

THE AMERICAN MEDICINE CHEST CHALLENGE (AMCC)

*2010 Media Campaign Evaluation: Eagleton Survey
Data*



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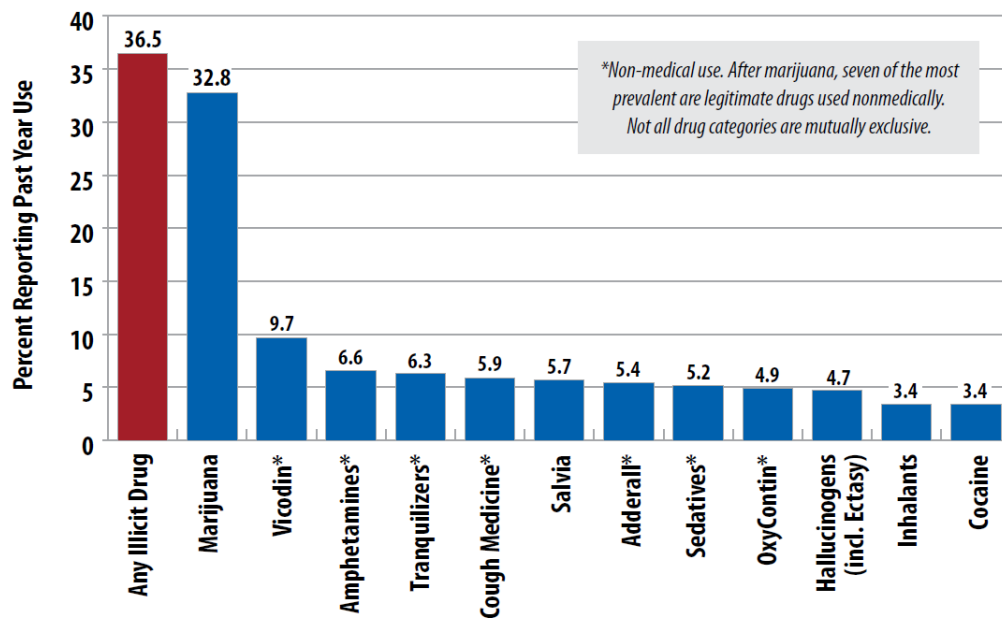
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BACKGROUND

The Problem of Prescription Drug Abuse

Prescription drug abuse among teens remains a major problem in the United States. The most recent data from national studies and published reports (i.e., The National Survey on Drug Use and Health, the Monitoring the Future study, and the National Epidemiologic Survey on Alcohol and Related Conditions) suggests that nearly one in five teens (19% or 4.5 million) abuse prescription medications that are not prescribed to them (Johnston, O'Malley, Bachman, & Schulenberg, 2011; SAMHSA, 2009). In fact, as Figure 1 illustrates, past year abuse of prescription pain killers now ranks second—only behind marijuana—as the Nation's most prevalent drug abuse problem among young people.

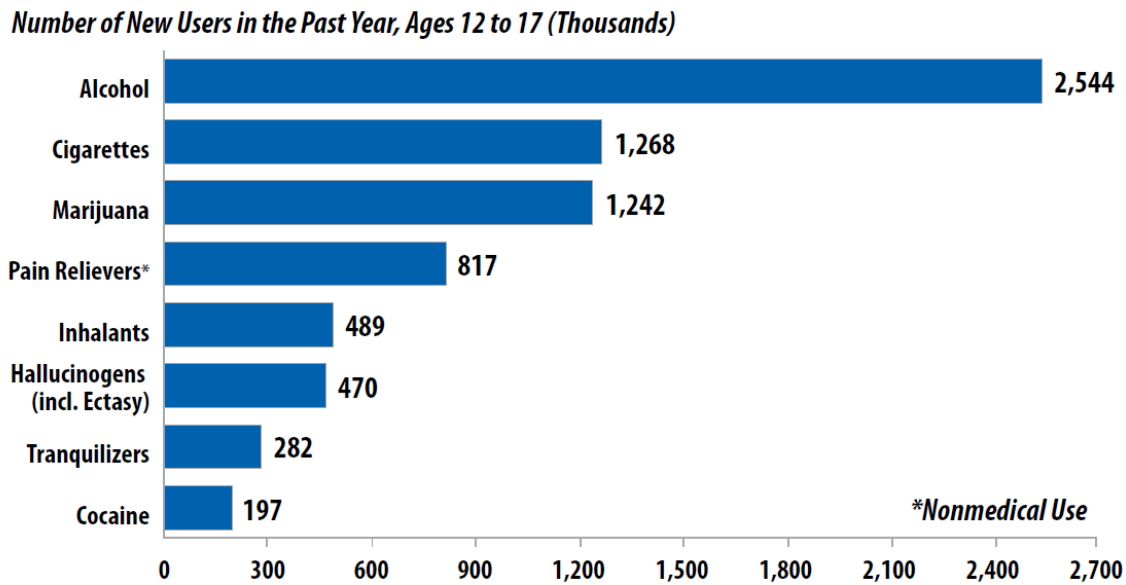


Source: 2009 Monitoring the Future study (December 2009).

Figure 1: Self-Reported Past Year Drug Use Among 12th Graders, United States, 2009

Data just released from the Monitoring the Future Study (Johnston et al., 2011) show that although Vicodin abuse decreased in 12th graders this year to 8 percent, down from around 9.7 percent in the past four years, other indicators confirm that nonmedical use of prescription drugs remains high. For example, the use of OxyContin, another prescription opiate, stayed about the same for 12th-graders at 5.1 percent in 2010 and six of the top 10 illicit drugs abused by 12th-graders in the year prior to the survey were prescribed or purchased over the counter. Moreover, as Figure 2

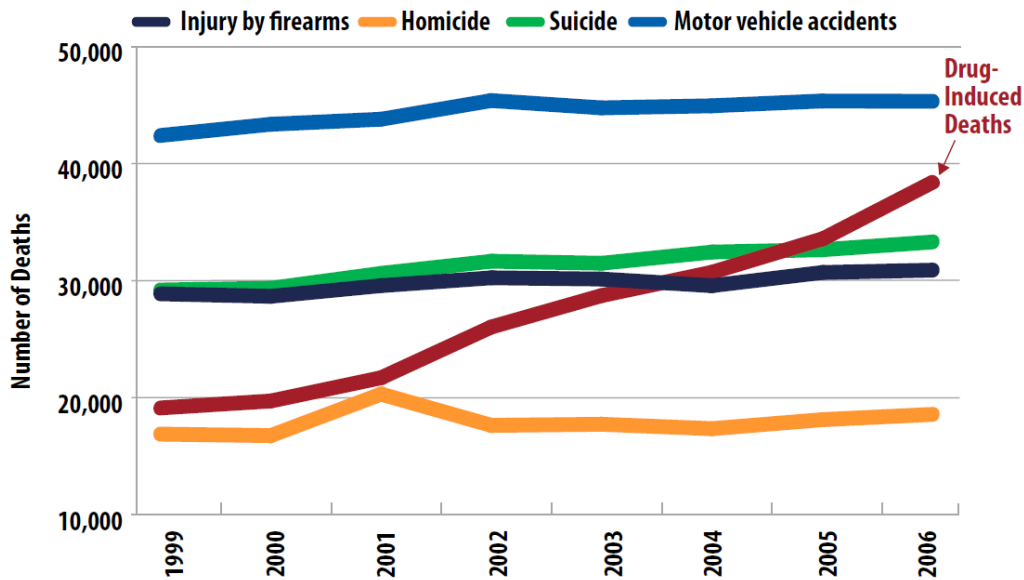
illustrates, the initiation of prescription drug abuse among youth remains relatively high.



Source: SAMHSA, 2008 National Survey on Drug Use and Health (September 2009).

Figure 2: New Users of Specific Substances Among, United States, 2009

Prescription drug abuse is associated with both immediate and longer term risks. In the short term, overdosing can be fatal, as can mixing prescription drugs with over-the-counter medications and/or alcohol (Manchikanti, 2006). As Figure 3 illustrates, the rate of drug-induced deaths in the United States increased sharply over the past decade compared to deaths attributed to homicide, suicide, and injury by firearms. Recent trends in the number of teens and young adults requiring treatment for a prescription drug abuse problem are equally alarming. In 2009, the Drug Abuse Warning Network (DAWN) recorded 4.6 million drug-related emergency department visits nationwide and almost half (49.8% or 2.3 million) were adverse reactions to pharmaceutical and the other half (45.1% or 2.1 million) were drug misuse and abuse (SAMHSA, 2010a). In addition, more than 1.8 million substance abuse treatment admissions of individuals aged 12 and older were recorded in the Treatment Episode Data Set (TEDS) for 2008 with the treatment admission rate for opiates other than heroin increasing 400% from 1998 (SAMHSA, 2010b). The long-term risks of prescription drug abuse include drug addiction and a lifelong pattern of dependency on drugs to manage and/or cope with personal problems and stress (Manchikanti, 2006; ONDCP, 2010).



