



Massachusetts Public Awareness Campaign, *More About Marijuana:* Summary and Effectiveness

June 2020

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Purpose

This report has been prepared in response to the enabling legislation, Chapter 55 of the Acts of 2017 sections 55 (“Public Awareness Campaign”), specifically to evaluate the effectiveness of the campaign, *More About Marijuana*.

In 2018, the Cannabis Control Commission (“Commission”) and Department of Public Health (DPH) launched the *More About Marijuana* public awareness campaign (“campaign”) and collected pre- and post-implementation survey data to evaluate the campaign.

“The department of public health, in consultation with the Massachusetts cannabis control commission, shall establish the following science-based public awareness campaigns: (i) a campaign to inform the public about responsible use of marijuana, including information on edibles and warnings about the dangers of manufacturing marijuana products at home; and (ii) a campaign to educate youth about marijuana use with a goal of decreasing the youth usage rate. The public awareness campaigns shall be funded from revenues received from the Marijuana Regulation Fund established in section 14 of chapter 94G of the General Laws.” [c. 55(2017), § 55]

Table of Contents

I. Campaign Overview	8
II. Campaign Development	10
1. Partnerships.....	10
2. Preliminary Research.....	10
3. Focus Groups	10
4. Surveys.....	12
III. Methods.....	13
IV. Campaign Effectiveness Metrics	14
Table. V.1. Reach Metrics	14
Table. V.2. Recognition Metrics	14
Table. V.3. Knowledge Metrics.....	17
V. Results.....	19
Table VI.1. Demographic Characteristics of Pre- and Post- Samples.....	19
Table VI.2. Knows Someone Who Uses Cannabis by Race and Ethnicity.....	20
Table VI.3. Knows Someone Who Uses Cannabis by Education Level.....	20
Table VI.4. Knows Someone Who Uses Cannabis by Household Income.....	20
Table VI.5. Last Cannabis Use by Gender	21
Table VI.6. Last Cannabis Use by Race and Ethnicity	21
Table VI.7. Last Cannabis Use by Education Level.....	21
Table VI.8. Last Cannabis Use by Household Income.....	22
Table VI.9. Reason for Last Use by Gender.....	23
Table VI.10 Reason for Last Use by Race and Ethnicity	23
Table VI.11. Reason for Last Use by Education Status	23
Table VI. 12. Reason for Last Use by Household Income	23
Table VI.13. Mode of Ingestion by Gender.....	24
Table VI.14. Mode of Ingestion by Race and Ethnicity	24
Table VI.15. Mode of Ingestion by Education Status	24
Table VI.16. Mode of Ingestion by Household Income	24
Table VI.19. Impact of Campaign and Time Effects of Age at Which Individuals Are Old Enough to Try or Use Marijuana.....	27
Table VI.20. Impact of Campaign and Time Effects on Driving Behaviors.....	28
Table VI.21. Impact of Campaign and Time Effects on Youth Risks.....	29
Table VI.22. Impact of Campaign and Time Effects on Cannabis Storage	30
Table VI.23. Social Media Reach Data	31



Table VI.24. Website Statistics as of 6/30/19	31
Chart VI.1. Average Time Spent on Website	32
Chart VI.2. Out of Home and Television Impressions	33
Chart VI.3. Social and Digital Impressions	34
VI. Considerations.....	35
VII. References.....	37
VIII. Appendix.....	38
Appendix 1: Public Health Framework	38
Appendix 2: Focus Group Methodology	44
Appendix 3: Survey Batteries	46
Appendix 4: Budget.....	52
Appendix 5: Sample Creative from <i>More About Marijuana</i> campaign	53
Appendix 6: Supplemental Website Data.....	55
Appendix 7: Supplemental Social Media Data.....	58

Main Findings

Reach

- Most Massachusetts adults (85%) know someone who uses marijuana ("cannabis"). In conjunction with the Department of Public Health, the Cannabis Control Commission launched "*More About Marijuana*" to educate adults and parents on the new law, provisions, and potential risks to youth. Campaign materials drove viewers to the website, [MoreAboutMJ.org](https://www.moreaboutmj.org).
- During the 28-week campaign, 362,113 users recorded 761,564 pageviews of [MoreAboutMJ.org](https://www.moreaboutmj.org).
- The campaign generated 20,819,743 impressions (the number of times digital media was presented on a target's screen).

Recognition

- In a statewide survey, 50.7% of participants reported seeing any of the *More About Marijuana* campaign messages.
- The message, "*Marijuana is Legal. Know the Laws,*" was the most widely recognized campaign message (49%).
- Participants were most likely to recall seeing campaign creatives on the Internet (38%), TV (38%), and social media (36%).

Knowledge

- Respondents who saw the *More About Marijuana* campaign were more likely to report that people are old enough to use cannabis at age 21 compared to those who reported not seeing the campaign.
- Respondents who saw the *More About Marijuana* campaign were more likely to report that cannabis has greater risk for youths than adults. Those who saw the Parent campaign creatives were even more likely to agree with this statement.
- Respondents who saw the Parent creatives were more likely to report that they would store cannabis in a locked storage area compared to those who reported not seeing the campaign.

I. Campaign Overview

There are inherent challenges to legalizing and regulating a formerly illicit substance.¹ Cannabis policy implementation and regulation requires careful consideration of potential public health effects with special attention to vulnerable cohorts, such as youth. Legalizing and regulating substances with dependence potential are often in juxtaposition to public health policy approaches since the minority of very heavy users (dependent users) account for the majority of consumption, which generates the greatest tax revenue² as evidenced by the tobacco and alcohol industries.³ However, states can actively implement evidence-based processes, including public awareness campaigns, to counter adverse public health outcomes. [See Appendix 1. Public Health Framework]

The Massachusetts Legislature requires the Cannabis Control Commission and Department of Public Health to establish science-based public awareness campaigns informing adults about responsible use of cannabis, reducing youth cannabis use, and warning against the dangers of home manufacturing. As a result, the initial phase of the *More About Marijuana* campaign (“campaign”) consisted of two sub-campaigns: a responsible use awareness campaign for Massachusetts adults ages 21 years old and older (“responsible use campaign”) and a youth prevention campaign targeting parents (“parent campaign”). Content addressing the dangers of home manufacturing was distributed in a subsequent phase of the public awareness campaign. This phase of the *More About Marijuana* campaign had two overarching objectives.

Objectives
1. Inform adults ages 21+ who use, or are interested in using, marijuana about the law to promote safe and responsible use.
2. Educate parents about the risks of marijuana use in youth and provide them with the tools they need to talk openly with their children.

Deliverables and Dissemination

The campaign ran on multiple mediums and outlets. Deliverables included development of a dedicated website, Out-of-Home ads (billboards, transit posters, etc.), HTML 5 ads, 15-second, 30-second, and 90-second animated ads, brochures or “rack cards”, and branded merchandise. [See Appendix 5] The Campaign used multiple platforms to reach a broad and diverse audience. Outlets included: YouTube, Snapchat, Facebook, Twitter, television, radio, billboards, convenience stores posters, public transportation posters, and print brochures.

Dates

The parent sub-campaign launched in July 2018, the responsible use campaign launched in March 2019 and both ran through June 2019, for a total of 28 weeks.



Funding

A total of \$2,000,000 over the course of two fiscal years were allocated to the campaign. The media budget for the parent campaign was \$471,977 and was \$1,211,637 for the responsible use campaign. [see [Appendix 4](#) for further breakdowns]

II. Campaign Development

1. Partnerships

The Massachusetts Department of Public Health (DPH) and Commission partnered with the vendor, More Advertising, to produce *More About Marijuana*, a statewide public awareness campaign. More Advertising contracted with Survey USA and Luc.id to conduct statewide surveys before (“pre-implementation”) and after (“post-implementation”) the campaign to assess effectiveness.

2. Preliminary Research

To learn from earlier states with legal cannabis, researchers examined the creatives and success of their campaigns. There were several takeaway messages. First, researchers found, in general, constituents lack trust in government agencies to deliver health and medical information, therefore building credibility was a key first step. As a result, *More About Marijuana* focused the campaign content and tone on being straightforward and factual.

Four evidence-based considerations based on her findings from earlier campaigns were presented to the Commission: (1) conduct focus groups with target populations, (2) provide unbiased advice on consumption, storage, accidental ingestion, unexpected highs, and what is and is not legal, (3) build credibility for future messaging, and (4) be an unbiased and authentic source of information.⁴ [See below for findings from the focus groups] With these considerations, *More About Marijuana* used focus groups, objective, and credible information to create the campaign.

3. Focus Groups

To build the campaign, focus groups were conducted with 206 Massachusetts adults around the state. Participants shared their knowledge around cannabis and campaign preferences. [See Appendix 2 for methodology]. Moderators led groups through the same series of questions. [See Appendix 2]. Participants included a diverse group of adults ranging in demographic characteristics, such as cannabis users, prospective cannabis users, and parents who may or may not use cannabis.

3.1 Focus Group Results

Knowledge of Law

Focus groups revealed some confusion over whether 18 or 21 is the legal age to use cannabis. Participants were generally aware that possession limits exist and assumed operating under the influence laws apply the same as before legalization. Most participants understood public use is not allowed.

Marijuana Versus Cannabis Terminology

Most focus group participants preferred the term “marijuana” rather than “cannabis.” Participants reported “marijuana” was the more common term, works better for Massachusetts audiences, is the same word in Spanish, and others hadn’t heard of the term “cannabis” prior to focus group.

Brand Testing

Participants were presented various brand designs and asked for critical feedback. Most participants preferred the *More About Marijuana* brand when shown the three options. Participants reported that the *More About Marijuana* brand was factual, straightforward, educational, and eye-catching. Participants offered many comments about the brand and logo design which resulted in a series of design changes.

Website Opinion

Participants preference for domain type (e.g., .gov, .com, or .org) varied. Focus group participants desired a range of website content including information on the law, cannabis products and health effects, quality control and product safety, and growing and selling products. Parent participants also suggested the website include: tips for talking with children, slang words for cannabis, edible warnings, information on the effects of cannabis on youth brain development, consequences of youth use, methods of use, how to tell if a child is using cannabis, secondhand smoke information, and information about “gateway drugs.”

3.2 Focus Group Key Messages

Focus group data collection informed the 10 key messages for the campaign: [See Section V. Campaign Effectiveness Metrics]

- (1) Legal age;
- (2) Places smoking is allowed or not allowed;
- (3) What constitutes operating under the influence;
- (4) Exceptions, including landlords, employers, towns, federal government;
- (5) Amount person/household can carry/grow;
- (6) Penalties for breaking law;
- (7) More information on edibles, including potency and delayed response;
- (8) Side effects/health effect for kids;
- (9) Transporting across state lines; and
- (10) Rules on storing marijuana products at home.

4. Surveys

Two survey instruments aided campaign development. A focus group survey and a statewide pre-implementation survey gauged respondents' cannabis law knowledge, use patterns, and campaign dissemination preferences. [See Appendix 3] Results directly informed the content of the campaign.

4.1 Focus Group Survey

Prior to beginning each focus group, participants completed an anonymous survey (“focus group survey”). It showed nearly all participants (99%) were aware of the new cannabis law. Over half (58%) did not think or were unsure whether driving after cannabis use is as dangerous as driving after alcohol use. Just under half (44%) did not know or were unsure whether cannabis' risks are greater for youth than for adults. Similarly, 43% did not know or were unsure whether youth who use cannabis regularly are more likely to have difficulty with learning, memory issues, and lower math and reading scores.

4.2 Pre-Implementation Representative Survey

Prior to the campaign launch, a statewide survey representative of Massachusetts residents (“pre-implementation survey”) (n=3,017) identified knowledge gaps related to the new cannabis law and provisions, and identified education needs around particular risks. The pre-implementation survey also included campaign creative ideas and potential dissemination platforms to assess audience preference(s).

4.3 Post-Implementation Representative Survey

After the campaign ended, SurveyUSA and Luc.id conducted a second representative survey of Massachusetts residents (“post-implementation survey”) (n=2,925) to assess constituent behaviors, perceptions of marijuana, and the campaign. The post-implementation survey captured core survey questions from the pre-implementation survey and asked additional questions to see whether participants recalled seeing the campaign.

III. Methods

Campaign Reach and Recognition

The Commission used two sources to evaluate campaign reach, defined as target audience (general Massachusetts adult population and Massachusetts parent population) exposure to the campaign. First, the Commission evaluated the number of interactions with digital campaign creative. Second, Commission researchers examined the percent of post-implementation survey respondents that reported seeing and/or recalling campaign messages and creative.

Campaign Knowledge

The Commission used a pre/post analysis of pre-implementation survey (May 20, 2018 to May 29, 2018) and post-implementation survey (July 8, 2019 to July 21, 2019) to examine whether there were changes in cannabis knowledge in the general population and in specific demographic and cannabis use subgroups. In both surveys, Commission researchers applied statistical weights to match gender, age, and race to the U.S. census target for Massachusetts. Both the pre- and post- surveys included approximately 2,500 unique participants.

To conduct pre/post analysis, the campaign first aligned questions and answers from the pre-survey to questions in the post- survey to ensure data were comparable. Most questions were identical between pre-implementation and post-implementation surveys. We hypothesized there would be significant increases in knowledge among questions that target campaign messages, and no change among knowledge questions that the campaign did not address.

We also examined whether participants who reported campaign visuals or messages had differences in post-survey knowledge compared to those who did not report ever seeing the campaign or recognizing creative. We hypothesized that those who report seeing the campaign would have increased scores on questions that target campaign messages compared to those who did not report seeing the campaign, and that there would be no difference among knowledge questions that the campaign did not address.

IV. Campaign Effectiveness Metrics

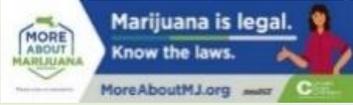
Reach Metrics

Table. V.1. Reach Metrics

Media	Measure(s)
Facebook	Video Views; Clicks; Cost per Click; Cost per Completed View
Google (Responsible Use)	Video Views; Clicks; Cost per Click; Cost per Completed View
Google (Parent)	Video Views; Clicks; Cost per Click; Cost per Completed View
YouTube (Responsible Use)	Video Views; Clicks; Cost per Click; Cost per Completed View
YouTube (Parent)	Video Views; Clicks; Cost per Click; Cost per Completed View
Snapchat	Video Views; Clicks; Cost per Click; Cost per Completed View
Twitter	Video Views; Clicks; Cost per Click; Cost per Completed View
Digital Display	Video Views; Clicks; Cost per Click; Cost per Completed View
Website	Pageviews; Sessions; Users

Recognition Metrics

Table. V.2. Recognition Metrics

Campaign Metrics	Measures
See advertising	In the past 6 months, have you seen any advertising about marijuana in Massachusetts?
Know the laws	Do you recall the message: Marijuana is legal. Know the laws.?
Federal land	Do you recall the message: You can't use it in public or on federal land.?
Can have 1oz	Do you recall the message: You can have up to 1 oz on you.?
Grow plants	Do you recall the message: You can grow up to 6 plants at home.?
Brain development	Do you recall the message: Marijuana can affect brain development in kids.?
Edibles	Do you recall the message: With edibles, start low and go slow.?
Talk about risks	Do you recall the message: Talk to your kids about the risks of marijuana.?
Can be transported	Do you recall the message: Marijuana can be transported to another state where it is legal.??*
None	Does not recall any of the messages above.
Image: Know the laws	In the past 3 months, have you seen this? 
Image: Legal in MA	In the past 3 months, have you seen this?

