Evaluation of the National Youth Anti-Drug Media Campaign: Fifth Semi-Annual Report of Findings

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Evaluation of the National Youth Anti-Drug Media Campaign: Fifth Semi-Annual Report of Findings

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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 2002.

- Recall of Campaign Messages:

  Most parents and youth recalled exposure to Campaign anti-drug messages. About 70 percent of both groups report exposure to one or more messages through all media channels every week. The average (median) youth recalls seeing one television ad per week. In 2000 and the first half of 2001, less than 25 percent of parents recalled seeing a TV ad every week; this increased to 40 percent in the second half of 2001 and to 50 percent in the first half of 2002. Both parents and youth reported substantial recognition of the Campaign's "anti-drug" brand phrases. The Campaign added Drugs and Terror ads in the first half of 2002, which made up around 20 percent of the ads targeted to both parents and youth during this period. The evaluation by parents and youth of the Drugs and Terror ads was somewhat less positive than the evaluation of other ads broadcast in Wave 5.

- Effects on Parents:

  There continues to be evidence consistent with a favorable Campaign effect on parents. Overall, there are favorable changes in three out of five parent belief and behavior outcome measures including talking about drugs with, and monitoring of, children. Moreover, parents who report more exposure to Campaign messages scored better on four out of five outcomes after applying statistical controls to adjust for the possible influence of other explanatory factors. In addition, parents who had more exposure the first time they were measured, were more likely to talk with their children and do fun activities with their children subsequently. However, there was little evidence for Campaign effects on parents' monitoring behavior. That has been the focus of the parent Campaign for much of Phase III and the one parent behavior most associated with youth nonuse of marijuana. In addition, there is no evidence for favorable indirect effects on youth behavior as the result of parent exposure to the Campaign.

- Effects on Youth:

  There is little evidence of direct favorable Campaign effects on youth. There is no statistically significant decline in marijuana use to date, and some evidence for an increase in use from 2000 to 2001. Nor are there improvements in beliefs and attitudes about marijuana use between 2000 and the first half of 2002. Contrarily, there are some unfavorable trends in youth anti-marijuana beliefs. Also there is no tendency for those reporting more exposure to Campaign messages to hold more desirable beliefs.

There continues to be evidence for an unfavorable delayed effect of Campaign exposure from the period September 1999 through June 2001 on subsequent intentions to use marijuana and on other beliefs, and these are found for the entire youth sample. While intentions are strong predictors of subsequent initiation of marijuana use, the evidence for an unfavorable effect on actual initiation was not statistically significant overall or for any subgroup. Thus the behavioral evidence found for some subgroups among youth interviewed in the first half of 2001 was not confirmed once the entire youth sample was considered.

Executive Summary

The number one goal of *The National Drug Control Strategy* is to "Educate and enable America's youth to reject illegal drugs as well as alcohol and tobacco." One of the objectives in support of that goal includes, "Pursue a vigorous advertising and public communications program dealing with the dangers of drug… use by youth." 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 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 2003. 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 fifth semiannual 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 Fifth Semiannual Report presents analyses from the first five waves of NSPY, covering the period from September 1999 through June 2002.

This executive summary focuses on evidence for Campaign effects on youth and parent outcomes. It includes three types of evidence: temporal trends or changes in behavior and attitudes and beliefs, focusing on changes between 2000 and the first half of 2002; cross-sectional association of exposure to Campaign advertising with attitudes and beliefs and, in some cases, behavior; and evidence about delayed-effects from the cohort of youth and parents interviewed initially during 2000 and the first half of 2000, and reinterviewed during the last half of 2001 and the first half of 2002. The repeated interviews of the same respondents permits examination of the ability of earlier exposure to predict later outcomes, a stronger procedure for making claims about potential Campaign effects. Each of these youth and parents will be interviewed for a third time during the final two waves of data collection, that is, between July 2002 and June 2003. The final evaluation report is scheduled for spring 2004. At that time, the sample youth and their parents will have been studied for 2 to 3 years.

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.
- 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 2002.
- Estimates of Campaign effects on youth from three different approaches: (1) estimates of association between exposure to the Campaign and simultaneously measured outcomes,

including attitudes, beliefs, and intentions, with statistical controls for confounders; (2) estimates of change between 2000 and the first half of 2002 in these outcomes; as well as (3) estimates of any association of early exposure and later outcomes for the youth interviewed twice. The report also includes analyses of change and of associations for various subgroups of the population.

- Estimates of Campaign effects on parents. These include association between exposure to the Campaign and parents' talk about drugs with their children; parents' monitoring of their children's behavior; and parents engaging in fun activities with their children, as well as their beliefs and attitudes about talk and about monitoring, and estimates of association between parent exposure and youth's beliefs and drug use behavior. It also includes estimates of trends between 2000 and the first half 2002 in the parent outcomes. 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 inhalants; 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 11 to 17), 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 is 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 other themes including anti-alcohol, anti-tobacco, and mentoring, but such themes are not part of the paid advertising.

Methodology

The report presents results from five 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 2,289 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. Similarly, Wave 5 included interviews with eligible youth first sampled in both Wave 2 and Wave 3 and their parents. Later waves will follow up samples from Waves 1, 2, and 3 for a third time. While the focus of the Campaign is on youth older than age 10, the inclusion of 9- and 10-year-old children at Waves 1, 2, and 3 provides 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.