Causes of death attributable to drugs include accidental or intentional poisonings by drugs, drug psychoses, drug dependence, and nondependent use of drugs. Drug-induced causes exclude accidents, homicides, and other causes indirectly related to drug use. Not all cause categories are mutually exclusive.

Source: National Center for Health Statistics/CDC, *National Vital Statistics Report, Deaths: Final Data for 2006* (April 2009).

Figure 3: Trends in Causes of Death, United States, 1999-2006

Available research on the etiology of prescription drug abuse suggests that a combination of motivation and easy access to prescription drugs explains the recent explosion of the use and abuse of prescription drugs by teens (Johnston, 2009; Johnston et al., 2011; Manchikanti, 2006; McCabe, Boyd, Cranford, & Teter, 2009; ONDCP, 2010). Teens and college students report three primary motivations for the non-medical use of prescription drugs: (1) to cope with stress or “manage” their lives, (2) to relax and/or party, (3) to self-treat themselves for health problem that were not diagnosed by a health care professional. Thus, they are abusing some stimulants such as Adderall and Ritalin to get additional energy and increase their ability to focus when studying for exams; they misuse powerful pain relievers such as OxyContin and tranquilizers such as Xanax to cope with social and emotional stress; and they take prescription amphetamines or steroids to lose weight or to bulk up. They draw on certain beliefs to rationalize their prescription drug abuse including the belief that these substances are safer than illicit drugs because they are prescribed by a healthcare professional (Johnston, 2009; McCabe et al., 2009). Next, because prescription drugs are legal, they are easily accessible, often from a home medicine cabinet or from another person. Teens generally report getting prescription drugs from friends and family, whether given, bought, or stolen (Johnston et al., 2011), which increase their level of comfort using these drugs.

Prevention of Prescription Drug Abuse

The problem of prescription drug abuse poses a unique challenge because of the need to balance prevention, education, and enforcement, with the need for securing legitimate access to controlled substances and prescription drugs. Thus, the Office of National Drug Control Policy (ONDCP) has been advocating a multi-prong approach to the prevention of prescription drug abuse (ONDCP, 2007). ONDCP's 2010 national drug control strategy (ONDCP, 2010, pp. 30-33) cites a number of intervention strategies already in place for curbing prescription drug abuse which generally fall into three categories: programs that are designed to monitor prescription drug abuse, programs that promote prescription drug abuse education, and programs that are designed to directly limit the accessibility of prescription drugs to youth.

Monitoring. All but 7 states currently have an active prescription drug monitoring program which link individual patients to the drugs prescribed to them and that, therefore, can be potentially used to track prescription drug abuse. However, state systems are not currently linked to a national registry and are not used in a uniform manner. Some of these systems are oriented toward criminal justice goals (e.g., identifying and closing “pill mills”) while other state systems are designed to facilitate clinical care (e.g., preventing adverse drug interactions). For this reason, they are ineffective in detecting drug abuse problems (Manchikanti, 2006). In addition, there has been an increased effort to monitor changes in the scope, prevalence, and motivations for prescription drug abuse by youth through ongoing national surveys (e.g., the Monitoring the Future and the Youth Risk Behavior Surveillance System) and to encourage more research on the problem.

Education. Prescription drug abuse education programs are targeted to four types of audiences: youth, parents and other influential adults (like grandparents and teachers), patients, and health care providers. Educational programs that target youth, such as ONDCP's *Above the Influence* campaign as well as programs offered in school, typically seek to educate youth about the harmful effects (physiological, psychological, and social) of prescription drug abuse. At present, there is no compelling evidence suggesting that youth respond positively to these educational efforts. In fact, there has been little change in youth prescription drug abuse-related attitudes and behaviors and the changes observed are in the direction of pro-prescription drug abuse (Hornik, Jacobsohn, Orwin, Piesse, & Kalton, 2008; Johnston et al., 2011; PATS, 2009). At the same time, there is good evidence that educational programs targeting parents and other influential adults increased awareness of the problem among this segment of the public and may have resulted in actions (such as parental monitoring and talking to children about the risks of prescription drug abuse) that can potentially decrease the

problem among youth (PATS, 2009). Less common are educational programs that are directly targeted to patients and health care providers (e.g., physicians and pharmacists) and that focus on instructing parents in the use and proper disposal of prescription drugs (Johnston, 2009; Manchikanti, 2006) but the lack of a systematic approach to patient and health care provider education deems these programs largely ineffective (Manchikanti, 2006).

Accessibility. Several current prevention strategies are designed to decrease the availability of prescription drugs to youth (Manchikanti, 2006; ONDCP, 2010). The Drug Enforcement Agency (DEA) maintains an active drug diversion control program that is intended to stop intentional and unintentional distribution of prescription drugs to youth by individuals, health care providers, and pharmacies. Prescription drug diversion may be in the form of doctor shopping (asking different doctors to prescribe the same drug), illegal Internet pharmacies, drug theft, improper prescribing of drugs, sharing among family and friends, and drug dealers selling prescription drugs on the streets. To the best of our knowledge, there has been no research that has evaluated the contribution of this program to reductions in prescription drug abuse in the United States. Drug take-back and disposal programs complement this effort by relieving members of the community from the complex task of disposing of such medications in a safe, simple, and environmentally-friendly manner. However, until recently, the main problem with estimating the potential effect of this prevention approach on the availability of prescription drugs to youth has been the lack of large-scale organized efforts to collect unused, unwanted and expired medicine from the public. In 2008, the National Directory of Drug Take-Back and Disposal Programs listed 66 drug take-back programs in the U.S., all of which represented highly-localized and largely disconnected efforts to collect unused, unwanted and expired medicine that people store at their homes. It was not until 2009 that the Partnership for a Drug-Free New Jersey (PDFNJ) and the Drug Enforcement Administration New Jersey Division (DEA-NJ) collaborated to launch the first in the nation statewide day of disposal, Operation Medicine Cabinet (OMC), thus opening the door for a more rigorous evaluation of this prevention approach. In four hours on Saturday, November 14, 2009, over 9,000 pounds of medicine, with a street value of over \$35 million, was collected in over 450 local collection sites across the state under the protocols and guidance established by the DEA-NJ. The current report represents a systematic (albeit still preliminary) effort to evaluate the efficacy of a drug-take back program in New Jersey. It takes a broader view of this program as a social marketing effort that is intended to educate as well as inspire the public to play an active role in the prevention of prescription drug abuse.

The American Medicine Chest Challenge (AMCC)

Based on the initial success of OMC, PDFNJ created and implemented the American Medicine Chest Challenge (AMCC) – a community based public health initiative, encompassing 300 collection sites and 250 community partners nationwide, that was designed to raise awareness about the dangers of prescription drug abuse and establish a nationwide day of disposal – at a collection site or in the home - of unused, unwanted, and expired medicine. AMCC specifically targets adults in the United States whose homes are frequented by children and teens. This group includes parents, grandparents, and other guardians who either live in a household with minors or live in a household where children are sometimes present. It is uncommon, perhaps a rarity, that such persons know the inventory of their medicine cabinet, lock their medicine cabinets, or speak to their children about the dangers of prescription drug abuse. For these reasons, AMCC created the “5 Steps” Campaign which encourages these individuals to (1) take inventory of their prescription and over-the-counter medicine; (2) lock their medicine cabinet; (3) dispose of unused, unwanted, and expired medicine in their home or at an AMCC Disposal site; (4) take their medicine(s) exactly as prescribed; and (5) talk to their children about the dangers of prescription drug abuse. The 5 Steps message is prominently displayed on the AMCC’s website (<http://www.americanmedicinechest.com/>) and the program has community partners in thirty-six states that help spread the message of the 5 Steps to their constituents.