	
<p>Video 1: Legal in MA</p>	<p>In the past 3 months, have you seen this?</p> 
<p>Video 2: Add to conversation</p>	<p>In the past 3 months, have you seen this?</p> 
<p>Video 3: What you should know</p>	<p>In the past 3 months, have you seen this?</p> 
<p>Image: Start low and go slow</p>	<p>In the past 3 months, have you seen this?</p> 
<p>Image: Can't use in public</p>	<p>In the past 3 months, have you seen this?</p> 
<p>Hear of website</p>	<p>Have you heard of the website MoreAboutMJ.org?</p>

Image: More website	<p>Have you ever visited the website MoreAboutMJ.org?</p> 
See on TV	<p>In the past 6 months, how often have you seen messages for <i>More About Marijuana</i> on TV? Regularly? Occasionally? Or almost never?</p>
See on social media	<p>In the past 6 months, how often have you seen messages for <i>More About Marijuana</i> on social media? Regularly? Occasionally? Or almost never?</p>
See on internet	<p>In the past 6 months, how often have you seen messages for <i>More About Marijuana</i> on the internet? Regularly? Occasionally? Or almost never?</p>
See on public transit	<p>In the past 6 months, how often have you seen messages for <i>More About Marijuana</i> on public transit? Regularly? Occasionally? Or almost never?</p>
See on highway billboards	<p>In the past 6 months, how often have you seen messages for <i>More About Marijuana</i> on highway billboards? Regularly? Occasionally? Or almost never?</p>

Note: *False answer

Knowledge Metrics

The Commission identified the following key campaign messages and relevant survey measures to assess knowledge effectiveness.

Table. V.3. Knowledge Metrics

Key Message	Sample Campaign Messaging	Survey Measure
Legal age	Adults 21 and over can now use cannabis.	<u>Statewide survey</u> At what age are individuals old enough to try or use marijuana?
Places smoking is allowed or not allowed	You cannot use cannabis in any form – smoking, vaping, eating, or otherwise – in public or on federal land.	No specific survey questions.
What constitutes operating under the influence	It is illegal to drive under the influence of cannabis. Instead, use public transportation, ride-shares, or catch a ride with a sober friend.	<u>Related survey question:</u> How does cannabis impaired driving compare to alcohol? ¹
Exceptions, including landlords, employers, towns, federal government	Employers, landlords, cities, and towns may have their own policies about the use of marijuana. Check with them to see what is allowed.	No specific survey questions.
Amount one can carry/grow	You can have up to one ounce of marijuana on you and up to 10 ounces in your home. If you are growing cannabis, you can have up to six plants in your home and up to 12 plants for two or more adults.	No specific survey questions.
Penalties for breaking law	As with alcohol, it is against the law to use marijuana if you are under 21. ² If you violate the law, you may need to pay a civil penalty and/or complete a drug awareness program, depending on your age. Beyond that, your school or employer may have policies against using marijuana, and you could lose your job, your position on a sports team, or financial aid for college.	No specific survey questions.

¹This question aims to assess perceived risk of harm in comparison to perceive risks of alcohol. It is related but does not directly correspond to the key message or campaign messaging.

²There are exceptions for those in the Medical Use of Marijuana Program, as patients may be younger than 21 years old.

<p>More information on edibles, including potency and delayed response</p>	<p>Compared to smoking or vaporizing, eating or drinking cannabis products may have delayed effects. As a rule of thumb, start low, go slow, and make sure you wait until you feel the full effects of the product before you have more.</p>	<p>No specific survey questions.</p>
<p>Side effects/health effect for kids</p>	<p>Cannabis may impair your decision-making, negatively affect your mental health, and – if smoked – increase your blood pressure and hurt your lungs. For young people, it is especially important to note cannabis’ impact on brain development: your brain is not fully developed until you reach your mid-20s, and regular cannabis use during adolescence and early adulthood can lead to brain changes that negatively affect memory, learning, and attention. If you start using marijuana when you are young, you may increase your chances of becoming dependent on it. All of these factors may make it harder for you to earn good grades and achieve your goals.</p>	<p><u>Statewide survey</u> Which is true ... ? The benefits and risks of using marijuana are the same for youth as they are for adults. The risks of using marijuana are greater for youth than they are for adults. The risks of using marijuana are greater for adults than they are for youth.</p> <p><i>Related survey questions:</i> When is the right time to start talking to your kids about drugs and alcohol? 3rd grade or younger; 4th-6th grade; 7-8th grade; 9-12th grade; Not Sure.</p> <p>If you wanted to talk to your child about marijuana use, do you feel that you have the information and resources you need to have that conversation? [Not assessed in this report]</p>
<p>Transporting across state lines</p>	<p>Like alcohol, you cannot have an open container of any form of marijuana in the passenger area of your car while on the road or at a place where the public has access. It must be stored in a closed container in your trunk or a locked glove compartment. You cannot drive with cannabis across state lines, bring it on a plane, or mail it, even to states and countries where it is legal.</p>	<p>No specific survey questions.</p>
<p>Rules on storing marijuana products at home</p>	<p>If you have more than one ounce of cannabis in your home, it needs to be locked up. In fact, it is best to keep any amount locked away to keep kids and pets safe. Make sure to leave products in their childproof packaging.</p>	<p><u>Statewide survey</u> If you were to keep marijuana in your home, would you store it in: Medicine Cabinet; Kitchen; Beside Table; Drawer; Locked Storage Area; None of the Above.</p>



V. Results

Demographics

The demographic breakdown between the pre-implementation survey and the post-implementation survey were quite similar. [See Table VI.1 below for unweighted breakdown of sample demographics]

Table VI.1. Demographic Characteristics of Pre- and Post- Samples

Demographic Categories	Pre-Implementation Survey (n=3,017)	Post-Implementation Survey (n=2,925)
Gender		
Male	40%	45%
Female	60%	55%
Age		
21-34	34%	35%
35-49	27%	27%
50-64	24%	25%
65+	14%	13%
Race/ Ethnicity		
Hispanic	6%	11%
Black	4%	6%
White	83%	76%
Asian	4%	4%
Mixed	2%	2%
Other	1%	1%
Income		
<\$40,000	30%	29%
\$40,000-80,000	32%	34%
\$80,000-120,000	21%	20%
>\$120,000	16%	18%
Education		
High School	20%	21%
Some College	31%	30%
4-year College Degree	32%	32%
Post-Graduate Degree	17%	17%

*Note: Demographics are raw frequencies and not are weighted

Knows Someone Who Uses Cannabis

The survey assessed cannabis use behaviors, but behavioral change(s) were not the key messages in the campaign; therefore, these numbers are presented in summary statistics and not assessed with significance testing.

At the time of the survey, approximately 85% of participants reported knowing someone who uses cannabis. This sample contains both the pre-implementation survey results (2018) and the post-implementation survey results (2019) together. The sample shown is unweighted.

Table VI.2. Knows Someone Who Uses Cannabis by Race and Ethnicity

	Hispanic	Black	White	Asian	Mixed	Other	Total
No	39 (8%)	44 (15%)	663 (15%)	74 (33%)	18 (17%)	14 (23%)	852 (15%)
Yes	449 (92%)	243 (85%)	3,802 (85%)	152 (67%)	88 (83%)	46 (77%)	4,780 (85%)
Total	488	287	4,465	226	106	60	5,632

Table VI.3. Knows Someone Who Uses Cannabis by Education Level

	High School	Some College	College Degree	Post Grad	Total
No	161 (14%)	222 (13%)	256 (14%)	213 (23%)	852 (15%)
Yes	1,017 (86%)	1,498 (87%)	1,535 (86%)	730 (77%)	4,780 (85%)
Total	1,178	1,720	1,791	943	5632

Table VI.4. Knows Someone Who Uses Cannabis by Household Income

	< \$40,000	\$40,000 - \$80,000	\$80,000 - \$120,000	> \$120,000	Total
No	247 (15%)	280 (15%)	168 (15%)	157 (16%)	852 (15%)
Yes	1,415 (85%)	1,584 (85%)	978 (85%)	803 (84%)	4,780 (85%)
Total	1,662	1,864	1,146	960	5,632

Last Time Used Cannabis

Table VI.5. Last Cannabis Use by Gender

	Male	Female	Total
Today	410 (16%)	354 (10%)	764 (13%)
Past Week	307 (12%)	376 (11%)	683 (11%)
Past Month	192 (8%)	196 (6%)	388 (7%)
Past Year	257 (10%)	342 (10%)	599 (10%)
Longer Ago	674 (26%)	972 (29%)	1,646 (28%)
Never	665 (26%)	1,093 (32%)	1,758 (30%)
Not Sure	39 (2%)	66 (2%)	105 (2%)
Total	2,544	3,399	5,943

Table VI.6. Last Cannabis Use by Race and Ethnicity

	Hispanic	Black	White	Asian	Mixed	Other	Total
Today	132 (26%)	60 (20%)	531 (11%)	11 (5%)	21 (18%)	9 (13%)	764 (13%)
Past Week	71 (14%)	33 (11%)	536 (11%)	22 (9%)	15 (13%)	6 (9%)	683 (11%)
Past Month	38 (8%)	25 (8%)	297 (6%)	17 (7%)	9 (8%)	2 (3%)	388 (7%)
Past Year	64 (13%)	26 (9%)	480 (10%)	19 (8%)	6 (5%)	4 (6%)	599 (10%)
Longer Ago	78 (16%)	54 (18%)	1,424 (30%)	41 (17%)	26 (22%)	23 (33%)	1,646 (28%)
Never	115 (23%)	93 (31%)	1,366 (29%)	126 (53%)	36 (31%)	22 (32%)	1,758 (30%)
Not Sure	3 (1%)	7 (2%)	85 (2%)	3 (1%)	4 (3%)	3 (4%)	105 (2%)
Total	501	298	4719	239	117	69	5,943

Table VI.7. Last Cannabis Use by Education Level

	High School	Some College	College Degree	Post Grad	Total
Today	277 (23%)	293 (38%)	158 (21%)	36 (5%)	764 (100%)
Past Week	138 (11%)	232 (13%)	226 (12%)	87 (9%)	683 (11%)
Past Month	79 (6%)	120 (7%)	129 (7%)	60 (6%)	388 (7%)
Past Year	104 (8%)	182 (10%)	208 (11%)	105 (10%)	599 (10%)
Longer Ago	288 (23%)	494 (27%)	552 (29%)	312 (31%)	1,646 (28%)
Never	324 (26%)	452 (25%)	589 (31%)	393 (39%)	1,758 (30%)
Not Sure	18 (1%)	40 (2%)	35 (2%)	12 (1%)	105 (2%)
Total	1,228	1,813	1,897	1,005	5,943



Table VI.8. Last Cannabis Use by Household Income

	< \$40,000	\$40,000 - \$80,000	\$80,000 - \$120,000	> \$120,000	Total
Today	339 (19%)	252 (13%)	101 (8%)	72 (7%)	764 (13%)
Past Week	216 (12%)	245 (12%)	126 (10%)	96 (9%)	683 (11%)
Past Month	109 (6%)	110 (6%)	92 (8%)	77 (8%)	388 (7%)
Past Year	150 (9%)	189 (10%)	144 (12%)	116 (11%)	599 (10%)
Longer Ago	417 (24%)	545 (28%)	348 (29%)	336 (33%)	1,646 (28%)
Never	488 (28%)	584 (30%)	388 (32%)	298 (29%)	1,758 (30%)
Not Sure	30 (2%)	39 (2%)	19 (2%)	17 (2%)	105 (2%)
Total	1,749	1,964	1,218	1,012	5,943

Reason for Last Use

Table VI.9. Reason for Last Use by Gender

	Male	Female	Total
For Treatment of a Condition with Rx	179 (15%)	158 (12%)	337 (14%)
To Help with Anxiety or Stress	413 (35%)	661 (51%)	1,074 (43%)
Just to Enjoy	577 (49%)	461 (36%)	1,038 (42%)
Not Sure	13 (1%)	17 (1%)	30 (1%)
Total	1,182	1,297	2,479

Table VI.10 Reason for Last Use by Race and Ethnicity

	Hispanic	Black	White	Asian	Mixed	Other	Total
For Treatment of a Condition with Rx	62 (20%)	15 (10%)	231 (12%)	16 (23%)	8 (15%)	5 (21%)	337 (14%)
To Help with Anxiety or Stress	135 (44%)	61 (41%)	825 (44%)	18 (26%)	24 (45%)	11 (46%)	1,074 (43%)
Just to Enjoy	107 (35%)	68 (46%)	801 (43%)	36 (51%)	20 (38%)	6 (25%)	1,038 (42%)
Not Sure	2 (1%)	3 (2%)	22 (1%)	0 (0%)	1 (2%)	2 (8%)	30 (1%)
Total	306	147	1,879	70	53	24	2,479

Table VI.11. Reason for Last Use by Education Status

	High School	Some College	College Degree	Post Grad	Total
For Treatment of a Condition with Rx	84 (14%)	119 (14%)	95 (13%)	39 (13%)	337 (14%)
To Help with Anxiety or Stress	323 (53%)	394 (47%)	259 (35%)	98 (33%)	1,074 (43%)
Just to Enjoy	190 (31%)	322 (38%)	373 (51%)	153 (52%)	1,038 (42%)
Not Sure	11 (2%)	10 (1%)	4 (1%)	5 (2%)	30 (1%)
Total	608	845	731	295	2,479

Table VI. 12. Reason for Last Use by Household Income

	< \$40,000	\$40,000 - \$80,000	\$80,000 - \$120,000	> \$120,000	Total
For Treatment of a Condition with Rx	125 (15%)	101 (12%)	55 (12%)	56 (15%)	337 (14%)
To Help with Anxiety or Stress	441 (53%)	368 (45%)	172 (37%)	93 (25%)	1,074 (43%)
Just to Enjoy	250 (30%)	338 (42%)	237 (50%)	213 (58%)	1,038 (42%)
Not Sure	13 (2%)	5 (1%)	6 (1%)	6 (2%)	30 (1%)
Total	829	812	470	368	2,479



Mode of Ingestion

Table VI.13. Mode of Ingestion by Gender

	Male	Female	Total
Smoking	741 (74%)	796 (70%)	1,537 (72%)
Vaping	135 (13%)	118 (10%)	253 (12%)
Edible	101 (10%)	174 (15%)	275 (13%)
Tinctures	9 (1%)	32 (3%)	41 (2%)
Not Sure	17 (2%)	19 (2%)	36 (2%)
Total	1,003	1,139	2,142

Table VI.14. Mode of Ingestion by Race and Ethnicity

	Hispanic	Black	White	Asian	Mixed	Other	Total
Smoking	187 (77%)	102 (77%)	1,166 (71%)	31 (57%)	36 (80%)	15 (79%)	1,537 (72%)
Vaping	28 (11%)	15 (11%)	198 (12%)	9 (17%)	3 (7%)	0 (0%)	253 (12%)
Edible	21 (9%)	11 (8%)	224 (14%)	13 (24%)	4 (9%)	2 (11%)	275 (13%)
Tinctures	6 (2%)	2 (2%)	32 (2%)	1 (2%)	0 (0%)	0 (0%)	41 (2%)
Not Sure	2 (1%)	2 (2%)	28 (2%)	0 (0%)	2 (4%)	2 (11%)	36 (2%)
Total	244	132	1,648	54	45	19	2,142

Table VI.15. Mode of Ingestion by Education Status

	High School	Some College	College Degree	Post Grad	Total
Smoking	418 (80%)	527 (73%)	441 (69%)	151 (59%)	1,537 (72%)
Vaping	57 (11%)	80 (11%)	76 (12%)	40 (16%)	253 (12%)
Edible	32 (6%)	89 (12%)	100 (16%)	54 (21%)	275 (13%)
Tinctures	7 (1%)	18 (2%)	12 (2%)	4 (2%)	41 (2%)
Not Sure	10 (2%)	12 (2%)	7 (1%)	7 (3%)	36 (2%)
Total	524	726	636	256	2,142

Table VI.16. Mode of Ingestion by Household Income

	< \$40,000	\$40,000 - \$80,000	\$80,000 - \$120,000	> \$120,000	Total
Smoking	561 (80%)	508 (71%)	268 (65%)	200 (64%)	1,537 (72%)
Vaping	63 (9%)	89 (13%)	55 (13%)	46 (15%)	253 (12%)
Edible	52 (7%)	92 (13%)	75 (18%)	56 (18%)	275 (13%)
Tinctures	15 (2%)	12 (2%)	11 (3%)	3 (1%)	41 (2%)
Not Sure	13 (2%)	10 (1%)	6 (1%)	7 (2%)	36 (2%)
Total	704	711	415	312	2,142

Campaign Reach

Table VI.17. Recall Seeing Marijuana Advertising

Recall	Frequency (%)
No	471 (31%)
Yes	1,063 (69%)
Total	2,142

Note: Participants may be including advertising related to the *More About Marijuana* campaign or other campaigns, or other cannabis businesses.

