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Findings from the Evaluation of the D.A.R.E.  
Prescription and Over-the-Counter Drug Curriculum

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Report presented to D.A.R.E America

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EXECUTIVE SUMMARY

Results of the evaluation of the D.A.R.E. Rx/OTC curriculum produced evidence of effectiveness of the Rx/OTC curriculum. Below are design highlights and key findings from the study.

**Evaluation Design**

- Participants were selected from elementary, middle, and high schools in Montgomery County, MD and Greenbrier County, WV; 7 schools total
- More than 750 students from 5<sup>th</sup>, 7<sup>th</sup> and 9<sup>th</sup> grade classes were recruited for the study. This exceeds the number of students originally proposed for the study, which were 720 students.
- Measures to assess knowledge of Rx/OTC drugs, appropriate use, and perceived risk of abuse
- Longitudinal design with outcome measures before and after Rx/OTC curriculum
- Focus groups with parents to assess effectiveness of parent/community video

**Findings**

Among the notable findings for 5<sup>th</sup> graders, results indicated statistically significant improvements after the Rx/OTC curriculum in the following outcomes:

- Definition of a medicine
- Distinction between Rx and OTC medicines
- Rx drugs prescribed for use by only one person
- Proper disposal of Rx drugs
- Accurate measurement of dosages
- Overall percentage of correct responses

Among the notable findings for 7<sup>th</sup> graders, results indicated statistically significant improvements after the Rx/OTC curriculum in the following outcomes:

- Distinction between Rx and OTC medicines
- Rx drugs prescribed for use by only one person
- Careful reading of drug facts labels
- Belief that abuse of Rx/OTC is as dangerous as other drugs

In addition, after experiencing the curriculum, 7<sup>th</sup> graders were significantly more likely to believe that children could use prescription medicine without the permission of their parent guardian. There was a similar trend (though not statistically significantly) to believe that if they have read the label carefully, children over 12 can take OTC medicine without parental permission. The meaning of these findings is somewhat ambiguous, because adolescents are expected to gradually assume more responsibility for their OTC medication. Even with respect to prescription medicines, adolescents should be able to take additional dosages (e.g., of an inhaler) after initial parental permission and instruction have been received.

Results for 9<sup>th</sup> graders indicated significant improvements in the following outcomes:

- Awareness that people use Rx/OTC drugs to get high
- Believe that it is unsafe to share Rx/OTC drugs
- Belief that it is harmful to abuse OTC drugs
- Knowledge that it is illegal to use Rx drugs not prescribed for you
- Knowledge of negative health effects of Rx/OTC abuse.
- Knowledge of the risk of addiction to Rx drugs
- Perceived likelihood of refusing an offer to use Rx/OTC drugs
- Overall percentage of correct responses

Parent focus group results indicated the video produce marked increases in knowledge of the risk of Rx/OTC abuse, knowledge useful for detection of Rx/OTC abuse, and perceived efficacy to influence their children towards appropriate use of Rx/OTC use. Parents indicated that the video made them realize they need to talk to their kids about the problem and control access to Rx/OTC medicines in the house.

## Findings from the Evaluation of the D.A.R.E. Prescription and Over-the-Counter Drug Curriculum

### **Acknowledgements**

Appreciation is offered to the many people who assisted with this project. BJ McConnell and Anita Bryan of D.A.R.E. gave valuable feedback on survey items as they were being developed. Gwen Schiada of Connect With Kids was responsible for the logistics of data collection and conducted all of the focus groups. Claude Nelson assisted with the selection of schools and officers to participate in Montgomery County. Officer George Stephens (Montgomery County, MD) and Officer Dave Howard (Greenbriar County, WV) conducted the classes that were tested, and implemented the evaluation protocol.

### **Introduction**

In December 2007 D.A.R.E. America introduced a new school curriculum to address abuse of prescription (Rx) and over-the-counter (OTC) drugs. Citing results from the 2005 Partnership Attitude Tracking Survey, and SAMHSA's 2006 National Survey on Drug Use and Health, D.A.R.E. America recognized abuse of Rx and OTC medicine as a growing problem. To address this problem D.A.R.E. developed a unique curriculum addressing the specific challenge of Rx and OTC abuse and implemented it during the 2007-08 school year. D.A.R.E. America contracted with CWK Network to manage the overall evaluation and EMSTAR Research was hired to conduct an independent evaluation of the effectiveness of this curriculum.

### **Curriculum**

D.A.R.E. America's Rx and OTC Drug Abuse Curriculum was developed with the support and expertise of law enforcement officers, PhRMA, CHPA, Abbott, White House Office of National Drug Control Policy (ONDCP), National Council on Patient Information and Education (NCPPIE), the Drug Enforcement Agency (DEA), the Food and Drug Administration (FDA), the National Institute of Drug Abuse (NIDA), Substance Abuse and Mental Health Services Administrations' Center for Substance Abuse Treatment (SAMHSA/CSAP) and the Partnership for a Drug-Free America (the Partnership).

The curriculum addresses the definition of a medicine, the difference between Rx and OTC medicine, skills for obtaining information and exercising appropriate use of medicines, and the risks of abusing Rx and OTC drugs. Three versions of the curriculum were designed for age-appropriate use with 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> graders. Fifth and 7<sup>th</sup> grade versions of the curriculum address knowledge of medicine and appropriate use, whereas the 9<sup>th</sup> grade version of the curriculum focuses on the risk of abuse. All three versions of the curriculum lasted approximately one hour and there were two lessons included for 5<sup>th</sup> and 7<sup>th</sup> graders and one lesson was provided for 9<sup>th</sup> graders. All sessions were delivered by a D.A.R.E. officer.

An additional feature of the Rx/OTC curriculum is an educational video for parents of school-aged children and community members. The video is intended to address the fact that youth often obtain Rx and OTC medicines from home by informing parents of the risks of children abusing Rx/OTC drugs, helping them detect the signs of Rx/OTC abuse, and improving their ability to ensure the appropriate use of medicines in their households.

## **Evaluation Methods**

For 5<sup>th</sup> and 7<sup>th</sup> graders the Rx and OTC curriculum was provided following the standard D.A.R.E. curriculum, allowing for an evaluation design with measurement at three intervals: a pre-test administered before the standard curriculum, a first post-test following the standard curriculum and preceding the Rx/OTC curriculum, and a second post-test following the Rx/OTC curriculum. In contrast, the 9<sup>th</sup> grade curriculum was provided as a stand-alone curriculum so the design for these students was a simple pre-test/post-test design.

Original instruments were developed for the purposes of this evaluation to assess knowledge of the definition of a medicine, the difference between Rx and OTC drugs, skills for obtaining information and exercising the proper use of those drugs, and attitudes towards abuse. Separate surveys were developed for 5<sup>th</sup> grade, 7<sup>th</sup> grade, and 9<sup>th</sup> grade students for age appropriateness and specificity to the curriculum for each age group.

The evaluation was conducted in the Montgomery County school district of Rockville, Maryland, and the Greenbrier County school district in Lewisburg, West Virginia. Participating schools in Montgomery County, MD, were Olney Elementary School, Briggs Chaney Middle School, and James Hubert Blake High School. Participating schools from Greenbrier County, WV were Lewisburg Elementary School, Ronceverte Elementary School, Eastern Greenbrier Middle School, and Eastern Greenbrier High School. These districts and schools were chosen because they were already using the standard D.A.R.E curriculum and there was a good relationship between D.A.R.E. and the schools.

All students to whom the Rx/OTC curriculum was provided in each participating school were asked to participate in the evaluation. Students were informed of the purpose of the evaluation research and that their participation was voluntary. Parents were sent consent letters (see Appendix C) – only students with consenting parents participated in the study.

To match responses from the same individual across time, participants were asked to provide their mother's first initial and the day of the month on which they were born. These two values were combined into a single unique identifier variable that preserved participants' anonymity.

Surveys of 5<sup>th</sup> and 7<sup>th</sup> grade participants were administered on the first and last days of the standard curriculum, and the day of the Rx/OTC curriculum (usually presented approximately one week after the end of the standard curriculum). Surveys of 9<sup>th</sup> grade participants were administered before and after the Rx/OTC curriculum.

The parent video was evaluated using focus groups with parents of participating students. A flyer was distributed to parents who volunteered to participate in the video presentation and focus group. A set of focus group questions was developed by EMSTAR and Connect with Kids based on input from D.A.R.E. America. Questions were designed to explore knowledge of the risk of Rx/OTC abuse, how to detect abuse, and the extent to which parents would better control the use of and access to Rx/OTC medicine in their household.

## Results

A total of 381 valid pretests were received. The number of pretests received with valid unique identifiers from 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> grade participants was 116, 121, and 144, respectively. Seventy six 5<sup>th</sup> grade surveys (66%) and 45 7<sup>th</sup> grade surveys (37%) were matched across all 3 waves, and 65 9<sup>th</sup> grade surveys (45%) were matched across the 2 waves possible for that survey. Power analyses indicated the 5<sup>th</sup> and 7<sup>th</sup> grade sample sizes provided excellent power (no less than .95) to detect effects of the curriculum\*. However, analyses in the 9<sup>th</sup> grade sample were underpowered (power = .51). Inability to match responses from pre- and post-tests was the main factor limiting sample size in all grades. Reasons for non-matching included not sampling the same students at pre- and post-test and inaccurate or missing unique identifier variables. To compensate for the lower power of 9<sup>th</sup> grade analyses we interpret findings reaching a less stringent threshold for statistical significance ( $p < .10$ ) which increases statistical power to .65.

### *Characteristics of Participants*

5<sup>th</sup> grade: Of the 76 5<sup>th</sup> graders completing all three waves of the survey, 42% were female. In terms of race and ethnicity, 61% of 5<sup>th</sup> grade respondents were White, 8% were African American, 7% were Asian American, 3% were American Indian/Alaskan Native, and 22% indicated 'other' race (usually multiracial). Approximately half of the 5<sup>th</sup> grade sample (47%) was from Olney Elementary in Maryland, another third (34%) was from Lewisburg Elementary in West Virginia, and the remaining 19% was from Ronceverte Elementary, also in Maryland.

7<sup>th</sup> grade: Of the 45 7<sup>th</sup> graders completing all three waves of the survey, 49% were female. In terms of race and ethnicity, 36% of 7<sup>th</sup> grade respondents were White, 33% were African American, 9% were Asian American, 7% were Hispanic, and 15% indicated 'other' race/ethnicity (usually multiracial). Roughly two out of three 7<sup>th</sup> grade participants (62%) were from Briggs Chaney Middle School in Maryland, and the remaining 38% were from Eastern Greenbrier Middle School in West Virginia.

9<sup>th</sup> grade: Of the 65 9<sup>th</sup> graders completing all three waves of the survey, 55% were female. In terms of race and ethnicity, 42% of 9<sup>th</sup> grade respondents were White, 31% were African American, 14% were Hispanic, 3% were Asian American, 3% were American Indian/Alaska Native, 2% were Pacific Islander, and 5% indicated 'other' race/ethnicity (usually multiracial). Just over half of 9<sup>th</sup> grade participants (59%) were from James Hubert Blake High School in Maryland, and the remaining 41% were from Eastern Greenbrier High School in West Virginia.

### *Notes for Interpreting Results*

Results for each item are shown below, separately for 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> graders. Results from Wave 1 (preceding the standard D.A.R.E. curriculum), Wave 2 (after standard, before Rx/OTC curriculum), and Wave 3 (after Rx/OTC curriculum) are shown side-by-side to examine change in correct responses over time. Note that items use different scales, so the response scale and numeric coding of the scale are included with each item to aid interpretation of item means.

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\* Power computed using effect size ( $\eta^2$ ) of .25 and alpha of .05.

Because the Rx/OTC curriculum addresses content not addressed in the standard curriculum, we expected to find improvement in measured variables at Wave 3 immediately following the Rx/OTC curriculum. Differences between waves were tested for statistical significance using repeated measures analyses of variance (ANOVA). Waves with significantly different means are indicated with matching alpha superscripts. The Wave 2 to Wave 3 change is indicated with the letter 'a' throughout, and the Wave 1 to Wave 2 change is indicated with the letter 'b'.