The national day of disposal, which took place on November 13, 2010 replicated the key elements that made OMC a success in New Jersey. These include: (1) a uniform day and time; (2) collaboration between law enforcement, prevention and treatment organizations; (3) DEA approval and protocols; (4) unified media messaging with branded images in multiple languages; (5) a national website with local collection site information and a depository of prescription and over-the-counter drug abuse research and news coverage; and (6) an online resource gallery for participants to access and reproduce media components that are available to be localized. AMCC considers local ownership of the drug take-back program essential to its success. Local law enforcement and community partners contribute to the cause by making use of the media toolkit and their specialized knowledge of their constituency. For example, they know which parts of town are most likely to raise awareness of the drug take-back program, are aware of local events related to issues of parenting or drug abuse prevention, and are capable of utilizing local community networks. AMCC’s headquarter does not have access to such localized knowledge, and therefore the program benefits from this community-based approach. In order to promote local ownership, AMCC created a comprehensive media toolkit, which was made available online for community and law enforcement partners and includes:

- American Medicine Chest Welcome Kit, which contains information on program history, program goals, and participation sign-up forms for local law enforcement
- Customizable fliers that reflect local collection site locations and times
- Customizable print media advertisements and web banners
- Fliers outlining the 5-Steps
- Signs for busses and trains
- Billboard templates
- Multilingual posters and fliers
- Ready-made letter to the editor
- Sample government proclamations
- Ready-made and customizable press releases
- Radio and television advertisements

In summary, AMCC represents the first large-scale organized effort to promote the disposal of unused, unwanted or expired medications to a national audience. It is based on a unique model, which emphasizes local ownership of the drug take-back day and public awareness campaign. Rather than orchestrating the entire project from the top down, AMCC builds a coalition of law enforcement, government, non-profit, media, and corporate partners. Each partner in this coalition makes a unique contribution to the program, utilizing local or specialized knowledge and community networks. This collaborative effort allows AMCC in theory to reach a broad audience with a specific and credible message. Therefore, the primary goal of this evaluation was to generate evidence that will allow to assess the potential impact of this program on members of the community in terms of awareness, attitudes, motivation, and behavior.

SUMMARY OF EVALUATION PLAN

Focus and Scope of the Evaluation

The primary goals of the AMCC media campaign are to encourage the American public and parents in particular to (1) take inventory of their prescription and over-the-counter medicine; (2) lock their medicine cabinet; (3) dispose of unused, unwanted, and expired medicine in their home or at an AMCC Disposal site; (4) take their medicine(s) exactly as prescribed; and (5) talk to their children about the dangers of prescription drug abuse. It is the task of the evaluation to determine how successful the media campaign is in achieving these five goals (or these 5 steps) and to provide AMCC's leadership ongoing feedback that will support sound decision-making about the design and implementation of future similar efforts.

The fact that AMCC is intended to reach a broad national audience presents a serious challenge to the evaluation. Rigorous evaluations of programs are typically assisted by randomized controlled trials (or experiments) whereby the unique effect of the program on audiences' attitudes, beliefs, and behavior is distilled (or isolated from other influences) by comparing a group of people exposed to the campaign to an equivalent group not exposed to the campaign. However, since there is no way to control exposure to a campaign that is aired nationally, a randomized control trial is not possible. Instead, the evaluation is predicated on finding associations between natural variation in exposure to the media campaign and differences in audiences' attitudes, beliefs, and behaviors that are theoretically expected to change following exposure to the campaign. Operationally, this means comparing the attitudes, beliefs, and behaviors of those exposed to the campaign to those not exposed while controlling for (or holding constant) other differences between the groups such as differences in demographic characteristics. While this approach cannot supplant a randomized controlled trial in terms of drawing clear causal inference about the effect of the campaign, it can still produce sound evidence of effects if done correctly (Hornik & Yanovitzky, 2003).

Although there are literally hundreds of questions that the evaluation may need to answer to be able to establish that the AMCC campaign was able to achieve its goals, for clarity purposes, only four overarching questions form the central focus of the evaluation:

1. Is the campaign getting its messages to the target populations?
2. Are the desired outcomes (public attitudes, beliefs, and behaviors) going in the right direction?
3. Is campaign exposure associated with differences on outcomes?

4. Are there any specific groups within the general audience of the campaign that respond more or less positively to the campaign than other groups?

In addition to these four questions, the evaluation was also designed to examine the organizational aspects of AMCC (specifically, collecting feedback from community partners about the AMCC's leadership and quality of collaborations within each participating community), the campaign's web component, and the general media environment for the topic of prescription drug abuse (to further separate the effect of the campaign from that of similar information in the media). However, this technical report focuses on the four core questions listed above. The additional questions will be addressed in a separate report.

Lastly, due to lack of resources, the evaluation was limited to the State of New Jersey despite the fact that AMCC was present in 36 states. New Jersey was chosen for several reasons. First, it was the original site of OMC, and certain outcomes (e.g., the pounds of medications collected on disposal day) could be compared with AMCC to better gauge the success of the program. Second, PDFNJ have been monitoring public attitudes toward the prescription drug abuse problem in New Jersey through public opinion surveys with a representative sample of New Jerseyans in 2004, 2006, 2008, 2009, 2010 and again in 2011, and these data provide a good benchmark for evaluating change in outcomes of interest over time as well corroborate key findings of the evaluation. Finally, the demographic profile of New Jersey residents is among the most diverse in the nation, with ample representation of minority groups, thus allowing direct comparison of the effect of AMCC on different groups. Pending funding sources, future evaluations of AMCC will be expanded to the national level.

Evaluation Rationale

The evaluation rationale follows the same well-established principles that guide rigorous evaluations of public health communication campaigns, including the evaluation of the National Youth Anti-Drug Media Campaign (Hornik & Yanovitzky, 2003). In essence, an adequate evaluation framework is one that (1) conceptualizes a logic model that describes the cognitive and behavioral mechanisms and processes through which the intervention is expected to achieve its outcomes (both short- and long-term) based on established theories of behavior change, and (2) employs a methodology that will successfully track these mechanisms and processes of change with relevant data. AMCC's logic model is presented in Figure 4.