Campaign Recognition

In the post-survey:

- 49% of respondent's report recalling the campaign message "*Marijuana is legal, know the laws.*"
- 30% of respondents recall the campaign message, "*You can't use it in public or on federal land.*"
- 39% of respondents recall the campaign message, "*You can have up to 1oz on you.*"
- 37% of respondents recall the campaign message, "*You can grow up to 6 plants at home.*"
- 28% of respondents recall the campaign message, "*Marijuana can affect brain development in kids.*"
- 20% of respondents recall the campaign message, "*With edibles, start low and go slow.*"
- 45% of respondents recall the campaign message, "*Talk to your kids about the risks of marijuana.*"
- 4% recall the fake campaign message, "*Marijuana can be transported to another state where it is legal,*" which was included as untrue message to test measure reliability. [Table VI.18]
- When combined, 51% of survey respondents reported seeing at least one campaign message.
- 31% of participants indicated they had heard of the website "*MoreAboutMJ.org.*" [Table VI.18]

Participants were also asked about where they saw campaign messages. Participants were most likely to report seeing advertising on the internet (38.2%) or on TV (38%). This is followed by social media (36%), highway billboards (35%), or on public transit (22%). [Table VI.18]

Table VI.18. Recognize Campaign Messages

Campaign Metrics	Measures Respondents Reporting Seeing Public Awareness Campaign [Frequency (%)]
Know the laws	1,243 (49%)
Federal land	456 (30%)
Can have 1oz	600 (39%)
Find dispensary	622 (41%)
Grow plants	570 (37%)
Brain development	436 (28%)
Edibles	310 (20%)
Talk about risks	687 (45%)
Can be transported	61 (4%)
None	51 (3%)
Image: Know the laws	1,243 (49%)
Image: Legal in MA	1,022 (41%)
Video 1: Legal in MA	666 (26%)
Video 2: Add to conversation	512 (20%)
Video 3: What you should know	470 (18%)
Image: Start low and go slow	509 (19.7%)
Image: Can't use in public	544 (21.4%)
Hear of website	805 (31.0%)
Image: More website	178 (6.6%)
+See on TV	1,044 (38.0%)
+See on social media	978 (35.6%)
+See on internet	1,050 (38.2%)
+See on public transit	716 (26.1%)
+See on highway billboards	956 (34.8%)

Note: + variables report yes if respondents reported either seeing the varying ads regularly or occasionally

Knowledge and Attitude Changes

Old Enough to Use

Post-campaign survey respondents were associated with greater odds of reporting that individuals aged $21 \leq$ were old enough to try cannabis. Respondents who reported seeing either: (1) any public awareness campaign components, or the (2) two specific youth campaign components had greater associated odds of reporting that people are old enough to use cannabis at 21 compared to at 18. Odds were greater for those reporting age $21 \leq$ versus ages 18-20, although both results showed significance. [Table VI.19]

Table VI.19. Impact of Campaign and Time Effects of Age at Which Individuals Are Old Enough to Try or Use Marijuana

	^A Any PAC	^B Youth PAC	^C Year
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Reported $18 \leq$ to Try	1.33** (1.11-1.60)	1.38** (1.12-1.69)	1.36*** (1.15- 1.61)
Reported $21 \leq$ to Try	2.76*** (2.14-3.54)	2.90*** (2.11-3.97)	1.35*** (1.18-1.54)

^A Any PAC refers to respondents reporting “yes” to seeing any of the nine individual PAC component measures;

^B Youth PAC refers to respondents reporting “yes” to seeing the two individual PAC components assessing brain development (i.e., “*Marijuana can affect brain development in kids*”) and talking to kids (i.e. “*Talk to your kids about the risks of marijuana*”);

^C Year refers to the year of data collection, pre-campaign (2018) and post-campaign (2019); and

* $p < 0.5$; ** $p < .01$; *** $p < .001$

Driving Behaviors

Post-campaign survey respondents were associated with greater odds of reporting that cannabis is either more dangerous or just as dangerous as driving after alcohol use. These survey questions were assessed to discern perceived risk of harm of driving after cannabis use. Please note that no campaign messaging compared riskiness of driving after alcohol vs. driving after cannabis.

Table VI.20. Impact of Campaign and Time Effects on Driving Behaviors

Driving Statements in comparison to driving after drinking alcohol	^A Any PAC	^B Youth PAC	^C Year
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Marijuana Is Less Dangerous	1.19 (0.94-1.51)	1.03 (0.79-1.33)	1.02 (0.87-1.20)
Marijuana Is More Dangerous	0.64 (0.27-1.50)	0.63 (0.30-1.32)	0.82 (0.47-1.42)
Marijuana Is Just as Dangerous	1.03 (0.33-1.27)	1.20 (0.96-1.50)	1.10 (0.83-1.29)
Marijuana is Either More or Just as Dangerous	0.84 (0.66-1.06)	0.97 (0.75-1.26)	1.25* (1.03-1.52)

^A Any PAC refers to respondents reporting “yes” to seeing any of the nine individual PAC component measures;

^B Youth PAC refers to respondents reporting “yes” to seeing the two individual PAC components assessing brain development (i.e., “*Marijuana can affect brain development in kids*”) and talking to kids (i.e. “*Talk to your kids about the risks of marijuana*”);

^C Year refers to the year of data collection, pre-campaign (2018) and post-campaign (2019); and

*p<0.5; **p<.01; ***p<.001

Youth

Post-campaign survey respondents were associated with greater odds of reporting that cannabis risks are greater for youth. Respondents who reported seeing either: (1) any public awareness campaign components, or the (2) two specific youth campaign components had greater associated odds of reporting youth risk. Odds were greater for those reporting seeing the youth campaign components. [Table VI.21]

Table VI.21. Impact of Campaign and Time Effects on Youth Risks

	^A Any PAC	^B Youth PAC	^C Year
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Cannabis risks greater for youth	1.64*** (1.38-1.97)	2.11*** (1.71- 2.60)	1.46*** (1.244- 1.70)
Second-hand cannabis smoke as dangerous or more dangerous for youth	1.06 (0.88-1.27)	1.2 (0.98- 1.48)	1.13 (0.98- 1.31)
^D Have information needed to talk to child(ren)	1.13 (0.69-1.85)	1.42 (0.80-2.53)	1.04 (0.76- 1.41)

^A Any PAC refers to respondents reporting “yes” to seeing any of the nine individual PAC component measures;

^B Youth PAC refers to respondents reporting “yes” to seeing the two individual PAC components assessing brain development (i.e., “*Marijuana can affect brain development in kids*”) and talking to kids (i.e. “*Talk to your kids about the risks of marijuana*”);

^C Year refers to the year of data collection, pre-campaign (2018) and post-campaign (2019);

^D Survey question: If you wanted to talk to your child about marijuana use, do you feel that you have the information and resources you need to have that conversation?; and

*p<0.5; **p<.01; ***p<.001

Cannabis Storage

Respondents who reported seeing the specific youth campaign components of the campaign had greater associated odds of reporting that *if they kept cannabis in their home, they would keep it in a locked storage area*. It is important to note that no other areas of storage were significant pre-to-post campaign. [Table VI.22]

Table VI.22. Impact of Campaign and Time Effects on Cannabis Storage

Where to Store Cannabis	^A Any PAC	^B Youth PAC	^C Year
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Locked area	1.19 (1.00-1.43)	1.28* (1.04-1.57)	0.86 (0.73-1.01)
Medicine cabinet	1.37* (1.06-1.77)	1.04 (0.80- 1.37)	1.01 (0.84-1.21)
Kitchen cabinet	1.3 (0.92- 1.83)	1.12 (0.78-1.60)	1.01 (0.84-1.21)
Bedside table	1.18 (0.92- 1.52)	1.03 (0.80-1.31)	1.13 (0.94-1.35)
Drawer	1.05 (0.84-1.32)	0.88 (0.71- 1.10)	1.11 (0.95-1.32)

^A Any PAC refers to respondents reporting “yes” to seeing any of the nine individual PAC component measures;

^B Youth PAC refers to respondents reporting “yes” to seeing the two individual PAC components assessing brain development (i.e., “*Marijuana can affect brain development in kids*”) and talking to kids (i.e. “*Talk to your kids about the risks of marijuana*”);

^C Year refers to the year of data collection, pre-campaign (2018) and post-campaign (2019); and

*p<0.5; **p<.01; ***p<.001

Campaign Reach and Recognition

Media Reach

There was a total of 3,667,287 video views, 237,268 clicks, 761,564 pageviews, 605,328 sessions, and 362,113 users. See table below for media reach stratified by social media outlet and other digit display ads (i.e. all digital advertisements on non-social media websites). [Table VI.23] [Appendix 7 for additional information].

Table VI.23. Social Media Reach Data

	Face- book	Google Respon- sible Use	Google Parent	YouTube Responsible Use	YouTube Parent	Snapchat	Twitter	Digital Display Ads
Video Views	186,530	N/A	N/A	392,799	35,605	334,093	1,622,541	1,095,719
Total Clicks	9,858	489,73	26,944	1,430	315	125,409	20,358	3,981
Cost per Click	\$2.46	\$0.90	\$1.24	\$14.77	\$2.81	\$0.18	\$1.08	\$15.57
Cost per Completed View	\$0.46	N/A	N/A	\$0.05	\$0.02	\$0.31	\$0.24	\$0.06

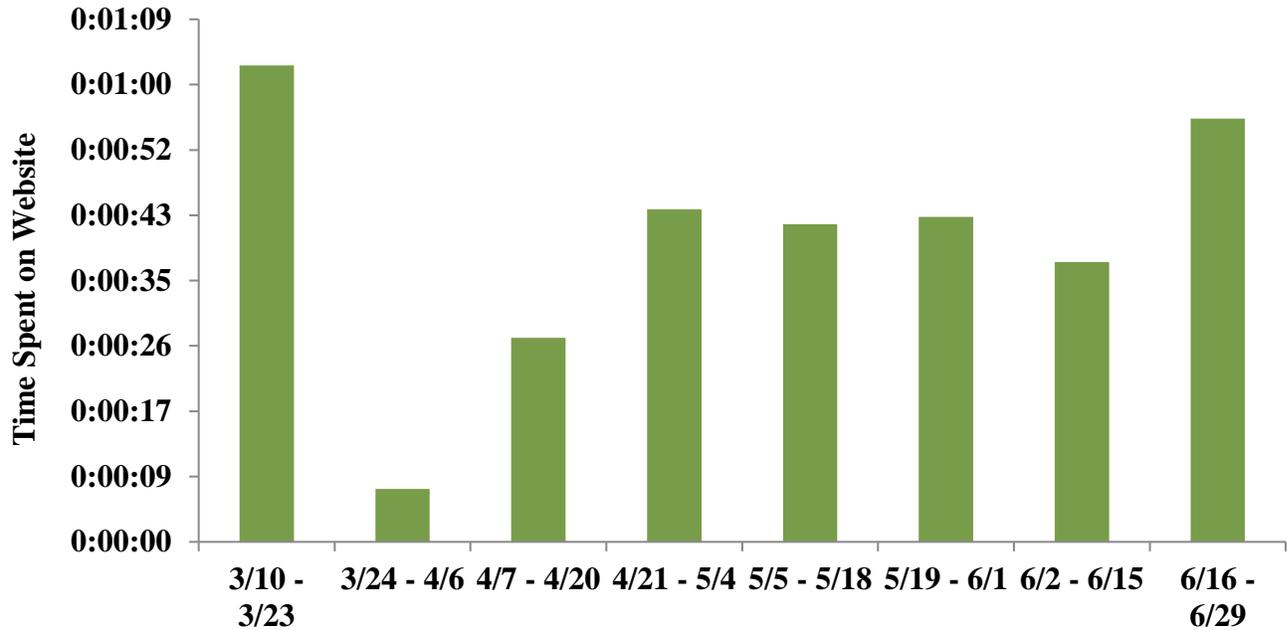
Paid media was the primary driver for website traffic.[Table VI.24] However, the initial website also gained significant traffic through search engine optimization from third-party websites and mass.gov’s search engine.

Table VI.24. Website Statistics as of 6/30/19

Engagement	Total
Pageviews	761,564
Sessions	605,328
Users	362,113

The campaign’s initial website featured limited content and had significant system restrictions that contributed to lower than expected metrics. The resulting web metrics supported the decision to develop a new campaign website that meets constituent need, utilizes web-design best practices, and reflects the campaign’s branded design. [See Appendix 6 for additional data]

Chart VI.1. Average Time Spent on Website

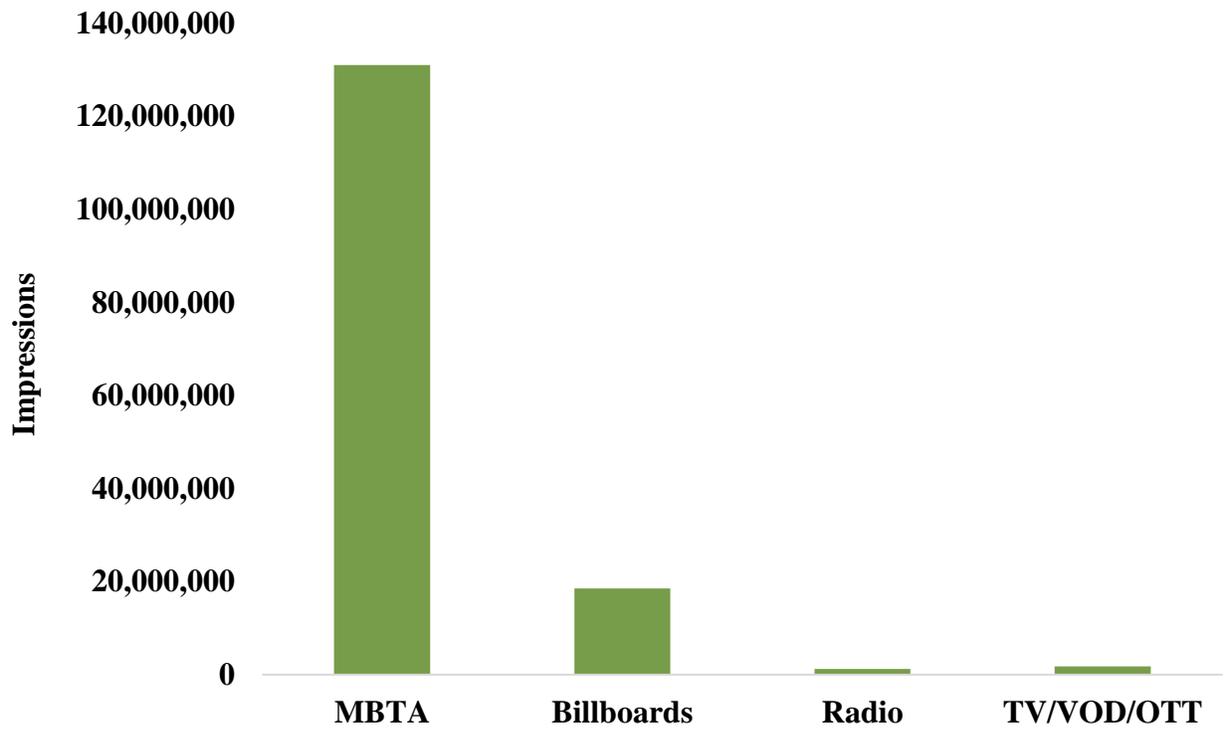


The campaign generated 152,578,522 out-of-home and television impressions. [Table VI.24]

The out-of-home tactics engaged public transit authorities, billboards, and broadcasters across Massachusetts. The majority of out-of-home impressions occurred via Massachusetts Bay Transportation Authority (MBTA) platforms. The MBTA reports that this public transport system serves nearly 200 cities and towns and over 1 million rides on the subway, bus, ferry, and Commuter Rail daily.

