


Say Yes! COVID Test: A Health Communication Campaign to Encourage Use of Rapid, At-Home Antigen Testing in Underserved and Historically Marginalized Communities

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Abstract

This paper describes a robust health communication campaign that supported Say Yes! COVID Test, the first National Institutes of Health (NIH)-sponsored initiative promoting community-wide, at-home, rapid antigen testing for severe acute respiratory syndrome—coronavirus 2 (SARS-CoV-2), the cause of the COVID-19 pandemic. The primary goals of the health communication campaign were to promote awareness of the program among local residents, facilitate test kit distribution, and encourage frequent test kit use. To plan and implement the campaign, the team applied principles of social marketing. The populations of focus were adult residents of selected communities in North Carolina (Greenville, Pitt County) and Tennessee (Chattanooga, Hamilton County), with an emphasis on underserved and historically marginalized populations. Following an accelerated planning phase, the campaign included digital, out-of-home, television, and radio advertising, in addition to public relations and organic social media. Collectively, this campaign coupled with our grassroots community engagement efforts facilitated the distribution of 66,035 test kits across both communities, or more than 1.6 million at-home tests. Facebook ads were the most successful in driving online test kit orders (7.9% conversion rate in Pitt County; 8.1% conversion rate in Chattanooga), although employing a variety of marketing channels enabled reach across multiple subpopulations. Market research data indicated high program awareness but low uptake in testing. Lessons learned from campaign planning and implementation can inform future public health initiatives, including selecting the appropriate marketing mix to facilitate awareness, and collaborating with community partners and local health departments to ensure successful program execution.

Keywords

COVID-19, health communication, at-home rapid antigen testing, social marketing, digital advertising, geotargeting, health equity

What do we already know about this topic?

Black and Latino Americans are disproportionately affected by COVID-19, with nearly 3 times the risk of hospitalization and at least twice the risk of death compared with Whites, and inequalities in health communication during this public health emergency may reinforce existing disparities.

How does your research contribute to the field?

Lessons learned from campaign planning and implementation can inform future public health initiatives, including selecting the appropriate marketing mix to facilitate awareness, and collaborating with community partners and local health departments to ensure successful program execution.

What are your research's implications toward theory, practice, or policy?

Overall, we observed that no one marketing tool was the most effective in increasing awareness and test kit orders/pickup, and that different channels helped reach different subpopulations; we also found that demand for test kits outlasted the SYCT campaign duration, suggesting that health departments, community organizations, and policymakers should look for ways to provide free test kits outside of a particular campaign window.



Introduction

Throughout the COVID-19 pandemic, health organizations and governments around the world have relied in part on health communicators to promote preventive behaviors to reduce the spread of severe acute respiratory syndrome—coronavirus 2 (SARS-CoV-2). Surveillance testing of populations is a countermeasure that has been used by schools, workplaces, and athletic teams to aid in diagnosing asymptomatic cases of COVID-19, which are known to be infectious and may account for nearly half of all COVID-19 cases.¹ Rapid identification of SARS-CoV-2 infection can lead to faster index case identification and isolation and can help prevent community transmission. With this goal, surveillance testing has been piloted on a wider scale across entire communities.²⁻⁴

Black and Latino Americans are disproportionately affected by COVID-19, with nearly 3 times the risk of hospitalization and at least twice the risk of death compared with Whites.⁵ Inequalities in health communication during this public health emergency may reinforce existing disparities.⁶ We report on the development, execution, and evaluation of a health communication campaign supporting the first community-wide at-home SARS-CoV-2 testing program in the United States.

Methods

Intervention and Aims

Say Yes! COVID Test (SYCT) is a public health initiative supported by local health departments and government, community, and academic groups.⁷ The goal of SYCT was to determine whether frequent at-home rapid antigen testing for SARS-CoV-2 infection could decrease community spread of the virus by triggering early isolation and other precautions for infected individuals, including those who were asymptomatic. The health communication campaign aimed to achieve the following objectives:

- *Build awareness:* Increase awareness of free at-home test kits in the selected communities, with a focus on underserved and historically marginalized populations.
- *Place test kits in hands:* Facilitate online test kit orders or local pickup by community members.