### Item-by-Item Results for 5<sup>th</sup> Grade Participants

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
Medicines change the way the body works. (1=False; 4=True)	3.23	3.25 <sup>a</sup>	3.59 <sup>a</sup>	<sup>a</sup> [F(1,73)=11.33, p<.05]
Medicines are drugs used to treat illness. (1=False; 4=True)	3.61	3.70 <sup>a</sup>	3.84 <sup>a</sup>	<sup>a</sup> [F(1,73)=2.85, p<.10]
Which of the following is a medicine? (0=Not a medicine; 1=Medicine)				
Fluoride Toothpaste	.17 <sup>b</sup>	.09 <sup>a, b</sup>	.44 <sup>a</sup>	<sup>a</sup> [F(1,69)=30.69, p<.05] <sup>b</sup> [F(1,69)=3.74, p<.10]
Power Bars	.04	.03	.07	ns
Aspirin	.96	.97	.96	ns
Diet pills	.59	.67	.67	ns
Cough syrup	.93	.93	.95	ns
Gatorade	.01	.01	.00	ns
You can only buy over-the-counter medicine with a doctor's permission. (1=Not at all true; 5=Always true)	2.95 <sup>b</sup>	3.33 <sup>a, b</sup>	2.51 <sup>a</sup>	<sup>a</sup> [F(1,74)=16.73, p<.05] <sup>b</sup> [F(1,74)=4.83, p<.05]
A pharmacist can answer questions about over-the-counter medicines. (1=Not at all true; 5=Always true)	3.73	3.65 <sup>a</sup>	4.12 <sup>a</sup>	<sup>a</sup> [F(1,74)=13.33, p<.05]
Children should not use prescription medicine without the permission of their parent or guardian. (1=Not at all true; 5=Always true)	4.45 <sup>b</sup>	4.69 <sup>b</sup>	4.61	<sup>b</sup> [F(1,74)=2.86, p<.10]
Prescription medicine can be bought off the shelf in some stores. (1=Not at all true; 5=Always true)	2.35	2.29	2.04	ns

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
Prescription medicine is prescribed for use by only one person. (1=Not at all true; 5=Always true)	3.80 <sup>b</sup>	4.32 <sup>a, b</sup>	4.56 <sup>a</sup>	<sup>a</sup> [F(1,74)=3.83, p<.10] <sup>b</sup> [F(1,69)=7.18, p<.05]
<b>Prescription Medicine Label Questions</b> (see Appendix A for Label)				
Who should take the medicine? (Select all that apply) (0=Not selected; 1=Selected)				
People who need it	.49 <sup>b</sup>	.36 <sup>b</sup>	.28	<sup>b</sup> [F(1,75)=5.28, p<.05]
→ Jane Smith	.61 <sup>b</sup>	.72 <sup>b</sup>	.76	<sup>b</sup> [F(1,75)=6.69, p<.05]
Only people who have Jane Smiths' permission to use it	.05	.07	.09	ns
Dr. C. Jones	.03	.00	.01	ns
When does the medicine expire? (Select all that apply)				
Six months from the time of prescription	.16	.09	.09	ns
June 23, 2005	.05	.05	.05	ns
Amoxicillin doesn't expire	.08	.04	.04	ns
→ June 23, 2006	.75	.83	.84	ns
What should be done when the medicine expires? (Select all that apply)				
It should be thrown in the garbage	.58	.61 <sup>a</sup>	.42 <sup>a</sup>	<sup>a</sup> [F(1,75)=8.26, p<.05]
The remaining medicine should be consumed and not be wasted	.04	.04	.08	ns
→ It should be disposed of by an adult	.62	.59 <sup>a</sup>	.71 <sup>a</sup>	<sup>a</sup> [F(1,75)=4.46, p<.05]

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
What should be done when the medicine expires? CNT'D [Select all that apply (0=Not selected; 1=Selected)]				
Nothing, the expiration date is just something companies do to make people buy more of the product	.04	.01	.03	<i>ns</i>
What would you do if you had questions about how to use the medicine? (Select all that apply)				
→ Read the label carefully	.71	.69	.63	<i>ns</i>
Wait to ask the doctor until my next appointment	.13	.09	.15	<i>ns</i>
→ Call the pharmacy phone # (800) 555-5555	.79	.85	.81	<i>ns</i>
Ask a friend	.01	.04	.05	<i>ns</i>
<b>OTC Drug Facts Label Questions</b> (see Appendix A for Label)				
What is the active ingredient in this medicine? (Select all that apply)				
Aspirin	.15	.12	.12	<i>ns</i>
Magnesium stearate	.08	.14	.11	<i>ns</i>
→ Ibuprofen	.64 <sup>b</sup>	.76 <sup>b</sup>	.77	<sup>b</sup> [F(1,73)=4.01, p<.05]
The active ingredient isn't shown	.23 <sup>b</sup>	.08 <sup>b</sup>	.05	<sup>b</sup> [F(1,73)=6.87, p<.05]
What should the medicine be used for? [Select all that apply (0=Not selected; 1=Selected)]				
→ Headache	.81	.88	.88	<i>ns</i>
→ Common cold	.69	.79	.79	<i>ns</i>
Fevers lasting more than 3 days	.31	.23 <sup>a</sup>	.15 <sup>a</sup>	<sup>a</sup> [F(1,74)=3.08, p<.10]
→ Muscular aches	.75	.83	.81	<i>ns</i>

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
How much of the medicine should be taken? (Select all that apply)				
→ Children 6 to 12 years should take 1 tablet every 4 to 6 hours (with permission of an adult)	.59 <sup>b</sup>	.76 <sup>a, b</sup>	.89 <sup>a</sup>	<sup>a</sup> [F(1,74)=5.92, p<.05] <sup>b</sup> [F(1,74)=4.80, p<.05]
Adults should take as much as needed to relieve their symptoms	.05	.04	.04	ns
Children under 6 should only take ½ a tablet (with permission of an adult)	.13	.11	.15	ns
→ Children older than 12 should take 2 tablets every 4 to 6 hours (with permission of an adult)	.71	.73	.71	ns
The active ingredient in this medicine might cause an allergic reaction. (0=False; 1=True)	.90	.92	.90	ns
If they have read the label carefully, children over 12 can take this medicine without permission of their parent or guardian. (1=Not all true; 5=Always true)	1.86	1.97	1.85	ns
It is safe to measure everyday medicines like cough medicine with a spoon. (1=False; 4=True)	2.73	2.66 <sup>a</sup>	2.14 <sup>a</sup>	<sup>a</sup> [F(1,72)=9.74, p<.05]
One gulp from a bottle is about 1 tablespoon of medicine. (1=False; 4=True)	1.74	1.92 <sup>a</sup>	1.52 <sup>a</sup>	<sup>a</sup> [F(1,72)=8.69, p<.05]
If a friend who is the same age as me has taken an OTC medicine safely, I can take the same dosage safely. (1=False; 4=True)	1.65	1.57	1.69	ns
Medicine should be stored in the container it came in. (1=False; 4=True)	3.80	3.77	3.72	ns

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
If you know where it came from, prescription medicine does not have to be kept in its original container. (1=False; 4=True)	1.63	1.58	1.48	<i>ns</i>
All medicines have an expiration date. (1=False; 4=True)	3.18	3.15	3.05	<i>ns</i>
The local poison control center is a good place to call if someone has taken too much medicine. (1=False; 4=True)	3.25	3.40	3.54	<i>Ns</i>
Children's medicine should be kept in a place where children can reach it. (1=False; 4=True)	2.35 <sup>b</sup>	1.94 <sup>b</sup>	1.99	<sup>b</sup> [ $F(1,67)=5.07, p<.05$ ]

### Notable findings from 5<sup>th</sup> Grade Sample

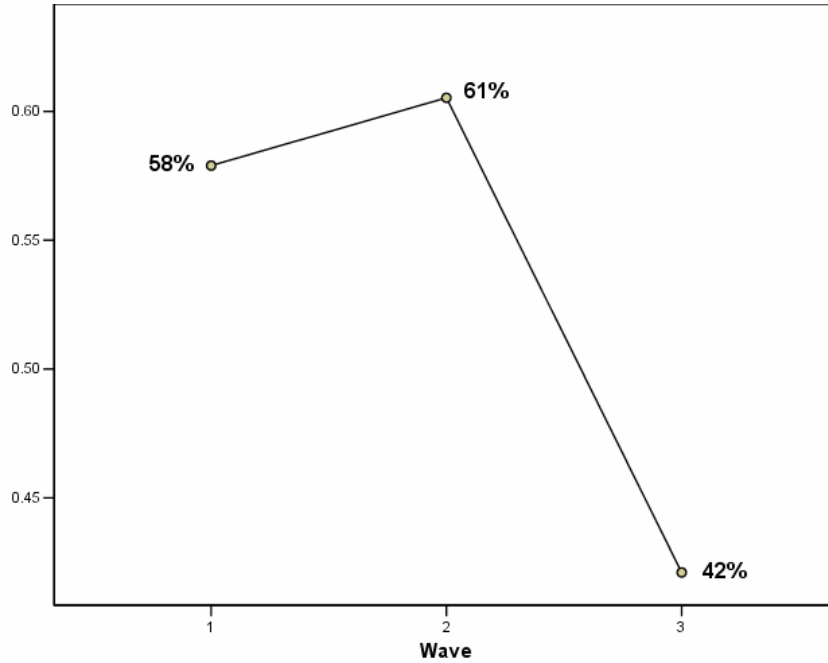
Results from analysis of 5<sup>th</sup> grade data indicated increases in knowledge in a number of areas following the D.A.R.E. Rx/OTC curriculum. Most notably, at Wave 3 there were statistically significant increases in the number of participants correctly defining a medicine (medicines change the way the body works and are used to treat illness). Nearly all participants correctly identified everyday items such as Power Bars, aspirin, cough syrup, and Gatorade as a medicine or not. Participants were markedly less likely to identify fluoride toothpaste as a medicine in waves 1 and 2, but this percentage increased substantially after the Rx/OTC curriculum. However, diet pills were also less likely to be correctly identified as a medicine but this percentage did not improve.

Fifth grade participants' understanding of the distinction between Rx and OTC drugs also increased significantly at Wave 3 (e.g., you can only buy OTC with a doctor's permission). Another marked improvement was found for participants' understanding that Rx drugs are prescribed for use by only one person. Participants' ability to obtain information from Rx and OTC drug labels was generally high, at all three waves. Some items requiring very careful reading of the question improved from Wave 1 to Wave 2 due to participants' repeated exposure to the survey (e.g., "select all that apply" items). Selected findings are illustrated below, including marked improvements in knowledge of proper disposal of Rx drugs and measurement of dosages (below).