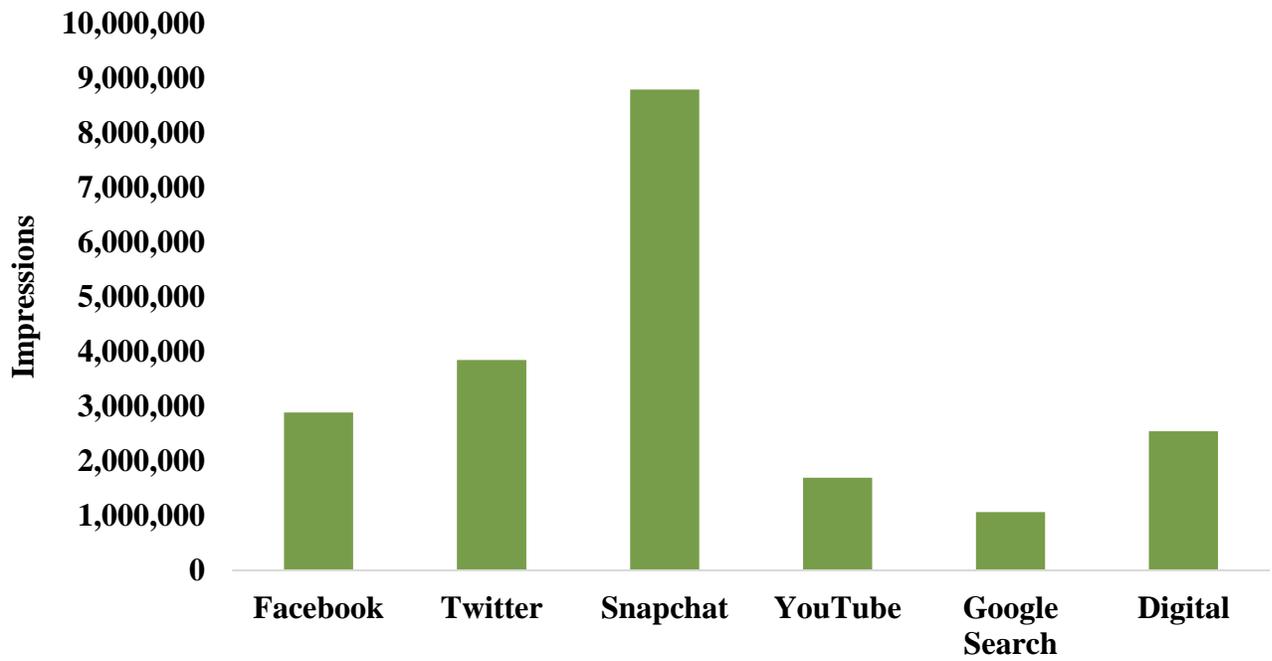
***Note:** A Snapchat pre-load function led to an artificial inflation of pageviews which resulted in decreased average time spent on website during the 3/24 – 4/6 reporting period. This means each time an ad was served, it registered as a pageview and session, and led to an artificial inflation of pageviews during 3/24 – 4/6 reporting period. This also resulted in decreasing the average time spent on website. The pre-load function was turned off during the next reporting session.

Chart VI.2. Out of Home and Television Impressions



The campaign’s digital advertising budget was distributed across several social media and digital outlets to effectively reach the campaign’s diverse target audiences. Heavy use of Snapchat allowed campaign messaging to effectively reach a key constituent for the responsible use campaign, young adults, 21+. The total social and digital impressions were 20,819,743. [Chart VI.3]

Chart VI.3. Social and Digital Impressions



VI. Considerations

Policy Considerations for the Commonwealth

Based on an assessment of the results of the campaign, the Commission sees value in continuing public education campaigns to promote responsible adult and medical use of marijuana. In Fiscal Year 2021, the Commission seeks to continue the public awareness campaign to ensure continued compliance with the respective laws, responsible consumption behavior, prevention of youth use, and awareness about the dangers of home manufacturing. The campaign's youth prevention and responsible-use messaging will continue to resonate with Massachusetts residents as new cohorts of young people enter high-risk age groups, geographic access to stores increase, and new consumers enter the legal market.

If continued funding is secured, new campaign content will be created and distributed to resolve key and concerning gap areas such as the dangers of home manufacturing, risks of cannabis consumption while breastfeeding, and the need to utilize effective youth prevention strategies (*e.g. parents' honest conversations with children*). Additionally, the campaign will create and distribute content that speaks directly to youth to positively effect behaviors among minors that do not have a parent or guardian that is willing to engage in prevention strategies.

Consideration 1: Continue the Public Awareness Campaign with a focus on youth (under 21-years old), (2) parents of youth, (3) adult consumers, (4) home growers and manufacturers, and (5) pregnant and breastfeeding women.

Consideration 2: Use campaign results assessing marijuana use behaviors to inform future campaign messaging, such as harm reduction.

Consideration 3: As part of building future campaigns, incorporate targeted knowledge assessment questions into any statewide pre/post survey to enable more comprehensive knowledge assessments.

Policy Considerations for Other States

Consideration 1: If possible, start public awareness campaign and data collection prior to policy enactment or align with enactment/implementation.

Consideration 2: Align survey measures with goals of public awareness campaign (*i.e. measures assessing changes in knowledge, etc.*).

Consideration 2: Conduct focus groups before population survey implementation so measures adequately address campaign goals.

Consideration 3: Over-sample cohorts of interest (*i.e. parents*) in pre-and-post surveys.

Consideration 4: Add measure on frequency of campaign views, which includes the "never" option.

Consideration 5: Fund public awareness campaigns in a manner that allows for content design and distribution prior to the opening of stores.



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VIII. Appendix

Appendix 1: Public Health Framework

There are inherent challenges to legalizing and regulating a formerly illicit substance.¹ Cannabis policy implementation and regulation requires careful consideration of potential public health effects with special attention to vulnerable cohorts, such as youth. Legalizing and regulating substances with dependence potential are often in juxtaposition to public health policy approaches since the minority of very heavy users (dependent users) account for the majority of consumption, which generates the greatest tax revenue² as evidenced by the tobacco and alcohol industries.³ However, states can actively implement evidence-based processes, including public awareness campaigns, to counter adverse public health outcomes.

The public health prevention model is an inclusive model targeting the overall health of the public rather than an individualized or small group prevention model. Nurse and Edmondson-Jones 2007 discuss the importance of a framework in public health delivery.⁵ Authors state that a framework assists in providing shape, structure, clarity of purpose, and direction for a combination of constructs to improve the health of a population, which includes a complex combination of skills, methods, relationships, and interactions.⁵ Public health frameworks work within varying systems that surround an individual and affect individuals' behaviors, aiming to impact behavior choices.⁵⁻⁸

A. Key Standards of Public Health⁵

The 10 key standards of public health:

- *Surveillance and assessment of the population's health and well-being;*
- *Promoting and protecting the population's health and well-being;*
- *Developing quality and risk management within an evaluative culture;*
- *Collaborative working for health;*
- *Developing health programs and services and reducing inequalities;*
- *Policy and strategy development and implementation;*
- *Working with and for communities;*
- *Strategic leadership for health;*
- *Research and development; and*
- *Ethically managing self, people, and others.*

Note: Highlighted in green are the standards of public health incorporated into Massachusetts's cannabis regulations and Public Awareness Campaign, *More About Marijuana*.

The Centers for Disease Control and Prevention (CDC), published a framework outlining critical elements, which includes:

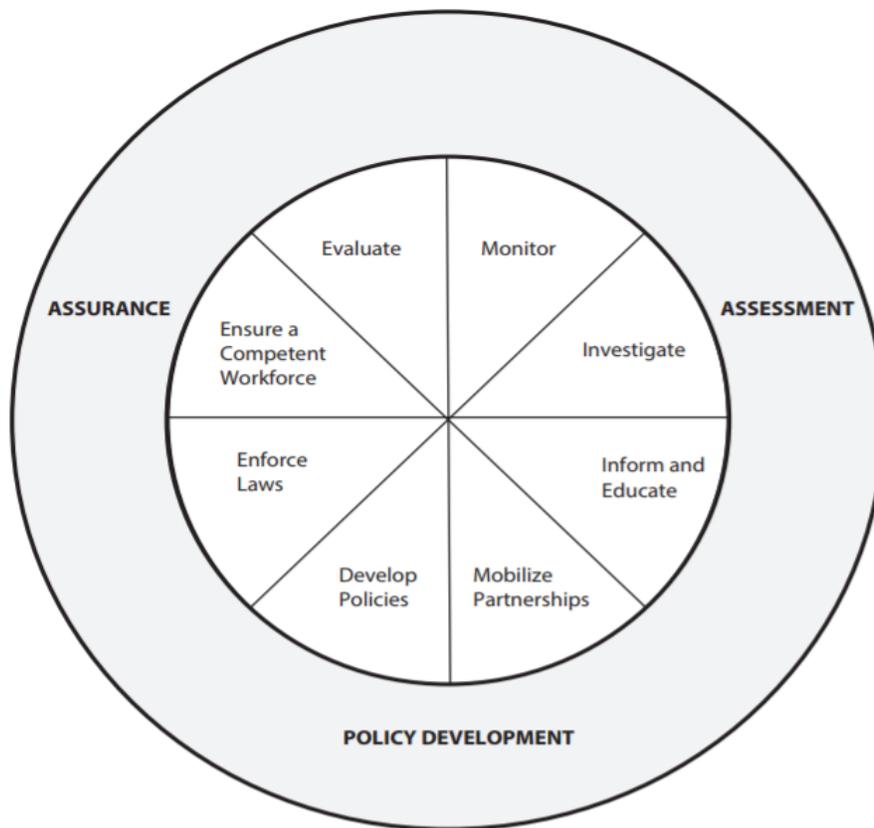
- Strong public health fundamentals;
- High-impact intervention; and
- Sound health policies.

B. This public health framework is routinely applied to public health and public safety issues. Strong public health fundamentals refers to identifying and investigating any potential public health issues, at both the local and state levels. High-impact interventions refers to a broad response or program that addresses the identified issue (*e.g. an evidence-based campaign to prevent youth cannabis use*). Lastly, sound health policies refer to implementing policies to prevent, detect, and control the identified issue (*e.g. collecting scientific data to support evidence-based policies, working with local state and local public health and public safety departments to both prevent, control, and respond to an issue*).⁹ [*See B Commonwealth of Massachusetts: Regulations and Public Health for Massachusetts specifics rules and regulations in a public health framework*]

C. Commonwealth of Massachusetts: Regulations and Public Health

In a recent article, Dr. Ghosh and colleagues at the Colorado Department of Public Health present a framework for cannabis legalization built on the core functions of public health, including: (1) Assessing health issues through monitoring and investigation (“Assessment”), (2) Developing policy through education and community partnerships (“Policy Development”), and (3) Providing assurance through enforcement, a competent workforce, and evaluation (“Assurance”).¹⁰ [See *Figure 1. Public Health Framework for Legalized Cannabis: Colorado Department of Public Health and Environment, 2015*]

Figure 1.1 Public Health Framework for Legalized Cannabis: Colorado Department of Public Health and Environment, 2016.



The following section outlines the processes the Commonwealth of Massachusetts has implemented regarding each domain under the public health framework for legalized cannabis developed by the Colorado Department of Public Health and Environment.

1) Assessment

In this framework, assessment refers to monitoring, investigating, and providing education around cannabis use and the health effects of use.

i. Research

In accordance with c.55 section 17 (a) and (b), the Commission is monitoring the following outcomes in the Commonwealth, which are direct or indirect health and public health outcomes: (1) Patterns of use; (2) Methods of consumption; (3) Sources of purchase; (4) General perceptions of marijuana; (5) Incidents of impaired driving; (6) Hospitalization and use of other health care services related to marijuana use; (7) Financial impacts on the state healthcare system of hospitalizations related to marijuana; (8) Economic and fiscal impacts for state and local governments including the impact of legalization on the production and distribution of marijuana in the illicit market and the costs and benefits to state and local revenue; (9) Ownership and employment trends in the marijuana industry examining participation by racial, ethnic and socioeconomic subgroups, including identification of barriers to participation in the industry; (10) Expansion or contraction of the illicit marketplace and the expansion or contraction of the legal marketplace, including estimates and comparisons of pricing and product availability in both markets; (11) Incidents of discipline in schools, including suspensions or expulsions, resulting from marijuana use or possession of marijuana or marijuana products; and (12) Civil penalties, arrests, prosecutions, incarcerations and sanctions imposed for violations of chapter 94C for possession, distribution or trafficking of marijuana or marijuana products, including the age, race, gender, country of origin, state geographic region and average sanctions of the persons charged.

ii. Public Awareness Campaign

The Commission has also created an evidence-based public awareness campaign targeted at a general audience and a campaign specific to parents. These campaigns aim educate the public about cannabis, including a discussion of health effects and its unique harms to youth. See [MoreAboutMJ.org](https://www.moreaboutmj.org) for campaign materials.

2) Policy Development

iii. Public Health in Policy/Regulations

In this framework, policy development refers to the development of policies and regulations to protect the public's health and safety.

As outlined in c.55 section 76, Massachusetts legislators ensured there were both public health and public safety advocates in the cannabis regulatory agency: “*There shall be a Massachusetts cannabis control commission which shall consist of 5 commissioners: 1 of whom shall be appointed by the governor and shall have a background in public health, mental health, substance use or toxicology: 1 of whom shall be appointed by the attorney general and shall have a background in public safety.*” Commissioners with a background in public health and public safety have been instrumental in regulating the nascent industry with focus on public health and safety.

3) Assurance

iv. Enforcement

In this framework, assurance refers to the enforcement of public health regulations, such as inspections to ensure products in the legal marketplace are free from contaminants, packaged in a child-resistant packaging, not diverted to minors, and properly labeled.

Massachusetts policymakers and regulators implemented varying public health assurance strategies as outlined in the Youth Report, Appendix VII: Public Health and Prevention. [https://mass-cannabis-control.com/wp-content/uploads/2019/09/A-Baseline-Review-and-Assessment-of-Cannabis-Use-and-Youth-Literature-Review-and-Preliminary-Data-in-MA_Sept19.pdf]

v. Ensure Competent Workforce

Under Cannabis Control Commission regulations, Massachusetts requires all Marijuana Establishment Agents to complete at least 8-hours of annual Responsible Vendor Training, which includes varying mandated topics such as: (1) Effects of cannabis on the human body; (2) Preventing diversion and sales to minors; (3) Seed-to-sale tracking compliance; and (4) Operating in accordance with state policies, regulations, and local rules.

1.3 Public Awareness Campaigns Literature Overview

A. Public Awareness Campaign

Public awareness and mass media campaigns are an important tool to increase knowledge and change behavior. Yet, effective campaigns are challenging to develop and implement, and studies of campaign effectiveness are infrequent.¹¹ Research shows campaigns with multiple interventions and well-tested messages, that reach the target audience frequently and consistently, coupled with access to any suggested intervention(s) are most successful.¹¹ Campaigns also tend to be more successful when policies and other external factors work towards the same goal.¹¹

B. Cannabis Public Awareness Campaign

There is little literature on the effectiveness of cannabis public awareness campaigns. We identified two studies that assess the effectiveness of a cannabis public awareness campaign.¹² Brooks-Russell et al. 2017 examined the Colorado campaign, “Good to Know” with a prospective cohort design and examined knowledge changes from before to after the campaign ran in one group of Colorado adults.¹² Approximately 28% of participants reported recalling the campaign.¹² Among participants with inaccurate knowledge before the campaign began, those who saw the campaign were more likely to have increased knowledge compared to those who did not see the campaign.¹² This finding was more pronounced among cannabis users compared to non-users.¹² In another study of the Colorado “Good to Know” campaign, Roppolo et al. 2019 examined knowledge differences between English-speaking and Spanish-speaking Latino respondents in the same adult cohort.¹³ Researchers found Spanish-speaking Latinos had more knowledge gaps than English-speaking Latinos and suggest campaigns should consider linguist diversity.¹³

Appendix 2: Focus Group Methodology

A. Focus Group Methodology

The campaign conducted eighteen 90-minute focus groups from May 7-18, 2018 in three disparate geographic locations in Massachusetts:

1. Boston, MA “Urban;”
2. Framingham, MA “Suburban;” and
3. Greenfield, MA “Rural.”

At each location, six specific groups were conducted, stratified by either: age and use status OR parental status and grade of child. Overall, the 206 focus group participants represented a mix of race/ethnicity, income, and education consistent with the state census data for the respective geographic regions.