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. The cumulative response rates for Waves 4 and 5 were necessarily lower than the rates for the prior three waves due to the followup nature of the latter waves. In preparing the respondent data for analysis, adjustments were made at all five 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 34-month period covered by this report (September 1999 through June 2002) to achieve an expected exposure to 2.6 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.

- 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.

Figure ES-1. Weekly youth-targeted general market GRPs (September 1999 through June 2002)

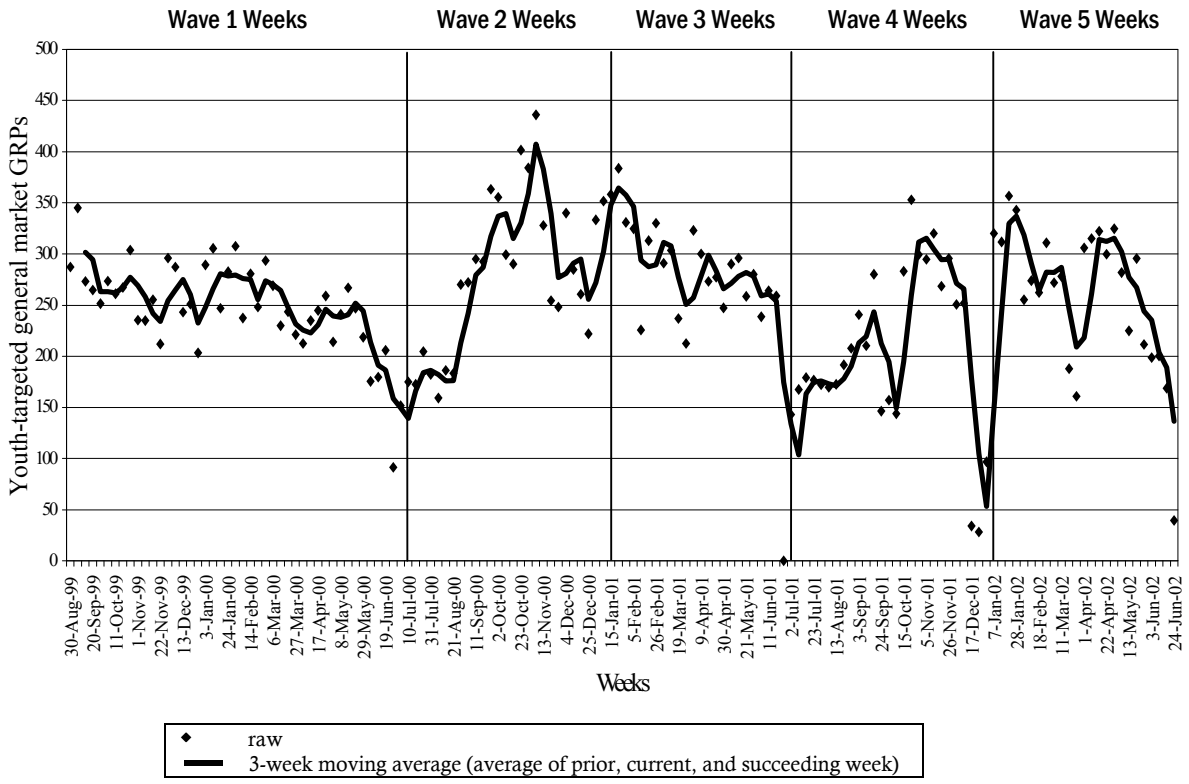
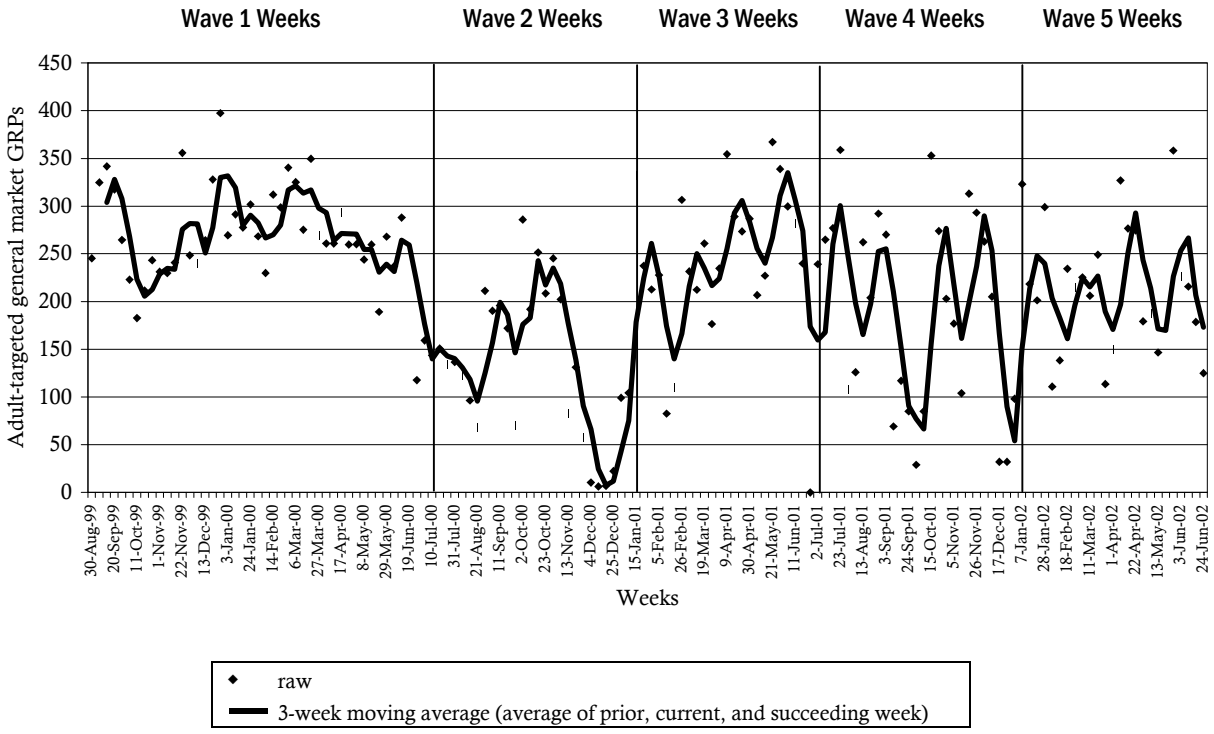


