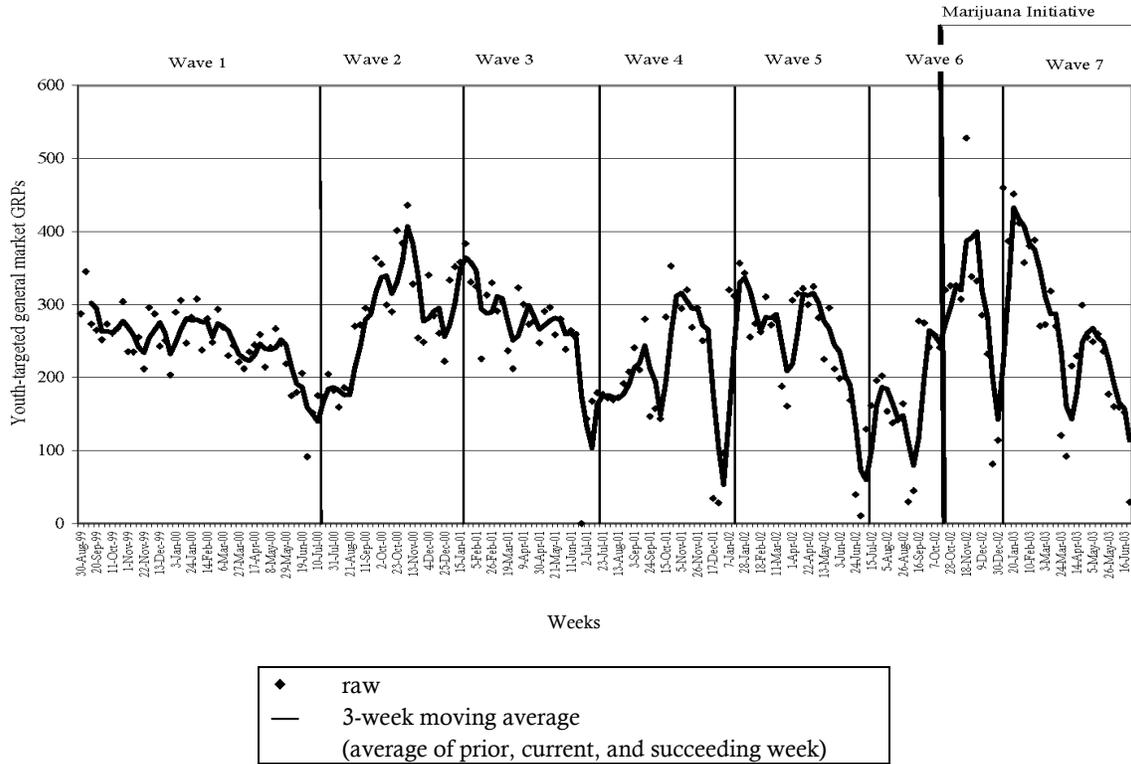
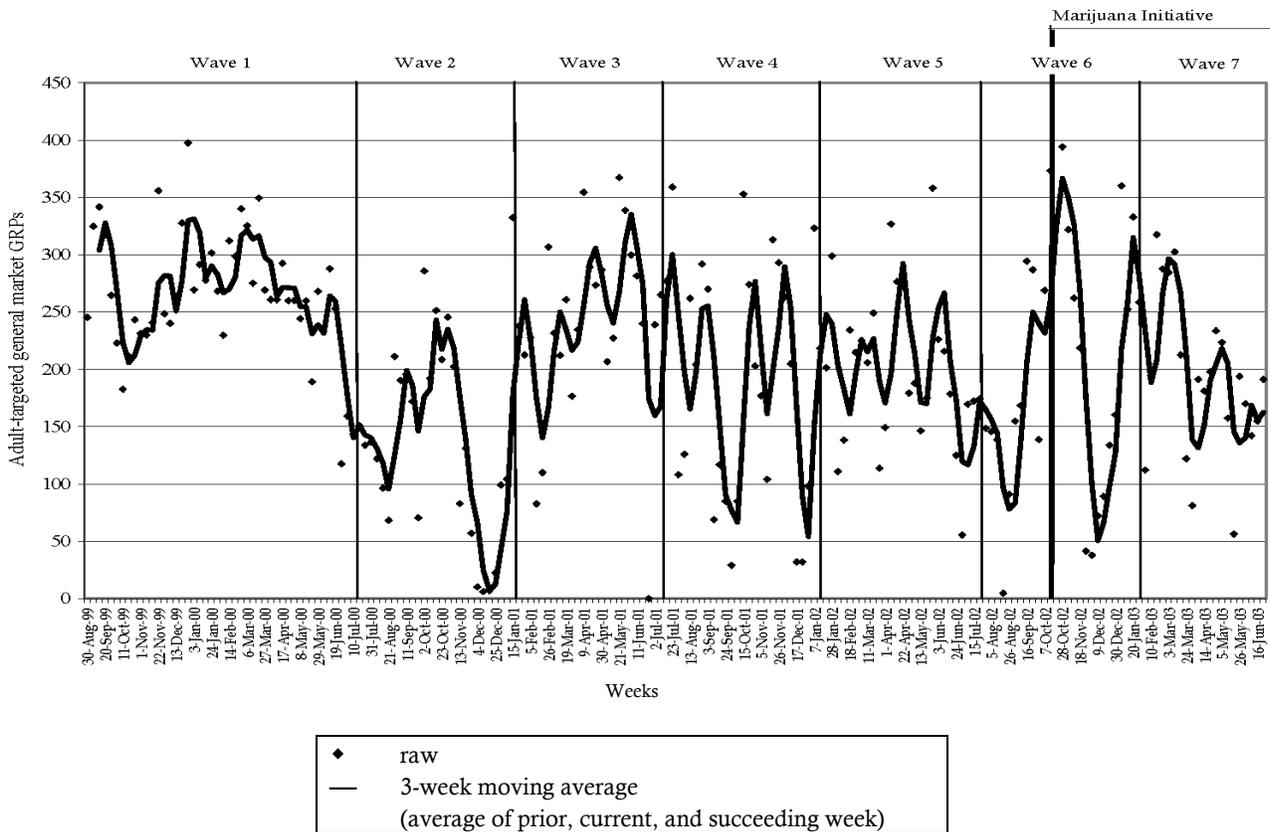


Figure ES-2. Weekly parent-targeted general market GRPs (September 1999 through June 2003)



**Table ES-1. Distribution of youth and parent average weekly GRPs across years**

	Waves 1 and 2 Year 2000	Waves 3 and 4 Year 2001	Waves 5 and 6 Year 2002 (Jan-Sep)	Marijuana Initiative (Oct 02 to Jun 03)
<b>Youth</b>	257	245	220	271

	Waves 1 and 2 Year 2000	Waves 3 and 4 Year 2001	Waves 5 and 6 Year 2002 (Jan-Dec)	Wave 7 (Jan 03 to Jun 03)
<b>Parents</b>	220	212	195	207