- *Inspire short-term behavior change:* Encourage test kit use at regular intervals (3 times weekly) for 4 weeks, even if no symptoms of COVID-19 are present.
- *Promote health and safety:* Educate participants about safety precautions in the event of a positive or negative test result and empower them to take appropriate next steps for the health of themselves, their family, and the community.
- *Present additional research opportunity:* Inform participants about the opportunity to participate in an optional research study evaluating health behavior in a way that does not detract from the primary public health initiative.

Population

To align with deployment of the public health initiative, our campaign's target audience was adult residents of selected communities in North Carolina (Greenville, Pitt County) and Tennessee (Chattanooga, Hamilton County), with a focus on underserved and historically marginalized populations. Details of the community selection process are described in the literature.⁷ The communication campaign focused on the city of Chattanooga versus the entire population of Hamilton County. The goal was to distribute test kits to 40 000 households per community (each participating household was given enough tests for up to 2 household members), or an estimated 25% of the population. The highest priority audiences were those with a greater COVID-19 exposure risk, such as unvaccinated community members, essential workers, and those with many points of contact outside the home, along with their family members. In addition to reaching individuals in the community, the campaign focused on engaging community leaders and organizations to spread campaign messages within their communities.

Key Concepts

To plan and implement the health communication campaign, the SYCT communications team applied principles of social marketing,^{8,9} which include commercial marketing principles and techniques designed to improve the health and welfare of community members. The team focused on the 4 key elements central to a successful social marketing strategy: product, price, place, and promotion (Supplemental Table 1).

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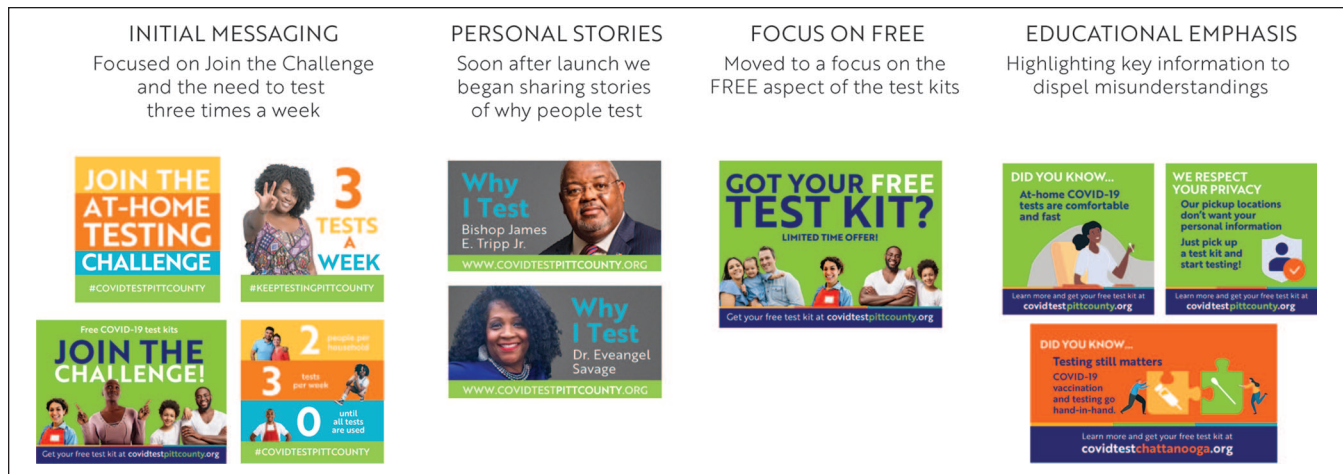


Figure 1. Messaging evolution over the course of the program.

Time Period

Due to the urgency of the pandemic, the campaign was developed under an accelerated timeline, with launch occurring 4 weeks after selection of the participating communities. The campaign supported 6 weeks of advertising focused on test distribution and an additional 2 to 4 weeks of advertising focused on test use reminders in each community. While the at-home tests were authorized for use in those ≥ 8 years of age, the campaign was designed to reach adults. The campaign ran from March 24 to June 4, 2021, in Pitt County and May 3 to July 2, 2021, in Chattanooga.

Branding and Messaging

The SYCT communications team partnered with communication strategists, program leaders, writers, graphic designers, and a creative agency to develop a campaign name and logo. The name “Say Yes! COVID Test” was selected because of its positive sentiment, clear call to action, direct link to the campaign objective, and acceptable translation into Spanish, a high-priority target audience. To engage residents of the selected communities, imagery used included local landmarks and landscapes, along with people reflective of the target audience with diversity in age, gender, race, and ethnicity. Program collateral was co-branded with the local public health department name and logo.