Figure ES-2. Weekly parent-targeted general market GRPs (September 1999 through June 2002)



- Table ES-1 summarizes the variations across broad 6-month periods. The table shows that expected weekly exposures of 2.7, 2.5, and 2.8 for youth across the first three waves are followed by a sharp decline in purchases during the second half of 2001, with the average falling below an expectation of 2.1 exposures per week, and then rebounding to 2.6 for the first half of 2002. Purchases of ad time for parents were at their highest during Wave 1 (2.8) and have bounced around 2.0 since that time.

Table ES-1. Distribution of youth and adult average weekly purchased exposures across waves

	Wave 1 2000	Wave 2 2000	Wave 3 2001	Wave 4 2001	Wave 5 2002
Youth	2.65	2.47	2.80	2.09	2.55
Adults	2.82	1.44	2.30	1.94	2.10

- About 36 percent of youth advertising time was purchased on network or "spot" television and about another 21 percent was purchased on network and "spot" radio. Thus, a little less than 60 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 (21%), magazines (12%), and other media: basketball backboards, Internet, nontraditional, and arcades (all less that 5% apiece).

- For parents, averaged across the five waves, almost 60 percent of the primary media buys were in potentially wider-reach media, that is, network radio (29% of all expected exposures) and network television (30%). Forty percent of the primary media buys were in narrower-reach media, that is, outdoor media (27%), magazines (10%), newspapers (3%), the Internet (1%), and movie ads (0.3%).

- 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. A focus on Normative Education/ Positive Alternatives was strong across all five waves while Resistance Skills were emphasized in Waves 1 and 3 but not in Waves 2, 4, or 5. 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. For parents, the Parenting Skills/Personal Efficacy/Monitoring platform was maintained through all five waves and was especially strong in Waves 2, 4, and 5. 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, which received a little more than 20 percent of the advertising time purchased in that wave. No general market inhalant or Ecstasy advertising was purchased during Wave 5.

Table ES-2. Advertising time 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 (%)
Negative Consequences	30.9	16.4	0.0	60.2	63.2
(Drugs and Terror)	(0.0)	(0.0)	(0.0)	(0.0)	(19.0)
(other negative consequences)	(30.9)	(16.4)	(0.0)	(60.2)	(44.2)
Normative Education/Positive Alternatives	50.2	70.3	46.0	35.6	36.7
Resistance Skills	41.3	3.0	51.5	3.0	0.0
Other	2.8	10.3	3.3	1.2	0.5

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. Advertising time 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 (%)
Parenting Skills/Personal Efficacy/Monitoring	54.2	98.8	48.6	91.2	77.1
Your Child at Risk	31.0	1.0	0.0	0.0	0.0
Perceptions of Harm	13.6	<0.1	51.4	7.8	0.0
Other	1.2	<0.1	0.0	1.0	<0.1
Drugs and Terror ads[1]	0.0	0.0	0.0	0.0	22.9

[1] 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).

- General exposure recall to all anti-drug advertising was fairly stable for parents and for youth across the five waves. This stability occurred despite the variation in purchases of targeted advertising by the Campaign. The general exposure measures, which may include exposure to advertising targeted to the other audience and advertising placed by other institutions, did not appear to relate closely to changes in Campaign-targeted buys across the five waves. Across all

waves, about 69 percent of all parents and 76 percent of all youth recalled weekly exposure to any anti-drug ads (Table ES-4). These estimates suggest that the median monthly exposures are about 9 ads for parents and 13 ads for youth, and the corresponding median weekly exposures are about 2.25 and 3.25 ads.

Table ES-4. Exposure to Campaign advertising by wave

Population	Exposure measure: Percent seeing/hearing ads 1 or more times per week	Wave 1 2000 (%)	Wave 2 2000 (%)	Wave 3 2001 (%)	Wave 4 2001 (%)	Wave 5 2002 (%)
Parents	General Exposure: Across all media	72	70	70	65	68
	Specific Exposure: TV ads	26	23	20	39	**52***
	Specific Exposure: Radio ads	10	11	17	15	**3***
Youth 12 to 18	General Exposure: Across all media	76	79	77	72	76
	Specific Exposure: TV ads	35	39	48	53	**47****
	Specific Exposure: Radio ads	NA	4	**12*****	3	1

*Significant change between each previous Wave versus Wave 5, p<0.05.

