
NYC Condom Use and Satisfaction and Demand for Alternative Condom Products in New York City Sexually Transmitted Disease Clinics

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ABSTRACT *In 2007, via a high-profile media campaign, the New York City Department of Health and Mental Hygiene (NYC DOHMH) introduced the “NYC Condom,” the first specially packaged condom unique to a municipality. We conducted a survey to measure NYC Condom awareness of and experience with NYC Condoms and demand for alternative male condoms to be distributed by the DOHMH. Trained interviewers administered short, in-person surveys at five DOHMH-operated sexually transmitted disease (STD) clinics in Spring 2008. We systematically sampled eligible patients: NYC residents aged ≥ 18 years waiting to see a physician. We approached 539; 532 agreed to be screened (98.7% response rate); 462 completed the survey and provided NYC zip codes. Most respondents were male (56%), non-Hispanic black (64%), aged 18–24 years (43%) or 25–44 years (45%), employed (65%), and had a high school degree/general equivalency diploma or less (53%). Of those surveyed, 86% were aware of the NYC Condom, and 81% of those who obtained the condoms used them. NYC Condom users were more likely to have four or more sexual partners in the past 12 months (adjusted odds ratio [AOR]=2.0, 95% confidence interval [CI]=1.0–3.8), use condoms frequently (AOR=2.1, 95% CI=1.3–3.6), and name an alternative condom for distribution (AOR=2.2, 95% CI=1.3–3.9). The most frequently requested condom types respondents wanted DOHMH to provide were larger size (28%), ultra thin/extra sensitive (21%), and extra strength (16%). We found high rates of NYC Condom use. NYC Condom users reported more sexual partners than others, suggesting the condom initiative successfully reached higher-risk persons within the STD clinic population. Study results document the condom social marketing campaign’s success.*

KEYWORDS *Condom social marketing, HIV prevention, Condom use and satisfaction*

One of the most cost-effective population-based methods for HIV and sexually transmitted disease (STD) prevention is condom distribution.^{1,2} The New York City Department of Health and Mental Hygiene (NYC DOHMH) operates a condom

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distribution program, distributing male condoms and lubrication since 1971, and female condoms since 1998. Encouraged by a successful mass distribution campaign in Louisiana,³ DOHMH expanded its male condom distribution program in 2005 with an internet-and-phone-based condom ordering system for City organizations and businesses. This initiative increased monthly male condom distribution from ~0.5 to 1.5 million.⁴

To further expand and more effectively track condom use, DOHMH branded the “NYC Condom,” the first packaged condom unique to a municipality (www.nyc.gov/condoms). NYC Condom—a lubricated, standard-size Lifestyles male condom—was introduced through a high-profile media campaign starting on February 14, 2007. The month following the launch, DOHMH distributed 5 million NYC Condoms to organizations and businesses—distribution later stabilizing at ~3.4 million/month. In 2008, the NYC Condom was redesigned; the updated logo was relaunched with another Valentine’s day media campaign. In the 1.5 months following the relaunch, DOHMH distributed 7.7 million condoms.

DOHMH received a number of anecdotal reports from organizations distributing the condoms that the public wanted a wider variety of condoms distributed for free. A larger-size condom was most frequently mentioned. Little evidence around preferences for various condom types was available in the literature to drive programmatic decisions. Furthermore, information on the public’s use and satisfaction with NYC Condoms was needed.

Thus, to inform programmatic decision making regarding condom distribution, a two-phased, cross-sectional survey of sexually active New Yorkers was conducted to measure awareness of and experience with NYC Condoms, and demand for and experience with other male condoms. Phase I was a survey conducted during summer 2007⁵ at NYC public events catering to populations at high risk for HIV/STDs (e.g., men who have sex with men, blacks, and Hispanics).⁶ This phase found a high rate of NYC Condom awareness and use (among those aware), at 76% and 68.5%, respectively.⁵

Phase II targeted sexually transmitted disease (STD) clinic patients because of their increased levels of risk for acquiring HIV/STDs and access to NYC Condoms. DOHMH STD clinics are a large provider of free STD services for community members and distribute large numbers of NYC Condoms. Consequently, these sites were targeted for Phase II data collection to measure use and satisfaction in this population with easy access to NYC Condoms. This manuscript reports on Phase II of this study.