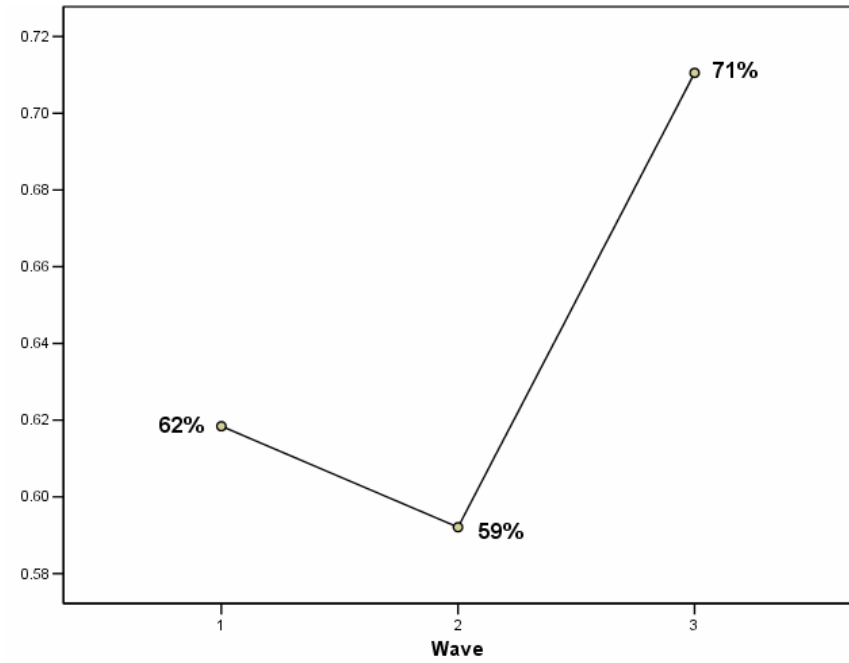
## 5<sup>th</sup> Grade -- Selected Items with Statistically Significant Improvement Associated with the Rx/OTC Curriculum

What should be done when the medicine expires? (Select all that apply)

*It should be thrown in the garbage*

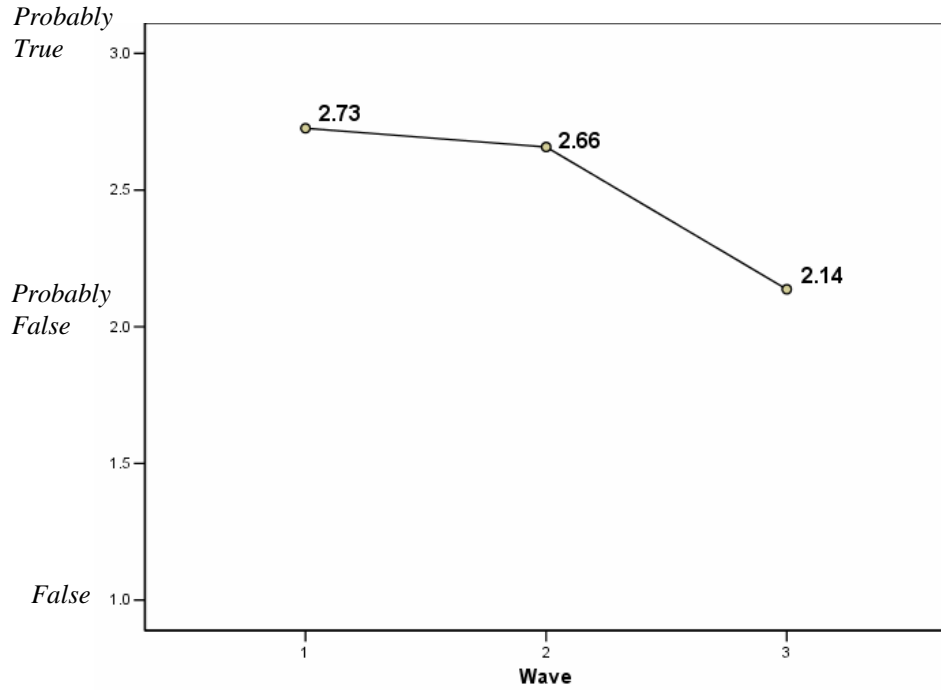


*It should be properly disposed of by an adult*

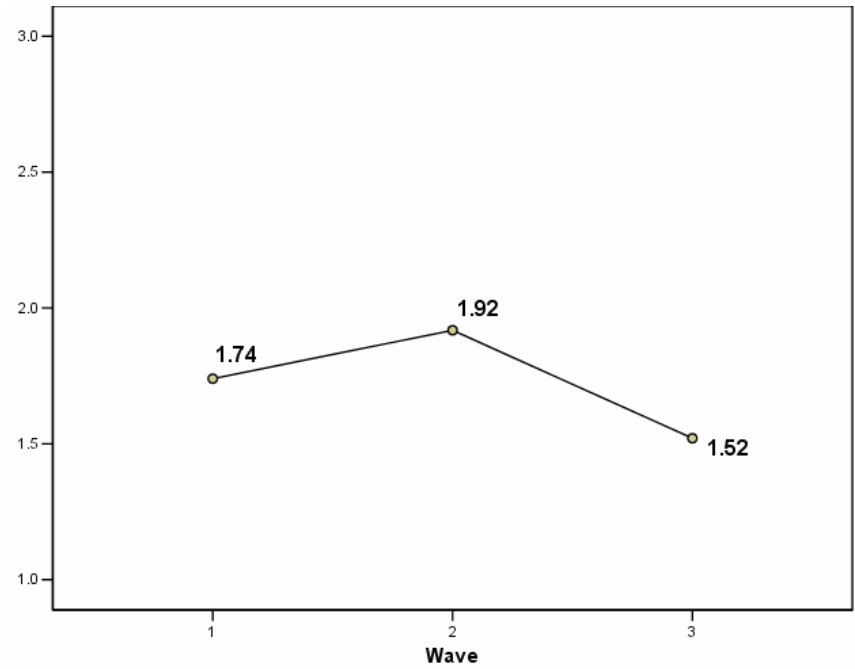


### 5<sup>th</sup> Grade -- Selected Items with Statistically Significant Improvement Associated with the Rx/OTC Curriculum

*It is safe to measure everyday medicines like cough medicine with a spoon.*

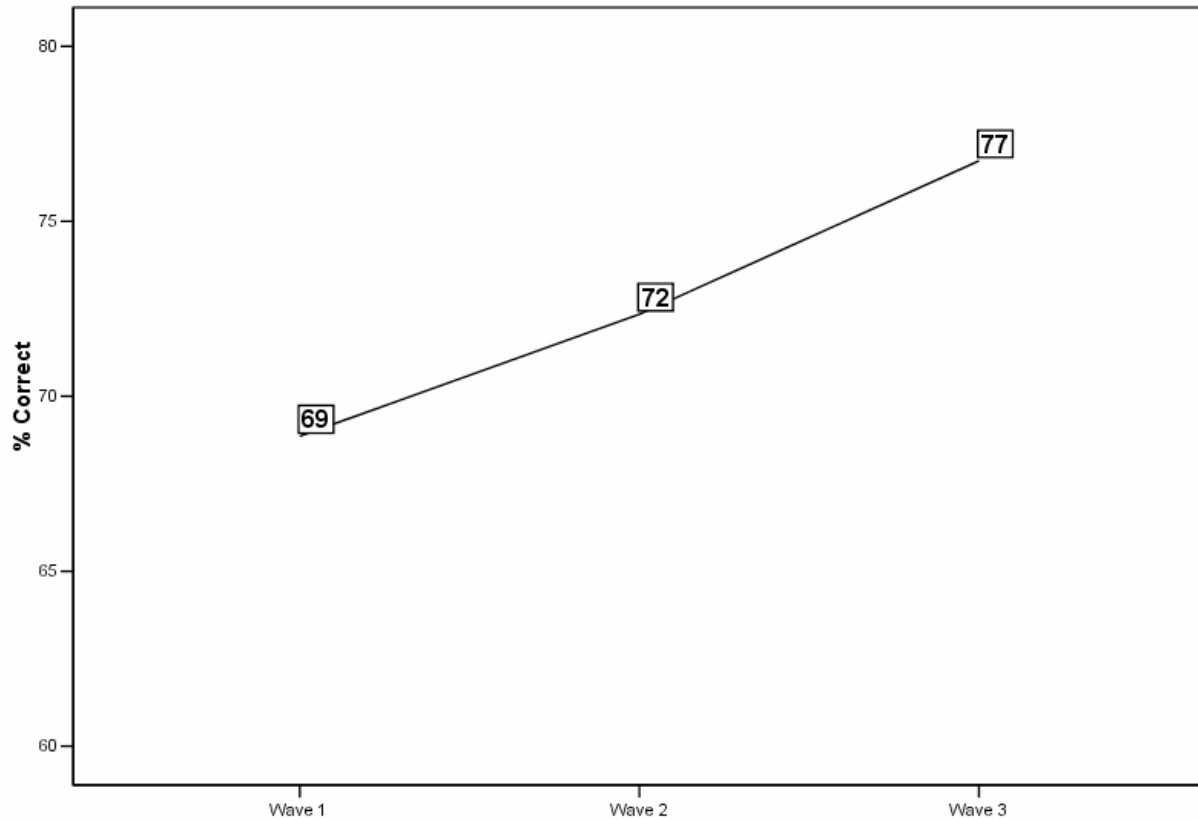


*One gulp from a bottle is about 1 tablespoon of medicine.*



Finally, the total percentage of correct responses to all items in the 5<sup>th</sup> grade survey are reported below.

### 5<sup>th</sup> Grade -- Percent Correct Responses of 51 Total Items



The percentage of correct responses increased at Wave 2 and Wave 3, but the increase at Wave 3 was greater. Both increases were statistically significant ( $p < .05$ ).

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\* Repeated measures ANOVA; Wave 1-2:  $[F(1,75)=9.16, p < .05]$ ; Wave 2-3:  $[F(1,75)=14.89, p < .05]$

### Item-by-Item Results for 7<sup>th</sup> Grade Participants

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
Medicines change the way the body works. (1=False; 4=True)	2.95	3.05	2.86	ns
Medicines are drugs used to treat illness. (1=False; 4=True)	3.74	3.74	3.72	ns
Which of the following is a medicine? (0=Not a medicine; 1=Medicine)				
Fluoride Toothpaste	.09	.07	.07	ns
Power Bars	.07	.02	.07	ns
Aspirin	.95	.98	1.00	ns
Diet pills	.60	.58	.51	ns
Cough syrup	.93	.95	.98	ns
Gatorade	.02	.05	.05	ns
You can only buy over-the-counter medicine with a doctor's permission. (1=Not at all true; 5=Always true)	3.16	3.16 <sup>a</sup>	2.45 <sup>a</sup>	<sup>a</sup> [F(1,43)=8.02, p<.05]
A pharmacist can answer questions about over-the-counter medicines. (1=Not at all true; 5=Always true)	4.16	4.02 <sup>a</sup>	4.36 <sup>a</sup>	<sup>a</sup> [F(1,44)=5.50, p<.05]
Children should not use prescription medicine without the permission of their parent or guardian. (1=Not at all true; 5=Always true)	4.40	4.53 <sup>a</sup>	4.27 <sup>a</sup>	<sup>a</sup> [F(1,44)=3.29, p<.10]
Prescription medicine can be bought off the shelf in some stores. (1=Not at all true; 5=Always true)	2.38 <sup>b</sup>	1.91 <sup>b</sup>	1.73	<sup>b</sup> [F(1,44)=4.34, p<.05]
Prescription medicine is prescribed for use by only one person. (1=Not at all true; 5=Always true)	4.23 <sup>b</sup>	4.59 <sup>a,b</sup>	4.90 <sup>a</sup>	<sup>a</sup> [F(1,38)=4.96, p<.05] <sup>b</sup> [F(1,38)=5.17, p<.05]

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
<b>Prescription Medicine Label Questions</b> (see Appendix A for Label)				
Who should take the medicine? (Select all that apply) (0=Not selected; 1=Selected)				
People who need it	.36 <sup>b</sup>	.18 <sup>b</sup>	.13	<sup>b</sup> [F(1,44)=5.92, p<.05]
→ Jane Smith	.73	.80 <sup>a</sup>	.91 <sup>a</sup>	<sup>a</sup> [F(1,44)=5.50, p<.05]
Only people who have Jane Smiths' permission to use it	.07	.02	.02	ns
Dr. C. Jones	.02	.02	.00	ns
When does the medicine expire? (Select all that apply)				
Six months from the time of prescription	.18	.13 <sup>a</sup>	.07 <sup>a</sup>	<sup>a</sup> [F(1,44)=3.14, p<.10]
June 23, 2005	.02	.04	.11	ns
Amoxicillin doesn't expire	.07 <sup>b</sup>	.00 <sup>b</sup>	.02	<sup>b</sup> [F(1,44)=3.14, p<.10]
→ June 23, 2006	.76	.82	.84	ns
What should be done when the medicine expires? (Select all that apply)				
It should be thrown in the garbage	.56	.51	.56	ns
The remaining medicine should be consumed and not be wasted	.07	.02	.02	ns
→ It should be disposed of by an adult	.60	.69	.73	ns
Nothing, the expiration date is just something companies do to make people buy more of the product	.00	.00	.00	--