During the campaign, messaging evolved from a call to “join the at-home testing challenge” to personal stories of “why I test” from local community leaders, to a focus on the free limited time offer, and on to educational messages designed to dispel misinformation and build trust (Figure 1).

Campaign Websites

A central campaign website (sayyescovidtest.org) was created to provide a holistic view of the program and serve as a

portal to the community-specific websites, which were designed with the primary objective of getting test kits into the hands of local community members. Test kits could be ordered online or picked up from community partner distribution sites (Supplemental Figure 1). The proportion of test kits to be distributed locally versus online ordering was not predetermined and remained flexible. The websites also provided testing recommendations and shared information about the opportunity to participate in an optional SYCT research study to evaluate health behavior. Spanish versions of the content were available by clicking a language selection button on the website.

Public Relations and Earned Media

The CDC and NIH initiated the campaign launch with a co-led press release announcing the SYCT program in 2 communities. The Pitt County Health Department issued a press release announcing the availability of free, at-home, rapid COVID-19 test kits and hosted a press conference on launch day, which was timed to coincide with their weekly COVID-19 press briefing. The Hamilton County Health Department announced their participation shortly after, using the same strategy.

Local health department directors served as the primary spokespeople for the campaign and were supported by community leaders who spoke about the importance of testing and shared their testing stories. Press releases were issued throughout the campaign to announce distribution milestones and events as well as to close the program and thank community partners.

Digital Advertising

Geotargeting was used for digital advertising to restrict ads by ZIP code. Google search ads were utilized; keywords of interest included “COVID testing near me,” “rapid home

COVID test,” and “home COVID test kit.” Digital ads promoting SYCT were run on Facebook, Instagram, YouTube, streaming television, and streaming radio. These ads included 3 promotional video concepts (15-30 seconds long), motion animations, and images.

Social Media

Before campaign launch, the SYCT communications team identified local influencers, businesses, and groups with the largest amount of social media followers for their geographical area. The team contacted these influencers and groups to inform them of the mission of SYCT and request their support in posting and sharing campaign content. A social media toolkit created for the campaign provided sample posts and images for sharing (Supplemental File 1). English and Spanish versions were circulated for influencers and local community partners.

The campaign was supported by a social media presence on Facebook, Instagram, and Twitter, including local Facebook pages for both communities. NextDoor was added as a channel after program launch in response to NIH and CDC recommendations based on their success with the platform in other public health initiatives. We activated Snapchat ads late in the campaign in an attempt to engage the 18 to 24 age group.

Facebook was the priority channel for organic social media. Local, tailored content was posted weekly to promote SYCT messages and test kit distribution events.

Out-of-Home Advertising

SYCT advertisements were featured on local billboards, buses, bus shelters, and windows of local businesses. We provided brightly colored outdoor canopy tents and feather flag signs to draw attention to distribution sites. The campaign also used ads on gas station televisions, convenience store checkout digital displays, and screens in healthcare facilities. Furthermore, we employed paid outreach teams to hang SYCT door-hanger ads on residential households. Residents also received a direct mailer with program information.

Paid Media: Television, Radio, and Newspaper

Geotargeting for broadcast television and radio was done via designated market areas. For newspaper and radio advertisements, we established local media partnerships, with a particular focus on Black and Hispanic-owned media. We ran SYCT ads in both print and online local publications, along with radio ads that were a mix of recorded audio and live reads by local hosts.

Metrics Evaluation

We monitored website metrics (via Google Analytics), performance of digital advertisements, and online test kit orders

weekly. Conversion rates, measured digitally, indicate the percentage of visitors or viewers who took the desired action of clicking to order a test kit. In addition, a market research study was conducted to evaluate awareness of the SYCT initiative and usage of the tests in Pitt and Hamilton Counties.¹⁰ Relevant questions included: “Are you aware that Pitt/Hamilton County Public Health is providing at-home test kits to households for free?”; “How did you hear about the at-home test kit program?”; and “How often have you used the at-home tests?”

Results

We executed an advertising campaign with a diverse mix of marketing channels. We spent \$528,446 across both communities, which resulted in over 25 million estimated impressions (Table 1). A total of 26,582 free test kits were distributed in Pitt County and 39,453 in Hamilton County,¹⁰ equaling a combined 1.6 million tests across both communities.