- About 33 percent of youth advertising time was purchased on network or “spot” television and about another 29 percent was purchased on network and “spot” radio. Thus, a little more than 61 percent of total exposures were on media with the potential to reach a wide portion of youth. The rest of the advertising time was purchased on channels that reach narrower audiences, including in-school television (18%), magazines (11%), and other media: basketball backboards; Internet; nontraditional; and arcades (all less than 5% apiece).
- For parents, averaged across the seven waves, more than 60 percent of the primary media buys were in potentially wider-reach media, that is, network radio (27% of all expected exposures) and network television (35%). Less than 40 percent of the primary media buys were in narrower-reach media, that is, outdoor media (22%), magazines (12%), newspapers (4%), the Internet (2%), and movie ads (0.2%).
- For both youth and parents, Campaign advertising buys were mostly directed to a small number of platforms or themes. The focus on each platform varied across time, as presented in Tables ES-2 and ES-3, which present the percentage of all television and radio ad buys in each wave dedicated to each platform. For youth, an early focus on “Negative Consequences” of drug use had disappeared by Wave 3, but was revitalized in Waves 4 and 5 and was dominant in Waves 6 and 7. A focus on “Normative Education/Positive Alternatives” was strong across the first five waves while Resistance Skills were emphasized in Waves 1 and 3 but not in Wave 2, or after Wave 3. About 20 percent of the ad time in Wave 5 was dedicated to a new series of “Drugs and Terror” ads, which were classified under the “Negative Consequences” platform. However, these ads were minimally used in Waves 6 and 7. For parents, the “Parenting Skills/Personal Efficacy/Monitoring” platform was maintained through all seven waves and was especially strong in Waves 2, and 4 through 7. On the other hand, “Your Child at Risk” received substantial weight only at Wave 1, and “Perceptions of Harm” was included only in Waves 1 and 3. Some of the “Your Child at Risk” platform advertising in Waves 3 and 4 focused on the risks of inhalants. As was the case for youth, Wave 5 marked the introduction of the “Drugs and Terror” ads for parents, which received a little more than 20 percent of the advertising time purchased in that wave, and around 15 percent in Waves 6 and 7.

**Table ES-2. GRPs per week purchased for specific youth platforms across waves (TV and radio)**

Platform	Wave 1 2000 (%)	Wave 2 2000 (%)	Wave 3 2001 (%)	Wave 4 2001 (%)	Wave 5 2002 (%)	Wave 6 (Jun-Sep) 2002 (%)	Marijuana Initiative Oct 02-Jun 03 (%)
Negative Consequences	30.9	16.4	0.0	60.2	63.2	99.3	99.9
(Drugs and Terror)	0.0	0.0	0.0	0.0	19.0	2.5	0.6
(Marijuana Initiative)	0.0	0.0	0.0	0.0	0.0	44.1	97.9
(Other Negative Consequences)	30.9	16.4	0.0	60.2	44.2	52.7	1.4
Normative Education/Positive Alternatives	50.2	70.3	46.0	35.6	36.7	0.0	0.0
Resistance Skills	41.3	3.0	51.5	3.0	0.0	0.0	0.0
Other	2.8	10.3	3.3	1.2	0.5	0.7	0.1

NOTE: For youth, some ads fell into more than one platform (e.g., Negative Consequences and Resistance Skills). However, the denominator is the actual total, which permits the percentages by category to total more than 100 percent.

**Table ES-3. GRPs per week purchased for specific parent platforms across waves (TV and radio)**

Platform	Wave 1 2000 (%)	Wave 2 2000 (%)	Wave 3 2001 (%)	Wave 4 2001 (%)	Wave 5 2002 (%)	Wave 6 2002 (%)	Wave 7 (Jan - Jun) Year 2003 (%)
Parenting Skills/Personal Efficacy/Monitoring	54.2	98.8	48.6	91.2	77.1	85.1	83.9
Your Child at Risk	31.0	1.0	0.0	0.0	0.0	0.0	0.0
Perceptions of Harm	13.6	<0.1	51.4	7.8	0.0	0.0	0.0
Other	1.2	<0.1	0.0	1.0	<0.1	0.0	0.0
Drugs and Terror Ads <sup>1</sup>	0.0	0.0	0.0	0.0	22.9	14.9	16.1

<sup>1</sup>These ads constitute unique messages, not a new platform, as the messages fall under more than one platform.

## Recall of Exposure

NSPY used two measures of exposure; the first is based on general recall of anti-drug ads through all media, and the second is based on specific recall of currently broadcast ads on television and radio. All of the following results relate only to youth aged 12 to 18 and their parents (i.e., children younger than 12 in NSPY and their parents are excluded). The most striking result in these reports is the rapidly increasing level of recall of specific television ads both for youth and for parents.

- General exposure recall to all anti-drug advertising, which may include exposure to advertising targeted to the other audience and to advertising placed by other institutions, was fairly stable for parents and for youth across the seven waves. This stability occurred despite the variation in purchases of targeted advertising by the Campaign. Across all waves, about 70 percent of all parents and 77 percent of all youth recalled weekly exposure to any anti-drug ads (Table ES-4). The median response was 9 exposures per month for parents and 12.4 exposures per month for youth across all waves. This was probably equivalent to between 2 to 3 exposures per week. There was no overall detectable change in reported exposure from 2000 to Wave 7, or from 2002 to Wave 7, suggesting this general exposure measure was insensitive to the changes in media purchases.

**Table ES-4. Exposure to Campaign advertising by wave**

Population	Exposure measure: Percent seeing/hearing ads 1 or more times per week	Waves	Waves	Waves	Wave 7
		1 and 2 2000 (%)	3 and 4 2001 (%)	5 and 6 2002 (%)	(Jan - Jun) Year 2003 (%)
Parents	General Exposure: Across all media	71	67	70	73
	Specific Exposure: TV ads	24	29	51	58
	Specific Exposure: Radio ads	11	16	3	12
Youth 12 to 18	General Exposure: Across all media	78	74	76	80
	Specific Exposure: TV ads	37	52	52	76
	Specific Exposure: Radio ads	NA	8	1	13

NA: Radio use not measured for youth during Wave 1.

- Estimates of specific recall of Campaign ads among parents and youth provide an alternative view of exposure to the estimates generated from the general recall measures. Parents reported a median of 5.5 exposures and youth reported a median of 8.2 exposures to specific Campaign TV ads “in recent months.” This roughly translates into medians of 0.6 and 0.9 exposures per week for parents and youth, respectively. Radio recall was lower than TV recall: On average, over the 3.5-year period, about 10 percent of parents recalled exposure to specific Campaign radio ads in the past week, and over the final six waves of measurement, about 6 percent of youth recalled such exposure. About 59 percent of parents and 68 percent of youth recalled none of the specific radio ads played for them.
- Specific recall of televised Campaign ads increased significantly between 2000 and the first half of 2003 for youth, as shown in Table ES-4; the recall increased from 37 percent weekly recall to 76 percent weekly recall for the overall sample of 12- to 18-year-olds. While radio recall varied by year, in all cases, radio recall remained much lower than television ad recall.
- As was the case with youth, specific recall of television advertising by parents increased from 2000 to 2003. More than twice as many parents were reporting weekly recall of television ads in 2003 (58%) than in 2000 (24%). Parent recall of specific radio ads, while much lower than TV ad recall, particularly by 2003, showed substantial variation across the years.
- The large increases in television ad recall cannot be entirely attributed to increased television advertising purchases. It is possible that later purchases were more efficient at reaching the target audiences, that the ads themselves were more memorable, that individual ads were on the air for a longer time making it more likely they were recognized, or some other explanation.