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
What would you do if you had questions about how to use the medicine? (Select all that apply)				
→ Read the label carefully	.50	.57	.61	<i>ns</i>
Wait to ask the doctor until my next appointment	.09	.05	.09	<i>ns</i>
→ Call the pharmacy phone # (800) 555-5555	.80	.80	.89	<i>ns</i>
Ask a friend	.00	.00	.00	--
<b>OTC Drug Facts Label Questions</b> (see Appendix A for Label)				
What is the active ingredient in this medicine? (Select all that apply)				
Aspirin	.10	.05	.02	<i>ns</i>
Magnesium stearate	.10	.10	.12	<i>ns</i>
→ Ibuprofen	.79	.67	.76	<i>ns</i>
The active ingredient isn't shown	.10	.21	.14	<i>ns</i>
What should the medicine be used for? [Select all that apply (0=Not selected; 1=Selected)]				
→ Headache	.86	.84	.89	<i>ns</i>
→ Common cold	.75	.68 <sup>a</sup>	.80 <sup>a</sup>	<sup>a</sup> [F(1,43)=2.89, p<.10]
Fevers lasting more than 3 days	.25	.30	.34	<i>ns</i>
→ Muscular aches	.68	.66 <sup>a</sup>	.82 <sup>a</sup>	<sup>a</sup> [F(1,43)=4.84, p<.05]
How much of the medicine should be taken? (Select all that apply)				
→ Children 6 to 12 years should take 1 tablet every 4 to 6 hours (with permission of an adult)	.83	.81	.76	<i>ns</i>

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
How much of the medicine should be taken? CNT'D [Select all that apply (0=Not selected; 1=Selected)]				
Adults should take as much as needed to relieve their symptoms	.10	.02	.00	<i>ns</i>
Children under 6 should only take ½ a tablet (with permission of an adult)	.07	.05	.07	<i>ns</i>
→ Children older than 12 should take 2 tablets every 4 to 6 hours (with permission of an adult)	.60	.57 <sup>a</sup>	.69 <sup>a</sup>	<sup>a</sup> [F(1,41)=2.90, p<.10]
This medicine may cause stomach problems. (0=False; 1=True)	.72	.79	.81	<i>ns</i>
There is a risk of allergic reaction to this medicine. (0=False; 1=True)	.89	.93	.93	<i>ns</i>
This medicine is more likely to cause stomach bleeding for people who take aspirin. (0=False; 1=True)	.51	.60 <sup>a</sup>	.78 <sup>a</sup>	<sup>a</sup> [F(1,44)=7.29, p<.05]
The active ingredient in this medicine is a pain reliever/fever reducer. (0=False; 1=True)	.78	.87	.84	<i>ns</i>
If they have read the label carefully, children over 12 can take this medicine without permission of their parent or guardian. (1=Not all true; 5=Always true)	2.34	1.93	2.16	<i>ns</i>
Illegal drugs are more dangerous than prescription drugs, when used to get high. (1=False; 4=True)	3.68 <sup>b</sup>	3.18 <sup>b</sup>	3.25	<sup>b</sup> [F(1,43)=7.51, p<.05]
It is safe to measure everyday medicines like cough medicine with a spoon. (1=False; 4=True)	2.98 <sup>b</sup>	2.47 <sup>a, b</sup>	2.79 <sup>a</sup>	<sup>a</sup> [F(1,42)=4.62, p<.05] <sup>b</sup> [F(1,42)=7.53, p<.05]

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
One gulp from a bottle is about 1 tablespoon of medicine. (1=False; 4=True)	1.67	1.74	1.63	<i>ns</i>
If a friend who is the same age as me has taken an OTC medicine safely, I can take the same dosage safely. (1=False; 4=True)	1.82	1.66 <sup>a</sup>	1.91 <sup>a</sup>	<sup>a</sup> [F(1,43)=3.26, p<.10]
Medicine should be stored in the container it came in. (1=False; 4=True)	3.84	3.89	3.93	<i>ns</i>
If you know where it came from, prescription medicine does not have to be kept in its original container. (1=False; 4=True)	1.55	1.43	1.59	<i>ns</i>
It is safe to share over-the-counter medicines like aspirin or cough medicine because they are thoroughly tested and proven safe by drug companies. (1=False; 4=True)	2.45 <sup>b</sup>	2.00 <sup>a, b</sup>	2.50 <sup>a</sup>	<sup>a</sup> [F(1,43)=6.14, p<.05] <sup>b</sup> [F(1,43)=7.12, p<.05]
All medicines have an expiration date. (1=False; 4=True)	3.57	3.50 <sup>a</sup>	3.68 <sup>a</sup>	<sup>a</sup> [F(1,43)=4.99, p<.05]
An over-the-counter medicine that is safe for you could be harmful when combined with other medicines. (1=False; 4=True)	3.41 <sup>b</sup>	3.66 <sup>b</sup>	3.55	<sup>b</sup> [F(1,43)=2.93, p<.10]
The local poison control center is a good place to call if someone has taken too much medicine. (1=False; 4=True)	3.47	3.35	3.35	<i>ns</i>
Children's medicine should be kept in a place where children can reach it. (1=False; 4=True)	1.74	1.53	1.74	<i>ns</i>
Over-the-counter medicines are safer to use than prescription medicines. (1=False; 4=True)	2.50 <sup>b</sup>	2.14 <sup>b</sup>	2.26	<sup>b</sup> [F(1,41)=3.45, p<.10]

Item	Wave 1	Wave 2	Wave 3	Test of Statistical Significance
<b>Drug Sharing Vignette Questions</b> (see Appendix B for Vignette)				
If Tara’s fever is high, she should take the friend’s medicine. (1=False; 4=True)	1.48	1.34	1.36	<i>ns</i>
If they have read the label carefully it is alright for Tara to take the medicine. (1=False; 4=True)	1.73	1.57	1.50	<i>ns</i>
The best thing to do is for Tara to contact her parents or the school nurse. (1=False; 4=True)	3.84	3.91	3.82	<i>ns</i>
Michelle should not have offered to share the medicine with Tara. (1=False; 4=True)	3.55	3.48	3.64	<i>ns</i>

### Notable findings from 7<sup>th</sup> Grade Sample

Results from analysis of 7<sup>th</sup> grade data indicated increases in knowledge in a number of areas following the D.A.R.E. Rx/OTC curriculum. Nearly all participants correctly identified everyday items such as Power Bars, aspirin, cough syrup, and Gatorade as a medicine or not. Very few participants identified fluoride toothpaste as a medicine and participants were also markedly less likely to identify diet pills as a medicine in all waves, showing no improvement after the Rx/OTC curriculum.

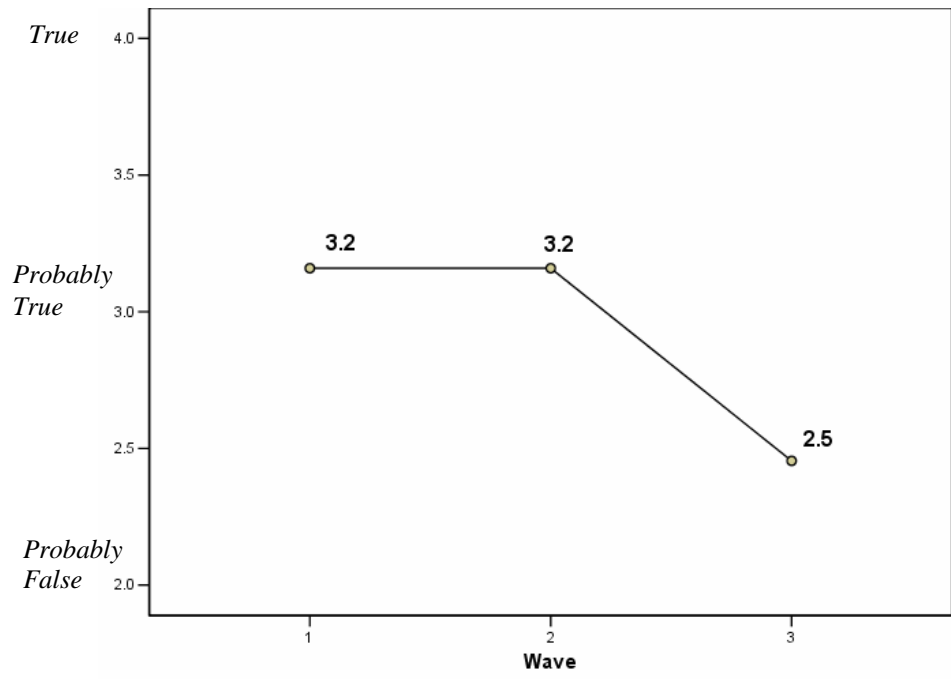
The greatest improvements following the Rx/OTC curriculum were found for questions related to the distinction between Rx and OTC drugs. There was substantial improvement in recognition a doctor’s permission is not required to purchase OTC drugs (illustrated below) and that pharmacists can provide information about OTC drugs. There was also marked improvement in participants’ understanding that prescription drugs are for use by only the person named on the label (illustrated below). There was also statistically significant evidence of more careful reading of the OTC drug facts label at Wave 3. After the Rx/OTC curriculum 7<sup>th</sup> grade participants were significantly more likely to identify the correct dosages and identify the risk of stomach bleeding when used by persons who also take aspirin. Participants were also significantly less likely at Wave 3 to believe that abuse of illegal drugs is more dangerous than abuse of Rx/OTC drugs.

Seventh grade participants were also more likely at Wave 3 to reject the statement that prescription medicine can be bought off the shelf in some stores. This finding did not reach the conventional level of statistical significance ( $p < .10$ ) but is interpretable as a statistical trend ( $p < .10$ ). Other examples of statistical trends in change at Wave 3 in the 7<sup>th</sup> grade sample include knowledge that one can call the pharmacy to obtain answers to questions about prescription medicines, and correct attitudes toward sharing of medicine in the Drug Sharing Vignette.

There were several other observed effects that can be considered ambiguous with respect to the value of the curriculum. Participants were significantly *more likely* at Wave 3 than at Wave 2 to believe that children could use prescription medicine without the permission of their parent or guardian. Similarly, they were notably (but not statistically significantly) more likely to believe that if they have read the label carefully children over 12 can take OTC medicine without permission of their parent or guardian. Together these findings suggest that seventh grade participants may feel more capable of making decisions regarding Rx and OTC drugs themselves after having been educated about them. On the one hand, the intent of the program is not to encourage reckless or unsupervised use of OTC or Rx medicines. On the other hand, the program does teach skills regarding appropriate use, and adolescence is a period during which youth are expected to gradually assume more responsibility for their medication, particularly OTC medications. Even with respect to prescription medicines, adolescents should be able to take additional dosages (e.g., of an inhaler) after initial parental permission and instruction have been received.