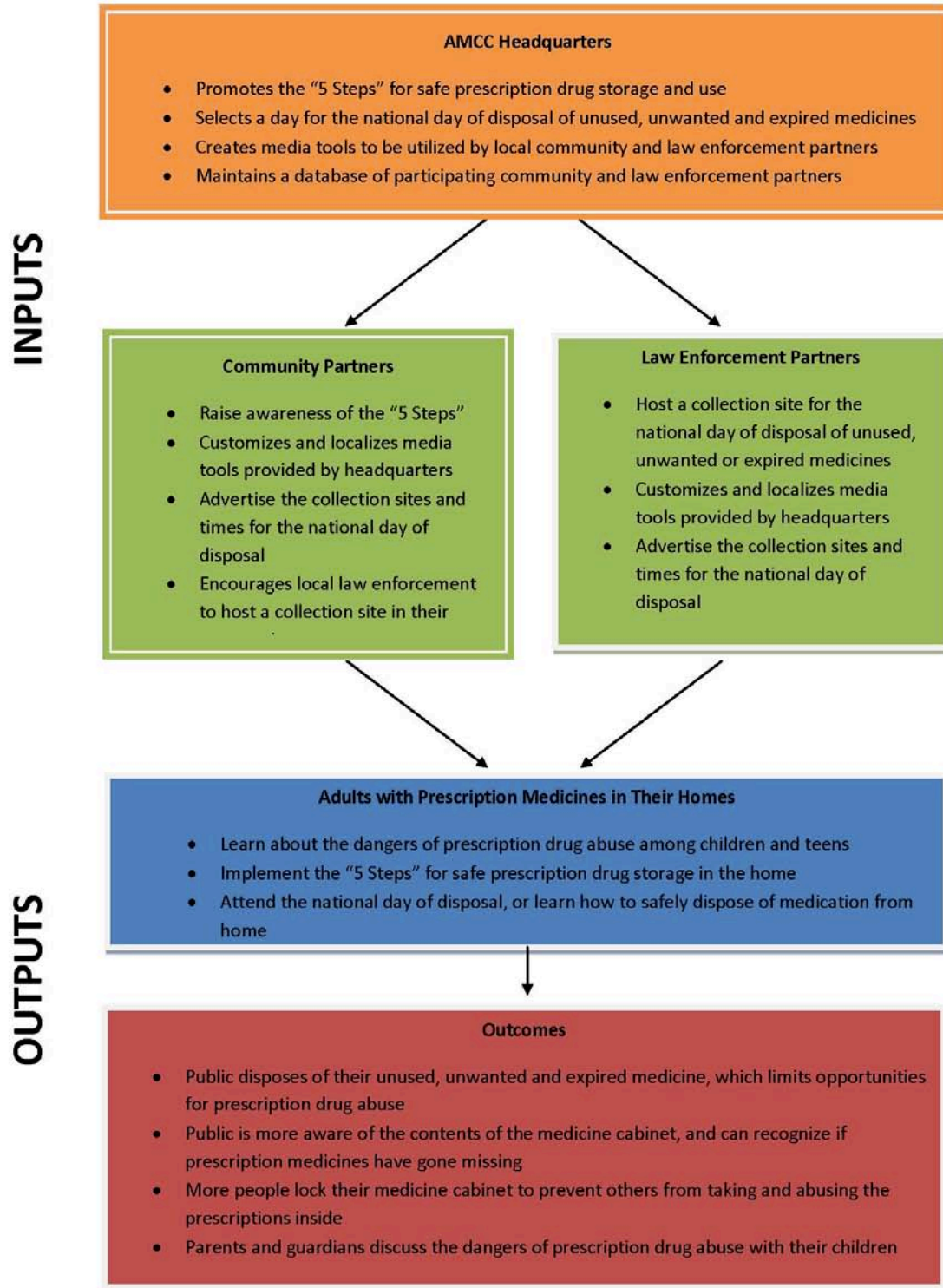


Figure 4: AMCC Logic Model

The AMCC's logic model outlines the specific activities pursued by the program (inputs), the intended short-term outcomes of the program (outputs), and the hypothesized process that links program activities to program outcomes. AMCC's intervention rationale assumes that a significant gap in public awareness exists as well as knowledge of the prescription drug abuse problem. It also assumes that the public at-large is unsure about what exactly individuals can or should do about this problem. These assumptions are well-supported in the scientific literature about the prescription drug abuse problem (Manchikanti, 2006; ONDCP, 2010) as well as the public opinion data collected through PDFNJ's Parents Tracking Survey in New Jersey over the past 5 years. Accordingly, AMCC's intervention rationale calls for a combination of a public education campaign and a community-based effort to collect unused, unwanted and expired prescription and over-the-counter medicine from the public. In this sense, AMCC is best understood as a social marketing campaign that aims to educate the public about a problem but also to actively remove an important barrier to the desired behavior change from the perspective of target audiences. Next, assuming sufficient exposure to the AMCC campaign, the target audience (adults with prescription medicine in their home) is expected to (1) exhibit awareness of (and hopefully concern about) the problem of prescription drug abuse, (2) recall information about the simple actions everyone can take to safeguard and/or dispose of prescription and over-the-counter medicine at home, and (3) report taking the actions recommended by the campaign, including participating in the national day of disposal.

Methodology

Methodologically, the evaluation of the AMCC media campaign builds on several components involving the collection of different types of data and the use of different methodologies to produce a complete picture of the program's efficacy. For example, the content analysis component tracks media coverage of AMCC as well as media attention to the general topic of prescription drug abuse in New Jersey and nationally over time, including each six-months period before and after the launching of AMCC. It provides an estimate of how much "noise" was produced by AMCC-related media activities which can then be compared against estimates of actual exposure to the campaign from survey data to corroborate self-reports about exposure but also assess the potential for reaching a greater portion of the target audience with a more intensive campaign. Similarly, using Google Analytics to track patterns of visitor traffic on the AMCC website allows a closer look at the information seeking behavior of target audiences (e.g., what pages were accessed, how much time was spent on the site and/or on each individual page, what resources were tapped, etc.). It also gives the analyst a sense of how people got to the site (through a referral link, a Google search, etc.) and affords the

AMCC leadership and campaign managers a valuable insight into the information needs and preferences of AMCC's audiences.

The evaluation also includes a data collection component that monitors the partnership-building aspect of AMCC. The Community Partner Survey collects information about the scope and nature of AMCC-related activities used by each partner. It seeks to assess the volume and types of activities executed by each community partner and the degree to which materials and activities were customized or personalized by each community partner based on a log maintained by that partner. The survey also includes questions that evaluate the usefulness of resources produced by AMCC as well as open-ended question that ask partners to identify additional useful resources that they need or obstacles they encountered as they were trying to successfully implement the various AMCC-related activities (e.g., difficulty connecting with local journalists, difficulty with recruiting volunteers etc.). These data provide valuable feedback about the extent to which variations on key outcomes (such as rate of participation in the national disposal day) can be attributed to the organizational aspect of AMCC rather than to the campaign per se.

Still, the primary methodological tool used in the evaluation of AMCC is a tracking survey. The survey, which is administered to a representative sample of the target audience, measure adults' exposure to anti-drug information, their knowledge, beliefs, and attitudes about prescription drug abuse by teens and drug abuse more generally, the frequency in which they discussed the issue with their children and the content of these discussions, and parents' self-efficacy to influence their child behavior when it comes to substance use and abuse. These repeated cross-sectional data will be analyzed for patterns of change in cognitions and behavior over time, thus providing the most direct and unequivocal evidence of the effects of the AMCC campaign on target audiences. For this reason, this report focuses on analyzing the survey data collected for the purposes of the evaluation. Findings from analyzing the other components of the evaluation will be included in a separate report.

The specific data used in the preparation of this report was collected by the Rutgers University's Eagleton Center for Public Interest Polling on two different occasions: two weeks before the national disposal day and two weeks after that day. The first Rutgers-Eagleton Poll was conducted by telephone from October 21-27, 2010 with a scientifically selected random sample of 885 New Jersey adults. The second poll was conducted from December 2-6, 2010 with a random sample of 906 New Jersey adults. Data were weighted to represent known parameters in the New Jersey population, using gender, age, race, and Hispanic ethnicity matching to US Census Bureau data. All results reported here are with these weighted data. The questions included in the

first of the two surveys assessed New Jerseyans' general exposure to information about the prescription drug abuse problem in the media, specific exposure to the messages of AMCC, awareness of the prescription drug problem, and perceptions about effective solution to the problem. The second survey focused more prominently on the extent to which New Jerseyans performed the behaviors promoted by AMCC (i.e., the 5-steps). Two types of behaviors were examined: communication behaviors (seeking information online, talking to other adults about the disposal of prescription medicine, and talking to children about the risks of prescription drug abuse) and safeguarding/disposal behaviors (taking inventory of medicine at home, locking medicine cabinet, disposing of medicine in household trash, participating in the national disposal day, and flushing medicine down a drain). General exposure to information about prescription drug abuse in the media as well as specific exposure to AMCC were also measured. Both surveys collected the same demographic information from respondents. Copies of the survey questionnaires can be found in the Appendix.

Limitations

A number of important methodological limitations of the Rutgers-Eagleton poll ought to be noted. First, both surveys are subject to sampling error, which is the expected probable difference between interviewing everyone in a population versus a scientific sampling drawn from that population. The sampling error for both samples is +/-3.3 percent, at a 95 percent confidence interval. Sampling error increases as the sample size decreases, so statements based on various population subgroups are subject to more error than are statements based on the total sample. Importantly, sampling error does not take into account other sources of variation inherent in public opinion studies, such as non-response, question wording or context effects. However, since these were the same for all respondents, it is unlikely that they significantly bias the findings reported here.

Second, given the limited resources available to support the evaluation, only a very small number of potentially important questions were included in these surveys. As noted above, a relatively large number of questions would need to be answered to clearly delineate the effect that AMCC had on audiences from that of other factors (e.g., personal experience, similar information received from other sources, etc.). For this reason, this study cannot support causal claims about the effects of AMCC. All it can do is to demonstrate associations between variables that are consistent or inconsistent with the underlying rationale of the intervention (the logic model).

Finally, this study's findings, to the extent they may be generalized, are limited to the population of adults in New Jersey and may not apply to adults nationally.

SUMMARY OF KEY FINDINGS

Public Knowledge about the Prescription Drug Abuse Problem

To assess the degree to which the general public in NJ is aware of the problem of prescription drug abuse among teenagers, the October survey included a free-response question that asked respondents to indicate what they think is the most important teenagers in NJ. By using a free-response format rather than presenting respondents with a list of problems to choose from our goal was to capture the first problem that comes to their mind when asked to recall this information from memory. The responses we received to this question are summarized in Figure 5 below. As expected, the free-response format generated a great number of different responses, reflected people’s beliefs and/or personal experiences with problems typical to teenagers in the State. All responses were first reviewed to identify common themes that will be used to categorize responses. In most cases, people used explicit language to describe the problem which made it straightforward to assign the response to a particular category. For example, all responses coded as “drug abuse” explicitly mentioned drugs as the most important problem facing NJ teens.

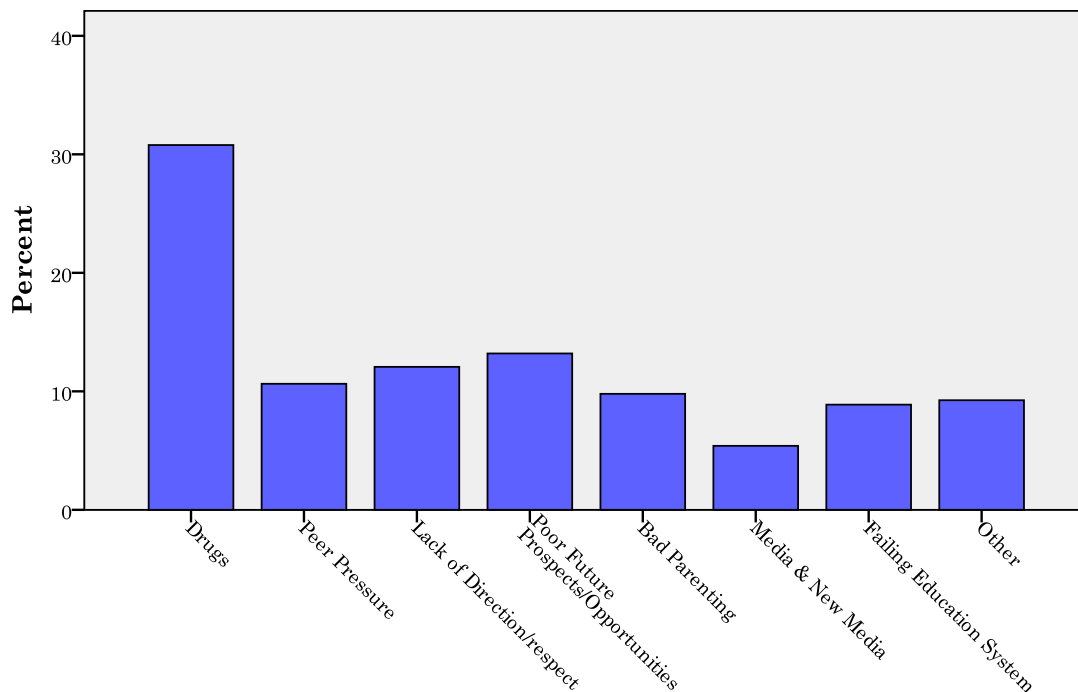


Figure 5: Public Perceptions about the Biggest Problem Facing Teens in New Jersey