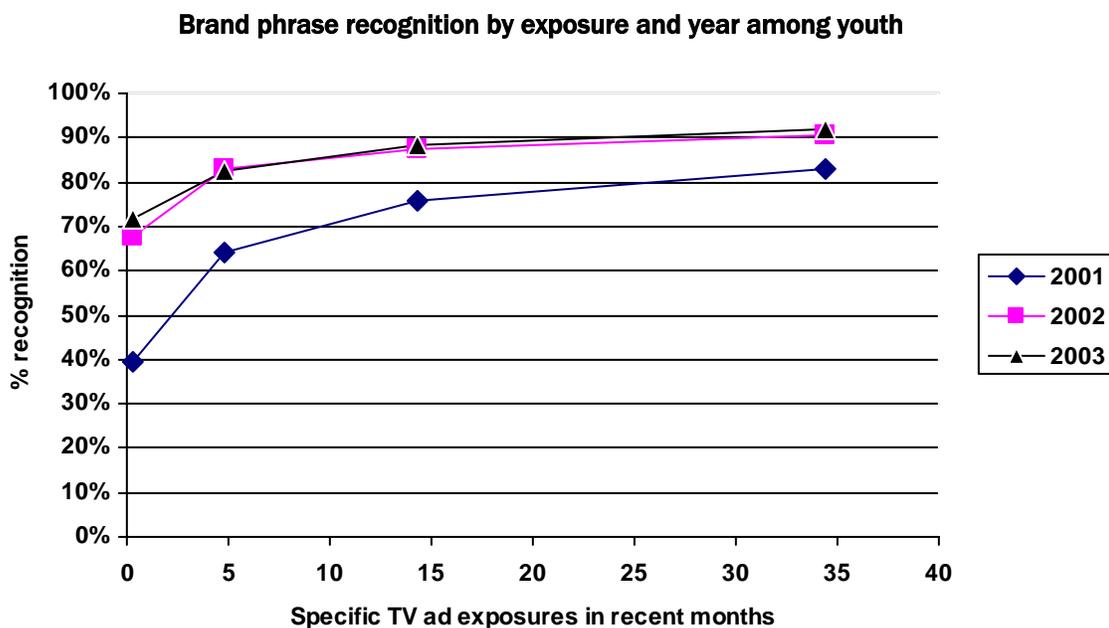
## “Brand” Recall

One of the innovations of Phase III has been the inclusion of a Campaign “brand”—for example, “the anti-drug.” A brand is used in many advertising campaigns to provide a recognizable element to coordinate advertising as well as nonadvertising components of the campaign. Insofar as the brand is recognized and positively regarded, its familiar presence may create some initial positive response to any new ad or increase the perception that each ad is part of a larger program. Such effects may, in turn, influence acceptance of the Campaign’s message.

The NSPY started measuring brand phrase recall in Wave 3, the first half of 2001. The data provide evidence for brand phrase recall, particularly among youth, with stronger evidence in 2002 and 2003:

- In the first half of 2001, when this question was first asked, less than 60 percent of the 12- to 18-year-old respondents reported recall of the Campaign brand. By 2002, recall had increased to 84 percent, and in the first half of 2003, recall of the brand increased to 88 percent. Because some of the claimed recall could have been due to false recollection, true recall cannot be precisely estimated.
- There is good evidence that the more individuals were exposed to Campaign advertising, the more likely they were to recall the brand phrase, which supports the idea that the phrase was learned as the result of Campaign exposure. Figure ES-3 shows the relationships between recalled exposure of TV ads for youth and the level of brand recognition. The more that respondents recalled specific ads, the greater their likelihood of recognizing the brand. This relationship became less powerful across time; it appears that even those with low exposure had accumulated ample opportunity to learn about the brand by 2002.

**Figure ES-3. Recall of brand phrase by specific ad recall (%)**



## Television Ad Evaluation

All respondents were asked to evaluate a subset of the television ads that they reported having seen in recent months. The goal was to assess how individuals interpret and evaluate ads from the Media Campaign when they see or hear them.

Three positively-phrased evaluative questions (whether the ad was attention getting, convincing, or said something important to the respondent) were summed to create a mean positive evaluation score for each ad and summed again for each respondent across a random subset of the ads that they recalled hearing or seeing. Additionally, a single skeptical item (whether the ad exaggerated the problem) was analyzed separately. Both positive and negative responses were placed on a scale from -2 to +2, with 0 representing a neutral response and higher scores indicating a more positive response to the ad (i.e., in the case of the exaggeration item, less belief that the ad exaggerated).

Overall, youth tended to rate favorably the television Campaign ads that they were shown across all years. The mean assessment for youth and parents did not significantly change from 2000 or 2001 to early 2003; this evidence suggests that youth and parents evaluated the Marijuana Initiative ads similarly to other Campaign ads (Table ES-5).

**Table ES-5. Television ad evaluation scores among parents and youth  
(November 1999 through June 2003)**

Group	Waves 1 and 2 Sep 99 – Dec 00	Waves 3 and 4 Year 2001	Waves 5 and 6 Year 2002	Wave 7 (Jan – Jun) Year 2003	2000 to 2003 Change (95% CI)	2002 to 2003 Change (95% CI)
<b>Mean Evaluation Score</b>						
Parents	1.07	1.27	1.17	1.19	0.12 (-0.02 to 0.26)	0.02 (-0.09 to 0.13)
Youth 12 to 18	0.76	0.75	0.81	0.85	0.09 (-0.05 to 0.23)	0.04 (-0.09 to 0.17)
<b>Disagree that the ad exaggerated the problem</b>						
Parents	0.99	1.22	1.10	1.06	0.07 (-0.16 to 0.30)	-0.04 (-0.24 to 0.16)
Youth 12 to 18	0.73	0.72	0.76	0.68	-0.05 (-0.23 to 0.14)	-0.08 (-0.26 to 0.10)

Note: Evaluation scale runs from -2 to +2 being most positive. Exaggeration scale, similarly, is coded so disagreement that an ad exaggerated gets a higher score on the -2 to +2 scale, so that a higher score is positive toward the ad.

## Exposures to Other Drug Messages

Both youth and parents receive messages about drugs from other public sources besides Media Campaign paid advertising. Those other sources of messages are themselves the target of Campaign efforts, and they also create a context for receiving the Campaign's purchased anti-drug media messages. Exposure to messages through these other sources is high but, in some cases, was actually declining across the years of the Campaign (Table ES-6). Youth report small declines in exposure to in-school drug education, out-of-school drug education, and a more substantial decline in weekly exposure to media stories about drugs and youth. Parents report a small decline in exposure to media stories about drugs and youth, and a substantial decline in hearing a lot about community anti-drug programs. All of these suggest that there is no increase, and possibly a decrease, in institutional and public attention to anti-drug issues.

Drugs are not only a public topic; they are also a common topic for private conversation between parents and children, and among youth and their friends (Table ES-7):

- A slightly increasing proportion of parents reported conversations about drugs with their children across years; in 2000, around 80 percent and in 2003, around 83 percent of parents claimed to have had two or more conversations with their children about drugs in the previous 6 months. There were no important differences in reported conversation with children according to the age of the child.
- In contrast, youth reported a different pattern of conversation. The percentage of youth reporting such conversations with their parents was lower—about 54 percent reported two or more such conversations in the past 6 months in 2000. The percentage declined by 2003 to 49 percent.

**Table ES-6. Exposure to drug-related communication by wave**

<b>Percentage of Youth</b>						
	Waves 1 and 2 Year 2000 (%)	Waves 3 and 4 Year 2001 (%)	Waves 5 and 6 Year 2002 (%)	Wave 7 (Jan – Jun) Year 2003 (%)	2000 to 2003 Change (95% CI)	2002 to 2003 Change (95% CI)
Past year in-school drug education	66.2	65.0	61.5	62.3	<b>-3.8* (-7.5 to -0.1)</b>	0.8 (-2.4 to 4.0)
Past year out-of-school drug education	7.3	5.8	6.8	5.3	<b>-2.0* (-3.6 to -0.4)</b>	<b>-1.5* (-2.7 to -0.2)</b>
Percent recalling weekly exposure to stories in at least one medium with drugs and youth content	52.1	48.8	45.2	43.1	<b>-8.9* (-11.8 to -6.1)</b>	<b>-2.0* (-4.0 to -0.1)</b>
<b>Percentage of Parents</b>						
	Waves 1 and 2 Year 2000 (%)	Waves 3 and 4 Year 2001 (%)	Waves 5 and 6 Year 2002 (%)	Wave 7 (Jan – Jun) Year 2003 (%)	2000 to 2003 Change (95% CI)	2002 to 2003 Change (95% CI)
Percent recalling weekly exposure to stories in at least one medium with drugs and youth content	64.0	63.0	61.6	60.4	<b>-3.6* (-6.7 to -0.6)</b>	-1.2 (-3.7 to 1.4)
Percent hearing a lot about anti-drug programs in community in the past year	34.4	30.2	30.2	25.5	<b>-8.8* (-11.6 to -6.0)</b>	<b>-4.7* (-7.2 to -2.2)</b>
Percent attending drug prevention programs in the past year	30.3	29.9	28.3	27.5	-2.8 (-5.7 to 0.2)	-0.8 (-3.2 to 1.7)
Percent attending parent effectiveness programs in the past year	28.7	28.2	28.6	25.6	<b>-3.1* (-6.2 to -0.1)</b>	<b>-3.0* (-5.0 to -1.0)</b>

\* Between year change significant at p<0.05.