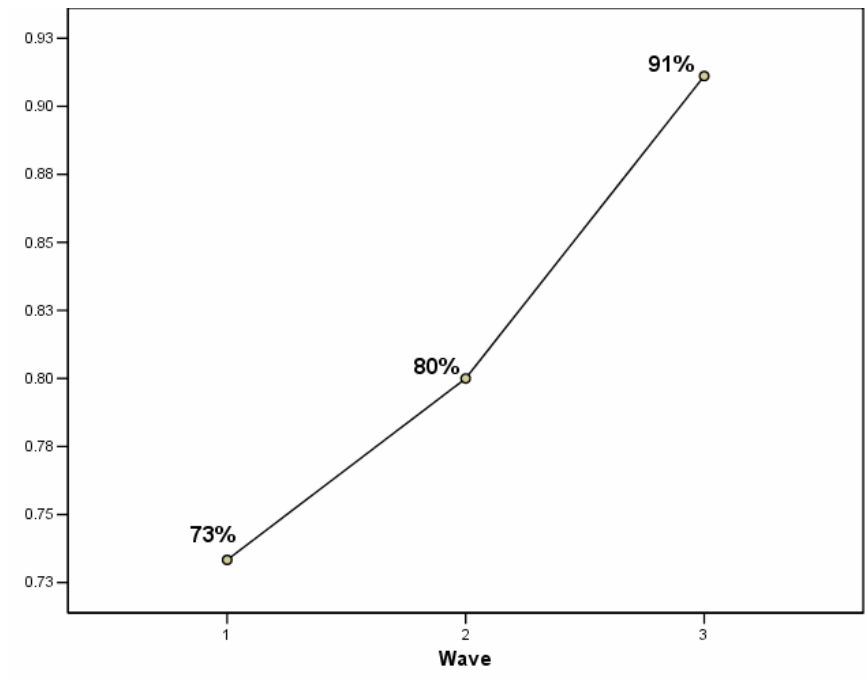
### 7<sup>th</sup> Grade -- Selected Items with Statistically Significant Improvement Associated with the Rx/OTC Curriculum

You can only buy over-the-counter medicine with a doctor's permission.



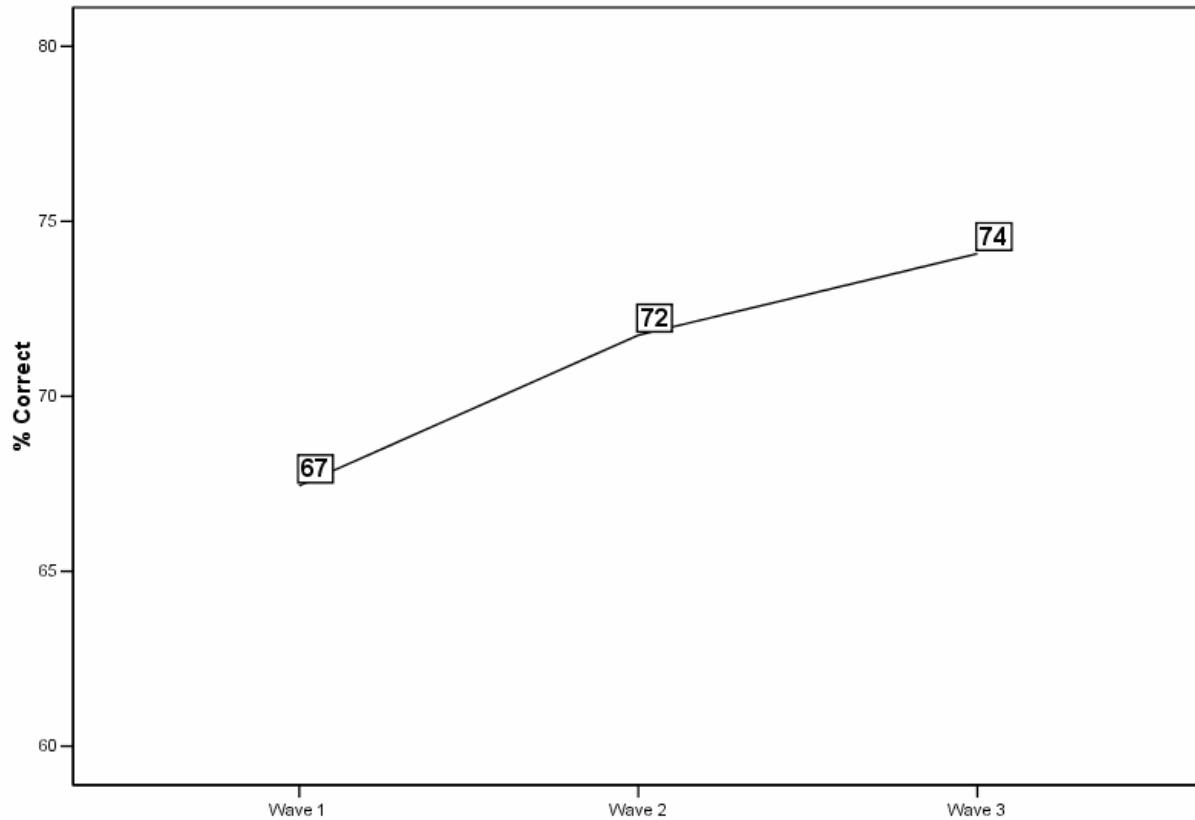
Who should take the medicine? (Select all that apply)

*Jane Smith*



Finally, the total percentage of correct responses to all items in the 7<sup>th</sup> grade survey are reported below.

### 7<sup>th</sup> Grade -- Percent Correct Responses of 63 Total Items



The percentage of correct responses increased at Wave 2 and Wave 3, but the increase at Wave 2 was greater. Both increases were statistically significant ( $p < .05$ ).

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\* Repeated measures ANOVA; Wave 1-2:  $[F(1,44)=10.14, p < .05]$ ; Wave 2-3:  $[F(1,44)=6.11, p < .05]$

### Item-by-Item Results for 9<sup>th</sup> Grade Participants

Item	Wave 1	Wave 2	Test of Statistical Significance
Some people use over-the-counter and prescription medicines to get high. (1=False; 4=True)	3.35	3.62	$[t(64)=-2.07, p<.05]$
It is safe to share over-the-counter medicines like aspirin or cough medicine because they are thoroughly tested and proven safe by drug companies. (1=False; 4=True)	2.42	1.63	$[t(64)=4.89, p<.05]$
Out of every 10 ten students in your high school, how many do you think use Rx or OTC drugs to get high? (1=Less than 1 out of 10; 5=4 out of 10 or more)	3.36	3.44	<i>ns</i>
Over the next year, how likely do you think it is that you will use prescription drugs to get high? (1=Very unlikely; 5=Very likely)	1.40	1.46	<i>ns</i>
Over the next year, how likely is it that you will use over-the-counter drugs to get high? (1=Very unlikely; 5=Very likely)	1.42	1.49	<i>ns</i>
Illegal drugs are more dangerous than prescription drugs, when used to get high. (1=False; 4=True)	2.74	2.61	<i>ns</i>
It is more dangerous to use illegal drugs to get high than it is to use over-the-counter drugs. (1=False; 4=True)	2.67	2.42	<i>ns</i>
How harmful do you think it is to abuse alcohol? (1=Not harmful at all; 4=Extremely harmful)	3.17	3.41	$[t(62)=-2.95, p<.05]$
How harmful do you think it is to abuse cocaine? (1=Not harmful at all; 4=Extremely harmful)	3.81	3.73	<i>ns</i>
How harmful do you think it is to abuse methamphetamines? (1=Not harmful at all; 4=Extremely harmful)	3.72	3.67	<i>ns</i>

Item	Wave 1	Wave 2	Test of Statistical Significance
How harmful do you think it is to abuse over-the-counter drugs (e.g. cough medicine, Sudafed)? (1=Not harmful at all; 4=Extremely harmful)	3.06	3.48	[ <i>t</i> (63)=-4.15, <i>p</i> <.05]
How harmful do you think it is to abuse prescription drugs (e.g., Oxycontin, Vicodin, Zanax, Ritalin, etc.)? (1=Not harmful at all; 4=Extremely harmful)	3.38	3.54	<i>ns</i>
It is illegal to take a prescription medicine that is not prescribed for you. (1=False; 4=True)	3.28	3.50	[ <i>t</i> (63)=-1.84, <i>p</i> <.10]
Which of the following can result from abuse of over-the-counter drugs? [Select all that apply (0=Not selected; 1=Selected)]			
Slowed heart rate	.80	.89	[ <i>t</i> (64)=-1.94, <i>p</i> <.10]
Seizures	.71	.83	[ <i>t</i> (64)=-2.20, <i>p</i> <.05]
Hypertension	.65	.74	<i>ns</i>
Thoughts of suicide	.58	.85	[ <i>t</i> (64)=-4.42, <i>p</i> <.05]
Dizziness	.83	.89	<i>ns</i>
Paranoia	.63	.78	[ <i>t</i> (64)=-2.81, <i>p</i> <.05]
Death	.88	.94	<i>ns</i>
Abusing prescription drugs can cause brain damage. (1=False; 4=True)	3.54	3.69	<i>ns</i>
If someone tries prescription drugs just for fun, they could become an addict for life. (1=False; 4=True)	3.23	3.72	[ <i>t</i> (64)=-5.27, <i>p</i> <.05]
Compared to the adult brain, the adolescent brain is more vulnerable to permanent damage from drug use. (1=False; 4=True)	3.42	3.69	[ <i>t</i> (64)=-2.86, <i>p</i> <.05]

Item	Wave 1	Wave 2	Test of Statistical Significance
There is a certain percentage of the population that can become addicted to a prescription drug after taking it only once. (1=False; 4=True)	3.18	3.31	ns
Abusing prescription and over-the-counter drugs is safe if you only do it once in a while. (1=False; 4=True)	1.54	1.49	ns
Many harmless medicines can become deadly when combined with other drugs. (1=False; 4=True)	3.73	3.80	ns
If someone offered you Rx or OTC drugs, would you: (1=Definitely not; 4=Definitely)			
Tell them you have a drug test	2.70	2.52	ns
Walk away	3.38	3.44	ns
Tell them your parents would punish you	2.53	2.53	ns
Simply say no	3.56	3.75	[t(63)=-2.05, p<.05]
If someone offered me prescription or over-the-counter drugs, I am confident I would say no. (1=False; 4=True)	3.57	3.62	ns
I know how to refuse over-the-counter or prescription drugs if they are offered to me. (1=False; 4=True)	3.70	3.74	ns

### Notable findings from 9<sup>th</sup> Grade Sample

Results from analysis of 9<sup>th</sup> grade data indicated increases in awareness of risks and knowledge associated with abuse of Rx/OTC drugs following the D.A.R.E. Rx/OTC curriculum. Specifically, there was a statistically significant increase following the Rx/OTC curriculum in awareness that people use Rx/OTC drugs to get high. They were also significantly less likely to believe that it is safe to share Rx/OTC drugs. After the curriculum, participants were also more likely to believe that it is harmful to abuse OTC drugs. Participants were also more likely to acknowledge that it is illegal to use Rx drugs that are not prescribed for you. Most participants