The findings in Figure 5 demonstrate that the problem most commonly recalled by New Jerseyans was the problem of drug abuse. About one-third of all respondents thought that drug abuse was the most important problem facing NJ teens today (with 73% of these referring specifically to prescription drug abuse) compared to only 13% of respondents who noted the poor prospects of young people to find a job in the current state of our economy and the 10.6% who identified the negative outcomes of peer influence (including cyberbullying) as a major problem. This is rather striking given that these two issues received much media attention and public scrutiny, particularly in the months leading to the 2010 elections. As we argue below based on analyzing the AMCC exposure data, we attribute some of the prominence of the drug abuse issue on the NJ public agenda to the ability of the campaign to reach audiences with the message about the prescription drug abuse problem.

Still, it is evident from the subgroup analysis summarized in the side bar on the right that there remains a considerable room for attitude change about the prescription drug problem in New Jersey (as well as nationally). Of note is the fact that young adults (the 18-24 age group), who are at the highest risk of abusing prescription drugs, are the least likely to perceive it as a major problem (less than 20% of all young adults in our sample mentioned drug abuse as an important problem). This is particularly true for college-bound individuals – the data show that more educated individuals (i.e., those with some college, college and graduate education) are significantly less likely to consider prescription drug abuse a major problem compared to their less educated counterparts (specifically, high school graduates). At the same time, the groups through which teenagers are the most likely to gain access to prescription drugs, i.e., the elderly and homemakers, are the most likely to be already aware of this problem, though a majority of them (about 70% in each group) are not.

Members of certain demographic groups were more likely than others to mention drug abuse as the most important problem facing teens in NJ and these differences were statistically significant. These include:

- **Individuals older than 35 (particularly those in the 65+ age group).**
- **Individuals who are retired or homemakers.**
- **Individuals who completed high school.**
- **Individuals who are religious.**

There were no differences by sex, race, family income and political ideology (liberal/conservative). Perhaps surprisingly, there were no statistically significant differences between parents or guardians of children under 18 and non-parents/guardians on this variable.

Public's Take on Solutions to the Prescription Drug Abuse Problem

The October survey included one other free-response question that asked respondents to indicate what they think is the single best thing people can do to prevent teenagers from getting and abusing prescription drugs. Again, we were interested in capturing the first solution people can recall independently from memory and comparing their aggregated responses to the kinds of solutions advocated by the AMCC campaign. These responses are summarized in Figure 6 below.

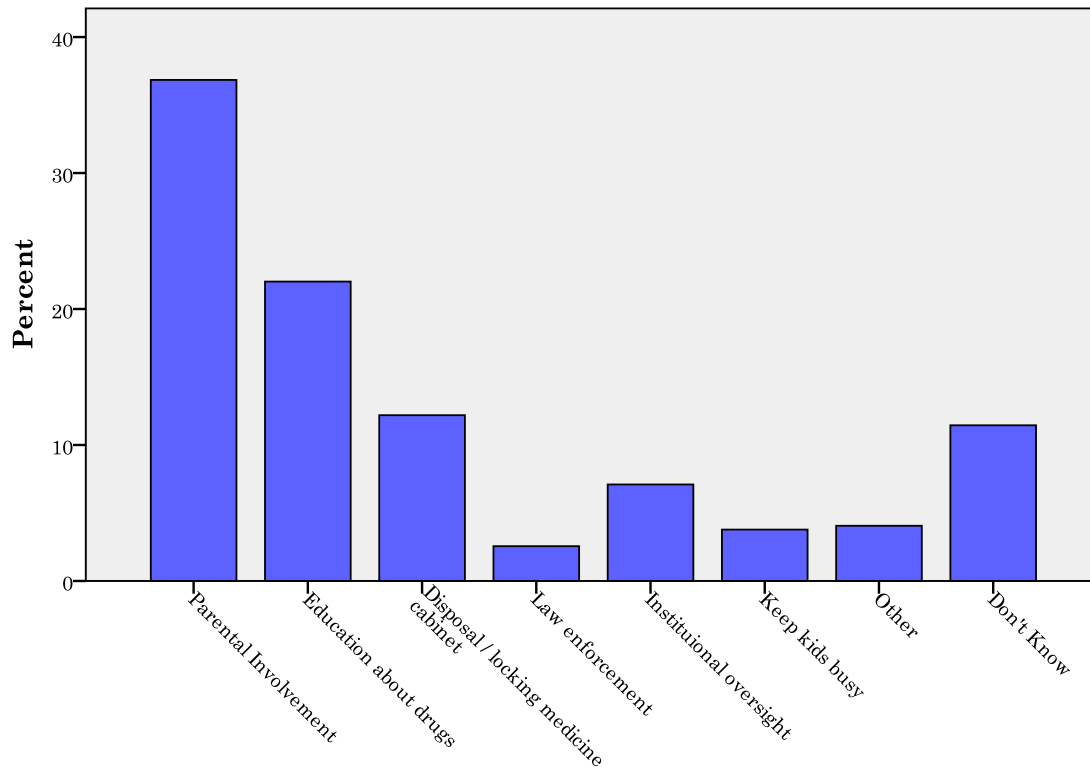


Figure 6: Public Perceptions about Effective Solutions to the Prescription Drug Problem

Figure 6 shows that the most common response given (38% of all respondents) was that more parental involvement is needed to curb the prescription drug abuse problem. The responses were almost equally divided among three types of actions parents can take to decrease their teens' risk of abusing prescription drugs: (1) talk to their kids about the risks of prescription drug abuse, (2) closely monitor their kids' behavior and actions in and outside home, and (3) serve as a positive role model by decreasing their own intake of prescription and over-the-counter medicine at home. It is worth noting that these are the very same behavioral recommendations to parents that are emphasized by the AMCC campaign and ONDCP's anti-drug campaigns more generally.

Support for different solutions to the prescription drug abuse problem varies for different group (and these differences were statistically significant in our data):

- Empowering (or rather demanding) parents to get more involved by talking to and monitoring their teens' behavior is particularly popular with older adults (35+), although not necessarily parents themselves, as well as among Caucasians, and those with higher levels of education (some college, college, and graduate education).
- The prescription drug abuse education solution is particularly favored by parents or guardians of children under 18, young adults (18-24), and those in the job force (currently employed).
- Having people lock their medicine cabinets and/or dispose of unused or expired medications make particular sense to middle age individuals (45-65) and more religious people.
- Inner-city African-Americans express the most support for finding ways to keep kids busy with pro-social activities.

The second most commonly referenced solution to the prescription drug abuse problem by teens (22% of all respondents) was educating both teenagers and the public about the risks associated with the non-medical use of prescription drugs. Most responses that fell into this category (about 53%) noted the need in education programs that are specifically designed to teach people specifically about the risks of prescription drug abuse rather than drug abuse most generally). One other commonly mentioned solution (12.2% of all respondents) was people making sure to lock their medicine cabinet and/or dispose of their unused or expired medications so teenagers cannot get them. We wish to point out that all three most commonly mentioned solutions correspond to those advocated by AMCC and the evidence we present below suggests that this is unlikely to be a coincidence. Other solutions mentioned frequently include increasing law enforcement efforts to penalize those intentionally providing prescription drugs to teenagers and keep kids busy in other activities to decrease their boredom. One other, less obvious solution raised by about 7% of all respondents was the need in establishing institutional oversight over the dispensing of

prescription medications by physicians and pharmacists. Some felt that physicians over-prescribe pain killers and other medications and that this causes the problem to being with while others suggested that pharmacists ought to be more vigilant about who they dispense prescribed medications to (e.g., teenagers picking up medications for their parents or grandparents). Of note, 11% of adults in NJ have no idea what can be done to decrease the problem. This suggests that efforts to educate the public about effective solutions to the prescription drug abuse problem should continue until all (or almost all) members of the public are reached with this information.