MATERIALS AND METHODS

DOHMH operates nine STD clinics in NYC’s five boroughs. Services are free to individuals ≥ 12 years old and include: STD/HIV testing, emergency contraception, hepatitis A/B vaccines, and hepatitis C testing. Patients can elect to see a physician (standard clinic protocol) or, if asymptomatic, leave specimens for STD testing (express visit). Five clinics located in four boroughs were selected for participation due to high patient volume: Fort Greene (Brooklyn), Morrisania (Bronx), Jamaica (Queens), Chelsea (Manhattan), and Central Harlem (Manhattan). Data were collected from February 4–March 27, 2008.

Patients were recruited after registration while waiting to receive services. Only patients scheduled to meet with a physician were eligible for participation. Patients with an express visit were excluded for logistic simplicity and to focus on patients at higher risk for HIV/STDs. Additional eligibility criteria were: NYC resident and ≥ 18 years

old. We systematically approached as many patients as our staffing capacity would allow, essentially leading to sequential recruitment on data collection days.

The short, in-person surveys were administered anonymously by trained interviewers via handheld-assisted personal interview (HAPI) Pocket PCs in a private room in either English or Spanish. The questionnaire was programmed into the HAPI devices using NOVA Questionnaire Development System software. Survey staff did not have access to patients' medical record or other identifying information, including name (patients are assigned and called by a number to protect their confidentiality). A \$4 transit card was offered to participants finishing the survey.

Major outcome measures included whether individuals were aware of and using NYC Condoms, and whether individuals wanted another condom type to be offered for free in addition to NYC Condoms. Regarding NYC Condom awareness, we asked: "In the past 12 months, before your visit here today, have you seen or heard about condoms in a black package with NYC Condom written on it in colorful letters?" For NYC Condom use, we asked those who responded "yes" to the awareness question: "Have you used that condom in the black package with NYC Condom written on it? By used I mean have you *or any of your partners* ever used this condom when having sex together." To ascertain the respondents' desire for alternative condoms, we asked: "Condoms come in a variety of types, like color, feel or touch, brand, and size. If the Health Department were to provide another type of male condom for free, what type of condom would be your top choice?" This was an open-ended question that was subsequently categorized during data analysis.

Data were imported into SAS v9.1 for cleaning and analysis. Only respondents who completed the survey, provided a NYC zip code of residence, and reported sexual activity in past 12 months were included in the analysis. Women who reported sex with only women (WSW) in the past 12 months were also excluded because of low probability of condom use.

A logistic regression model was created to determine characteristics significantly associated with NYC Condom use. Potential factors included age, race/ethnicity, employment, education, District Public Health Office (DPHO) resident, number of partners, sexual identification as determined by gender of sexual partners, "frequent" condom user, and whether respondents named another condom for DOHMH to distribute. DOHMH has three DPHOs in high-need neighborhoods as determined by high disease rates and fewer available resources. These neighborhoods are South Bronx, Central Harlem, and Central Brooklyn. Using the reported zip code of residence, we classified respondents as residents of a DPHO neighborhood or not. A respondent was classified as a frequent condom user if he or she reported using condoms "every time" or "most times" with any sexual partner. Factors were first examined in univariate analysis. All variables significant at univariate level were included in multivariate analysis as well as age, race/ethnicity, and STD clinic where data collection took place.

A nominal logistic regression was also created to examine significant characteristics associated with the type of condom the respondent named, collapsed into five categories: larger size, extra strength, ultra thin, other, or no condom named. The same model-building method was used for the nominal regression used for the NYC Condom use model.

This study was approved by the NYC DOHMH institutional review board.

RESULTS

A total of 539 people were approached at the five STD clinics; 532 agreed to be screened (98.7% response rate). Of the 532, 489 were eligible via initial screening

and 462 completed the survey and provided a NYC zip code. We excluded one WSW and five non-sexually active respondents for a final sample size of 456.