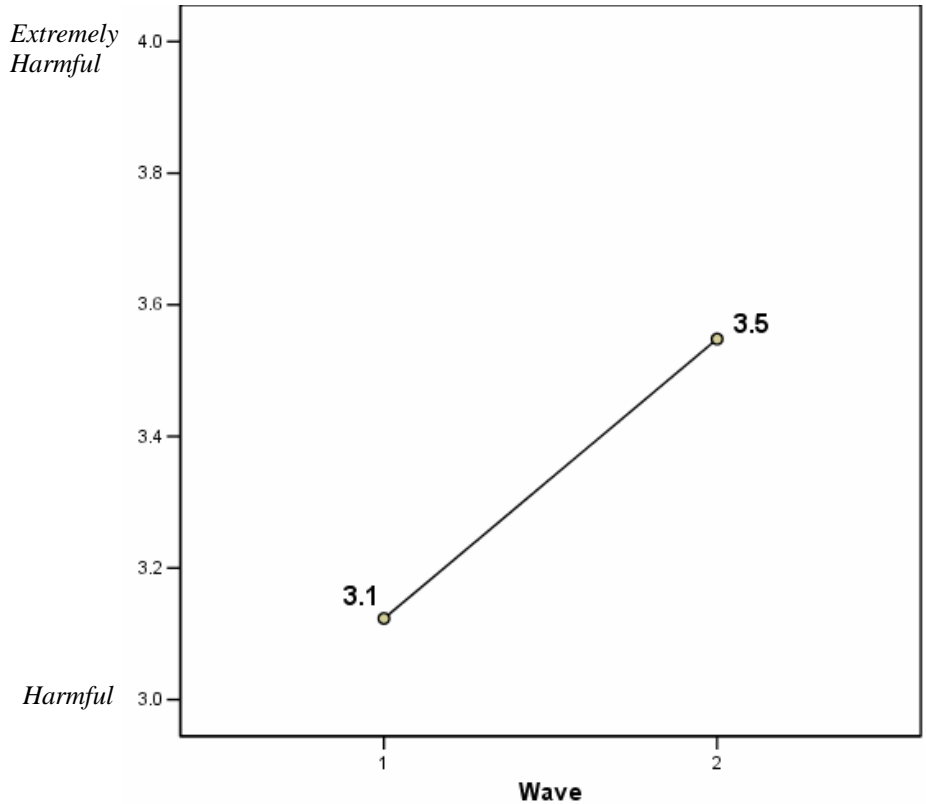
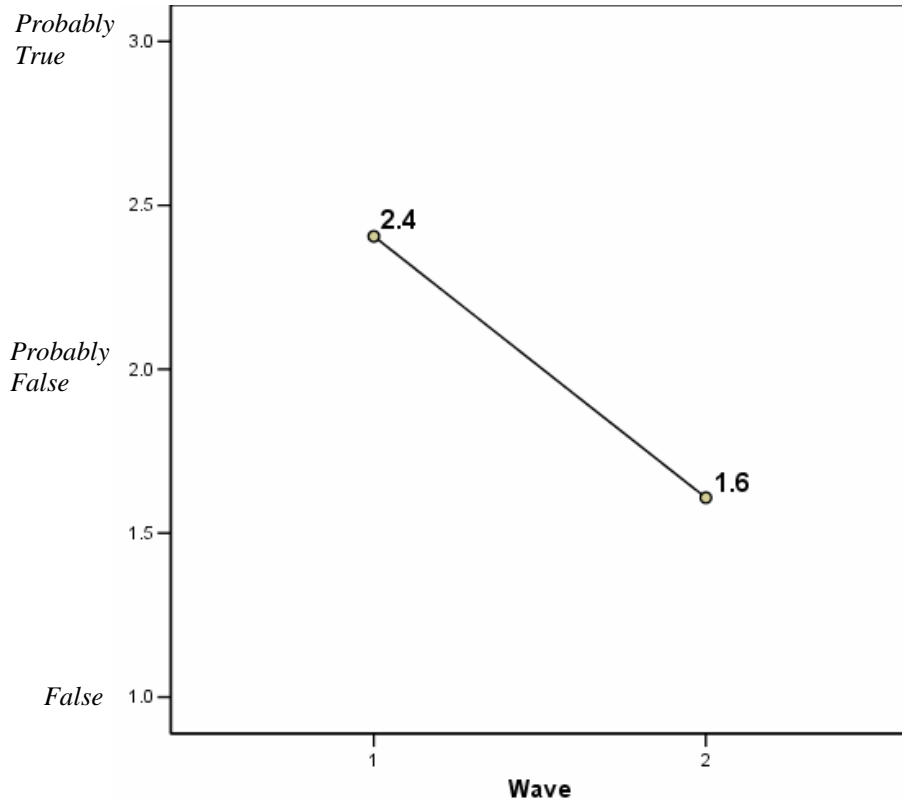
reported that they were unlikely or very unlikely to abuse Rx and OTC drugs in the next year so there was little room for improvement on those variables.

Ninth grade participants also demonstrated significantly greater knowledge of the negative health effects that can result from Rx/OTC abuse. They also were significantly more likely to acknowledge the risk of addiction to Rx drugs. Finally there was a statistically significant increase in participants' estimated likelihood of saying no to an offer to use Rx/OTC drugs.

### 9<sup>th</sup> Grade -- Selected Items with Statistically Significant Improvement Associated with the Rx/OTC Curriculum

It is safe to share OTC medicines like aspirin or cough medicine because they are thoroughly tested and proven safe by drug companies.

How harmful do you think it is to abuse over-the-counter drugs (e.g. cough medicine, Sudafed)?

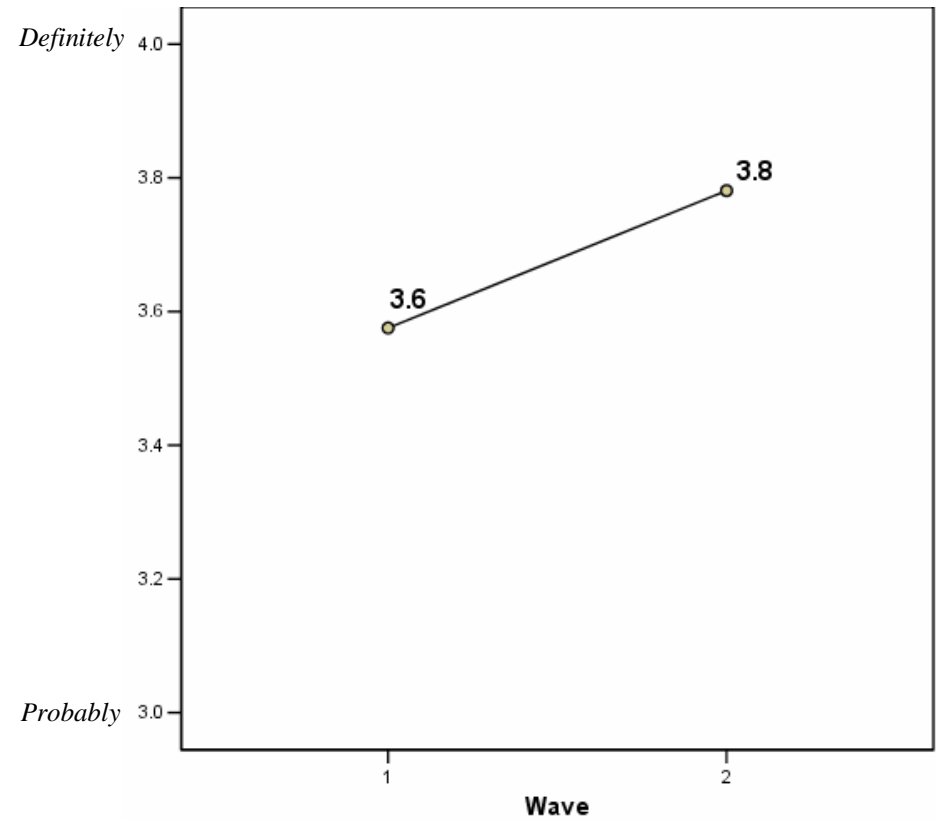
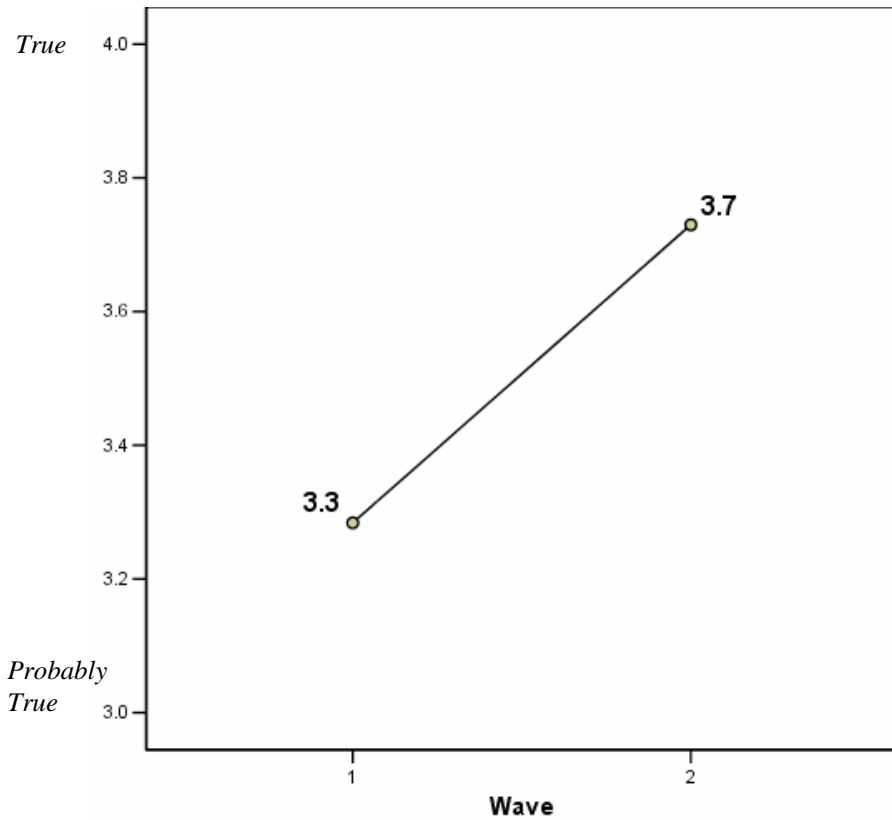


### 9<sup>th</sup> Grade -- Selected Items with Statistically Significant Improvement Associated with the Rx/OTC Curriculum

If someone tries prescription drugs just for fun, they could become an addict for life.

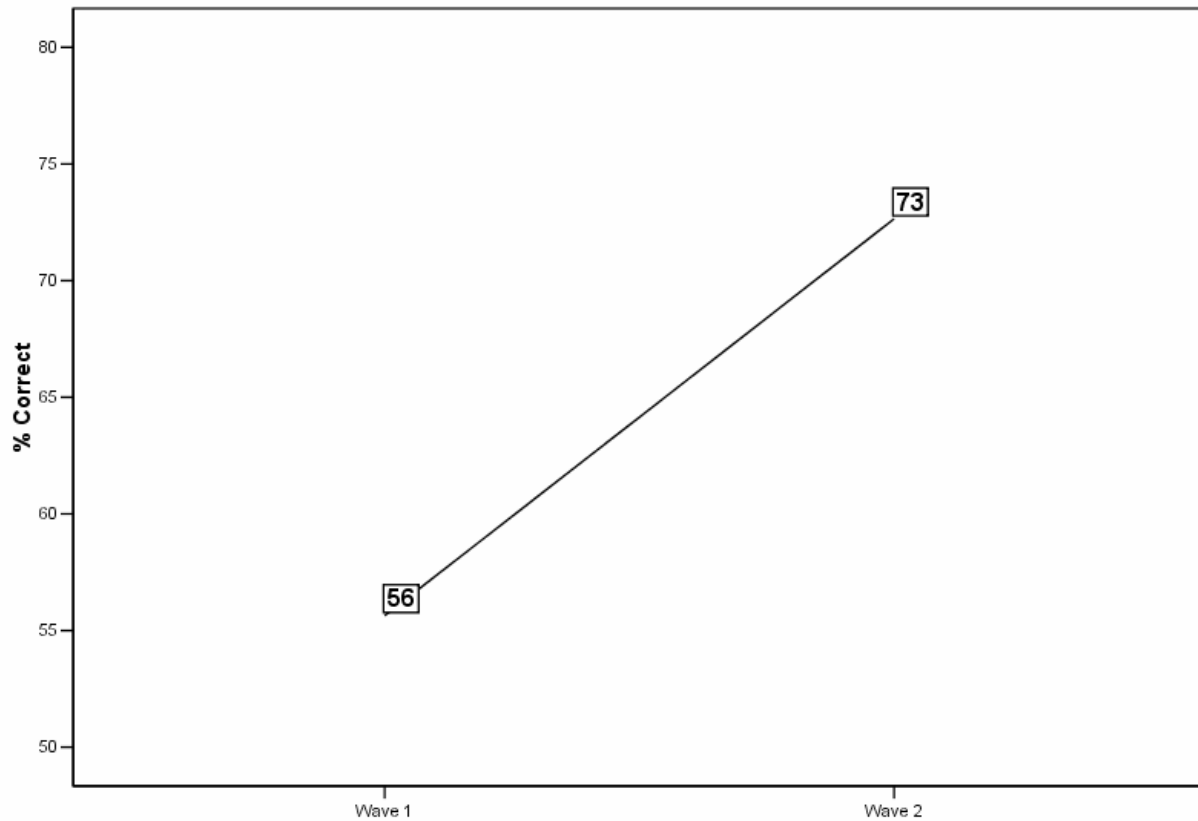
If someone offered you Rx or OTC drugs, would you:

*Simply say no*



Finally, the total percentage of correct responses to all items in the 9<sup>th</sup> grade survey are reported below.