Exposure to Information about Prescription Drug Abuse in the Media

The October survey included a question that assessed the frequency in which the NJ public is exposed to information in local and national media about the prescription drug abuse problem. Specifically, respondents were asked to indicate how frequently they see or hear news stories or ads about teenagers' abuse of prescription drugs. The distribution of responses to this answer is summarized in Figure 7 below.

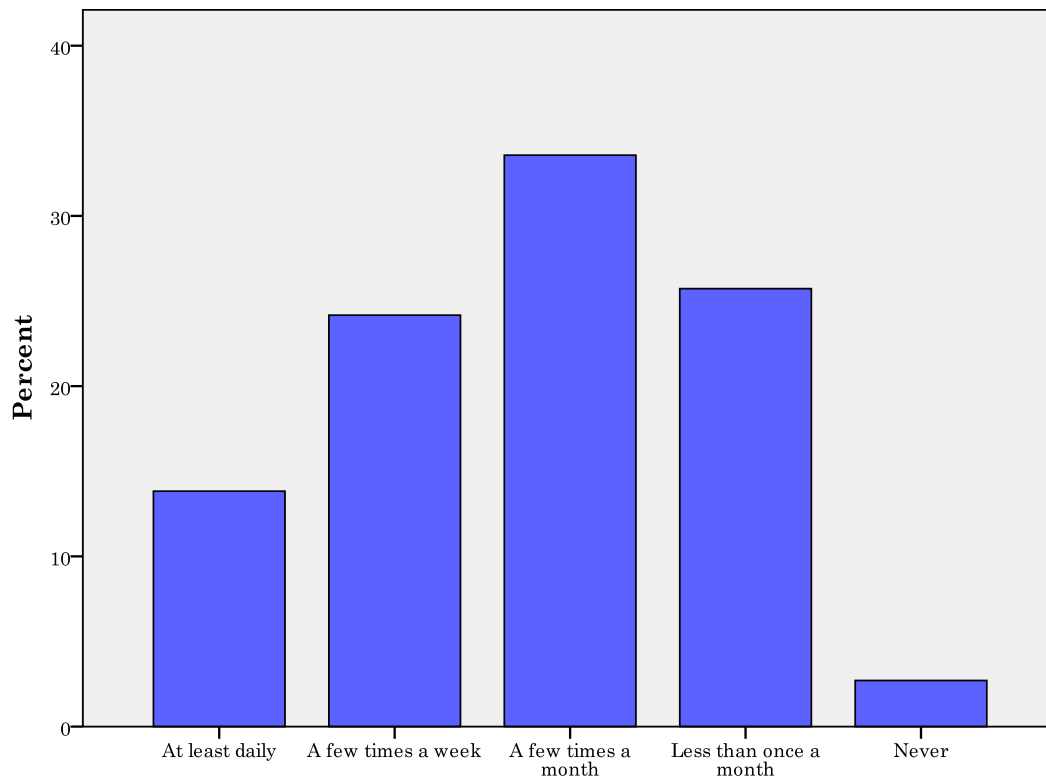


Figure 7: Frequency of General Exposure to Prescription Drug Abuse Information

It is evident from Figure 7 that the overwhelming majority of New Jerseyans (97%) has been exposed to information about teens' prescription drug abuse in the media, albeit to a different degree. About 14% of all respondents recalled hearing or seeing such information daily but most others recalled seeing or hearing the same information less frequently (i.e., a few times a week or a few times a month). Older respondents (46+) and religious individuals were more likely to report more frequent exposure to information in the media about prescription drug abuse whereas parents or guardians tended to report less frequent exposure to such information. There were no other statistically significant differences in frequency of exposure.

Exposure to the AMCC Media Campaign

Exposure to the AMCC media campaign was assessed twice – about a month before the national collection day on November 13, 2010 (Oct-10 survey) and two weeks following the national collection day (Dec-10 survey). Both times respondents were asked to indicate the frequency in which they recall seeing or hearing AMCC-related ads or news that called on the public to safely dispose of unused, unwanted and expired prescription and over-the-counter medicine kept at home.

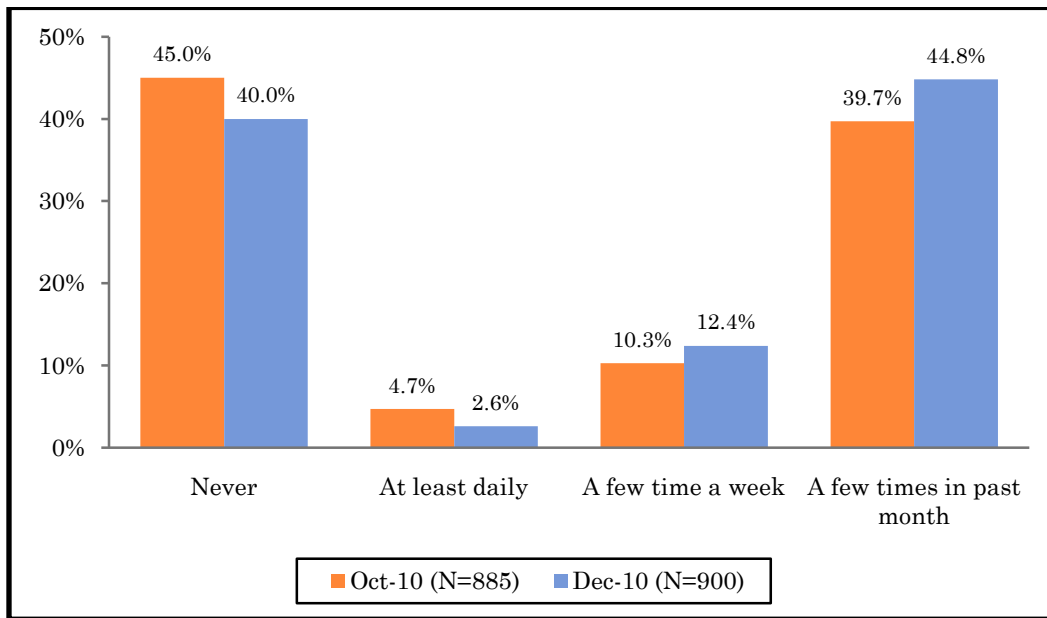


Figure 8: Frequency of AMCC Exposure

As is apparent from Figure 8, about 45% of all respondents could not recall seeing or hearing the message of AMCC when asked in October 2010 but that this figure decreased five percent by December of that year, suggesting that exposure to AMCC increased around the scheduled collection day in November. Furthermore, while the percentage of respondents reporting daily exposure to the campaign decreased between October and December of 2010, more respondents reported being exposed to the message of AMCC a few times a week (but mostly a few times a month) in December than in October.

It is worth noting that 80% of respondents who reported any exposure to AMCC in October were also exposed to general information in the media about the prescription drug abuse problem. As with general exposure to information in the media about prescription drug abuse, older respondents (46+) and religious individuals were more likely to recall seeing or hearing the message of AMCC, as did Caucasians and high school graduates. Parents or guardians of children 18 years-old and under were less

likely to report exposure to AMCC than non-parents (46% compared to 61%, respectively). There were no other statistically significant differences in frequency of exposure to the message of AMCC. Taken as a whole, these findings suggest that while AMCC media activities successfully reached a majority of New Jerseyans (60%), a more targeted dissemination approach (one that is based on audience segmentation) is needed to reach key demographic groups such as young adults, parents, and minority groups that were not fully reached by the 2010 AMCC media campaign.

Relationship between Exposure to AMCC and Public Knowledge

An important goal of the evaluation is to consider evidence that is consistent with the argument that the AMCC media campaign contributed to greater awareness of the prescription drug abuse problem among New Jerseyans and that exposure to the campaign was associated with knowledge of the specific behavioral recommendations promoted through the campaign, particularly the one about safeguarding medications at home and disposing of unused, unwanted and expired medicine, which is unique to the campaign. Consistent with this logic, a greater percentage of respondents who had any exposure to the AMCC campaign believe that prescription drug abuse is a major problem facing teens than respondents who were not exposed to the campaign (15% compared to 9%, respectively), and this difference was statistically significant regardless of respondents' demographic characteristics and whether or not they were exposed to similar information in the general media.