Focus Group Cohort	Framingham (Suburban)	Boston (Urban)	Greenfield (Rural)	Total per Segment
Adults 21-39				6
“Users”	✓	✓	✓	3
“Intent to Use”	✓	✓	✓	3
Adults 40+				6
“Users”	✓	✓	✓	3
“Intent to Use”	✓	✓	✓	3
Parent Groups				6
<i>MS Parents</i>	✓	✓	✓	3
<i>HS Parents</i>	✓	✓	✓	3
Total per Region	6	6	6	18

B. Moderator Questions for Roundtable Discussion of Law Knowledge

Knowledge of the Law
<p>Before tonight, you were aware that Massachusetts passed a law legalizing marijuana?</p> <p>a. What have you heard about the law?</p>
<p>What else do you currently know about the new law?</p> <p>a. Does this law legalize use for medical purposes or non-medical purposes?</p> <p>b. When does the law go into effect?</p> <p>c. What is the legal age of use?</p> <p>d. Where you can smoke it? Use it?</p> <p>e. How much you can have on your person? In your house?</p> <p>f. How to store it at home?</p> <p>g. Laws around growing?</p>

h. Laws around driving after using marijuana?
Is there anything that did not come up in this discussion that you would specifically want to know about the law?
What terms/slang do people use when they talk about marijuana?
*What terms/slang have you heard your kids use to talk about marijuana?
What might you (or people in general) need to know or hear to think it is essential to learn about the new law?
* What would motivate you to learn more about the law?
* What prompts you to discuss about drugs and alcohol with your kids?
* Now that marijuana is about to be legal for adult use, does this change the conversations you are likely to have with your kids about drugs? Why or why not?
* What is challenging for you about having these conversations?
* Would you approach this conversation differently based on the gender of your child (girl or boy)? How about the age of your child?
* In your family, if this type of conversation was to take place, who is most likely to conduct it (i.e. mother, father, aunt, uncle, grandparent, older sibling)?
*[High School Parents Only] What type of conversation can you envision having with your high school child who has just gotten his/her license?
* What would motivate you to talk to your kids about marijuana?
* What information/supports would you like to assist you in having these conversations?
* Where you would be most likely to notice and/or be receptive to getting information about the new marijuana law in MA?

Note: Additional questions were asked about previous campaign concepts, and potential branding.

*Only asked in Parent focus groups

2) Adult

ADULT PRE-DISCUSSION GROUP QUESTIONS

Do not provide us with your name. These questions are anonymous and confidential.

During our focus group tonight, we will be discussing a new law that recently passed in MA that makes it legal for adults to use marijuana for recreational use.

1. Before tonight, were you aware that MA had recently passed a law that makes it legal for adults to use marijuana for recreational use?

- Yes No

2. What terms (or slang) are you aware of for marijuana? (Check all that apply).

- Weed Cannabis
 Hash Dab
 Reefer Other (specify): _____
 Pot

3. Have you ever used marijuana for recreational purposes?

- Yes (move to question #5) No (move to question #4)

4. Once marijuana becomes legal, do you think you will try it?

- Yes (move to question #8) Don't know (move to question #8)
 No (move to question #8)

5. When was the last time you had marijuana of any kind?

- Within the past 30 days More than a year ago
 Within the past 90 days Can't remember
 Within the past year

6. How are you most likely to use marijuana?

- Smoking Through an edible
 Vaping Other (please specify) _____

TURN OVER

7. Once marijuana becomes legal for adults, are there "other" forms of marijuana you intend to try (check all that apply)?

- Smoking Through an edible
 Vaping Other (please specify) _____

8. Which of the following statements is true?

- Driving after using marijuana is less dangerous than driving after drinking alcohol
 Driving after using marijuana is more dangerous than driving after drinking alcohol
 Driving after using marijuana is just as dangerous as driving after alcohol
 Not sure

9. Which of the following statements is true?

- The risks of using marijuana are the same for youth as they are for adults
 The risks of using marijuana are greater for youth than they are for adults
 The risks of using marijuana are greater for adults than they are for youth.
 Not sure.

10. As the state prepares to launch an education campaign about this new law to the public, what term would you rather them use? ONLY SELECT ONE.

- Marijuana OR Cannabis

11. Please rank where you would be most likely to notice and/or be receptive to getting information about the new marijuana law in MA. Rank 1-6, with 1 being where you would be most likely and 6 representing where you are least likely.

- ___ TV ads
___ Radio ads
___ Online ads or social media
___ Community locations where you currently spend time
___ Health-care centers, clinics, and hospitals
___ Places where marijuana is being sold (i.e., dispensaries)

Thank you very much for answering these survey questions. Your answers are completely anonymous and confidential.



B. Representative Surveys

1) Pre-Implementation Representative Survey Battery

MA MARIJUANA PRE-CAMPAIGN SURVEY

Survey Intro

Our questions today are about the legalization of recreational marijuana in Massachusetts.

= = =

1. Marijuana today comes in many forms – it can be infused in food or beverages, its oil can be consumed in capsules, and it can be smoked or vaporized. Do you know anyone who uses marijuana?
Yes
No
Not sure
2. When was the last time you had marijuana of any kind?
Today [record as current user]
Within the past week [record as current user]
Within the past month [record as current user]
Within the past year [record as current user]
Longer ago than that [not current user]
Never [never used]
Not sure
3. The last time that you used marijuana, was it ...?
For treatment of a medical condition with a doctor's prescription [label as medicinal user]
To help with anxiety or stress, but without a doctor's prescription [continue]
Or, just to enjoy [continue]
Not sure
4. [ask only of current users]
How do you most often ingest your marijuana?
Smoking
Vaping
Through an edible
Tinctures
Not sure
5. Which one of the following statements is true?
18. When a mother is breastfeeding, is it safe for her to use marijuana?
Yes
No
Not sure
19. If a breastfeeding mother uses marijuana, is it possible this could have a long-term impact on her child's ability to learn?
Yes
No
Not sure
20. [ask of parents]
When is the right time to begin to talk to your children about drugs and alcohol? When your child is in ...
3rd grade or younger
4th grade
5th grade
6th grade
7th grade
8th grade
9th grade
10th grade
11th grade
12th grade or older
21. What approach is most effective?
Let your child initiate conversations about alcohol and other drugs
Schedule a time to have a talk about alcohol and other drugs with your child
Make it a point to have ongoing conversations about alcohol and other drugs with your child
Not sure
22. Think about your oldest child. How many conversations have you had with him or her about using alcohol and other drugs?
0
1
2
3
4 or more

- Driving after using marijuana is less dangerous than driving after drinking alcohol?
Driving after using marijuana is more dangerous than driving after drinking alcohol?
Driving after using marijuana is just as dangerous as driving after drinking alcohol?
Not sure
6. If you were to keep marijuana in your home, where might you store it? Check all that apply ...
In the medicine cabinet
7. In the kitchen
8. In a bedside table
9. In a drawer
10. In a locked storage area
11. None of the above
12. Not sure
 13. Do any children live in your home who are age 5 or younger?
Yes [flag as possible breastfeeding HH]
No
Not sure
 14. Do any children live in your home who attend elementary school?
Yes [label as elementary school HH]
No
Not sure
 15. Do any children live in your home who attend middle school?
Yes [label as middle-school HH]
No
Not sure
 16. Do any children live in your home who attend high school?
Yes [label as high-school HH]
No
Not sure
 17. [ask only if child under age 5 lives in HH]
Are you currently breastfeeding a child at home?
Yes [label as breastfeeding HH]
No [skip to Q20]
Not sure
 23. If you wanted to talk to your child about marijuana use, do you feel that you have the information and resources you need to have that conversation?
Yes
No
Not sure
 24. At what age are individuals old enough to try or use marijuana?
Age 13 or younger
Age 14
Age 15
Age 16
Age 17
Age 18
Age 19
Age 20
Age 21 or older
Not sure
 25. [pre-campaign intro sentence]
The recreational use of marijuana for adults will become legal in Massachusetts on July 1.

How important is it for you to find out about this new law?
Very important
Important
Unimportant
Very unimportant
Not sure
 26. If you had a question about this new law, would you know where to go to find information?
Yes
No
Not sure
 27. If the state of Massachusetts had a website with information about how marijuana laws are changing in the state, how likely would you be to visit the site?
Very likely
Likely



Unlikely
Very unlikely
Not sure

28. What grade would you give the state of Massachusetts so far at educating **adults** about the legalization of marijuana (or marijuana in general)?
A
B
C
D
E
F
Not sure
29. What grade would you give the state of Massachusetts so far at educating parents of **youth** about the legalization of marijuana (or marijuana in general)?
A
B
C
D
E
F
Not sure
30. In your opinion ...

Is marijuana generally ... ?
Good for your health
Bad for your health
Sometimes good, sometimes bad
Not sure.
31. Regardless of whether marijuana is legal in Massachusetts or illegal, are you comfortable or uncomfortable if someone around you uses marijuana?
Comfortable
Uncomfortable
Not sure
32. Which is true ... ?
The benefits and risks of using marijuana are the same for youth as they are for adults.
The risks of using marijuana are greater for youth than they are for adults.
The risks of using marijuana are greater for adults than they are for youth.
33. Is 2nd-hand smoke from marijuana ... ?
Just as dangerous as 2nd-hand smoke from a traditional cigarette
Less dangerous than 2nd-hand smoke from a traditional cigarette
More dangerous than 2nd-hand smoke from a traditional cigarette
Not sure.
40. [ask only of women age 45 or younger]
Are you pregnant now or do you have plans to become pregnant in the next year?
Yes
No
Not sure
41. If a woman uses marijuana while pregnant, does the marijuana in your system pass to the unborn child?
Yes
No
Not sure
42. [look back: ask only of mothers who are breastfeeding]
If a woman uses marijuana while breastfeeding, can it be shared with her child through her breast milk?
Yes
No
Not sure
43. Which county do you live in?
Barnstable
Berkshire
Bristol
Dukes
Essex
Franklin
Hampden
Hampshire
Middlesex
Nantucket
Norfolk
Plymouth
Suffolk
Worcester

Not sure.

DEMOGRAPHIC QUESTIONS: ASK OF ALL RESPONDENTS, INCLUDING NON-USERS & MEDICINAL USERS

33. Do you identify as ...
A man
A woman
In some other way
34. How old are you?
35. Do you identify as ...
Latino / Hispanic / Mexican
Black / African American
White
Asian American
Mixed race
Some other origin
36. How far have you gotten in school?
Some high school
High school diploma
Some college
4-year college degree
Post-graduate degree
37. What is the total annual income from everyone in your household?
Less than \$40,000
\$40,000 to \$80,000
\$80,000 to \$120,000
More than \$120,000
38. [look back: ask only if respondent has a child]
How much do you worry about 2nd-hand tobacco smoke making one of your children sick?
A lot
A little
Not at all

2) Post-Implementation Representative Survey Battery

MA MARIJUANA POST-CAMPAIGN SURVEY

1. Marijuana today comes in many forms – it can be infused in food or beverages, its oil can be consumed in capsules, and it can be smoked or vaporized. Do you know anyone who uses marijuana?
Yes
No
Not sure
2. When was the last time you had marijuana of any kind?
Today [record as current user]
Within the past week [record as current user]
Within the past month [record as current user]
Within the past year [record as current user]
Longer ago than that [not current user, skip to Q5]
Never [never used, skip to Q5]
Not sure [skip to Q5]
3. [ask only of current users]
The last time that you used marijuana, was it ...?
For treatment of a medical condition with a doctor's prescription [label as medicinal user, skip to demos]
To help with anxiety or stress, but without a doctor's prescription [continue]
Or, just to enjoy [continue]
Not sure
4. [ask only of current users]
How do you most often ingest your marijuana?
Smoking
Vaping
Through an edible
Tinctures
Not sure
5. Which one of the following statements is true?
Driving after using marijuana is less dangerous than driving after drinking alcohol?
Driving after using marijuana is more dangerous than driving after drinking alcohol?
Driving after using marijuana is just as dangerous as driving after drinking alcohol?
Not sure

3rd grade or younger
4th - 6th grade
7th - 8th grade
9th - 12th grade
22. What approach is most effective?
Let your child initiate conversations about alcohol and other drugs
Schedule a time to have a talk about alcohol and other drugs with your child
Make it a point to have ongoing conversations about alcohol and other drugs with your child
Not sure
23. Think about your oldest child. How many conversations have you had with him or her about using alcohol and other drugs?
0
1
2
3
4 or more
24. If you wanted to talk to your child about marijuana use, do you feel that you have the information and resources you need to have that conversation?
Yes
No
Not sure
25. At what age are individuals old enough to try or use marijuana?
Age 13 or younger
Age 14-17
Age 18-20
Age 21 or older
Not sure
26. The recreational use of marijuana for adults became legal in Massachusetts last July. How important is it for you to find out about the law that made the recreational use of marijuana for adults legal?

Very important
Important
6. If you were to keep marijuana in your home, where might you store it? Check all that apply ...
In the medicine cabinet
7. In the kitchen
8. In a bedside table
9. In a drawer
10. In a locked storage area
11. None of the above
12. Not sure
13. Are there children who live in your home who ... ? [check all that apply]
Are age 5 or younger
14. Are in elementary school
15. Are in middle school
16. Are in high school
17. None of the above
18. [ask only if child age 5 or younger lives in HH]
Which best describes you?
My child uses baby formula
My child is breastfeeding
Sometimes my child uses formula, sometimes my child breastfeeds
My child is on solid foods.
Not sure
19. When a mother is breastfeeding, is it safe for her to use marijuana?
Yes
No
Not sure
20. If a breastfeeding mother uses marijuana, is it possible this could have a long-term impact on her child's ability to learn?
Yes
No
Not sure
21. [ask of parents]
When is the right time to begin to talk to your children about drugs and alcohol? When your child is in ...

Unimportant
Very unimportant
Not sure
27. If you had a question about this law, would you know where to go to find information?
Yes
No
Not sure
28. What grade would you give the state of Massachusetts so far at educating **adults** about marijuana?
A
B
C
D
F
Not sure
29. What grade would you give the state of Massachusetts so far at educating parents of **youth** about marijuana?
A
B
C
D
F
Not sure
30. In your opinion ...
Is marijuana generally ... ?
Good for your health
Bad for your health
Sometimes good, sometimes bad
Not sure.
31. Regardless of whether marijuana is legal in Massachusetts or illegal, are you comfortable or uncomfortable if someone around you uses marijuana?
Comfortable

- Uncomfortable
Not sure
32. Which is true ... ?
The benefits and risks of using marijuana are the same for youth as they are for adults.
The risks of using marijuana are greater for youth than they are for adults.
The risks of using marijuana are greater for adults than they are for youth.
Not sure.
33. Compared to before marijuana was legalized, is the use of marijuana in public now ... ?
More socially acceptable than before
Less socially acceptable than before
The same as before
Not sure
34. Since adult-use marijuana became legal in Massachusetts, have you, personally, begun to use marijuana ... ?
More frequently
Less frequently
No change in my use
Not sure.
35. In the past 6 months, have you seen any advertising about marijuana in Massachusetts?
Yes
No
No Sure

continue to next Q
skip next question
skip next question

[asked only of those who answer "yes" to "recall seeing advertising"]
Which of the following messages do you recall? [Check all that apply][answer choices will be randomized]

36. Marijuana is legal. Know the laws.
37. You can't use it in public or on federal land
38. You can have up to 1 oz on you
39. Find a dispensary near you [False answer]
40. You can grow up to 6 plants at home
41. Marijuana can affect brain development in kids
42. With edibles, start low and go slow.