Table 1 gives a demographic summary of study participants with a comparison to NYC's population using the 2007 NYC Community Health Survey (CHS). CHS is a random digit dial telephone survey that provides NYC population health information. This CHS analysis was limited to sexually active persons and excluded WSW. Because the study population and NYC's population have different age distributions, Table 1 presents the crude and age-adjusted study demographic summary and age-adjusted NYC population estimates. The majority of the STD clinic respondents were male (56%), non-Hispanic black (64%), aged 18–24 years (43%) or 25–44 years (45%), had a high school degree/general equivalency diploma or less (53%), and were employed (65%). Slightly more than half of NYC's population was male (53%), aged 25–44 years (55%); 41% were non-Hispanic white, 40% college graduates, and 66% were employed.

Almost half of survey respondents (47%) were men who had sex with only women in the past year (MSW), 44% were women who had sex with only men (WSM), and 9% were men who had sex with men (MSM). Over one third (35%) of survey respondents had four or more sexual partners in the past year. Almost half (48%) reported using a condom at last sex and 64% were classified as frequent condom users. NYC's population overall differed, with only 2.5% MSM, 83% with one sexual partner in the past year, and 32.5% using a condom at last sex.

Eighty-six percent of survey respondents had seen or heard about NYC Condoms in the past 12 months (Table 2). Of those, 76% had obtained them. NYC Condom use was 80.5% among those that had obtained them, 65.6% among those who had seen or heard of them, and 56.4% among all respondents. When compared to standard male condoms, NYC Condoms ranked 6.8 on a scale of 1 to 10 (with 1 being NYC Condoms are much worse than standard male condoms and 10 being NYC Condoms are much better).

Table 3 shows the logistic analysis results comparing individuals who had used NYC Condoms to non-users. Only significant univariate factors, age, and race/ethnicity are shown. NYC Condom users were more likely to have four or more sexual partners in the past 12 months (adjusted odds ratio [AOR]=2.0, 95% confidence interval [CI]=1.0–3.8); use condoms frequently (AOR=2.1, CI=1.3–3.6); and name an alternative condom for distribution (AOR=2.2, CI=1.3–3.9).

The most frequent condom types respondents wanted DOHMH to provide in addition to NYC Condoms were a larger-size condom (28%), ultra-thin/extra-sensitive condom (21%), and extra strength (16%) (Table 2). Twenty-two percent of respondents did not name another condom for DOHMH to distribute. Table 4 shows the nominal logistic regression results comparing respondents' characteristics by the condom type named. Only variables significant at the univariate level are included in the table. Respondents naming a larger-size condom, compared to those not naming a condom, were more likely to be frequent condom users (AOR=2.6, CI=1.3–5.1) and to be MSW (AOR=3.1, CI=1.6–6.1). Respondents naming an ultra-thin/extra-sensitive condom, compared to those not naming a condom, were less likely to be Hispanic (AOR=0.2, CI=0.1–0.7) and more likely to be MSW (AOR=2.3, CI=1.1–4.7). Respondents naming an extra-strength condom, compared to those not naming a condom, were more likely to reside in a DPHO neighborhood (AOR=2.7, CI=1.2–5.9) and be unemployed (AOR=2.3, CI=1.1–4.7).

In an open-ended question, respondents were asked the main reason why they named the alternative condom type they did. For respondents naming the larger-size

TABLE 1 Demographics of survey respondents at five New York City STD clinics as compared to the sexually active adult population of New York City in 2007