Table ES-7. Change in drug-related conversations across years

Percent with two or more conversations in the past 6 months	Age Groups	Waves	Waves	Waves	Wave 7	2000 to 2003 Change (95% CI)	2002 to 2003 Change (95% CI)
		1 and 2 Year 2000 (%)	3 and 4 Year 2001 (%)	5 and 6 Year 2002 (%)	(Jan – Jun) Year 2003 (%)		
With friends, reported by youth of ages:	12 to 13	44.2	39.2	39.5	41.1	-3.1(-7.5 to 1.3)	1.6 (-2.2 to 5.3)
	14 to 15	60.4	65.1	59.9	62.0	1.7 (-3.7 to 7.0)	2.1 (-1.5 to 5.7)
	16 to 18	69.5	70.7	69.4	67.5	-2.0 (-6.0 to 2.0)	-1.9 (-5.8 to 1.9)
	12 to 18	59.2	59.7	57.8	58.1	-1.2 (-3.8 to 1.4)	0.3 (-2.1 to 2.7)
With parents, reported by youth of ages:	12 to 13	57.8	52.0	49.3	50.1	<b>-7.7* (-12.2 to -3.2)</b>	0.8 (-3.4 to 5.0)
	14 to 15	55.2	51.7	49.0	50.2	<b>-5.1 (-10.0 to -0.1)</b>	1.1 (-2.7 to 5.0)
	16 to 18	50.0	46.4	47.5	46.1	-3.9 (-9.1 to 1.3)	-1.4 (-6.0 to 3.3)
	12 to 18	53.9	49.7	48.5	48.5	<b>-5.4* (-8.7 to -2.2)</b>	0.0 (-2.5 to 2.5)
By parents with children of ages:	12 to 13	79.2	81.2	82.8	83.4	<b>4.2* (1.0 to 7.3)</b>	0.6 (-2.3 to 3.8)
	14 to 15	80.5	84.1	85.1	85.5	5.0 (-0.3 to 10.3)	0.4 (-2.9 to 3.7)
	16 to 18	79.0	82.6	84.4	80.2	1.2 (-2.9 to 5.3)	<b>-4.2* (-8.1 to -0.2)</b>
	12 to 18	79.6	82.7	84.1	82.7	<b>3.2* (0.8 to 5.6)</b>	-1.4 (-3.6 to 0.8)

\* Between year change significant at  $p < 0.05$ .

- The majority of youth say they have conversations about drugs with parents and/or friends, and many of them have such conversations frequently. The partners for such conversations shift sharply as youth mature. As they mature, youth are less likely to talk with their parents and more likely to talk with friends.
- Youth were asked if they talked about the anti-drug ads with parents, with friends, or others. In general, youth were more likely to report such conversations with friends (43%) in 2003 than with parents (28%). In general, the frequency of conversations did not vary significantly across waves, with the exception of conversations with friends between 2002 and 2003. Particularly among the oldest youth, 16- to 18-years-old, there was a sharp increase in such conversations with friends, with 40 percent reporting ad-related conversations in 2002 and earlier, but 47 percent reporting such conversations in 2003. It is reasonable to speculate that the strong content of the Marijuana Initiative ads led to increased discussion.

Overall, during the Marijuana Initiative, the Campaign was able to increase the level and focus of its ad purchases and concentrate them over time, and achieved a sharp increase in recall, at least for specific television messages. The brand is widely recognized and the ads were positively evaluated. That is a positive result, but it may have been achieved in the midst of declining support from other potential anti-drug message sources. There was little evidence that anti-drug messages from other institutions were increasing over the course of the Campaign, and in some cases there were declines.

## Estimates of Youth Drug Use

Following the goals of the Media Campaign given earlier, NSPY was designed to assess the influence of the Media Campaign on initial use (i.e., using at least once in a lifetime) and the shift from initial to regular use (i.e., using at least 10 or more times in a year) of marijuana and inhalants. However, because NSPY has only data available since 2000, and a relatively smaller sample than other national data collection efforts, it is important to compare its trends to those reported by those other sources, including the school-based Monitoring the Future survey (MTF), the Youth Risk Behavior

Surveillance System (YRBSS), and the home based National Household Survey of Drug Abuse, now renamed the National Survey on Drug Use and Health (NSDUH). However, the focus of this report is on the effects of the Marijuana Initiative. Only the MTF has provided any marijuana use data for the period after October 2002 subsequent to the initiation of the Marijuana Initiative.

The NSPY did not find significant reductions in marijuana use either leading up to or after the marijuana campaign for youth 12- to 18-years-old. Indeed there was evidence for an increase in past month and past year use between 2000 and 2003 among the target audience of 14- to 16-year-olds (Table ES-8).

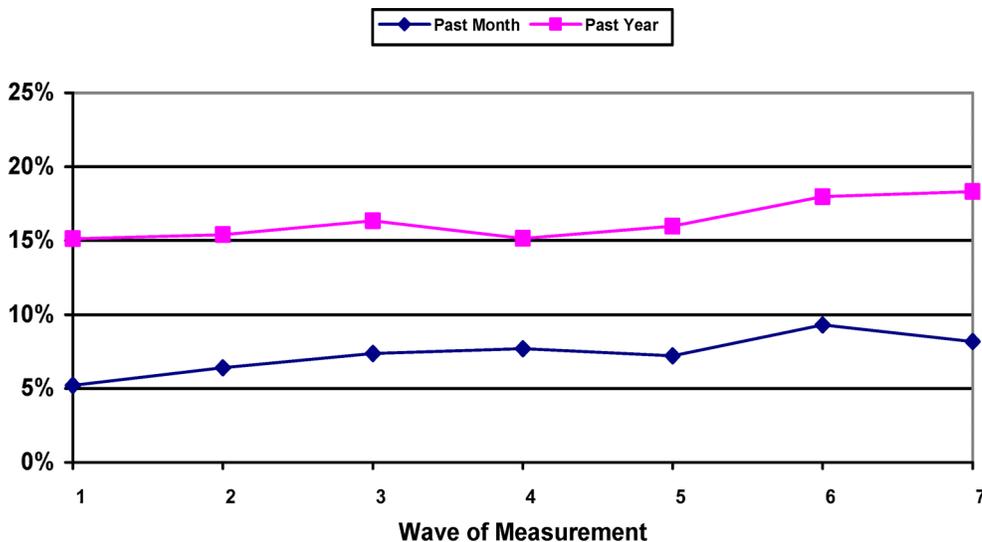
It appears that the increase was already in place in the last half of 2002, before the launch of the Marijuana Initiative. Figure ES-4 displays the results by half year (or wave) for both past year and past month use of marijuana among the 14- to 16-year-old primary target audience. The upward trend in marijuana use had already begun by the last half of 2002. The apparent decline in past month use between Waves 6 and 7 was not statistically significant, although it will be interesting to see in future data collection whether than trend continues.