No
Not sure

48. In the past 3 months, have you seen this?



Yes
No
Not sure

49. In the past 3 months, have you seen this?



Yes
No
Not sure

50. Over the past 3 months, have you seen this?

43. Talk to you kids about the risks of marijuana
44. Marijuana can be transported to another state where it is legal [False answer]
45. In the past 3 months, have you seen this?



Yes
No
Not Sure

46. In the past 3 months, have you seen this?



Yes
No
Not Sure

47. In the past 3 months, have you seen this?



Yes



Yes
No
Not sure

51. Over the past 3 months, have you seen this?



Yes
No
Not sure

52. Have you heard of the website **MoreAboutMJ.org**?

Yes
No
Not sure

53. Have you ever visited this website **MoreAboutMJ.org**?

Note: Demographic data questions not shown and were the same demographic questions include in pre-survey battery above.

Appendix 4: Budget

The total media budget for the responsible use campaign was \$1,211,637. The media budget for the parent campaign was \$471,977.

Figure 4.1: Responsible Use Media Budget Breakdown

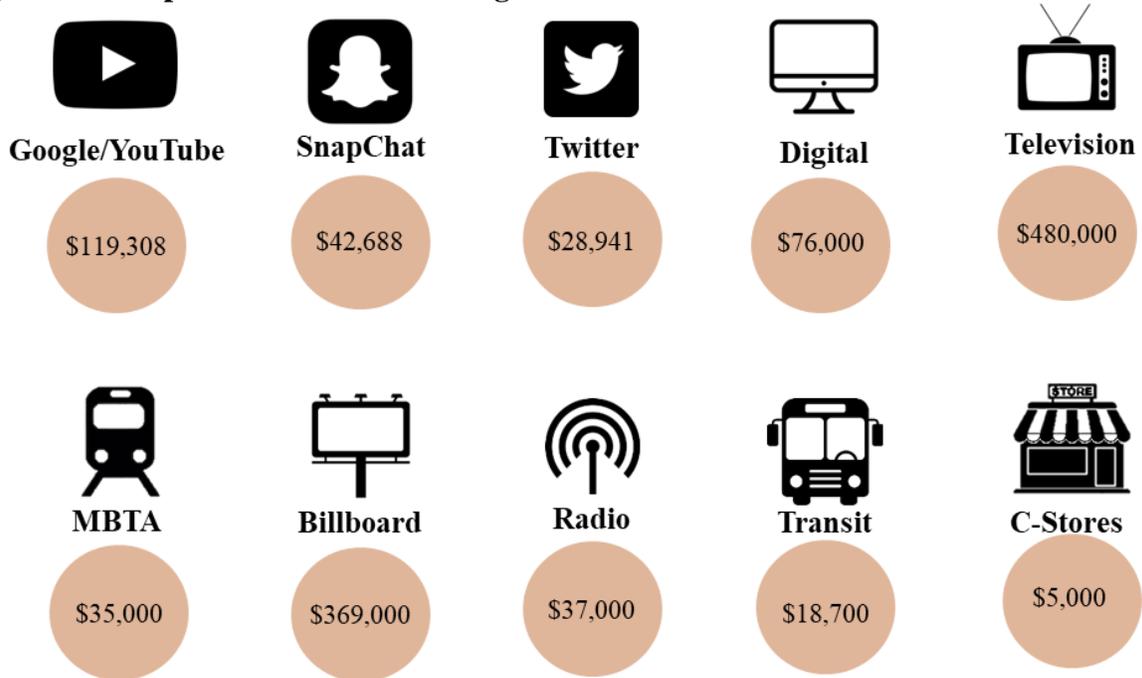
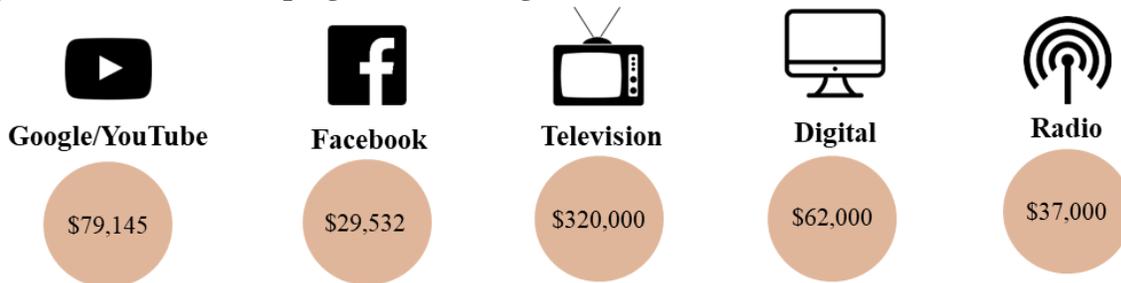


Figure 4.2: Parent Campaign Media Budget Breakdown



Appendix 5: Sample Creative from *More About Marijuana* campaign

5.1 Sample still shots from videos:



5.2 Sample Snapchat advertisement:



5.3 Sample Facebook advertisement:

Massachusetts Cannabis Control Commission
Sponsored · 🌐

Marijuana is legal in Massachusetts for adults 21+. If you have marijuana in your home, keep it locked up, out of reach and out of sight. Find out how to keep your kids safe at MoreAboutMJ.org. #MoreAboutMJ

MASS.GOV

Keep your kids safe

Marijuana products can be mistaken for regular food and candy. Store your marijuana products safely and securely in your home. [Learn More](#)

👍 🤔 🙄 153 43 Comments 87 Shares 50K Views

👍 Like 💬 Comment ➦ Share

5.4 Sample Twitter post:

Massachusetts Cannabis Control Co... [Follow](#) ▼
@MA_Cannabis

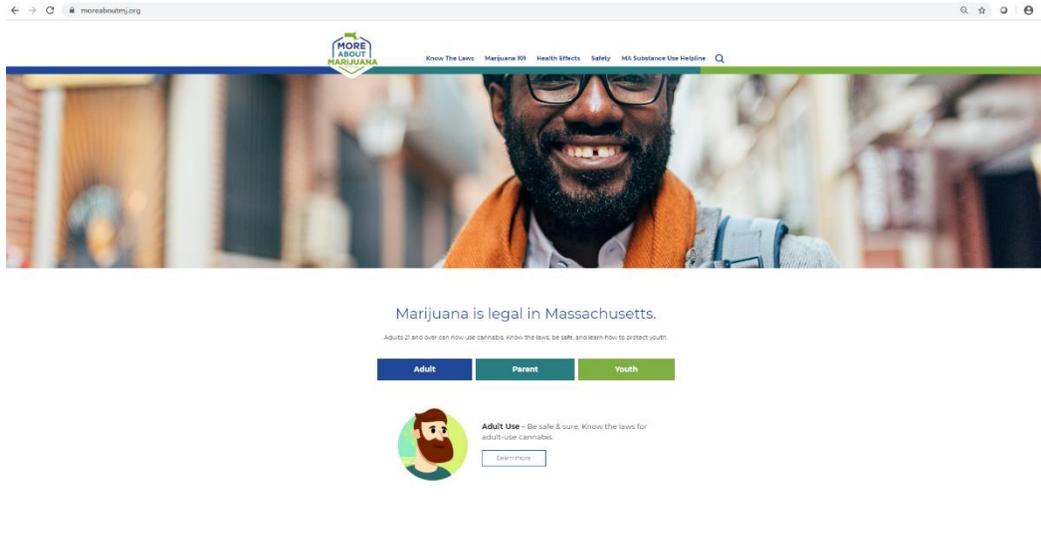
Did you know that while marijuana is legal in MA for adults 21+, you can't consume it in public or on federal land? And you can't carry it across state lines. Know the laws - learn more at MoreAboutMJ.org #MoreAboutMJ

11:00 AM - 22 Mar 2019

75 Retweets 166 Likes

🗨️ 28 🔄 75 ❤️ 166 ✉️

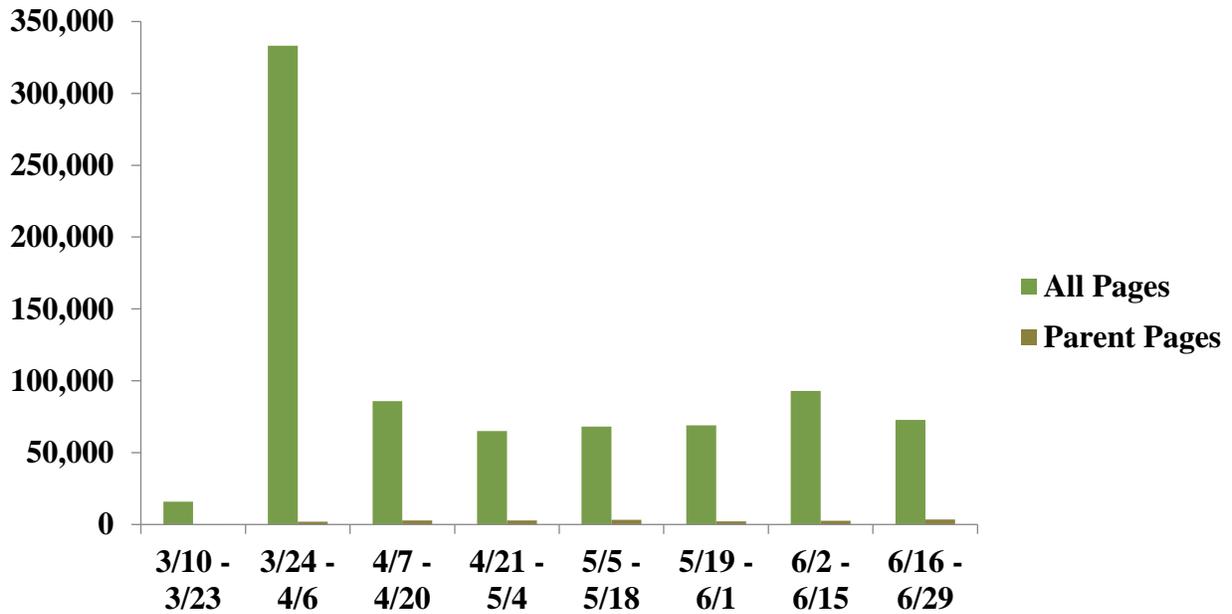
5.5 New MoreAboutMJ.org Website homepage:



Note: New website launched on July 18, 2019

Appendix 6: Supplemental Website Data

Table 6.1 Website pageviews (N=761,564)



*Note: Snapchat pre-load function led to an artificial inflation of pageviews during 3/24 – 4/6 reporting period.

Table 6.2 Website Users (N=362,113)