### 9<sup>th</sup> Grade -- Percent Correct Responses of 18 Total Items\*



There was a statistically significant increase in the percentage of correct responses after the Rx/OTC curriculum for 9<sup>th</sup> grade participants.<sup>+</sup>

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\* 18 of 26 items in the 9<sup>th</sup> grade survey assessed factual knowledge.

<sup>+</sup> Paired samples t-test [t(64)=-7.07, p<.05]

## Parent Focus Group Summary

### Introduction

The objective of the D.A.R.E. Rx/OTC Curriculum for parents is to equip parents with the information and skills necessary to combat the rising misuse of Rx and OTC drugs by youth. In particular, the program looks to inform parents about the extent of Rx/OTC abuse, how to detect abuse, and how to ensure the appropriate use of Rx and OTC medicines in their household.

### Method

Three focus groups were conducted at the conclusion of the presentation of the informational video for parents and community members. All three focus groups were conducted in late spring of 2008. Each focus group was led by a trained facilitator from Connect with Kids who led parents in a discussion of a series of questions intended to evaluate effects of the video presentation.

The first group included nine parent participants, the majority of which were white (8) and female (8). The second focus group included 25 parent participants and was again largely composed of white (24) females (22). The final focus group included five parent participants, composed of one black male, one black female, and three white females. The following results represent a collection of the responses from parents across all three groups.

### Focus Group Results

Below we summarize the combined results from all three parent focus groups. The questions used during the focus groups appear below. For each question we present: 1) representative quotes, 2) bullet-points summarizing themes that emerged from discussion, and 3) a short narrative of the discussion of each question.

#### 1. In your view, what was the purpose of the D.A.R.E. program?

“To educate parents about actions we can take (to reduce Rx/OTC drug use)”

“To educate adults so we can educate our kids”

- To increase parents’ awareness of the dangers of Rx and OTC drugs
- To educate parents about effects and availability of these drugs
- To show parents what they can do to educate our children
- Enable parents to take the next level of action to prevent abuse

Across all groups, parents reported that the D.A.R.E. video was intended to create awareness of the dangers of OTC drugs, provide examples of how parents can talk to their children, and recognize warnings signs of abuse. To some parents, the information presented was brand new and they were unaware of the dangers of Rx and OTC drugs.

## **2. What did you get out of the program/What was new?**

“I was shocked to hear the things that I had in my medicine cabinet are potentially dangerous”

“It was very helpful to learn the language the kids are using and the latest trends”

- Learned about the magnitude of the problem
- Learned many slang terms for Rx and OTC drug use
- Learned more about the age and frequency that children are abusing these drugs
- Learned that all children are vulnerable to abusing drugs
- Learned that children may use Rx/OTC drugs to increase school performance
- Learned that it is necessary not only to educate their own children but also the parents of their friends about the dangers of Rx and OTC drugs

Parents unanimously agreed that the video was helpful to them. Additionally, 100% of the participants believed the video was relevant. Many parents stated they were unfamiliar with the slang terms for the drugs before watching the video. They believed this knowledge would assist them in identifying troubling conversations between children in their neighborhood. Parents also reported that they were unfamiliar with the dangers that could be found in their medicine cabinet and were unaware of the magnitude of the problem. They explained that the video helped them realize that they needed to talk to their kids about Rx and OTC drugs, and consider where they store them in their home.

## **3. What did you learn about the differences between Rx and OTC drugs?**

“OTC drugs are a lot more dangerous than I thought”

“With OTC drugs, there are combinations of drugs that can be really dangerous”

- Learned that OTC drugs can be just as dangerous as Rx or street drugs
- Realized that OTC drugs are easily accessible and may pose unique risks
- Learned the OTC may have dangerous interactions with other drugs and their effects may differ widely depending on the persons size and tolerance

The majority of the parents were surprised to learn that OTC drugs are potentially as dangerous as Rx or street drugs. They often stated that they did not think about how available OTC drugs are and their potential for abuse. Parents also stated that they did not think about OTC drugs’ potential interactions with other drugs.

## **4. Did you know that kids abuse Rx and OTC drugs to get high?**

“I thought my daughter’s risk was really low...but after seeing the video tonight

I think every child is at risk”  
“I did not know that much about the problem”

- Parents were surprised to learn that drugs such as Sudafed and Advil were used to such a high degree
- Parents know believed that kids abuse Rx and OTC drugs in all schools
- Many parents did realize children abused Rx and OTC drugs to get high

Many of the parents realized that children use Rx and OTC drugs to get high but did not realize the extent to which children were using them. They were not familiar with all of the drugs that children could potentially abuse.

**5. Was the extent of the problem nationwide a surprise to you?**

“No, no more than the fact that it is a problem”  
“I was shocked to learn about pharming...I can’t believe they could be that stupid”

- The majority of the parents realized that Rx and OTC drugs were a national problem.
- Some were surprised to hear that OTC drugs ranks 2<sup>nd</sup> to marijuana as the most abused drug.

Many of the parents recognized that Rx and OTC drugs were a major problem nationwide. Parents recognized that all children and schools can potentially fall victim to Rx and OTC drug use. Some parents were unfamiliar with some of the methods of abuse, such as “pharm parties.”

**6. What do you think of the risk of your child abusing Rx or OTC drugs, and how does that risk compare to the risk of abusing alcohol or other drugs?**

“They are more at risk for the OTC drugs because they are easier to get and a lot cheaper to get”  
“The commonality of sharing medications makes them more vulnerable to abuse”

- The majority of the parents know thought that the risk of their child abusing Rx or OTC drugs was greater than their risk of abusing alcohol or other drugs
- The majority of the parents believed that their perception about their child’s risks had changed after the workshop
- Parent participants stated they felt better prepared to talk to their children about Rx and OTC drugs

Parents stated that they were particularly concerned about their children abusing OTC drugs because of their greater accessibility, and most thought that this risk

was greater than risks concerning alcohol or street drugs. Parents believed that their perceptions about Rx/OTC drugs had changed and that they now felt better equipped to talk to their children about the danger of abusing OTC or Rx drugs.

**7. What new slang terms did you learn through this workshop to refer to Rx and OTC drugs?**

“All of the terms are new”  
“The pharm parties are new”

- Parents named pharming, 44, tussin, vitamin D, skittles, and Dex as new terms they learn from to the workshop
- All parents believed that learning these terms was very helpful

Throughout the discussion parents continually recognized the need for them to know and understand the slang terms for both the drugs and how they are used. Many parents felt this would help them recognize trouble behavior and potentially gain respect from their children because of their knowledge base.

**8. What new information about the health risks of abusing Rx and OTCs did you learn?**

“Learned that the brain is still developing in the teenage years they are doing a lot more damage”  
“The dangers of taking a combination of drugs was new”

- Learned that not all children will have the same reaction to a drug
- Learned the effects on the brain and the potential for developmental damage
- Some parents felt they did not learn as much as they would like

Many parents stated that they had not thought about how children’s brains are particularly vulnerable to the effects of drugs because they are still developing. Many parents also were surprised to learn that the effects of drugs on children can vary widely the size and shape of the individual. Overall, parents expressed that they did learn new information about the health risks of abusing Rx drugs but felt even more information could be presented.

**9. How confident are you that you could influence your child’s decision not to abuse Rx or OTC drugs, and how would you do that?**

“I am confident”  
“I am going to keep myself informed”

- The vast majority of parents felt confident that they could help prevent their children from using Rx or OTC drugs
- Simply hearing that parents have a strong impact on the decisions that their children make made them more confident
- Many parents felt it was very important to stay informed about what children are doing

Parents state that they were confident that they could influence their children's decision to not abuse Rx or OTC drugs. They stated that just hearing the officer say that they do make a difference in their child's decision making improved their confidence. They also felt that staying informed about the problem helps them feel more confident that they can influence their children. Most parents stated that they would influence their child by having a direct conversation about Rx and OTC drug use.

**10. Do you feel more confident about your ability to influence your child's decision not to abuse Rx or OTC drugs than you did before this program?**

“I feel better equipped to have a conversation with her before it ever happened”  
 “Yes, I am just more aware”

- Almost all parents believed that they had gained valuable tools through the workshop that will assist them in influencing their children
- Parents stated that just knowing that they can influence their children makes them more likely to spend time talking to their children about Rx and OTC drugs

Parents stated that being better informed about Rx and OTC drug use has empowered them to have a conversation with their children. Almost all parents found that the video was helpful and made them more confident. Parents felt strongly that learning more about Rx and OTC drugs improved their ability to influence their children's decision not to abuse them.

**11. How do you feel about your ability to detect signs that your child is abusing Rx or OTC drugs?**

“It seems like a lot of the things you should look for are signs for lots of different trouble”  
 “The video did not show enough about of to detect the signs and symptoms”

- Parents found that the signs and symptoms to detect Rx and OTC drugs are similar to street drugs

- Parents indicated that the video did not provided enough information on how to detect Rx and OTC drugs

Parents in all groups stated that it would hard for them to differentiate the signs and symptoms of Rx and OTC drug use from other trouble behavior, such as alcohol or street drug use. Parents across all groups believed that their ability to detect signs did not change after seeing the video.

## **12. What do you plan to do differently as a result of attending this program?**

“I going to take an inventory of my medicine and get rid of the old ones”

“Talk to the kids and talk to my peers also”

“I won’t buy as big of container of medications”

- More than half of the parents stated they plan to change how they store medications
- No longer share Rx drugs with adult peers
- Model correct behavior when taking Rx and OTC drugs
- Talk to other parents about how they store Rx and OTC drugs

Parents in all groups stated that they would think about how much medication they have and where they store them. They also stated that they would get rid of all medications that are out of date. Some parents indicated that they would purposely model correct ways of taking medication and talk to other parents about what they are doing to manage their Rx and OTC drugs.

## **13. What types of messages about Rx and OTC drugs would you give to your kids?**

“Only take medication when you need it for a medical condition“

“Make a point that you take it (Rx/OTC) seriously”

- Tell them that all medications are drugs and need to be taken only as prescribed
- Tell them that drugs should not be taken to deal with stress
- Explain to them that OTC drugs can be as/more dangerous than street drugs

Parents stated that they would stress to their children how important it is to take Rx and OTC drugs only as directed. Some parents believed that it is important to make sure to teach their children “not to let their guard down.” Many parents felt it is important for them to explain to their children that Rx and OTC drugs can be as much or more dangerous than street drugs.

**14. How effective was the facilitator presenting the curriculum to you and what was the most valuable thing you learned?**

“He had examples, we he described those examples you could see them happening”  
“I learned the importance of educating your children at a young age”

- Parents felt the facilitator was knowledgeable and gave good examples
- Parents felt the facilitator was believable
- Parents expressed that it was helpful that the facilitator appeared credible and had real experience with children that have abused Rx and OTC drugs
- Parents stated that they learned that the problem is widespread and it is necessary to talk to their children at an early age

Parents across all groups felt that the facilitator was very knowledgeable and provided many useful examples. Many parents stated that he appeared to have a lot of personal experience working with children. They stated that the most valuable thing they took away from the workshop was the importance to talk to their children at an early age because Rx and OTC drug abuse is widespread and that everyone is vulnerable.

**15. Is there anything else you would like to add about the program?**

“Suggestions for the interactions you should have with your child...knowing where to start”  
“Hear more about the influence that parents have on their kids”  
“I would like to have some handouts”

- Parents felt they should provide more information on how to detect the signs that your son or daughter is high or abusing OTC or Rx drugs
- Parents wanted to know more about why children abuse Rx and OTC drugs
- Parents felt having handouts to take home would be helpful
- Some parents stated that having younger children in the video would be helpful
- Parents expressed a need to have programs on multiple days or the weekend because it is difficult for everyone to make it on a single weeknight
- Making the video available online
- Some parents wanted to know more about where to go to get help

Parents overall were very satisfied with the program, but did make a few suggestions for improvements. Particularly, all groups wanted to know more about the ways to detect if their son or daughter is abusing OTC or Rx drugs. They also wanted to see more examples on how to approach their children to talk

about Rx and OTC drugs. Many parents believed that providing handouts or additional material would be very useful and telling parents where to go if their son or daughter were using these drugs would also be helpful. Finally, many parents were concerned that other parents would not be able to come to a workshop and suggest they offer it on multiple nights or on the web.