**Table ES-8. NSPY trends in marijuana use across measures by age group**

		Percent reporting use					
Use measure	Age groups	Waves 1 and 2	Waves 3 and 4	Waves 5 and 6	Wave 7	2000 to 2003 Change (95% CI)	2002 to 2003 Change (95% CI)
		Year 2000 (%)	Year 2001 (%)	Year 2002 (%)	Year 2003 (%)		
Past year	12 to 13	3.3	2.6	3.3	4.0	0.7 (-0.9 to 2.3)	0.6 (-0.9 to 2.2)
	14 to 16	15.3	15.8	17.0	18.3	<b>3.1* (0.2 to 5.9)</b>	1.3 (-1.1 to 3.7)
	12 to 18	15.8	15.5	16.4	16.7	0.9 (-1.2 to 2.9)	0.3 (-1.5 to 2.0)
Past month	12 to 13	1.4	1.1	1.1	1.8	0.5 (-0.6 to 1.5)	0.7 (-0.5 to 1.8)
	14 to 16	5.8	7.5	8.3	8.2	<b>2.3* (0.0 to 4.7)</b>	-0.1 (-2.0 to 1.8)
	12 to 18	7.2	8.0	8.9	7.9	0.7 (-1.1 to 2.4)	-1.0 (-2.6 to 0.6)

\* Specified change significant at p<0.05.

**Figure ES-4. Marijuana Use Among 14- to 16-year-olds**



The latest MTF data available were collected during the spring of 2003 between 5 and 8 months after the launch of the Marijuana Initiative. According to the 2003 MTF study, marijuana use showed some decline across all periods of use for all grades between 2002 and 2003, but statistically significant decreases in past year use only for 8th graders. These decreases in marijuana use for 8th graders appear to continue a pattern of decline that started before the start of the Campaign. The discrepancy between MTF and NSPY with respect to 14- to 16-year-olds could reflect methodological differences between the two surveys.

The four sources of use data provide mixed evidence about marijuana use trends prior to the launch of the Marijuana Initiative. NSPY did not find changes in marijuana use during this period. MTF reports indicate that marijuana use had been stable from 1998 through April 2001, but decreased among 10th graders for the past year and past month time periods between 2001 and 2002. YRBSS also found decreases in lifetime and 30-day use for their full sample of 12- to 17-year-olds between 1999 and 2001. In contrast, the NSDUH found an increase in marijuana use for 12- to-17-year-olds between 2000 and 2001, although retroactive estimates from the 2002 NSDUH suggest declines in lifetime use between 2001 and 2002. These changes in marijuana use reported by MTF, YRBSS, and NSDUH prior to the launch of the Marijuana Initiative provide mixed evidence, although given that they involve different periods of time, and different age groups, they do not necessarily contradict one another in most cases. Perhaps the central conclusion from them is that the major rise in use between 1992 and 1996 has been followed by a period of relative stability, with the possibility of increases or decreases since that time for particular age subgroups.

In sum, the analysis of the NSPY data does not support a claim that use among the target audience of 14- to 16-year-olds has declined with the initiation of the Marijuana Initiative. Contrarily, past year use increased from 2002 to 2003. However, the increase appears to have occurred before the start of the Marijuana Initiative and was only maintained during the first half of 2003. It will be worthwhile to track whether the statistically nonsignificant decline in past month use from the second half of 2002 through the first half of 2003 is the beginning of a true trend.

## **Campaign Effects**

The remainder of this Executive Summary presents evidence obtained to date regarding Campaign effects. The discussion first summarizes the logic adopted for claiming effects. It then presents the findings regarding Campaign effects on youth followed by the findings for Campaign effects on parents.

## **The Logic of Claiming Campaign Effects**

The analysis of Campaign effects in this report is different for the youth outcomes than for the parent outcomes. Both involve two components: (1) examining trends over time, and (2) examining how exposure to the Campaign that individuals report is associated with their outcomes measured at the same time. For the parent results, the report also involves (3) examining how individuals' reported exposure at one wave predicts their outcomes at a later wave, among youth and parents who were measured at two points in time, i.e., for Round 1 (Waves 1, 2 and 3) to Round 2 (Waves 4 and 5) or for Round 2 to Round 3 (Waves 6 and 7).

If the Campaign has been successful, it would be desirable to see favorable trends in the outcomes over time. In the case of the youth outcomes and the Marijuana Initiative, the crucial trend comparison is the change between 2002 and the first half of 2003, while for the parents, change over the entire Campaign period is relevant. However, change in outcomes over time (or a lack of change despite positive Campaign effects) may be due to influences besides the Campaign. Thus, if effects are to be definitively attributed to the Campaign, other supporting evidence is also needed.

Another form of evidence is an association between exposure and outcome, measured at the same time. However, evidence of the presence or absence of a simple association is inadequate for inferring that exposure has, or has not, had an effect on an outcome. The main threat to such an inference is that a positive association may be due to the influence of other variables (confounders) on both exposure and outcomes. This threat to inference can be substantially lessened by applying statistical controls for the confounders, as described below. However, even when controls have been applied for all known, measured confounders, there remains the possibility that unmeasured and perhaps unknown confounders are the cause of the adjusted association. Furthermore, even if controls were fully applied for all the confounders, there remains an alternative explanation for the adjusted association, namely that it is outcome that is the cause and (recall of) exposure that is the effect. Thus, an association between exposure and outcome, controlled for all known confounders, will not ordinarily definitively determine that the campaign has had an effect on an outcome.

The ambiguity of causal direction that exists with a cross-sectional association can be overcome in one of two ways. When longitudinal data are available, if, after controlling for all confounders, *exposure* measured at time 1 is associated with *outcome* measured at time 2, then the causal direction is from *exposure* to *outcome* since an effect cannot precede its cause. With such longitudinal data, it is possible to establish time order between variables—that is, to examine whether a prior state of exposure affects a later outcome measure. This is possible for the parent component of the Campaign where the essential focus has been maintained. However, for the youth component of the Campaign, where the Marijuana Initiative is meant to be a refocus in strategy, longitudinal analyses are not yet possible. However, in this case, if there were to be an association between exposure and outcome in the same time data for the period after the initiation of the Marijuana Initiative, it might be reasonable to make a claim of Campaign effect. This would be sensible because there was no such same time association for the prior period of data collection. If an association appeared only after the initiation of the Marijuana Initiative, it would not likely be the result of a sudden effect of the putative outcome, but would sensibly be attributable to the changed exposure variable, since that was the novel element.

There is another constraint on the analysis of associations that needs to be considered. The analysis addresses only the direct effects of exposure. Associations between exposure and outcomes are expected only if individuals personally exposed to Campaign messages learn and accept those messages in the short term. This form of analysis does not reflect any indirect effects that might occur through other routes. Therefore, this report also includes analyses that assess one important route for indirect effects, that is, those mediated through parents.

For youth, analyses of Campaign effects are limited to 12- to 18-year-olds who report never having tried marijuana (referred to as “nonusers” in this report) and concerns their attitudes, beliefs, and intentions (“cognitions”) about possible initiation of marijuana use in the subsequent year. There were not enough occasional users (i.e., those using marijuana 1 to 9 times in the past year) among the youth to examine Marijuana Initiative effects on their cognitions. The parent analysis includes all parents of 12- to 18-year-olds and focuses on the target parenting behaviors (and their supporting

cognitions) including talk, monitoring, and engaging in fun projects or activities with their children in or out of the home. In addition, the analyses examine the association between parent exposure and youth cognitions and behavior.