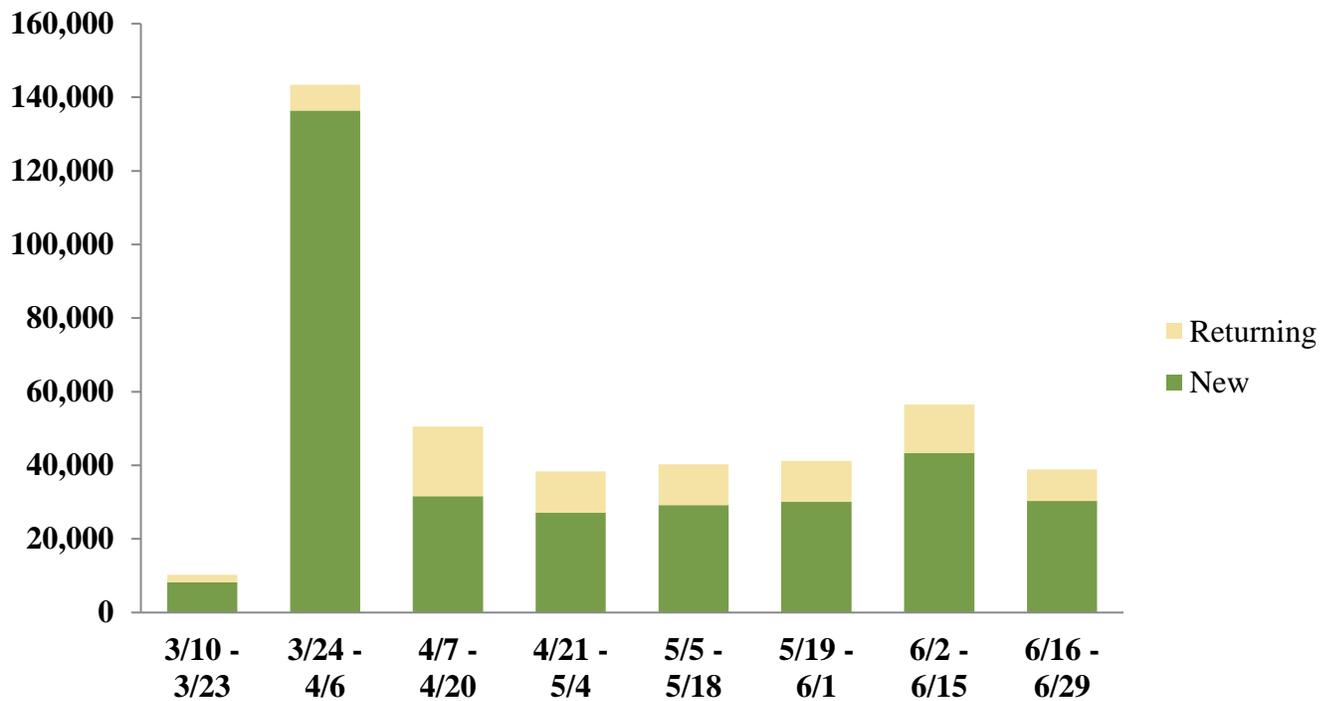


Table 6.3 Average Website Session Duration

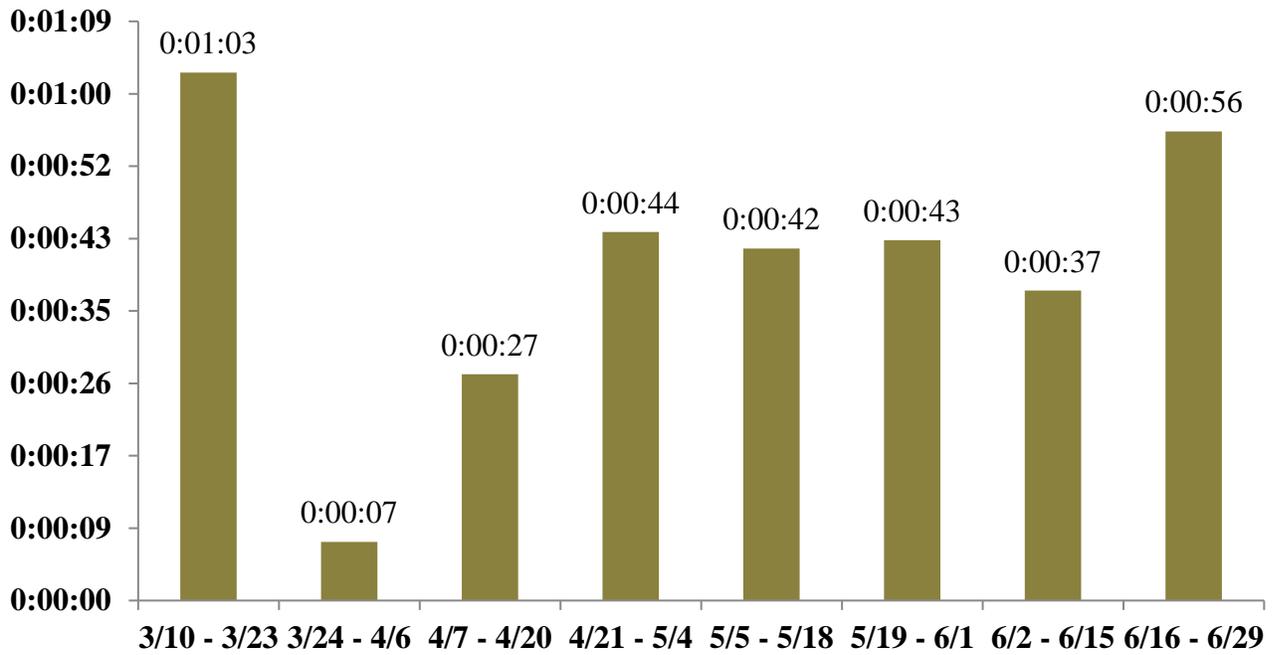


Chart 6.1 Website Devise Usage

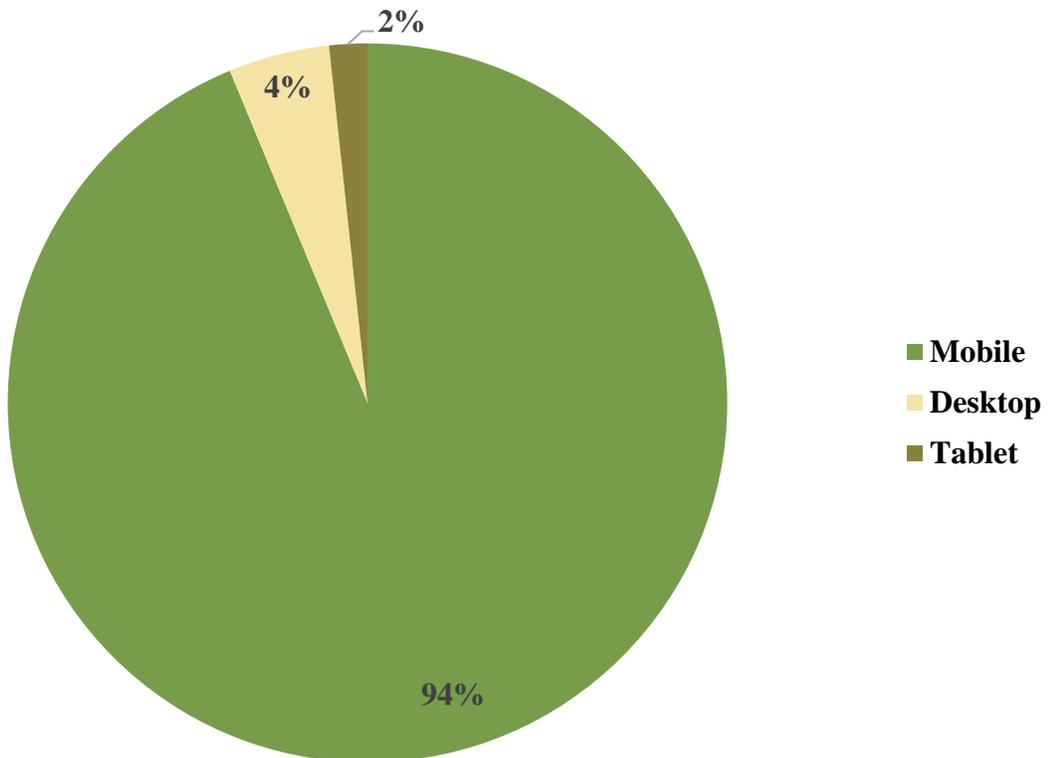


Chart 6.2 Website traffic pre-campaign and campaign averages

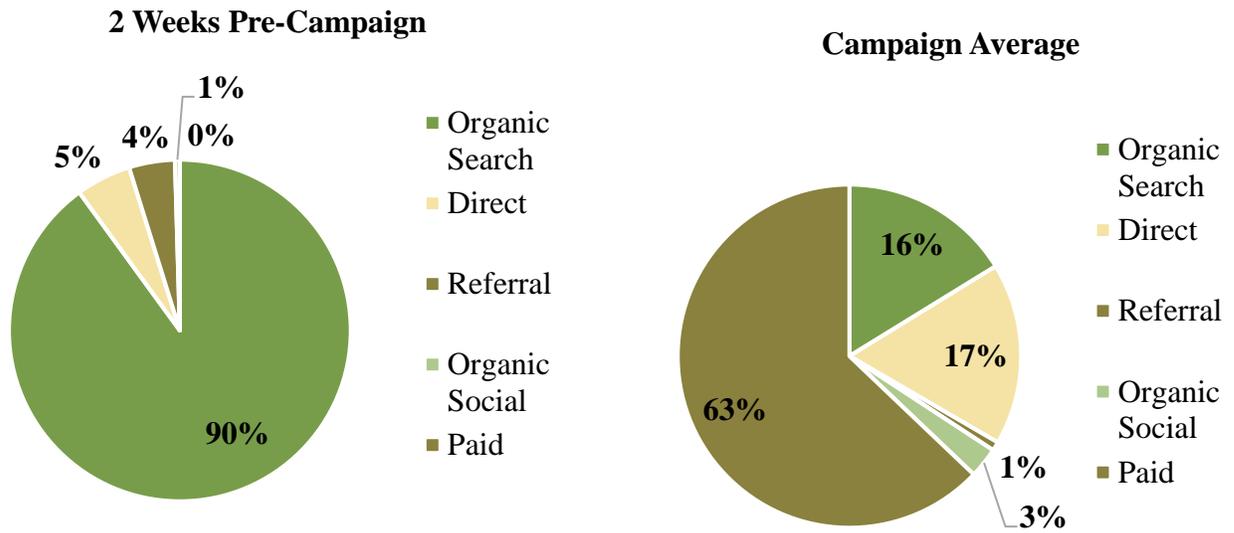
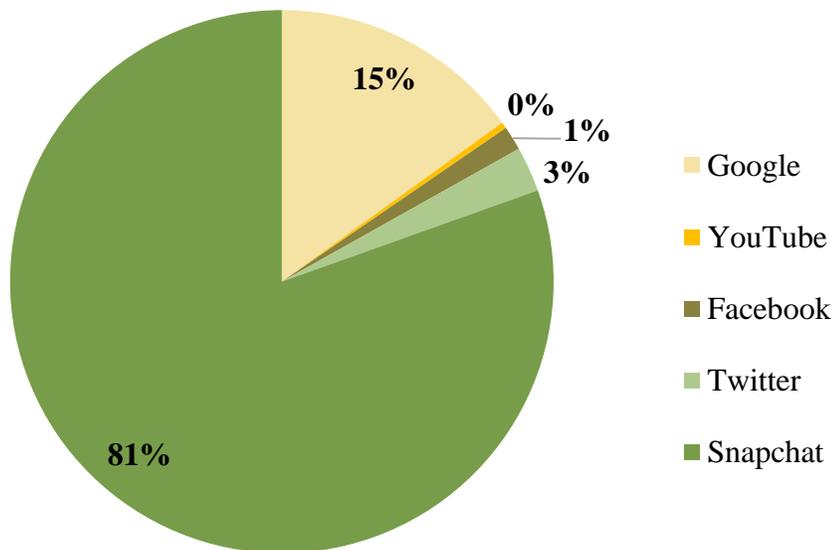


Chart 6.3 Website Sessions from Paid Social Campaigns



Appendix 7: Supplemental Social Media Data

Table 7.1 Google Ad Clicks by Sub-campaign

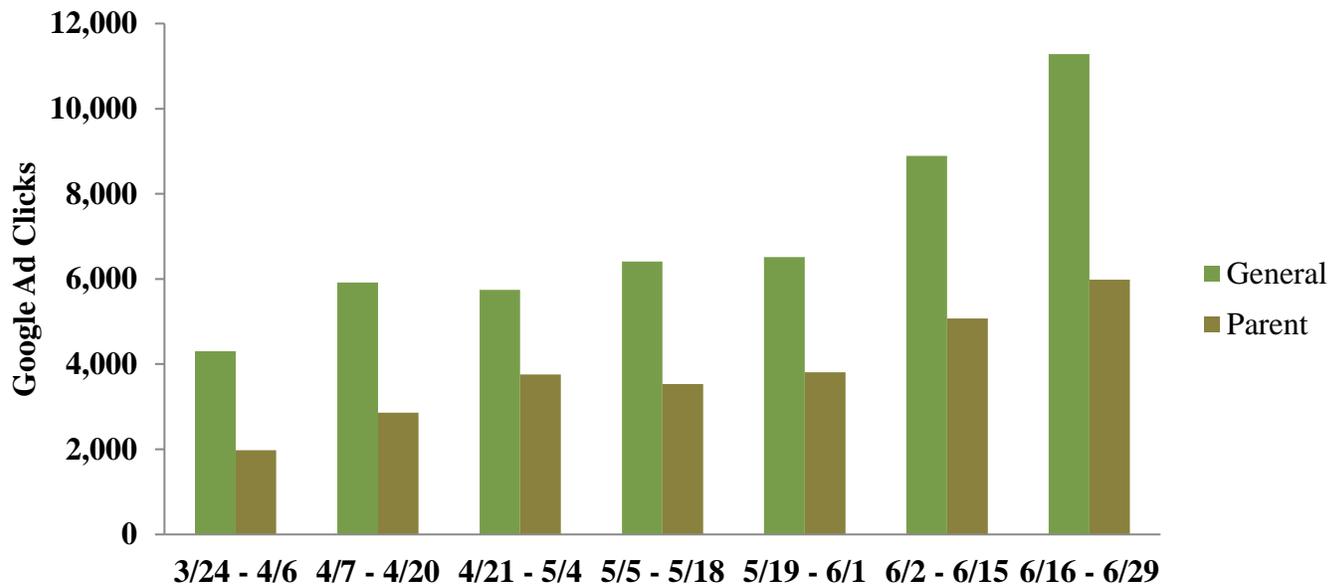


Table 7.2 Google Ad Click Through Rate by Sub-campaign

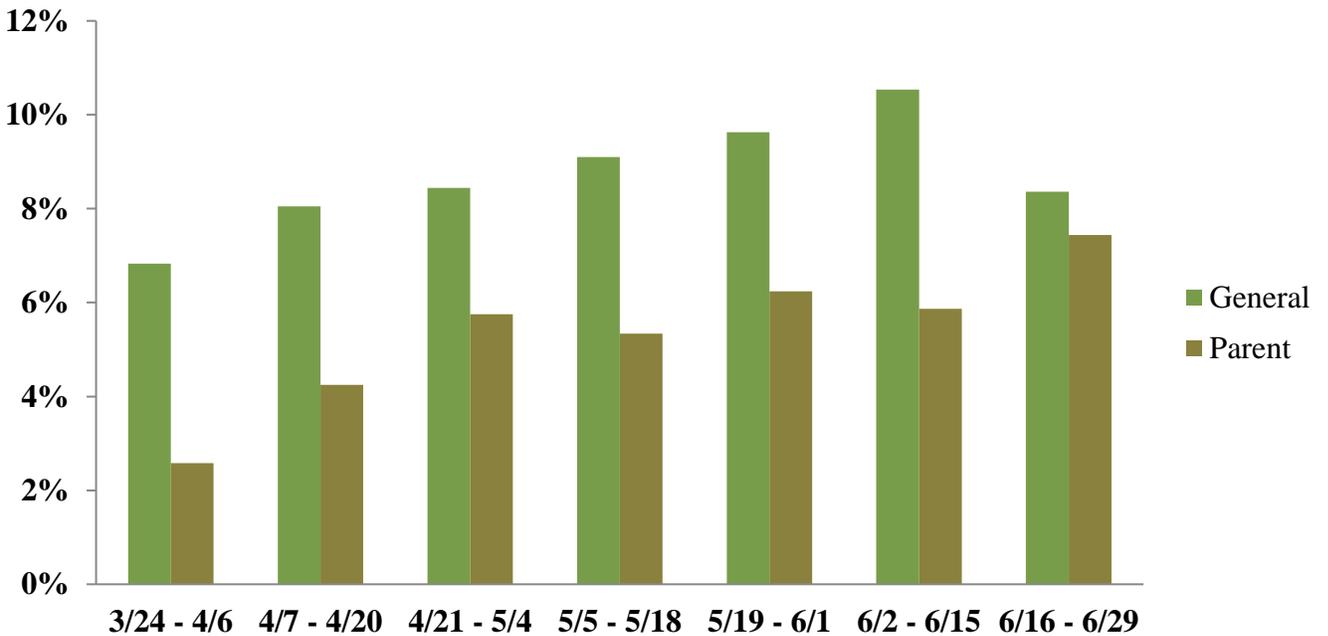
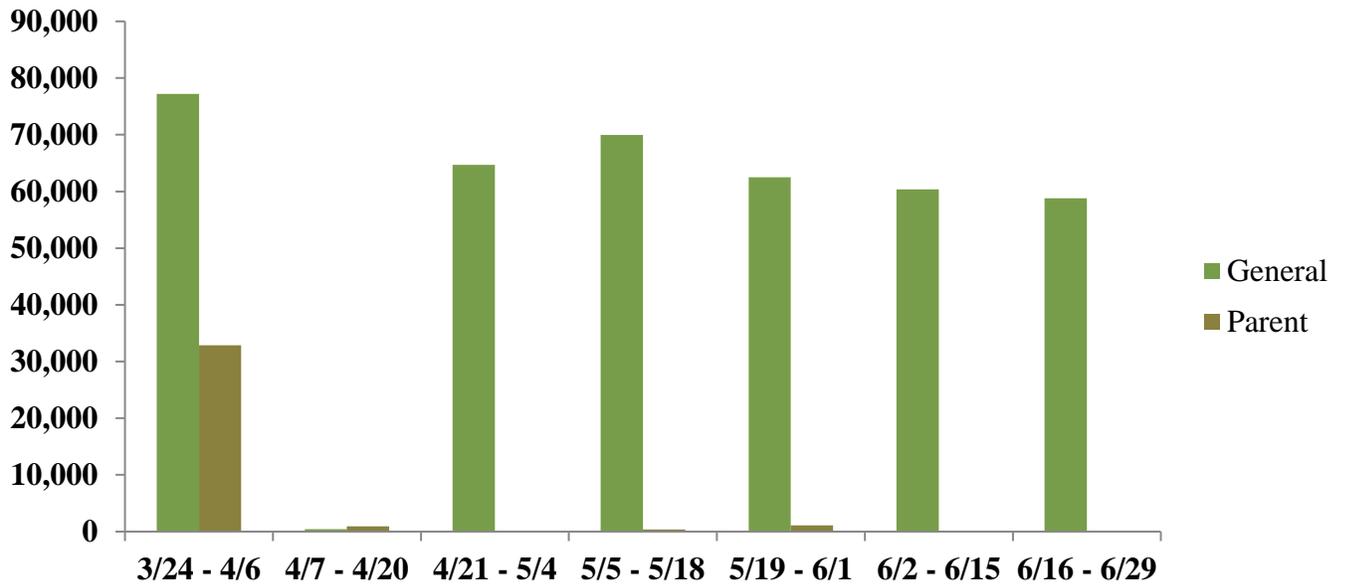


Table 7.3 YouTube Views by Sub-campaign



Note: 5/5/19: Relaunched YouTube Parent campaign with new bid strategy. 6/2/19: Ended parent campaign and added videos to general campaign to boost performance.