** Significant change between Wave 1 & Wave 2 versus Waves 3, 4, 5, p<.05.

***Wave 3 is significantly higher than Waves 2, 4, or 5 at p<0.05.

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 4 exposures and youth reported a median of 7.5 exposures to the TV ads "in recent months." This roughly translates into medians of 0.5 and 0.9 exposures per week for parents and youth, respectively. Radio recall was lower than TV recall: On average, over the 2.5-year period, about 11 percent of parents recalled general exposure to radio ads in the past week, and over the final five waves of measurement about 5 percent of youth recalled such exposure. About 58 percent of parents and 65 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 2002 for youth, as shown in Table ES-4; the recall increased from 35 percent weekly recall to 47 percent weekly recall for the overall sample of 12- to 18-year-olds. There was a sharp increase between Waves 2 and 3 in the recall of the radio ads by youth, but that increase disappears in Waves 4 and 5. 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 in Wave 4 and even more in Wave 5. Twice as many parents were reporting weekly recall of television ads in Wave 5 than in Wave 1. Parent recall of specific radio ads, while still lower than TV ad recall, showed a significant increase between 2000 and 2001, from about 10 percent recalling weekly exposure to about 16 percent. However, it returned to the low 2000 levels in the first half of 2002.

"Brand" Recall

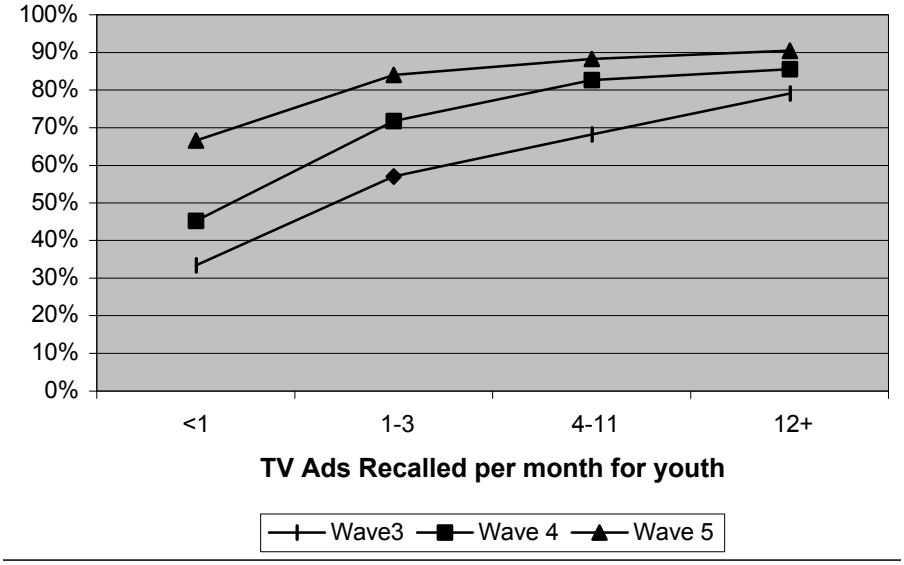
One of the innovations of Phase III has been the inclusion of a Campaign "brand"—for example, "the anti-drug." A brand is used in many advertising campaigns to provide a recognizable element to coordinate advertising as well as nonadvertising components of the campaign. Insofar as the brand is recognized 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 data provide evidence for brand phrase recall, particularly among youth, with stronger evidence in Wave 4 than in Wave 3:

- Over Waves 3, 4, and 5 combined, approximately 72 percent of 12- to 18-year-olds recalled the Campaign brand phrase targeted at youth with a sharp increase between Wave 3 (60%) and Wave 5 (83%). Parent brand recall also increased from Wave 3 (46%) to Wave 4 (63%) and this increase held through Wave 5 (62%). 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 with 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 Wave 5, during the first half of 2002.

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



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, with a few exceptions, there was not much change between waves (Table ES-5).

Table ES-5. Exposure to drug-related communication by wave

Measure	Population	Waves 1& 2 2000 (%)	Waves 3 & 4 2001 (%)	Wave 5 (Jan-June 2002) (%)
Percent in-school drug education in the past year	Youth	66	65	**64***
Percent extracurricular drug education in the past year	Youth	7	6	7
Percent recalling weekly exposure to stories in at least one medium with drugs and youth content	Youth	52	49	**47***
Percent recalling weekly exposure to stories in at least one medium with drugs and youth content	Parents	64	63	63
Percent hearing a lot about anti-drug programs in community in the past year	Parents	34	30	**31***
Percent attending drug prevention programs in the past year	Parents	30	30	29
Percent attending parent effectiveness programs in the past year	Parents	29	29	30

* Significant change between 2000 versus Wave 5 (2002), $p < 0.05$.

One other potential source for providing drug-related messages is the variety of programs that exist for youth and parents. The Campaign's focus in working with youth-serving organizations and parent groups is to encourage them to integrate drug use prevention messages and strategies into their existing educational programs and extracurricular activities, rather than to increase their participation in anti-drug programs *per se*. With regard to youth and parent involvement in such programs:

- About two-thirds of youth reported having attended anti-drug education in school during the past year, a rate that declined slightly across the five waves. Out-of-school drug education was much rarer but was not significantly different in 2002 than it was in 2000.

- A little less than one-third of parents reported attending anti-drug and parental effectiveness programs. This did not change across waves.