All analyses of associations between exposure to Campaign messages and outcomes use a method called “propensity scoring” to control for the possible influence of a very wide range of possible confounding variables. The analyses began with tests for any preexisting differences among the exposure groups on a large number of variables. The parent analyses were corrected, among other factors, for observed differences on race, ethnicity, gender, age of parent, income, marital status, strength of religious feelings, age of children, neighborhood characteristics, media consumption habits, language, and parental substance use (alcohol, tobacco, marijuana, and other illegal drugs). The analyses of youth associations were controlled for parent characteristics and further controlled for any preexisting difference among exposure groups on school attendance, grade level, academic performance, participation in extra-curricular activities, plans for the future, family functioning, personal antisocial behavior, association with antisocial peers, use of marijuana by close friends, personal tobacco and/or alcohol use of a long-standing nature, and sensation-seeking tendencies. For the cross-sectional analyses, the propensity scores were based on measures of these characteristics taken concurrently with the measures of exposure and outcome. For the parent longitudinal analyses, these characteristics were measured at the early measurement round (Round 1 or 2), concurrently with the exposure measure at that round, but prior to the later measurement round (Round 2 or 3) outcome measures.

The fifth semiannual report (Hornik et al., 2002) using these procedures found evidence consistent with a Campaign effect on parents, including evidence of positive change in parent outcomes, and evidence for cross-sectional associations between exposure and most of those outcomes, and even some evidence for delayed effects on parent outcomes. In contrast, there was no evidence that parent exposures affected monitoring behavior, the central parent outcome, or that they affected youth outcomes. Also, the evidence was not consistent with a favorable Campaign effect directly on youth. There was little evidence for favorable changes in youth beliefs, attitudes, intentions, or behaviors, or for associations between Campaign exposure and outcomes. Of particular concern, the longitudinal analyses showed a delayed unfavorable effect of youth exposure on some youth outcomes for important subgroups. Based on a review of the findings to date and Campaign processes and procedures, a number of changes were made to the Campaign including focusing the youth component on the negative consequences of marijuana use (the Marijuana Initiative). The evidence for the effects of the full campaign on parents and of the Marijuana Initiative, in particular, on youth is the focus of this report.

## Campaign Effects on Youth

The analysis focuses on five outcomes for youth: initiation of marijuana use, intentions to avoid initiating marijuana use, and three cognitive indices—attitudes and beliefs about marijuana use, perceptions of social norms about marijuana use, and self-efficacy to avoid marijuana use if it is available. The intentions outcome focuses on the proportion of youth who said “definitely not” when asked about the likelihood of their using marijuana in the next year. This measure has proved to be highly predictive of subsequent use. Intentions are a very strong predictor of future behavior. Among those who were nonusers at a prior round of measurement, 10 percent of those who said “definitely not” to any use of marijuana over the next year had initiated use by the followup Round (12 to 18

months later). Of those who said anything other than “definitely not,” the rate of initiation was 42 percent.

The attitude and belief index includes questions about eight specific consequences of marijuana use for the respondent, as well as general attitudes toward marijuana use; the perception of the social norms index includes questions about what parents and friends would expect the respondent to do about marijuana use, and the self-efficacy index assesses the respondent’s confidence that he or she could refuse marijuana in a variety of circumstances. Each of the three indices is substantially related to intentions to use marijuana. The intentions measure is presented as the percentage of youth who said “definitely” not. The other three indexes are calibrated so all 12- to 18-year-old nonusers at Wave 1 had a mean score of 100 and a standard deviation of 100. All three of these indexes are highly predictive of intentions to use marijuana.

Table ES-9 presents a summary of the trend data for all nonusing youth. There were no significant changes between 2002 and the first half of 2003, representing the periods from before to after the start of the Marijuana Initiative. There are longer term trends between 2000 and 2003 that are statistically significant for two of the outcomes (social norms and self-efficacy) for the entire youth population, but in opposite directions, favorable to the Campaign for self-efficacy and unfavorable to the Campaign for social norms. In addition, there was a favorable longer term trend effect for intentions for 16- to 18-year-olds. However, trends alone, whether favorable or unfavorable to the Campaign, do not establish Campaign effect. Other forces may be affecting marijuana use and beliefs and attitudes in addition to the Campaign and influencing their upward or downward movement, regardless of Campaign effects.

**Table ES-9. Trend evidence for youth aged 12 to 18**  
**Trends in intentions, beliefs, norms and self-efficacy about marijuana use among nonusers**

	Score on Index				Change from Year 2000 to Year 2003 Change (95% CI)	Change from Year 2002 to Year 2003 Change (95% CI)
	Year 2000 (Mean)	Year 2001 (Mean)	Year 2002 (Mean)	Year 2003 (Mean)		
Percent definitely not intending to try marijuana	87.5	86.3	86.1	86.9	-0.6 (-2.7 to 1.5)	0.8 (-1.0 to 2.6)
Mean score on Belief/Attitude Index	108.55	103.49	107.45	106.55	-2.01 (-8.49 to 4.48)	-0.90 (-5.95 to 4.14)
Mean score on Social Norms Index	107.43	101.12	101.13	97.35	<b>-10.08* (-15.55 to -4.62)</b>	-3.78 (-9.25 to 1.69)
Mean score on Self-Efficacy Index	102.40	106.98	116.47	118.43	<b>16.03* (9.52 to 22.54)</b>	1.96 (-3.02 to 6.95)

\* Change between specified years significant at p<0.05

Note: The three indexes were standardized so 12- to 18-year-old nonusers had a mean and standard deviation of 100 at Wave 1.

The next step of the analysis was to look at the cross-sectional associations between individual exposure to the Campaign and the several outcomes. This analysis focused entirely on nonusers of marijuana at the time of the interview. The current results largely confirm a pattern that was observed in the earlier reports. Scores on all of the cognitive outcomes did not vary systematically with levels of either the general or the specific exposure scale. No statistically significant cross-sectional associations were observed. None of the central analyses of effects supported a favorable Campaign effect and none supported an unfavorable effect on intentions, attitudes and beliefs, perceived social norms, or self-efficacy with regard to marijuana use, once the effects of potential confounders were removed.

This was true for the period of the Marijuana Initiative as it was for the combined period of the entire Campaign. Table ES-10 presents the results of these cross-sectional analyses. The exposure columns represent the level of exposure reported by these youth to Campaign television advertising. The rows represent average scores on the four outcomes of interest within each category of exposure. The estimates in the cells are adjusted, through the propensity scoring methodology, for a wide variety of potential confounders, as well as being survey weighted to represent the U.S. population. The statistical significance tests take the complex sample design into account. The overall relationship of exposure and each outcome is summarized by the gamma statistic, which varies from  $-1$  to  $+1$ , with  $0$  indicating no relationship. The results are presented for the overall sample, with the gamma for the Marijuana Initiative period in the final column.

**Table ES-10. Outcome measures by exposure per month overall and for the January-June 2003 period among 12- to 18-year-old nonusers of marijuana**

Outcome		Exposure				Overall Gamma (95%CI)	MI period Jan-Jun 03 gamma (CI)
		<1 exposure	1 to 3 exposures	4 to 11 exposures	12+ exposures		
Percent definitely not intending to use marijuana	General exposure	87.7		85.6	86.8	-0.03 (-0.09 to 0.04)	0.03 (-0.10 to 0.17)
	Specific exposure	89.3	86.8	85.2	88.9	-0.02 (-0.09 to 0.06)	-0.13 (-0.29 to 0.03)
Anti-marijuana Attitudes/Beliefs Index (Mean score)	General exposure	105.00		104.64	108.57	0.02 (-0.01 to 0.04)	0.04 (-0.01 to 0.10)
	Specific exposure	109.13	108.43	102.07	111.72	0.00 (-0.02 to 0.03)	0.04 (-0.04 to 0.11)
Anti-marijuana Social Norms Index (Mean score)	General exposure	101.54		100.55	102.97	0.00 (-0.03 to 0.02)	0.02 (-0.04 to 0.08)
	Specific exposure	109.57	104.45	99.81	103.39	0.03 (-0.06 to 0.01)	-0.02 (-0.09 to 0.05)
Self-Efficacy Index (Mean score)	General exposure	105.59		107.76	113.78	0.02 (-0.01 to 0.05)	0.06 (-0.03 to 0.15)
	Specific exposure	116.17	108.40	108.46	117.14	0.01 (-0.02 to 0.04)	-0.01 (-0.10 to 0.08)

These cross-sectional analyses were repeated for both exposure measures and for important subgroups defined by age, gender, race/ethnicity, and a composite measure of risk of marijuana use, which included sensation seeking (a personality characteristic defined by an interest in engaging in novel, intense, and risky experiences, including illegal drug use). These subgroups were not further subdivided by age. Of the 72 subgroup analyses undertaken for the Marijuana Initiative period (January to June 2003) sample, 5 were statistically significant, 2 favorable, and 3 unfavorable to the Campaign. These are most credibly interpreted as chance significant effects.