Table 7.3 Facebook Parent Campaign Ad Clicks

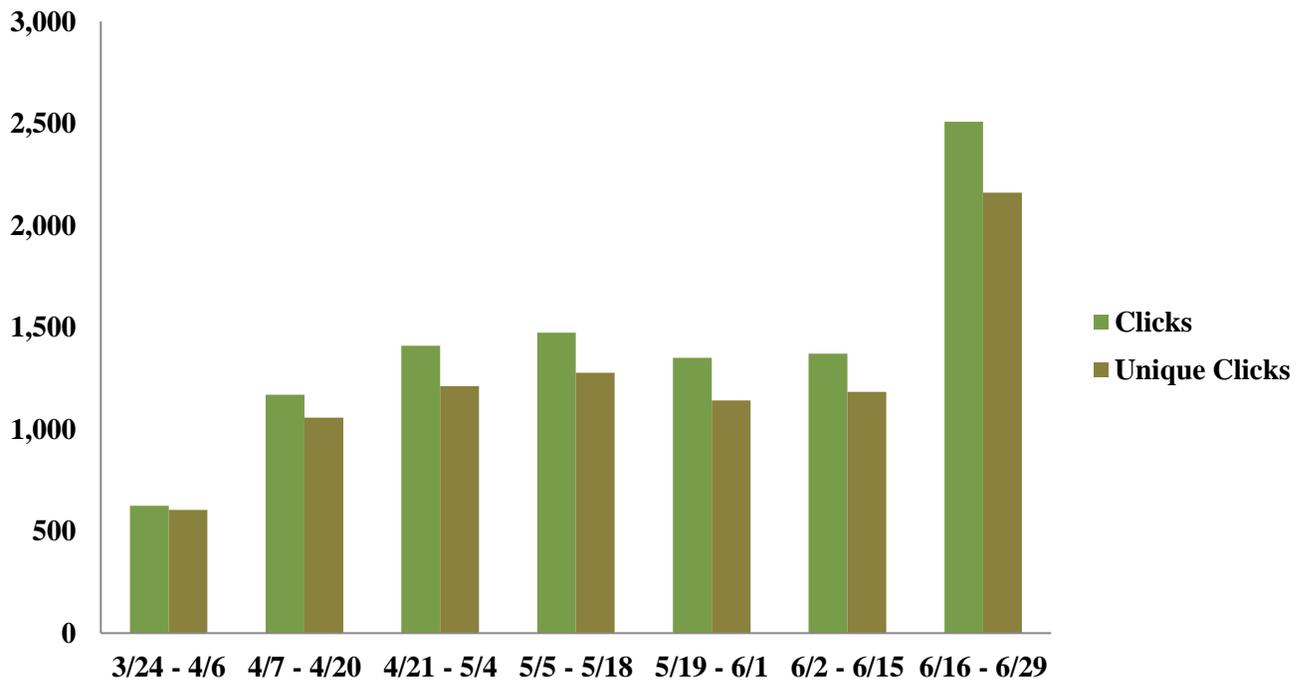


Table 7.4 Facebook Parent Campaign Ad Click Through Rate (CTR)

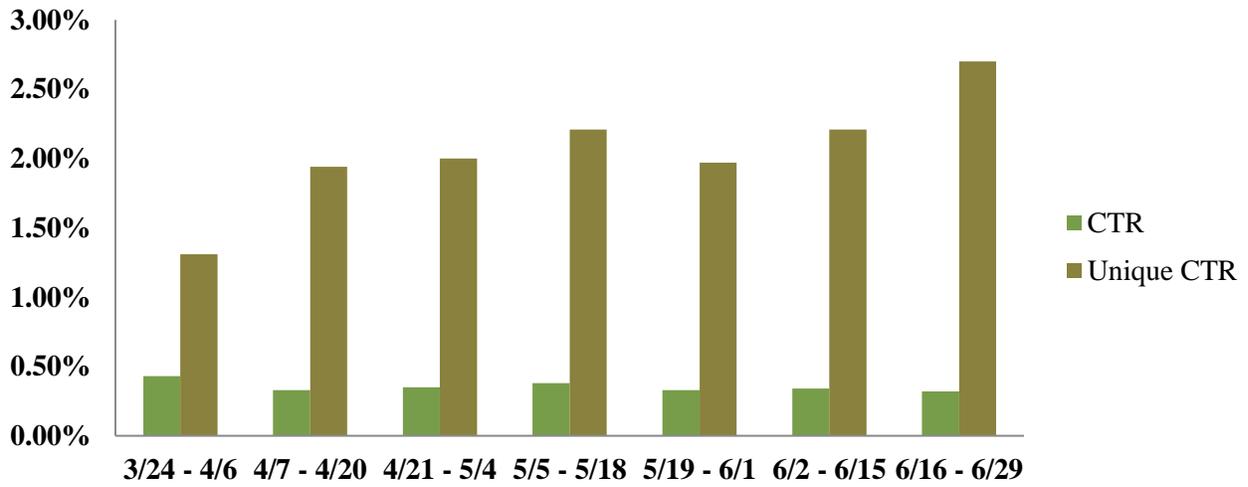


Table 7.4 Facebook Parent Campaign Ad Engagement

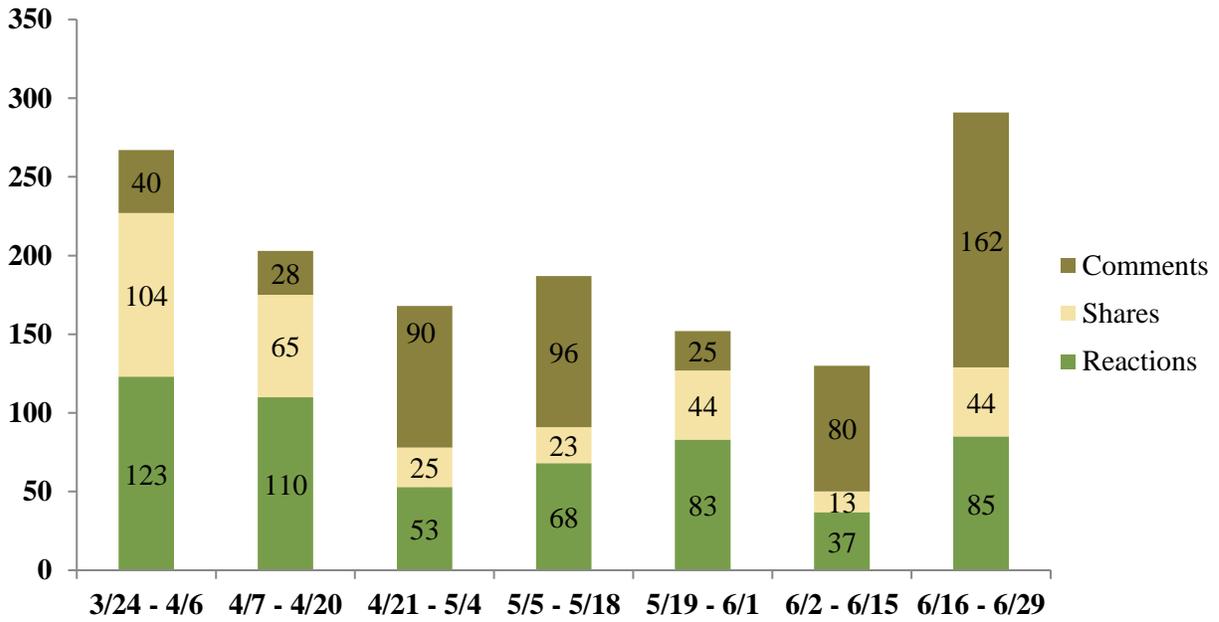


Table 7.5 Snapchat General Campaign Ad Completions

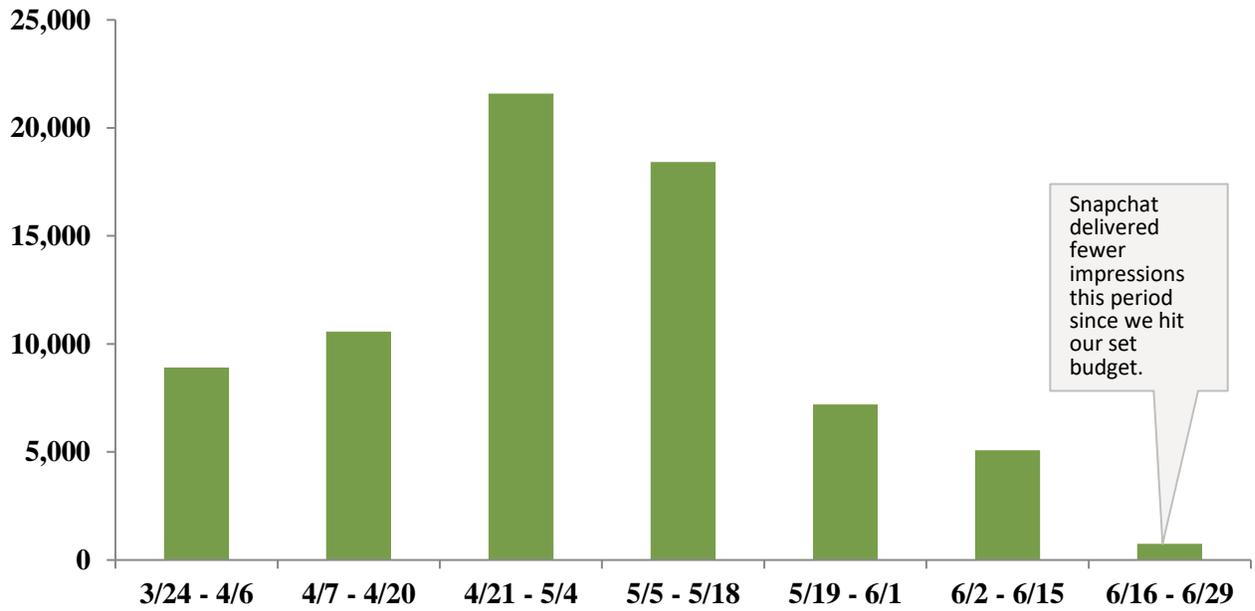


Table 7.6 Snapchat General Campaign Ad Completions Rate

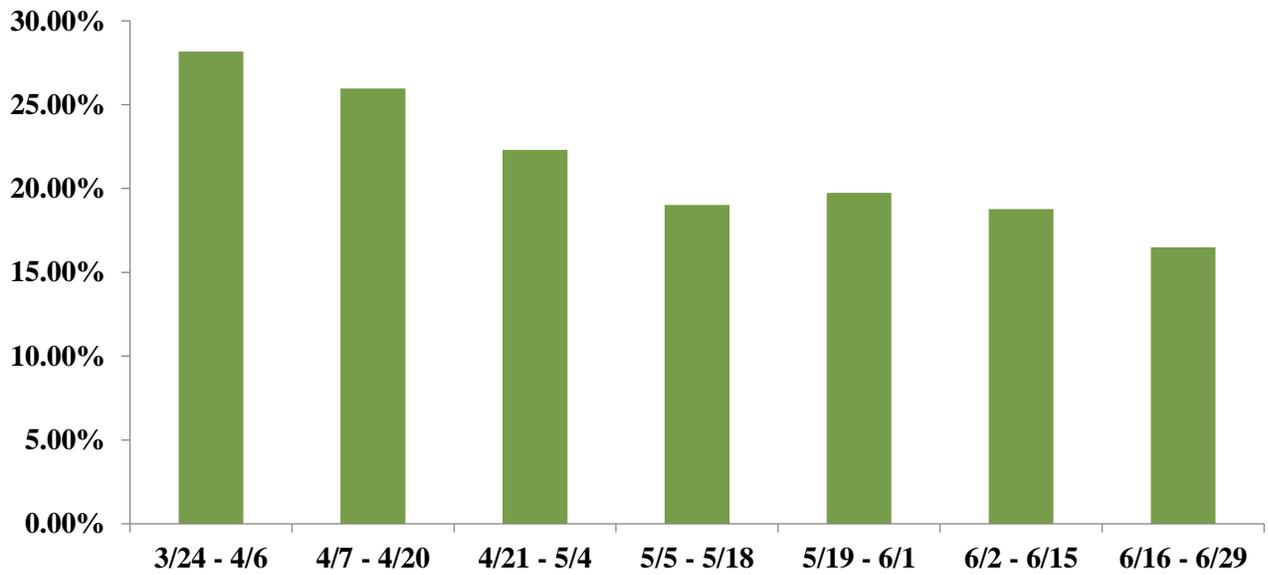


Table 7.6 Twitter General Campaign Views

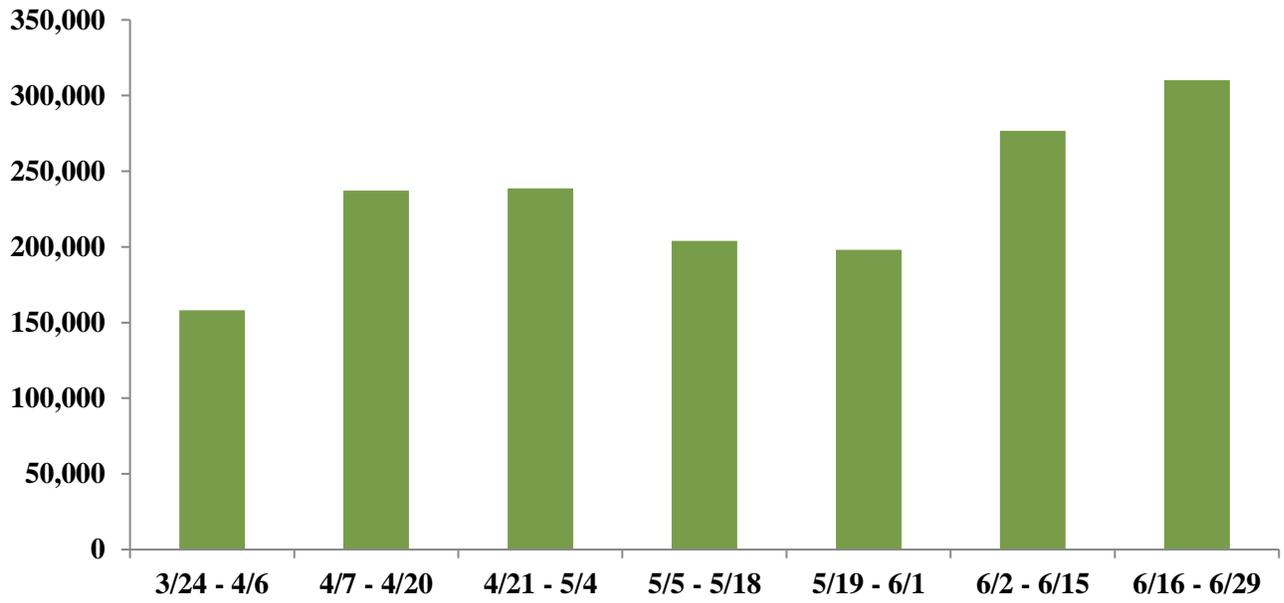


Table 7.7 Twitter General Campaign Video Completions

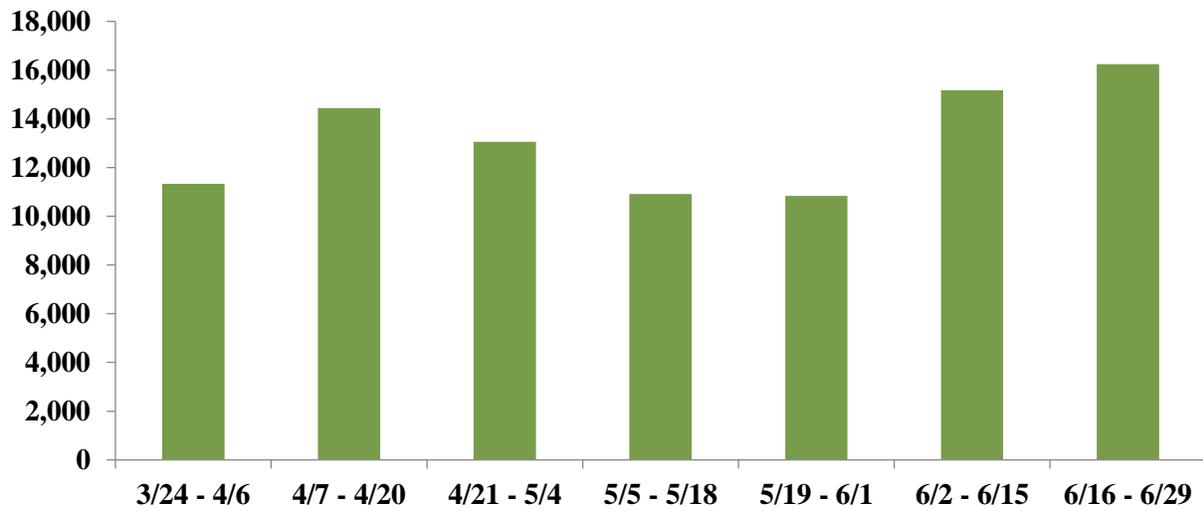


Table 7.8 Twitter General Campaign Video Completion Rate