Other sources for messages about drugs are public drug-related discussions and mass media stories. The NSPY findings relating to this source are as follows:

- There was a small but statistically significant decline in recall of community-level drug-related discussion of anti-drug programs between 2000 and 2002.

- Weekly exposure to mass media stories about drugs and youth was reported by 63 percent of parents. There was little change in this across waves.

- However, youth reporting such media exposure decreased significantly between 2000 and 2002 from about 52 percent to 47 percent.

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-6):

- A slightly increasing proportion of parents reported conversations about drugs with their children across years; in 2000 around 80 percent and in 2002 around 84 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 2002 to 49 percent.

Table ES-6. Drug-related conversations by wave

Percent with two or more conversations in past 6 months	Population	Waves 1& 2 2000 (%)	Waves 3 & 4 2001 (%)	Wave 5 (Jan-June 2002) (%)
Youth with friends	Youth 12 to 13	44	39	44
	Youth 14 to 15	60	65	62
	Youth 16 to 18	70	71	70
	All youth	59	60	60
Youth with parents	Youth 12 to 13	58	52	**49***
	Youth 14 to 15	55	52	51
	Youth 16 to 18	50	46	48
	All youth	54	50	**49***
Parents with children	Parents of 12 to 13	79	81	**82***
	Parents of 14 to 15	81	84	85
	Parents of 16 to 18	79	83	83
	All parents	80	83	**84***

* Between 2000 and 2002 change significant at $p < 0.05$.

- Most 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.

- In the course of conversation about drug use, 12- to 18-year-old youth discuss negative things about drugs, but many older youth also speak positively about drugs. Only 8 percent of 12- to 13-year-olds had conversations with the theme "marijuana use isn't so bad" as compared with 44 percent who had conversations about "bad things that happen if you use drugs." In contrast, pro-marijuana conversations are reported by 33 percent of 16- to 18-year-olds, as compared with 54 percent who had conversations about bad things that can happen if you use drugs. There was a significant decline in the proportion of all youth who said they talked about specific things they could do to stay away from drugs, from 29 percent to 26 percent.

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. The primary purpose of including questions about drug use in NSPY, however, was not to provide estimates of youth drug use, but rather it was to allow understanding of the influence of the major cognitive variables (such as attitudes, beliefs, social norms, self-efficacy, and intentions) on reported usage. Furthermore, NSPY was designed to measure linkages in a theoretical model for Media Campaign action; that is, linkages between ad exposure and attitudes, between attitudes and intentions, and between intentions and actions (drug use). Measures of drug use are needed for an evaluation of this model.

Because it has a larger sample and a long trend line, another survey sponsored by the Federal Government—the Monitoring the Future (MTF) study—provides better measurements of drug use behaviors and long-term changes in them. The 2001 MTF data, reflecting data collected through the spring of 2001, showed a fairly stable pattern of marijuana use since the start of Phase III, and indeed back through 1998 before the start of the national Campaign. This information was presented in the Wave 4 semi-annual report.

The National Household Survey of Drug Abuse (NHSDA) also provides important information about drug use and, as a household survey rather than a school survey like MTF, has much in common with the NSPY. While there is a long time trend for the NHSDA data collection, there is no assured comparability for trends before 1999 and trends after 1999 when the method of data collection changed. The NHSDA data for the 2001 period has only recently been published. In contrast to the MTF data, NHSDA shows some evidence of an increase in marijuana use between 2000 and 2001. Table ES-7 presents patterns of marijuana use for 1999, 2000, and 2001. No significant changes in all the three measures of marijuana use are reported between 1999 and 2000. However, between 2000 and 2001, significant increases in lifetime, past year, and past month marijuana use were found for 12- to 17-year-olds. For lifetime and past year marijuana use, similar increases were found for the older youth (aged 16 to 17 and 14 to 15) but not for the younger ones (aged 12 to 13).

Table ES-7. NHSDA lifetime, annual, and past-month marijuana use in 1999, 2000, and 2001

	Marijuana use		
	Past year (%)		
Age	1999	2000	2001
12-13	3.2	2.7	3.1
14-15	13.5	13.3	**14.8***
16-17	25.5	24.5	**27.6***
12-17	14.2	13.4	**15.2***

* Difference with regard to previous year is significant at $p < .05$

The NSPY provides information about marijuana use from 2000 through the first half of 2002. Strikingly, the 2001 NSPY and NHSDA estimates are very similar in magnitude. However the NSPY results do not suggest any pattern of change between 2000 and either 2001 or the first half of 2002. This matches the MTF results as to stability of trend between 2000 and 2001. It must be recognized that NSPY estimates are based on smaller samples than either NHSDA or MTF, so the estimates are subject to wider confidence intervals (Table ES-8). Given that the confidence intervals around these NSPY estimates are large (plus or minus 1.6% for the 12- to 18-year-olds estimate of 15.8% in 2000, for example), it may be that the failure to find increases in use in the NSPY results compared to the NHSDA results reflects instability of estimates rather than substantively different findings between NSPY and NHSDA. However, all of these sources do agree that there has been no decline in marijuana use thus far during the Campaign.

Table ES-8. Annual use of marijuana by age: NSPY reports

Age group	Wave 1 & 2 11/99 to 12/00 (%)	Wave 3 & 4 1/01 to 12/01 (%)	Wave 5 1/02 to 6/02 (%)
12 to 13	3.3	2.6	3.2
14 to 15	11.3	13.8	13.2
16 to 18	29.1	26.8	26.3
12 to 18	15.8	15.5	15.5

Note: No statistically significant changes across waves.