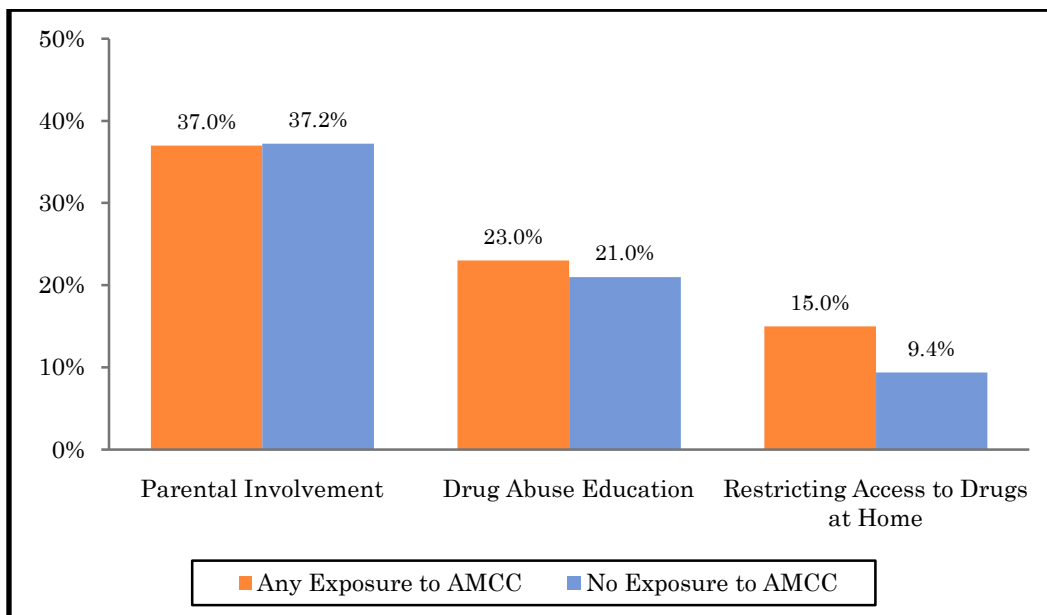


Figure 9: Public Recall of Effective Solutions by AMCC Exposure

Figure 9 compares support to three most common solutions mentioned by survey respondents between those who had any exposure to the AMCC campaign and those who did not. This analysis shows that an equal proportion of respondents in each group expressed support for getting parents be more actively involved in prescription drug abuse prevention by teens and for increasing education efforts that focus specifically on prescription drug abuse. This is not surprising given that these two solutions have been the focus of ONDCP's youth anti-drug media campaign in its different iterations and are also commonly mentioned in the general news media coverage of prescription drug abuse. In contrast, the emphasis on securing medicine at home and disposing of unused, unwanted and expired medications is less common in media discourse yet is central to the message of the AMCC campaign. Accordingly, our analysis found a statistically significant difference between the two groups on this variable, such that a greater percentage of those exposed to AMCC compared to their non-exposed counterparts (15% vs. 9.4%, respectively) thought that locking medicine cabinets and disposing of unused medicine was the single best solution to the prescription drug abuse problem. In all, then, there is good evidence that exposure to the AMCC campaign was associated with greater public awareness of the prescription drug abuse problem and to the importance of limiting easy access to prescription and over-the-counter medicine at home by locking medicine cabinets and safely disposing of unused, unwanted and expired medicine.

Prevalence of AMCC-Recommended Behaviors

The questions included in the December 2010 survey (N=900) focused on measuring two types of behaviors that could have been potentially influenced by the AMCC campaign. The first type is communication behaviors: (1) information-seeing behavior (namely, searching the Internet for information about safely disposing of unused, unwanted and expired medicine) and (2) having conversations with other people about disposing medicine. The second type of behaviors are those promoted through the AMCC campaign in an effort to limit access to prescription drugs and over-the-counter medicine: (1) taking inventory of prescription drugs and over-the-counter medicine at home, (2) locking the medicine cabinet, (3) disposing of medicine in the household trash, (4) disposing of medicine at a local disposal site on collection day, (5) flushing medicine down a sink or drain, and (6) talking to children about the dangers of non-medical use of prescription drugs. In all cases, respondents were asked to report about their behavior in the previous 30 days, which coincided with the timing of the national collection day.

With regard to the communication behaviors, only 5% of all respondents reported searching the Internet for information about the safe disposal of prescription drugs, with most (4.5% of all respondents) doing so once or twice in the previous month. In contrast, about 22% of all respondents reported having one or more conversations with others about the disposal of prescription and over-the-counter medicine (16% had one or two conversations, 5% had three or more conversations in the previous month). This finding suggests that the messages of the AMCC campaign may have further diffused through social networks, reaching some who were not directly exposed to the campaign and/or reinforcing the message of the campaign. In that sense, this is a very positive outcome of exposure to the AMCC campaign.

Figure 10 summarizes the distribution of positive responses we received to the set of questions about the behaviors directly promoted through the AMCC campaign in an effort to limit access to prescription drugs and over-the-counter medicine. For example, 33% of all respondents reported taking inventory of prescription and over-the-counter medicine whereas 9% reported taking part in the disposal day organized by AMCC. When interpreting these findings, it is important to keep in mind a couple of facts. First, respondents were asked to report about past-month behavior given our interest in exploring behavior that took place immediately before and after the disposal collection day. It is very likely that some people enacted the same behavior sometime during 2010, and so we may be underestimating the actual prevalence of these behaviors in the NJ adult population. Second, as Figure 11 shows, some respondents (42.5%) took no action to safeguard or dispose of their prescription drugs, while others (33%) took a single action and still others (about 24%) took more than a single action. Thus, there appears to be a good deal of behavior that is

There were a number of statistically significant differences in the demographic characteristics of respondents taking the actions recommended by the AMCC campaign:

- **Take inventory** (individuals aged 46+ and high school graduates)
- **Lock medicine cabinet** (parents or guardians of children under 18, individuals aged 36-45, high school graduates, and Latinos)
- **Dispose medicine in trash** (parents or guardians of children under 18, individuals aged 36-45, and Latinos)
- **Dispose medicine in local collection site** (Latinos and non-Whites, family income below the median)
- **Flush medicine down a drain** (individuals aged 36-45 and non-Whites)
- **Conversations with children** (individuals aged 36-45, parents or guardians of children under 18, females, Whites, and high school graduates).

consistent with the specific actions promoted by AMCC. At the same time, it is clear that there remains a significant room for change on these behaviors within the NJ adult population which justifies a continued and intensified effort to achieve the AMCC's goals.