Campaign Websites

Most website traffic came from the target metro areas (55% for Pitt County, 66% for Chattanooga). Conversions (clicks to order a test) were also primarily from the target communities (68% for Pitt County, 75% for Chattanooga). The proportion of sessions from mobile devices was similar in both communities (74% for Pitt County, 72% for Chattanooga) and was even higher for paid traffic (83% for Pitt County, 82% for Chattanooga). English was the browser language for 99% of users in Pitt County and 98% in Chattanooga. The Spanish websites resulted in 7 conversions for Pitt County and 15 for Chattanooga.

Paid traffic was the largest acquisition source, followed by direct and social (Table 2). Organic search and direct traffic had the highest conversion rates for Pitt County (53% and 51%, respectively), while email and referral traffic had the highest conversion rates for Chattanooga (44% and 40%, respectively).

Public Relations and Earned Media

The media strategy generated awareness and interest in SYCT on a national, state, and local level, and led to an influx of test kit orders at launch and throughout the campaign. The program was covered in 18 print/digital articles in Pitt County, 2 in Chattanooga, and a total of 51 including national coverage. It was mentioned in 26 local radio/broadcast segments in Pitt County, 19 in Chattanooga, and a total of 86 including national coverage.

Digital Advertising

Digital advertising made up the largest component of the campaign (Table 1). The average conversion rates across

Table 1. Summary of Paid Media Channel Performance by Community.

Medium	Impressions		Cost per 1000 impressions		
	Pitt county	Chattanooga	Pitt county	Chattanooga	Benchmark ^a
Digital ads ^b	8822 594	6427 197	\$11.72	\$16.60	\$3-\$10
Out of home ^c	1 302 156	2 215 050	\$50.63	\$43.28	\$13-\$22
Gas station TV	432 919	251 915	\$30.00	\$47.99	–
Television/CTV	1 208 353	342 083	\$21.58	\$104.50	\$20-\$30
Radio/local media	1 996 500	2 147 214	\$10.67	\$22.54	\$10-\$20
All channels combined	13 762 522	11 383 459	\$16.69	\$26.24	–

Note. CTV = connected television (eg, Roku, Apple TV, video game consoles).

^aAcross all industries, as reported by Top Draw.¹¹

^bIncludes display ads, pre-roll, Facebook/Instagram, streaming radio, Pandora, Spotify, YouTube, Google search, and NextDoor.

^cIncludes digital/non-digital bulletins, door hangers, bus shelters, and convenience store checkout digital displays.

Table 2. Website Traffic Acquisition and Behavior by Community.

Source	Users		Conversion rate (%)		
	Pitt county	Chattanooga	Pitt county	Chattanooga	Health industry ^a
Paid	5744 (42%)	10 361 (40%)	7.9	11	–
Direct	3851 (28%)	5403 (21%)	51	39	1.4
Social	2094 (15%)	2145 (8.4%)	19	22	3.1
Organic search	1105 (8.0%)	2132 (8.3%)	53	37	5.6
Referral ^b	739 (5.4%)	2052 (8.0%)	44	40	7.3
Paid search	293 (2.1%)	2052 (8.0%)	32	31	5.1
Email	–	1495 (5.8%)	–	44	5.0

^aAverages reported by Bailyn¹² and Holmes.¹³

^bLargest referral sources included SayYesCovidTest.org, local health departments, and local news.

digital channels were 7.9% of clicks in Pitt County and 11% in Chattanooga resulting in a test kit order from the program's website (Table 3). Google search ads had the highest conversion rates of digital ads in both Pitt County (32%) and Chattanooga (31%), which was expected due to the user intent of seeking COVID-19 testing. However, the majority of test kits (52% in Pitt County and 63% in Hamilton County) were distributed locally by community partners (eg, religious organizations, local businesses) and not via online ordering.¹⁰ The promotional videos had an average completion rate of 87%.

Social Media

Of all web traffic resulting from digital advertising, Facebook/Instagram ads were responsible for 80% in Pitt County and 65% in Chattanooga. Of digital ad conversions, Facebook/Instagram ads were responsible for 82% in Pitt County and 46% in Chattanooga. Engagement with Facebook ads was highest in the ≥65 year-old age group and the lowest in the 18 to 24 and 25 to 34 age groups. We observed increases in website traffic coinciding with boosted Facebook posts. “Why I Test” personal stories performed best in Pitt County, whereas informational boosted posts such as “comfortable

and safe” and “you're in control” received more clicks in Chattanooga (Figure 1). Video ads on Facebook had stronger click-thru and engagement rates when compared with still images. Of the still images, the 2-3-0 graphic performed well.