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 the report involves three components: (1) examining trends over time, (2) examining how exposure to the Campaign that individuals report is associated with their outcomes measured at the same time, and (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., Round 1 (Waves 1, 2 and 3) and in Round 2 (Waves 4 and 5).

If the Campaign has been successful, it would be desirable to see favorable trends in the outcomes over time. 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, cannot alone 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 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 now possible to establish time

order between variables—that is, to examine whether a prior state of exposure affects a later outcome measure.

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, and in the case of the longitudinal analyses, their actual initiation of use between Rounds 1 and 2. There were not enough occasional users (i.e., those using marijuana one to nine times in the past year) among the youth to examine Campaign 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 longitudinal analyses, these characteristics were measured at Round 1, concurrently with the exposure measure at that round, but prior to the Round 2 outcome measures.

The fourth semiannual report (Hornik et al., 2002) found evidence consistent with a Campaign effect on parents, including evidence of positive change in parent outcomes over the first three waves of measurement, and evidence for cross-sectional associations between exposure and most of those outcomes. The patterns were particularly strong for fathers. In contrast, there was little evidence consistent with a positive Campaign effect on youth. There was little evidence for changes in youth beliefs, attitudes, intentions, or behaviors, or for associations between Campaign exposure and outcomes. The longitudinal analyses in that report could not establish delayed-effects of parent exposure on parent outcomes or on youth marijuana use. However the longitudinal analyses suggested a delayed unfavorable effect of youth exposure on some youth outcomes for important subgroups. That report was based on data from about 40 percent of the sample available for the

current report, and so those possibly unfavorable results were presented as interim. The current report extends these analyses by including the full sample (those who were first interviewed in Waves 2 and 3 as well as those interviewed in Wave 1) and by examining the cross-sectional and delayed-effects of parent exposure on youth beliefs and attitudes as well as on youth marijuana use.

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. Among nonusing 12- to 18-year-olds at Round 1 who said they would "definitely not" use marijuana in the next year, 10 percent reported at Round 2 having ever used marijuana (i.e., 18 months on average after their Round 1 interview). In contrast, among nonusers who said "probably not," "probably yes," or "definitely yes" to the intentions question, about 42 percent reported having initiated use.

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 and cross-sectional association data for all nonusing youth. The trends are 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 an unfavorable effect for intentions for 14- to 18-year-olds, and an unfavorable effect on the attitude/belief index for youth who were at lower risk for marijuana use. 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.

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 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.

Table ES-9. Trend and cross-sectional association evidence about youth Campaign effects on youth aged 12 to 18

Outcome measure	Year		Associated with exposure?	
	2000	2002	Specific exp.	General exp.
Percent definitely not intending to try marijuana	88%	86%	No	No
Mean score on Belief/Attitude Index	109	108	No	No
Mean score on Social Norms Index	107	**100***	No	No
Mean score on Self-Efficacy Index	102	**117***	No	No

*Significant change between 2000 and 2002, $p < .05$.

These cross-sectional analyses were repeated 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. No cross-sectional association was significant out of 64 examined.

The final form of analysis examined evidence for effects of Round 1 exposure on Round 2 outcomes. These analyses are restricted to the youth who were interviewed at Wave 1, 2, or 3 and again at Wave 4 or 5, and who were nonusers at first interview and aged 12 to 18 at second interview. The interval between the two interviews was 18 months on average. The analyses ask whether level of exposure to advertising at Round 1—both general and specific exposure—predicts subsequent important outcomes.

While the trend data showed both favorable and unfavorable changes since the start of the Campaign, and the cross-sectional analysis showed no evidence of effects at all, the longitudinal analysis exhibits a mix of no effect and unfavorable effect results. Where there are any effects, those who were more exposed to the Campaign at Round 1 tended to move more markedly in a "pro-drug" direction as they aged than those who were less exposed. These are consistent with the results from the previous report (Hornik, et al 2002).

Table ES-10 presents the results of the delayed-effects analysis. The exposure columns represent the level of exposure reported by these youth at Round 1 to Campaign television advertising. The rows represent average scores on the five outcomes of interest at Round 2 for the same youth. 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.

Table ES-10 shows 10 results. For the eight cognitive outcome effects, all of the gammas are negative, with four of the eight results statistically significant for the full sample. These outcomes involve intentions, social norms, and self-efficacy. The associations between both general and specific exposure at Round 1 with Round 2 intentions to not use marijuana are unfavorable and significant. Youth who were higher on exposure at Round 1 were more likely to intend to use marijuana at Round 2 than those with lower exposure at Round 1. A similar but weaker relationship was found for social norms. Youth with higher general and specific exposure at Round 1 had more "pro-drug" social norms at Round 2 than those with lower exposure at Round 1, with general exposure achieving

statistical significance. There is also a significant unfavorable relationship between specific exposure and self-efficacy. That is, youth with higher exposure at Round 1 had lower self-efficacy at Round 2 than those with lower exposure at Round 1. Only the attitude/belief index shows no association at all with either measure of prior exposure.