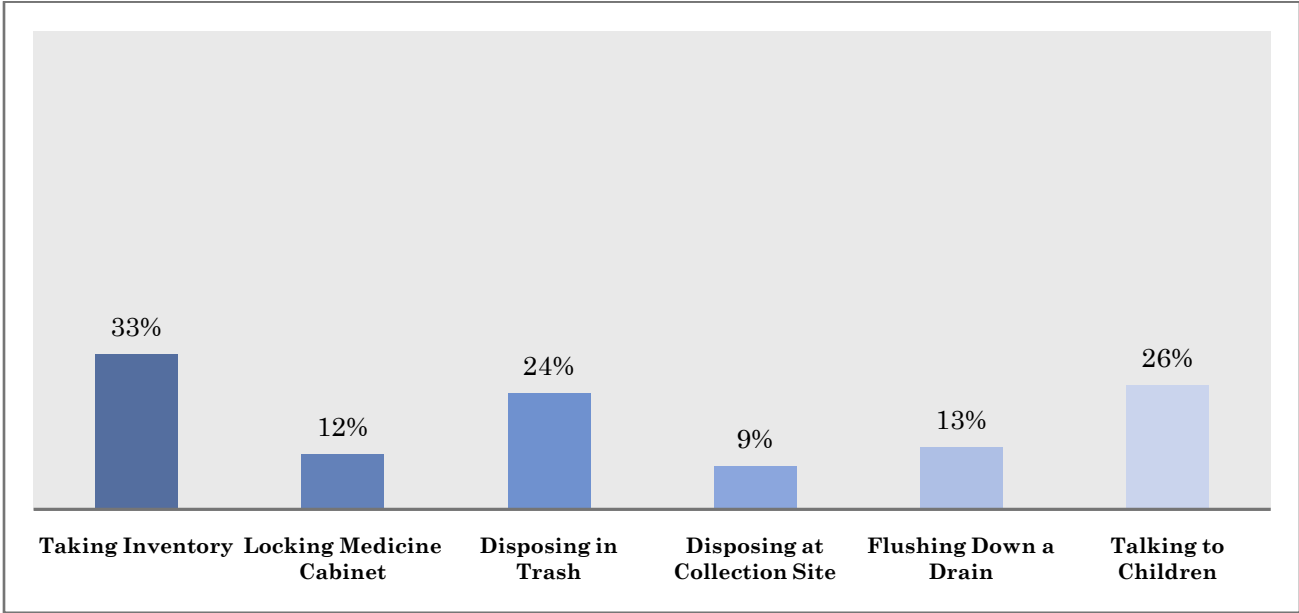


Figure 10: Distribution of Respondents Reporting Different Types of Actions

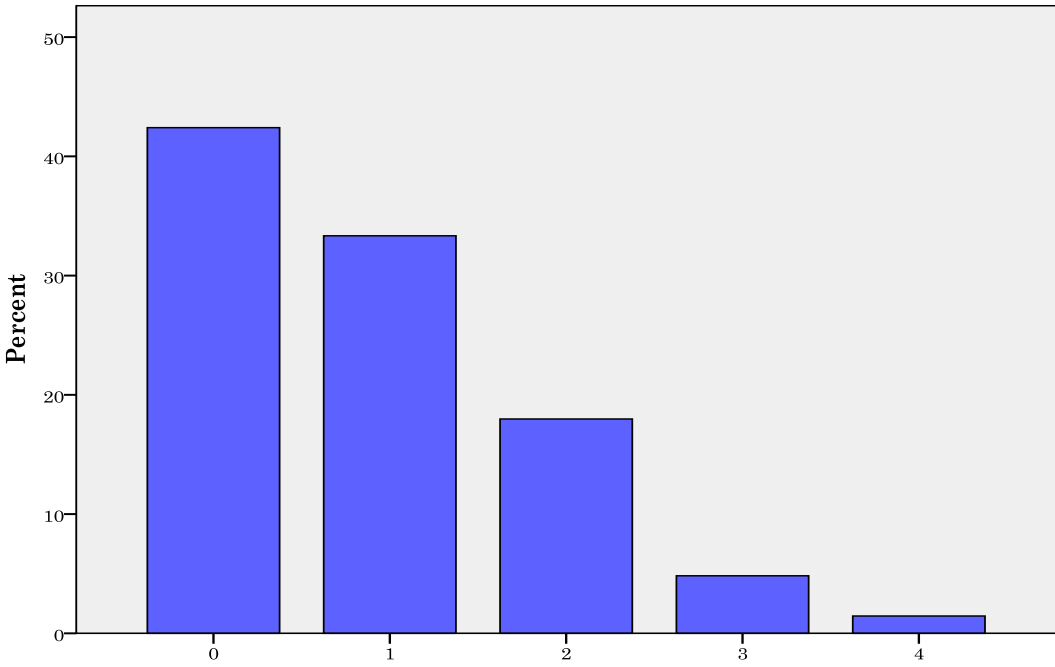


Figure 11: Frequency of the Number of Different Actions Reported by Respondents

Relationship between Exposure to AMCC and Behavior

Our analysis found evidence that exposure to the AMCC campaign was associated, albeit modestly, with respondents' likelihood of searching for relevant information on the Internet and having conversations with others about the safeguarding and disposal of prescription and over-the-counter medicine. Specifically, about 8% of those exposed to AMCC looked for information online compared to less than 3% of the non-exposed. Similarly, 28% of those exposed reported having one or more conversations with others about safeguarding and disposal of prescription and over-the-counter medicine compared to 14% of the non-exposed. No other variables (demographics or general exposure to relevant information in the media) exhibited a statistically significant association with these two communication behaviors, suggesting that it is very likely that AMCC exposure contributed to both.

A similar pattern of evidence emerges regarding the relationship between AMCC exposure and the behaviors promoted by AMCC. Figure 12 compares the prevalence of each of these behaviors between respondents who were exposed to the campaign and those who were not. The results show that for four of the six behaviors examined (taking inventory of prescription drugs and over-the-counter medicine at home, locking the medicine cabinet, disposing of medicine at a local disposal site, and talking to children about the dangers of non-medical use of prescription drugs), exposure to AMCC was associated with a greater percentage of respondents who participated in that activity, even when controlling for demographic characteristics of respondents. Moreover, on average, those exposed to AMCC were more likely to take several of these recommended actions than those not exposed to AMCC (1.5 compared to 0.82 actions, respectively) and this difference was statistically significant. It is worth noting that we did not find the same pattern of associations for general exposure to information about the prescription drug problem in the media, mainly because there was little difference in general exposure among respondents (recall that 97% of them were exposed to information in the media about the problem). Therefore, while not definitive, there is good evidence that exposure to AMCC was associated with a greater likelihood of enacting at least four of the six behaviors directly recommended by the campaign.

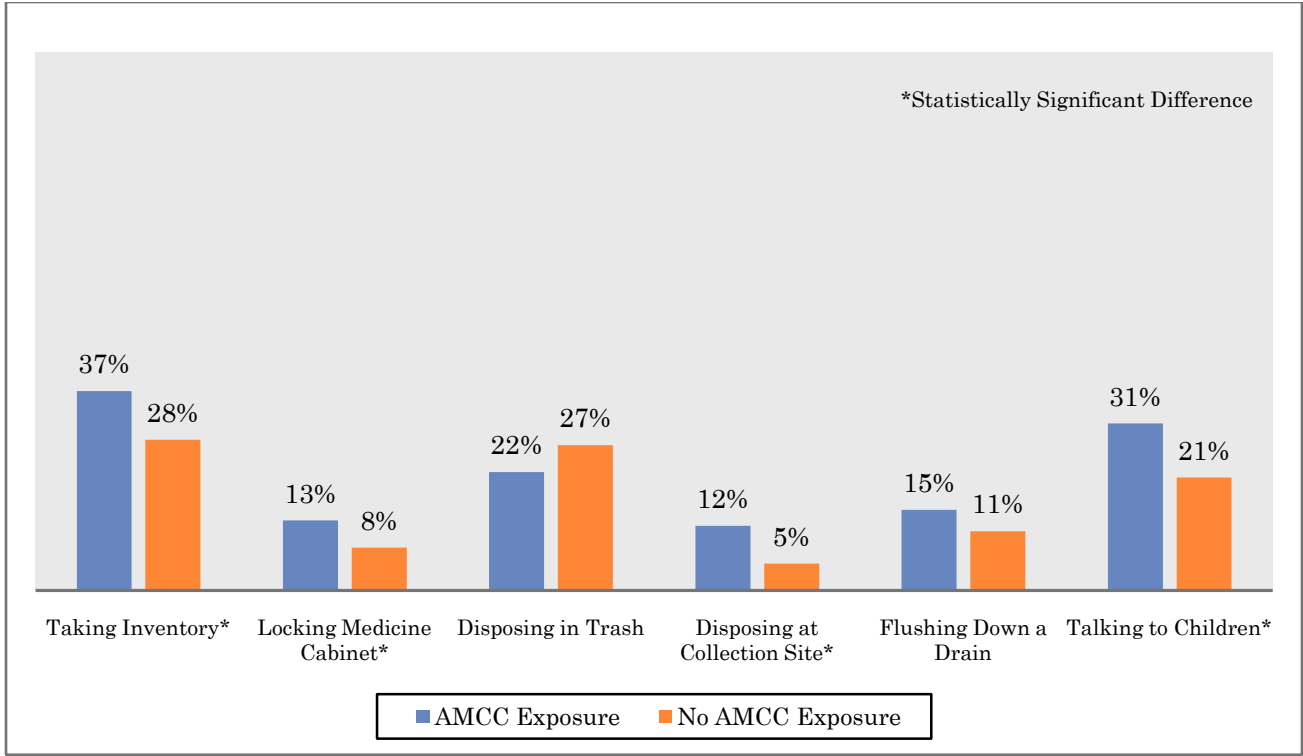


Figure 12: Frequency of Actions Reported by AMCC Exposure

CONCLUSIONS

Overall, the pattern of findings emerging from analyzing the survey data is consistent with the hypothesized effects of AMCC. That is, there is evidence that more than half of the target audience for AMCC in New Jersey was exposed to the campaign and its 5-steps message and that the campaign generated a “buzz” within social networks, with about 20% of all New Jerseyans reporting having had a discussion with another person about the disposal of prescription and over-the-counter medicine. There is also evidence that the prescription drug problem is on the public’s “radar” (it is the most frequently recalled problem facing teenagers in New Jersey) and that exposure to AMCC was associated with a greater likelihood of recalling this information. Similarly, AMCC exposure was associated with a greater likelihood of considering locking a medicine cabinet an effective solution to the prescription drug abuse problem.

The findings strongly suggest that a non-trivial proportion of adults in New Jersey have been or are currently practicing the behavioral recommendations about the safeguarding and/or the disposal of medicine stored at home. More than half of all respondents reported taking one or more of the actions promoted through the AMCC campaign. About a quarter of all respondents reported having one or more discussion with their children about the risks of prescription drug abuse. Perhaps most importantly, there is evidence that exposure to AMCC is associated with a greater likelihood of enacting this behavior, even when holding constant demographic differences between the groups. While causation cannot be inferred from such associations, this consistent pattern of findings suggests that it is unlikely that AMCC exposure and the behavioral outcomes observed are unrelated.

Finally, there is evidence that the campaign is primarily influential with the group of older adults (46+), parents or guardians of children under 18, and high-school graduates. This suggests that there remains a significant potential for the campaign to influence other groups with adequate targeting (and possibly tailoring of campaign messages).

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