On Facebook, there were 30 505 total post clicks and 1651 total reactions, comments, and shares across communities. Tweets resulted in 194 300 impressions and 557 link clicks. On Instagram, program accounts gained 31 followers. Across both communities, about half of the 50 local influencers we contacted participated in the campaign. NextDoor performed well in Chattanooga (18% engagement) but not in Pitt County (1.4% engagement). Snapchat ads were unsuccessful (0.5% engagement).

Out-of-Home Advertising

Out-of-home advertising was the second largest campaign spend (Table 1). We purchased mailing lists and sent promotional postcards to 81 923 households in Pitt County and 100 765 in Chattanooga. Paid outreach teams hung door-hanger advertisements at 49 000 residences in Pitt County and 99 000 in Chattanooga. In total across both communities, we ran advertisements on 5 billboards, 16 bus shelters, the

Table 3. Digital Channel Performance by Community.

Channel	Conversions		Conversion rate (%)			Was channel successful?
	Pitt county	Chattanooga	Pitt county	Chattanooga	Health industry ^a	
Display	33	90	4.4	5.3	0.8	Lower conversions than several other channels and more difficult to attract traffic
Pre-roll	15	3	1.5	0.3	0.5	Not a major source of conversions but may have supported awareness
FB/IG ads	951	1041	7.9	8.1	11	A consistently strong performer
Google search	153	1003	32	31	3.4	Highly successful
NextDoor	9	105	1.5	18	–	Varied by community
Snapchat	–	9	–	0.5	0.6	Not enough return for our campaign
All channels combined	1161	2251	7.9	11	–	–

Note. FB/IG = Facebook/Instagram.

^aAverages reported by Irvine^{14,15} and Parikh.¹⁶

sides of 13 buses, windows of ~110 retailers, televisions in pumps at 66 gas stations, 27 convenience store checkout digital displays, and 37 medical office waiting room screens. These tactics resulted in combined estimated impressions of more than 1.3 million in Pitt County and 2.2 million in Chattanooga.

Discussion

The health communication campaign was effective in raising awareness and facilitating test kit orders and local pickup. According to market research,¹⁰ 79.8% of respondents in Pitt County and 74.8% in Hamilton County were aware of the availability of home COVID-19 tests. A little more than half of respondents in both counties were aware that they could receive free test kits through SYCT. In both counties, awareness was highest among Black respondents. While awareness was high, market research also indicated that our campaign may have reached a saturation threshold in that some residents were aware of the program but did not want a free test kit. The stage of the pandemic also likely influenced test kit demand. For example, the more transmissible COVID-19 Delta variant was circulating during the SYCT Chattanooga initiative, which had greater test kit distribution within the same campaign duration.

The marketing plan for SYCT was developed to work in tandem with the project's community engagement plan. In brief, it was a multipronged strategy that engaged local health departments and community organizations. This coordinated approach allowed us to make real-time modifications to community engagement/outreach and marketing based on uptake of the test kits and other project variables (eg, research study enrollment).

Local health departments have a long history of partnering with community groups to promote the health of people in their areas. The local health departments involved in SYCT introduced the program to highly engaged and

connected community members, which was critical to the success of the program. Community partner organizations distributed most of the test kits, illustrating the value of employing local channels that were most familiar to residents. Additionally, partner organizations' leaders and constituents contributed significantly to the campaign by acting as spokespeople and sharing their personal stories, which were profiled by local and national media.¹⁷

In terms of driving online test kit orders, the campaign was more successful in Chattanooga than Pitt County. This may be due in part to the stage of the pandemic. In addition, the accelerated timeline for launch and resulting decreased planning time led to a slower campaign rollout in Pitt County, while Chattanooga benefited from the initial lessons learned along with additional lead time to reserve ad space and make connections with community partners. Chattanooga was also a larger market with more advertising opportunities. Launching all advertising channels from day 1 in Chattanooga coincided with a large initial spike in test kit orders. At the health department's suggestion, a telephone number was included on marketing materials in Chattanooga, which helped drive orders. The health department reported fielding 90 to 100 calls per day for test kit orders during the height of the campaign.