The Marijuana Initiative's focused analyses provide results largely consistent with no Campaign effects on youth. The appropriate inference from these results is one of no interpretable pattern of Campaign effects, favorable or unfavorable. The last two reports, in contrast, suggested that there was evidence consistent with an unfavorable effect of the Campaign on youth. However, the apparent inconsistency between those reports and the current one is not in fact an inconsistency. Using the same limited criteria used in this report, trends and cross-sectional associations, the previous report would have come to the same conclusion. It was only the inclusion in the prior reports of the delayed-

effects analyses that detected evidence for unfavorable effects on youth intentions and other outcomes. It will be possible to see whether those unfavorable Campaign effects are reversed or repeated once the next round of data collection is complete. At that time, similar delayed-effects analyses can be undertaken focusing on Marijuana Initiative exposure. Thus, the conclusion of this chapter is that the Campaign did not achieve its intended effect on youth to date, either in its previous period or thus far under the Marijuana Initiative. However, a fuller judgment about the Marijuana Initiative will only be possible once the next round of data collection is complete and the findings are published.

## Campaign Effects on Parents

A continuing theme of the parent Campaign, both before and after the launch of the Marijuana Initiative, has been to encourage parents to engage with their children to protect them against the risk of drug use. This idea is summarized in the brand, “Parents: The Anti-Drug.” The major component has been to encourage parents to monitor their children’s behavior by knowing where they are and with whom, and by making sure they have adult supervision. To a lesser extent, the campaign also has encouraged talking between parents and children about drugs. Additionally, although largely restricted to the time period covered by Wave 1 data collection, the Campaign had a substantial level of advertising that encouraged parents to do fun things with their children as a positive part of their engagement with them.

The evaluation examined evidence for Campaign effects on those three classes of outcomes: monitoring children’s behavior, talking with children about drugs, and engaging in fun activities with children. In addition, for the first time, there is full presentation of youth reports of parent monitoring and talking behavior, and fun activities as supplementary outcomes for analyses of parent Campaign effects. In the past, analysis of Campaign effects on parent outcomes have focused on parents’ reports about their behaviors (as well as their beliefs and attitudes) with regard to monitoring, talking, and doing fun activities. However, the children of these parents also were asked about the degree to which they were monitored, the amount of talk with their parents about drugs, and their engagement in fun activities. The format of the questions was virtually identical to the questions asked of the parents. As in the past, the report compares youth and parent trends on these parallel measures. For the first time, however, the analysis of association, both cross-sectional and delayed, between parent exposure and parenting outcomes is presented for both parent and child reports of outcome behaviors since, as will be shown, both are predictive of youth marijuana initiation.

There are five outcome indices that are the focus of analysis for the parent data in the report: (1) parent reports of talking with their children about drugs; (2) an index of attitude and belief items concerning talk (talk cognitions); (3) parent reports of monitoring their children; (4) an index concerning monitoring (monitoring cognitions); and (5) parent reports of engaging in fun activities with their children in and outside of the home. In addition, the parent analyses look for evidence that parent exposure was associated with youth outcomes, including all of those considered in the youth effects analysis.

The analyses searched for three supportive findings as the basis for a claim for a Campaign effect: a favorable trend on a target outcome, a favorable cross-sectional association between exposure to the Campaign and the outcome, and evidence for a delayed-effects association between exposure at a prior round and outcomes at a later round for the parents interviewed on both occasions (where the associations are controlled for confounders).

Table ES-11 summarizes the results for all of the parent outcomes on each of these criteria. Each row in this table indicates whether there was a full sample trend, whether there was a full sample cross-sectional association with the general or specific exposure measures, and whether there was a full sample delayed-effects association with the two exposure measures. The three behavioral outcomes are represented by both parent and youth measures. The association criterion is whether or not the 2000 to 2003 trend or the gamma estimate respectively was significant at the  $p < 0.05$  level. If there was no overall statistically significant effect, but there was a statistically significant effect for subgroups of respondents representing at least 30 percent of the population, this is also indicated.

This table provides evidence of Campaign effect on parents. Although the strongest support for Campaign effectiveness comes from using parent reports of behaviors, youth reports of the same behaviors provide some support for the parent findings. However, there is not consistent evidence that the variable that is the best predictor of initiation of marijuana use (monitoring behaviors) has been affected by the Campaign. Each of the outcomes is reviewed in turn.

Monitoring behavior (whether reported by parents or youth) is an important predictor of the initiation of marijuana use. However, it provides the least evidence for a Campaign effect. While there is a significant upward trend in monitoring behavior as reported by parents, that trend is not supported by youth reports. There is no overall cross-sectional or delayed-effects association of either exposure measure and youth- or parent-reported monitoring behavior.

The monitoring cognition scale (only available from parent reports) has a substantial association with monitoring behavior and, like monitoring behavior, is associated with youth marijuana use and intentions. There is good reason to think that affecting parental monitoring cognitions would affect youth behavior. Although the 2000 to 2003 trend in this outcome is not statistically significant, the change from 2000 to 2002 is significant. In addition, there is evidence for cross-sectional associations for both general and specific exposure and monitoring cognitions for the full sample. However, there is no evidence of a delayed-effects association overall or for any subgroup with either of the exposure measures. Without the evidence for a delayed effect, so that the causal order issue can be sorted out, it remains unclear whether parent ad exposure affects their beliefs about the value of monitoring or parents' commitment to engaging with their children influences their monitoring beliefs and their attention and recall of the advertising.

The fun activities analyses offer substantial support for Campaign effects. The pattern of both cross-sectional and delayed associations is supportive of a favorable effect of the Campaign. All of the associations of both specific and general exposure and the parent reports of fun activities are statistically significant and favorable. The youth reports of fun activities do not show an overall association with exposure; however, for two of the four tests, subgroups representing a substantial fraction of the whole population do show a significant favorable effect. Indeed, while the associational data is quite supportive of a favorable effect, the trend data for fun activities presents the only hold on the claim. Parent reports show no increase in fun activities and youth reports show a decline. One interpretation of those results is that the Campaign was having a favorable effect on parent involvement with youth fun activities, but the positive trend that might be expected from that effect was obscured by other external forces that were causing a decline.