Table ES-10. Exposure per month at Round 1 and outcomes at Round 2 among 12- to 18-year-olds who were nonusers of marijuana at Round 1

		Round 1 Exposure				
Round 2 Outcome		<1 exposure	1 to 3 exposures	4 to 11 exposures	12+ exposures	Gamma (95%CI)
Percent not intending to use marijuana	General exposure	84.0%		78.4%	77.4%	**-.14* (-.25 to -.03)**
	Specific exposure	82.3%	78.2%	76.5%		**-.12* (-.21 to -.02)**
Anti-marijuana Attitudes/Beliefs Index (Mean score)	General exposure	99.6		87.4	90.5	-.03 (-.08 to .01)
	Specific exposure	92.3	93.4	86.0		-.03 (-.08 to .02)
Anti-marijuana Social Norms Index (Mean score)	General exposure	99.2		79.5	83.0	**-.07* (-.12 to -.02)**
	Specific exposure	90.2	85.9	77.8		-.05 (-.11 to .00)
Self-Efficacy Index (Mean score)	General exposure	105.8		105.8	106.7	-.01 (-.07 to .05)
	Specific exposure	120.0	102.2	104.3		**-.08* (-.15 to -.02)**
Percent Initiation of Use	General exposure	12.0%	11.8%	13.2%		.04 (-10 to .18)
	Specific exposure	12.8%	13.2%	12.8%		-.00 (-.11 to .11))

*Significant change between 2000 and 2002, $p < .05$.

In contrast to the evidence from the cognitive outcome variables, the overall results do not show any effect of exposure on the initiation of use. About 13 percent of all of these nonusing youth initiated marijuana use between the measurement waves. However, the level of exposure youth reported at Round 1 does not predict their initiation, once the propensity scoring adjustments are incorporated.

These results were also examined for subgroups defined by age (12 to 13 and 14 to 18), gender, race-ethnicity, risk of marijuana use, and wave of first interview. The wave at first interview was introduced to capture possible differential effects as the Campaign varied its strategy over time. There were a total of 120 subgroup effects examined (5 outcomes by two forms of exposure by 12 subgroups.) There were 17 statistically significant subgroup effects; all of those were unfavorable to the Campaign.

However, Round 1 exposure did not predict initiation of marijuana use for any of the subgroups. This is an important result for two reasons. The other measures, particularly intentions, are highly related to use, and are predictive of initiation of use. The intention measure does show a strong association with prior exposure, making the failure to find one for initiation itself somewhat surprising. In addition, in the previous report there was statistically significant evidence for an effect for specific exposure on some subgroups (females, 12- to 13-year-olds, lower risk youth) but they are not replicated here once confounder controls and the complex sample design are taken into account.

These new delayed-effects results both confirm and contrast with the results from the previous report. The unfavorable results on three of the four cognitive outcomes are now found for the entire sample of youth and with either one or both measures of exposure, whereas they tended to be statistically significant only for the specific exposure measure and for some age subgroups in the Wave 4 report. They can no longer be considered interim results. On the other hand, the statistically significant results for subgroups on initiation of marijuana use found for some youth subgroups among those first interviewed at Wave 1 are not repeated when youth first interviewed at all three waves are examined.

There is no evidence yet consistent with a desirable effect of the Campaign on youth. The trends in marijuana behavior and, with one exception, in the beliefs that underpin behavior, are either flat or in an unfavorable direction. There is no evidence that those youth who have been more exposed to the Campaign espouse desired beliefs more than others. The results from the delayed-effects analyses are consistent with an unfavorable effect. The previous report was based on only about 40 percent of the current sample, and at that time it was promised that the current report would provide a more definitive determination. By and large the current report sustains the unfavorable results from the previous one. The major exception is the lack of statistically significant evidence now for an unfavorable prediction of marijuana initiation for any subgroup once the full confounder set is controlled.

Campaign Effects on Parents

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.

As with the youth results, 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 effect association between exposure at Round 1 and outcomes at Round 2 for the parents interviewed on both occasions (where the associations are controlled for confounders).

Table ES-11 summarizes the results for all of the 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 association criterion is whether or not the gamma estimate was significant at the $p<.05$ level. The youth outcome part of the table addresses whether there was a trend in the youth outcome (duplicating the effects shown above in Table ES-9) and an association of the parent exposure with the youth outcome.

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

	Trend	Cross-sectional effects association		Delayed-effects Association	
		General	Specific	General	Specific
Parent Outcomes					
Talking behavior	Favorable	Favorable	Favorable	Favorable	No
Talking cognitions	No	Favorable	Favorable	No	No
Monitoring behavior	Favorable	No	No	No	No
Monitoring cognitions	Favorable	Favorable	No	No	No
Doing fun activities	No	Favorable	Favorable	Favorable	No
Youth MJ Outcomes					
Past year use	No	No	No	No	No
Intentions to use	No	No	No	No	No
Attitudes & beliefs	No	No	No	No	No
Social norms	Unfavorable	No	No	No	No
Self efficacy	Favorable	No	No	No	No

An overview of this table suggests that a claim of Campaign effect on parents has some support, most notably for talking behavior. A claim that the Campaign effect on parents led to a youth effect has no support.