Overall, we observed that no one marketing tool was the most effective and that different channels helped reach different subpopulations. For example, while Facebook drove the most traffic of all digital advertising, it skewed female and older. Although the public health initiative did not collect demographic data from residents who ordered test kits, the market research studies showed higher reported awareness of and participation in the program by minorities, which was a goal of the campaign. We do not have data to indicate whether there were differences in participation based on socioeconomic status or access to the internet, which were noted as barriers in the Liverpool testing program.⁴ However, we sought to minimize disparities in distribution

by employing a wide variety of marketing channels, having in-person pickup and telephone ordering as options, and mounting a robust community engagement effort. Young, white males were difficult to reach. To increase participation among this group, future campaigns might explore an organic presence on Reddit or TikTok.

Executing a campaign about COVID-19 testing was challenging in several ways. COVID-19 is a polarizing and political topic where misinformation is rampant.^{6,18} Campaign social media posts attracted trolls and energized debate that required close monitoring and careful moderation. In addition, advertising policies kept evolving during the pandemic. On some channels, including Instagram and Facebook, SYCT ads were automatically taken down on numerous occasions, and we had to submit appeals to get them reinstated. Some channels, such as TikTok, were not allowing any COVID-19–related advertising. A few local publications also turned away campaign ads.

Being a government-supported initiative brought some criticism and distrust, as indicated by social media comments. This challenge was also noted with surveillance testing programs in the United Kingdom.^{4,19} In a 2020 survey on vaccine hesitancy, approximately 66% of Black Americans and 43% of Latino community members indicated that the government can rarely or never be trusted to look after their interests.²⁰ Black Americans were also twice as likely to trust a messenger of their own racial/ethnic group compared with a White counterpart. In campaign branding and messaging, we focused on delivery of tests by the local health departments as opposed to the national government sponsors. We also built partnerships with local minority community leaders, such as ministers and town council members, who volunteered to serve as communications allies and help share the campaign with their communities. Future efforts would benefit by gathering feedback from community stakeholders earlier and throughout the campaign. Orders from the Spanish SYCT websites were low. Future campaigns could do more to address the Hispanic/Latino population specifically.

The compressed timeline prevented us from conducting formative research to inform message and campaign development. However, data from other testing research suggested that appealing to an individual's desire to protect their family and community is motivating, along with offering peace of mind.^{4,19} In addition, tailoring messages by harnessing a connection to an individual's identity can enhance effectiveness in specific subpopulations.²¹ Our campaign was not successful in getting test kit recipients to test regularly several times a week.¹⁰ Meta-analyses have found that the effectiveness of mass media health campaigns on behavior change varies by target behavior, and other moderators of campaign effectiveness remain unclear or inconsistent.²² Further study is needed to explore barriers to frequent COVID-19 self-testing. Evaluation using an approach such as theory of change may help provide greater insight into causal connections and contextual factors influencing this outcome.²³

Implications for Research, Practice, & Policy

A health communication campaign to encourage use of rapid, at-home antigen testing in underserved and historically marginalized communities, combined with robust community engagement, was successful in building awareness and getting test kits into the hands of community members. More research is needed to understand test kit use patterns and how to support frequent at-home testing. Overall, we observed that no one marketing tool was the most effective in increasing awareness and test kit orders/pickup, and that different channels helped reach different subpopulations. Marketing efforts should be scaled up or down based on the stage of the pandemic, anticipated demand for test kits, and available advertising dollars. Similar programs with limited budgets can apply these findings to help select the most cost-effective communications channels. Furthermore, future campaigns should consider integrating complementary protective health behaviors, such as masking, hand washing, physical distancing, and vaccination. We found that events offering both vaccination and test kits were effective in providing multiple protective measures at the same time, with the same manpower. We also found that demand for test kits outlasted the SYCT campaign duration, suggesting that health departments, community organizations, and policymakers should look for ways to provide free test kits outside of a particular campaign window. Lessons learned from the marketing of this initiative can be applied to other public health programs that seek to engage underserved communities.

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Ethical Approval

The Duke Health Institutional Review Board (IRB) and UNC IRB evaluated the SYCT protocol and deemed exempt status for the overall public health intervention and granted approval for the embedded substudy.

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Supplemental Material

Supplemental material for this article is available online.

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