The talking behavior results are similarly quite supportive of favorable Campaign effects, although one aspect of the youth reports raises a concern. The parent reports show positive trends, and either overall or substantial subgroup associations for both measures of association and for both cross-sectional and delayed effects. The youth reports also show favorable associations for substantial

**Table ES-11. Summary of parent effects on parent and youth outcomes among all parents of 12- to 18-year-olds**

Parent Outcomes	All parents of youth 12 to 18 youth									
	Trend		Cross-sectional association				Delayed-effects Association			
			General Exposure		Specific Exposure		General Exposure		Specific Exposure	
	Parent Reports	Youth Reports	Parent Reports	Youth Reports	Parent Reports	Youth Reports	Parent Reports	Youth Reports	Parent Reports	Youth Reports
Talking Behavior	<b>Favorable</b>	<b>Unfavorable</b>	<b>Favorable</b>	No	<b>Favorable</b>	No overall, subgroups (F)	<b>Favorable</b>	No Overall, subgroups (F)	No Overall, subgroups (F)	No
Talking Cognitions	No	--	<b>Favorable</b>	--	<b>Favorable</b>	--	No Overall, subgroups (F)	--	<b>Favorable</b>	--
Monitoring Behavior	<b>Favorable</b>	No Overall, subgroups (F)	No	No	No Overall, subgroups (F)	No	No Overall, subgroups (U)	No	No	No
Monitoring Cognitions	No	--	<b>Favorable</b>	--	<b>Favorable</b>	--	No	--	No	--
Doing Fun Activities <sup>1</sup>	No	<b>Unfavorable</b>	<b>Favorable</b>	No Overall, subgroups (F)	<b>Favorable</b>	No	<b>Favorable</b>	No	<b>Favorable</b>	No Overall, subgroup (F)

<sup>1</sup>Youth reports for trends in fun activities report changes between 2001 and 2003; parent reports for trends in fun activities report changes between 2000 and 2003.

Favorable or (F): Significant result at  $p < 0.05$  favorable to Campaign goals.

Unfavorable or (U): Significant result at  $p < 0.05$  unfavorable to Campaign goals.

-- Subgroup tests not significantly different than result for full sample.

No: No overall significant result, or if subgroup significant at  $p < 0.05$  represented no more than 30% of cases.

No overall subgroups: No overall significant results, but subgroups representing more than 30% of cases were significant at  $p < 0.05$ .

subgroups, in two of four cases. The one aspect that clearly does not support a claim of favorable Campaign effect is the youth trend data. While the parents are reporting more talking with their children, the youth are reporting less. There is no easy explanation for this discrepancy.

The talking cognitions analysis is based on parent reports only, and it supports a favorable interpretation. The trend data shows no significant changes but the association data is quite consistently supportive of campaign effects. For all of the four tests of associations, there is either an overall association or favorable results from substantial subgroups. While the claims for Campaign effect would be stronger if the trend results were to match the associational results, the support for a favorable Campaign effect on talking cognitions, as with talking behavior, is still substantial.

Thus there is substantial evidence for a favorable Campaign effect on four of five parent outcomes: monitoring cognitions, talking cognitions, behavior, and fun activities behavior. The evidence is stronger based on the positive associations between exposure and outcomes, whether cross-sectional or delayed, but less consistent if trend data is the focus. However, the one outcome for which the analysis does not provide substantial support for a Campaign effect is monitoring behavior.

The lack of evidence of favorable Campaign effects on monitoring behavior is a difficult result from the Campaign's perspective for two reasons. It is difficult first because parenting skills have been the prime focus of the parent advertising almost since the beginning of the Campaign. Talking about drugs has not been an explicit platform of the Campaign in Phase III, although it can be seen as an implicit message of some of the parenting skills ads. Doing fun activities with children was only an explicit message of the Campaign in the first year. So the areas of apparent favorable effects of the Campaign are sharpest on talking and fun activities, where the Campaign has not focused, and generally weakest in the area of most focus, monitoring behavior. The positive evidence for Campaign effects on monitoring cognitions does provide some balance, but without evidence that this is translated into Campaign effects on behavior, it is less likely to translate into effects on youth.

These results are also difficult for the Campaign because there is good evidence that in focusing on monitoring behavior, the Campaign chose correctly. Monitoring behavior has been shown here and in other studies to be substantially related to non-initiation of drug use. That is not true at all for talking behavior. Engaging in fun activities does show some protective relation with subsequent marijuana initiation. This pattern of results suggests that despite the evidence supporting Campaign effects on parent outcomes, the likelihood of those effects translating into effects on youth behavior is less than optimal. In fact, a claim that the Campaign effect on parents led to a change in youth marijuana use, intentions to use, social norms, self-efficacy, or cognitions receives little support from the NSPY. The youth outcome table (Table ES-12) addresses whether there was a trend in the youth outcome (duplicating the effects shown above in Table ES-9) and/or associations of the parent exposure measures with the youth outcome, both cross-sectionally and on a delayed basis.

Table ES-11 showed that at least some of the evidence supports such a Campaign effect on parent outcomes. When the summary turns to effects of parent exposure on youth outcomes, however, there is very limited supportive evidence. Although there is a positive trend in self-efficacy to refuse marijuana, this finding is not supported by either cross-sectional or longitudinal associations, and there are no other reported full sample youth outcome effects. Subgroup effects are rare and, when they appear, they are about as likely to be in a favorable direction as in an unfavorable direction.

**Table ES-12. Summary of all parent exposure effects on youth outcomes among all parents of 12- to 18-year-olds**

Youth Outcomes (marijuana)	All parents of youth 12 to 18				
	Trend	Cross-sectional association		Delayed-effects association	
		General	Specific	General	Specific
Past year use	No overall, subgroup (U)	No	No	No	No
Intentions to use	No	No	No	No	No overall, subgroup (F)
Attitudes & Beliefs	No	No	No	No	No
Social Norms	Unfavorable	No	No	No overall subgroup (U)	No
Self Efficacy	Favorable	No	No overall, subgroup (U)	No overall, subgroup (U)	No

Favorable or (F): Significant result at  $p < 0.05$  favorable to Campaign goals.

Unfavorable or (U): Significant result at  $p < 0.05$  unfavorable to Campaign goals.

No: No significant effect overall.

No overall subgroup: No overall significant results, but subgroups representing more than 30% of cases were significant at  $p < 0.05$ .

How is this pattern of supportive evidence for Campaign effects of parent exposure on parent behavior, but no positive effects of parent exposure on youth outcomes to be explained? At least three possible explanations fit these data. The claim of Campaign effects on parent outcomes might be overstated. None of the outcomes has evidence that satisfies all of the a priori criteria for strong claims of effect, and if there were no effect, in fact, then one would not expect an indirect effect on youth. Second, talking behavior, the outcome with the clearest evidence for effects for parents, is not related to youth marijuana use or intentions, so even if there had been a Campaign effect on such talking it would not have been expected to affect youth outcomes. Third, indirect effects are hard to detect. If there were a small effect of the Campaign on a behavior, and a small effect of that behavior on the youth outcome, the resulting indirect effect would be the product of those two effects. For example, if the effect of the Campaign on monitoring behavior were .10, and the effect of monitoring behavior on youth marijuana use were .20, the expected effect of the Campaign exposure on marijuana use would be the product of those two effects, or .02 (.10 x .20). An effect of .02 could not be detected. The Campaign's indirect effects through parents could be detected only if there had been effects on several of the parent behaviors and each of those were related to the youth outcomes, and the sum of all the individual indirect paths had been large enough as a set to produce a detectable cumulative effect. All of these three explanations, and possibly others, remain possible. Each of them may explain the current conclusion about the parent component of the Campaign: there is some evidence consistent with an effect of the Campaign on some parent outcomes, but no evidence for indirect effects of parent exposure to the Campaign on youth outcomes.

# Reference

Hornik, R. et al. (2002a). *Evaluation of the National Youth Anti-Drug Media Campaign: Fourth Semiannual Report of Findings*, Report prepared for the National Institute on Drug Abuse (Contract No. N01DA-8-5063), Washington DC: Westat.

Hornik, R. et al. (2002b). *Evaluation of the National Youth Anti-Drug Media Campaign: Fifth Semiannual Report of Findings*, Report prepared for the National Institute on Drug Abuse (Contract No. N01DA-8-5063), Washington DC: Westat.