Each of the outcomes is reviewed in turn. The most favorable results are for the talking behavior measure. More parents claim to have talked with their kids as the Campaign progressed. Both of the exposure measures are associated with parent claims of talk measured at the same time. The general exposure measure is also predictive of delayed-effects on the talk measure, reducing a concern that the cross-sectional association reflects a reverse causal effect. Only the delayed-effects analysis with the specific exposure failed to support an inference of Campaign effect. These results provide substantial support for the existence of Campaign effect on talking behavior. Even so, there are two concerns about this claim. Youth report a very different picture about parent–child talk about drug topics than do parents. As noted above, youth reports of talking are much lower than parent reports and, more notably, youth report that drug talk with parents is declining over the course of the Campaign. This creates concern about the confidence to be placed in the upward trend reported by parents. Also, there is little evidence that the talk variable, as measured here, is related to youth drug use. Parent reports of talk do not predict any lowered likelihood of youth initiating marijuana use. Thus any claim of a Campaign effect on parents is tempered by a concern that it is an effect on an outcome with an uncertain relation to youth behavior.

Talking cognitions offers similar but lesser support of a Campaign effect. Its trend is no longer significant overall, although it is still positive for the parents of older youth who are the majority of the sample. As in previous reports, both the general and specific exposure measures have a significant cross-sectional association with talking cognitions. However, there are no delayed-effects associations overall for either exposure measure or for any subgroup. In addition, there is no evidence that talking cognitions are associated with youth marijuana intentions or behavior. Even if the Campaign is affecting talking cognitions, and such cognitions produce change in talk behavior, there is no strong basis for expecting an effect of such behavior on youth.

Monitoring behavior provides the least evidence for a Campaign effect. There is a significant upward trend, but there is no overall significant cross-sectional association between either exposure measure and monitoring behavior. While there is such an association of specific exposure and monitoring behavior for fathers, no other subgroup shows such an association, and there is no significant cross-sectional association among fathers for the general exposure measure. Nor is there any delayed-effects association with either exposure measure overall or for any subgroup, including fathers. The evidence for a Campaign effect on this outcome has to be seen as weak. This is unfortunate since, in contrast to the talking outcomes, monitoring behavior is an important predictor of the initiation of marijuana use.

The monitoring cognitions scale shows a positive trend over time, as well as a specific exposure cross-sectional association for fathers parallel to that for monitoring behavior. In addition, the scale shows a cross-sectional association for general exposure for the full sample. However, there is no evidence for a delayed-effects association overall nor for any subgroup with either of the exposure measures. There is good reason to think that affecting parental monitoring cognitions would affect youth behavior. The monitoring cognition scale has a substantial association with monitoring behavior, and like monitoring behavior, is associated with youth marijuana use and intentions. Thus, the evidence for a Campaign effect on monitoring cognitions, while stronger than for monitoring behavior itself, remains positive but not definitive. 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 their commitment to engaging with their children influences their monitoring beliefs and their attention and recall of the advertising.

The final direct parent outcome, doing fun things with their children, also presents mixed evidence. There are significant favorable cross-sectional associations with both exposure measures as well as a significant delayed-effects association with general exposure. There is no significant positive trend, however, and for two groups (14- to 15-year-olds and higher sensation-seekers) the trend is downward. However there are two interpretations of the lack of a trend that might still be consistent with a claim of effect for the Campaign. Trend data can reflect many influences in addition to the Campaign. There might have been external forces that were producing downward pressure on this behavior and the Campaign served to maintain the current level. Or, the lack of a positive trend might be attributable to the fact that this theme was only explicitly part of the Campaign during the first wave. Then the level of "doing fun activities" was already reflecting the Campaign's influence during 2000. In sum, there is suggestive evidence of a Campaign effect on this behavior among parents, but it does not satisfy all three of the criteria set out a priori for making a strong claim of effect. It is worth noting that, like the monitoring measures, parent claims of doing fun activity are associated with lower intentions for using marijuana and reduced initiation of marijuana use among youth.

Table ES-11 then shows mixed evidence for the effects of parent exposure on parent behavior, but at least some of the evidence supports such a Campaign effect. Regarding favorable effects of parent

exposure on youth outcomes, however, there is no supportive evidence. There are no reported effects of parent exposure on any youth outcomes when all youth are considered. Subgroup effects are rare and, when they appear, they are consistently in an unfavorable direction. In particular, there was no favorable evidence of a delayed-effect for any subgroup; that is, there is no evidence that parent exposure was associated with lower marijuana consumption among youth.

How is this pattern of findings to be explained? How is it that the evidence consistent with Campaign effects on parents has not produced evidence for indirect effects on youth? Three possible explanations are worth consideration: first, it is possible that the claims of effects on parents are incorrect and thus there could not be any effect on youth; second, it is possible that the particular parent outcome most likely affected by the Campaign, talking behavior, is not an important influence on youth behavior; or third, it is possible that the indirect effects are too small to be detected. Each explanation may account for the current conclusion that there is 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.

In sum, there is little evidence supporting a favorable effect of the Campaign on youth, either directly or through their parents' exposure to the Campaign. While there is some evidence consistent with a favorable effect on some parent outcomes, it does not translate into evidence of an effect on their children. There is evidence consistent with an unfavorable direct effect of the Campaign on youth cognitions about marijuana, but no statistically interpretable effect on youth initiation of marijuana.

Reference

Hornik, R. et al, (2001). *Evaluation of the National Youth Anti-Drug Media Campaign: Third Semiannual Report of Findings*, Report prepared for the National Institute on Drug Abuse (Contract No. N01DA-8-5063), Washington DC: Westat.