## Conclusions

Results of the evaluation of the D.A.R.E. Rx/OTC curriculum produced evidence of effectiveness of the Rx/OTC curriculum. The most impressive effects were observed for 5<sup>th</sup> graders. Although there were encouraging results for all grades, the results for 5<sup>th</sup> graders showed the most marked improvement following the Rx/OTC curriculum that was not also apparent following the standard curriculum. Among the notable findings for 5<sup>th</sup> graders, results indicated statistically significant improvements after the Rx/OTC curriculum in the following outcomes:

- Definition of a medicine
- Distinction between Rx and OTC medicines
- Rx drugs prescribed for use by only one person
- Proper disposal of Rx drugs
- Accurate measurement of dosages
- Overall percentage of correct responses

Among the notable findings for 7<sup>th</sup> graders, results indicated statistically significant improvements after the Rx/OTC curriculum in the following outcomes:

- Distinction between Rx and OTC medicines
- Rx drugs prescribed for use by only one person
- Careful reading of drug facts labels
- Belief that abuse of Rx/OTC is as dangerous as other drugs

There were also several observed effects for 7<sup>th</sup> graders that suggest some potential risks associated with the curriculum. Participants were significantly *less likely* at Wave 3 than at Wave 2 to believe that children should not use prescription medicine without the permission of their parent or guardian. Similarly, they were notably more likely to believe that if they have read the label carefully children over 12 can take the OTC medicine from the OTC drug facts label section without permission of their parent or guardian. Though the latter effect did not reach statistical significance, together these findings suggest that seventh grade participants may feel more capable of making decisions regarding Rx and OTC drugs themselves after having been educated about them.

Results from analysis of 9<sup>th</sup> grade data indicated increases in awareness of risks and knowledge associated with abuse of Rx/OTC drugs following the D.A.R.E. Rx/OTC curriculum. Specifically, there were statistically significant improvements in the following outcomes:

- Awareness that people use Rx/OTC drugs to get high
- Believe that it is safe to share Rx/OTC drugs
- Belief that it is harmful to abuse OTC drugs
- Knowledge that it is illegal to use Rx drugs not prescribed for you
- Knowledge of negative health effects of Rx/OTC abuse.
- Knowledge of the risk of addiction to Rx drugs
- Perceived likelihood of refusing an offer to use Rx/OTC drugs

- Overall percentage of correct responses

Finally, results from focus groups indicated that the parent/community video had a number of desirable effects for parents. Many of the parents reported learning new and important information about Rx and OTC drug use. Parent participants stated they were unfamiliar with the slang terms for the drugs and believed this knowledge would assist them in identifying troubling conversations between children in their neighborhood. Parents also reported that they were unfamiliar with the dangers that could be found in their medicine cabinet and were unaware of the magnitude of the problem. They explained that the workshop helped them realize that they needed to talk to their kids about Rx and OTC drugs, and consider where they store them in their home. Parents stated that they were particularly concerned about their children abusing OTC drugs because of their greater accessibility, and most thought that this risk was greater than risks concerning alcohol or street drugs. Parents believed that their perceptions about Rx/OTC drugs had changed after the workshop and that they now felt better equipped to talk to their children about the danger of abusing OTC or Rx drugs.

Almost all parents found that the workshop was helpful and made them more confident in approaching their children. Parents felt strongly that learning more about Rx and OTC drugs improved their ability to influence their children's decision not to abuse them. Participants in the focus group identified a number of actions they would take to prevent their children from abusing OTC or Rx drugs. Beyond speaking directly with their children, parents in all groups stated that they would think about how much medication they have and where they store them. They also stated that they would get rid of all medications that are out of date. Some parents indicated that they would purposely model correct ways of taking medication and talk to other parents about what they are doing to manage their Rx and OTC drugs.

Parents overall were very satisfied with the program, but did make a few suggestions for improvements. Particularly, all groups wanted to know more about the ways to detect if their son or daughter is abusing OTC or Rx drugs. They also wanted to see more examples on how to approach their children to talk about Rx and OTC drugs. Many parents believed that providing handouts or additional material would be very useful. Additionally, telling parents where to go if their son or daughter were using these drugs would also be helpful. Finally, many parents were concerned that other parents would not be able to come to a workshop and suggest they offer it on multiple nights or on the web.

D.A.R.E. might consider the parents' stated needs for additional information. It is possible that this information could be addressed in a follow-up video or other resources to reach parents with this needed information.

# Prescription Medicine Label

## Prescription



**Local Pharmacy**  
123 MAIN STREET  
ANYTOWN, USA 11111 (800) 555-5555

DR. C. JONES

NO 0060023-08291 DATE 06/23/05

**JANE SMITH**  
456 MAIN STREET ANYTOWN, US 11111

**TAKE ONE CAPSULE BY MOUTH THREE  
TIMES DAILY FOR 10 DAYS UNTIL ALL TAKEN**

**AMOXICILLIN 500MG CAPSULES**

QTY \_\_\_\_\_ MRG \_\_\_\_\_  
NO REFILLS - DR. AUTHORIZATION REQUIRED

USE BEFORE 06/23/06  
SLF/SLF



PH 0487

# OTC Drug Facts Label

<p><b>Drug Facts</b></p>	<p><b>Ask a doctor or pharmacist before use if you are</b></p> <ul style="list-style-type: none"> <li>• taking any other drug containing an NSAID (prescription or nonprescription)</li> <li>• taking a blood thinning (anticoagulant) or steroid</li> <li>• taking any other drug</li> </ul>		
<p><b>Active ingredient (in each tablet)</b> Ibuprofen 200 mg (NSAID)*...Pain reliever/fever reducer *nonsteroidal anti-inflammatory drug</p>	<p><b>Stop use and ask a doctor if</b></p> <ul style="list-style-type: none"> <li>• pain gets worse or lasts more than 10 days</li> <li>• fever gets worse or lasts more than 3 days</li> <li>• stomach pain or upset gets worse or lasts</li> </ul>		
<p><b>Uses --</b> temporarily relieves minor aches and pains due to:</p> <ul style="list-style-type: none"> <li>• headache</li> <li>• backache</li> <li>• minor pain of arthritis</li> <li>• toothache</li> <li>• the common cold</li> <li>• menstrual cramps</li> <li>• muscular aches</li> <li>• temporarily reduces fever</li> </ul>	<p>If pregnant or breast-feeding, ask a health professional before use. It is especially important not to use ibuprofen during the last 3 months of pregnancy unless definitely directed to do so by a doctor because it may cause problems in the unborn child or complications during delivery. Keep out of reach of children. In case of overdose, get medical help or contact a Poison Control Center right away.</p>		
<p><b>Warnings</b></p> <p><b>Allergy alert:</b> Ibuprofen may cause a severe allergic reaction, especially in people allergic to aspirin. Symptoms may include:</p> <ul style="list-style-type: none"> <li>• hives</li> <li>• facial swelling</li> <li>• asthma (wheezing)</li> <li>• shock</li> <li>• skin reddening</li> <li>• rash</li> <li>• blisters</li> </ul> <p>If an allergic reaction occurs, stop use and seek medical help right away.</p> <p><b>Stomach bleeding warning:</b> This product contains a nonsteroidal anti-inflammatory drug (NSAID), which may cause stomach bleeding. The chance is higher if you:</p> <ul style="list-style-type: none"> <li>• take a blood thinning (anticoagulant) or steroid</li> <li>• take other drugs containing an NSAID [aspirin, ibuprofen, naproxen, or others]</li> <li>• have 3 or more alcoholic drinks every day while using this product</li> <li>• take more or for a longer time than directed</li> </ul>	<p><b>Directions</b></p> <table border="0"> <tr> <td style="padding-right: 10px;">adults and children 12 yrs and over</td> <td style="border-left: 1px solid black; padding-left: 10px;">take 2 tablets every 4 to 6 hrs; not more than 12 tablets in 24 hours</td> </tr> </table>	adults and children 12 yrs and over	take 2 tablets every 4 to 6 hrs; not more than 12 tablets in 24 hours
adults and children 12 yrs and over	take 2 tablets every 4 to 6 hrs; not more than 12 tablets in 24 hours		
<p><b>Ask a doctor before use if you have</b></p> <ul style="list-style-type: none"> <li>• problems or serious side effects from taking pain relievers or fever reducers</li> <li>• stomach problems that last or come back, such as heartburn, upset stomach, or stomach pain</li> <li>• ulcers, bleeding problems, high blood pressure, or heart or kidney disease</li> <li>• taken a diuretic</li> </ul>	<p><b>Inactive Ingredients --</b> D&amp;C yellow no. 10, lactose, magnesium stearate, microcrystalline cellulose, pregelatinized starch</p>		

Appendix B. Drug Sharing Vignette

*Tara is a 7<sup>th</sup> grader who isn't feeling well at school. She has a headache and a fever, and during lunch she tells her friend Michelle about it. Michelle has some prescription headache medicine and offers some to Tara when she hears that she isn't feeling well.*



TEACHING KIDS TO RESIST DRUGS & VIOLENCE

P.O. Box 512090 Los Angeles, California 90051-0090 (800) 223-DARE FAX (310) 215-0180

**Parental Consent Letter**  
D.A.R.E. America Curriculum

Dear Parent:

The field of education is able to improve only through science and research. D.A.R.E. America needs your help to assure that millions of students throughout the world receive drug prevention programs that *work*. Your child's school has agreed to participate in an independent study of their D.A.R.E. program. The purpose of the study, which is funded by D.A.R.E. America, is to find out if brand new lessons about over-the-counter (OTC) and prescription (Rx) drugs work effectively. Your child will receive these two additional lessons after their regular D.A.R.E. program is completed.

I would like to invite your child to take a 15-25 minute survey, up to three times over the school year. This survey will be confidential. The survey will ask questions about students' understanding of the following: 1) the safe and correct use of OTC and Rx drugs; 2) the differences between OTC and Rx drugs; 3) the dangers of taking drugs that are not prescribed for you; and 4) making good decisions if he/she is offered OTC or Rx drugs by a peer.

Your child's participation in this survey is entirely *voluntary*, and he or she may skip any question for any reason, or stop taking the survey at any time. Refusal to participate will not lead to any penalty for you or your child.

*Your child's name will not appear on the survey.* Instead, we will use a unique code to link individual students' responses to our surveys. Once your child completes the survey, your child will seal it in an envelope before turning it in to the research staff. That way no one at your child's school will ever know how your child answered the survey.

We will link your child's survey responses by means of the ID number we will assign. We will keep the key linking students' ID numbers to their names in locked storage, which will be accessible only to the researchers. As soon as we collect our final round of surveys from your child we will destroy this information.

We hope that other children will benefit from what we learn about the effectiveness of these new D.A.R.E. lessons. Programs are only able to improve by using this sort of vital research. If you have any questions about the study, you may call Dr. Gwen Schiada, Project Director, at (202) 486-8161 or toll free (888) 891-6020 ext. 1466. If you have questions about your child's rights as a study

participant, you may call Jennifer Landon, who is not directly affiliated with the project, at (404) 601-5941.

**Please check one:**

\_\_\_\_\_ *I give permission* for my child to participate in the surveys that are part of the DARE program.

\_\_\_\_\_ *I do **not** give permission* for my child to participate in the surveys that are part of the DARE program.

**Child's name (please print):**

\_\_\_\_\_

**Parent's name (please print):**

\_\_\_\_\_

**Parent's Signature (Please sign):**

\_\_\_\_\_

**Date:**

\_\_\_\_\_

**XXX. Please complete and return this form to your child's teacher by**

**THANK YOU**