Characteristic	Survey <i>n</i> (%) (total <i>N</i> =456) ^a	Survey age-adjusted estimate (%)	Population age-adjusted estimate ^b (%)
Gender			
Male	255 (56.0)	65.5	53.9
Female	200 (44.0)	34.5	46.1
Age			
18–24	198 (43.4)	–	12.7
25–44	207 (45.4)	–	54.9
45–64	48 (10.5)	–	25.8
65 and older	3 (0.7)	–	6.6
Race/ethnicity			
White, non-Hispanic	47 (10.3)	8.4	41.2
Black, non-Hispanic	292 (64.0)	72.1	22.7
Hispanic	98 (21.5)	16.8	25.8
Other	19 (4.2)	2.7	10.3
Education			
High school diploma/GED or less	243 (53.3)	58.4	38.9
Some college	138 (30.3)	21.8	21.5
College 4 years or more	75 (16.4)	19.7	39.6
Employment			
Employed for wages or salary or self-employed	298 (65.4)	60.2	66.4
Not employed	158 (34.6)	39.8	33.6
Sexual behavior in past 12 months			
Men who report sex with women only	212 (46.6)	56.5	51.3
Women who report sex with a man	200 (44.0)	34.5	46.2
Men who report sex with a man	43 (9.4)	8.9	2.5
Number of sexual partners in past 12 months			
1	130 (28.5)	31.1	83.0
2–3	168 (36.8)	29.7	11.2
4 or more	158 (34.6)	39.2	5.8
Any condom use at last sexual encounter^c			
No	238 (52.4)	56.3	67.5
Yes	216 (47.6)	43.7	32.5
Frequency of condom use			
Frequent condom user	303 (66.4)	62.7	N/A
Not a frequent condom user	153 (33.6)	37.3	N/A

GED general equivalency diploma

^aDue to missing values, counts for each characteristic may not equal 456

^bData from the New York City Community Health Survey which provides weighted population estimates

^cCHS estimate is from 2006 survey

condom, the top three reasons were: more comfortable (51%), feels better (24%), and provides better protection against HIV/STDs (16%). For those naming an ultra-thin/extra-sensitive condom, the top three reasons were: feels better (69%), better protection against HIV/STDs (21%) and more comfortable (6%). For those naming

TABLE 2 Awareness and experience with NYC Condoms among survey respondents at five STD clinics in New York City

Question	Number	Percentage
Seen or heard about NYC Condoms in past 12 months		
Yes	392	86.0
No	64	14.0
Picked up NYC Condom (<i>n</i> =392)		
Yes	298	76.0
No	94	24.0
Used NYC Condom ^a (<i>n</i> =298)		
Yes	240	80.5
No	58	19.5
Experience with NYC Condom ^b —mean (standard deviation)	6.8	2.5
Other condom respondent wants health department to distribute		
Larger size	127	28.0
Ultra thin/extra sensitive	96	21.1
Extra strength	71	15.6
Other brand (e.g., Trojan, Durex)	19	4.2
Flavored	9	2.0
Colored	9	2.0
Studded/ribbed	8	1.8
Polyurethane	6	1.3
Other type	7	1.5
No other condom named	102	22.5

^aLimited to respondents that had picked up a NYC Condom

^bNYC Condom ranked on scale of 1–10 compared to a standard male condom (1=much worse than standard male condom and 10=much better)

an extra-strength condom, the top three reasons were: better protection against HIV/STDs (80%), more reliable/breaks less (11%), and feels better (7%).

Finally, we compared respondents who named any alternative condom to those that did not using multivariate logistic regression. Only MSW and frequent condom users remained significant in the multivariate model (AOR=2.2, CI=1.3–4.0 and AOR=1.8, CI=1.1–3.1, respectively).

DISCUSSION

Our study results document high NYC Condom usage rates and product satisfaction among NYC's STD clinic patient population. One year after the NYC Condom was first launched and distributed in DOHMH STD clinics, 86% of clinic patients had seen or heard about the condoms before the day of their interview and 81% of patients who obtained an NYC Condom had used it, indicating that free condom availability has translated into use. Compared to non-users, NYC Condom users reported more sexual partners, suggesting the condom initiative successfully reached higher-risk persons within this high-risk population. Respondents were satisfied with the NYC Condom, ranking it 6.8 on a scale of 1 to 10 compared to standard male condoms. Despite this, 77% suggested an alternative condom type for DOHMH to distribute; larger-size condoms, ultra thin/extra sensitive, and extra strength were the most frequently named alternatives.

TABLE 3 Univariate and multivariate analysis of respondents reporting NYC Condom use compared to those reporting non-use

Characteristic	<i>n</i> (N=392)	% used NYC Condom	COR (95% CI)	AOR ^a (95% CI)
Race/Ethnicity				
White	39	66.7	Reference	Reference
Black	255	68.2	1.1 (0.5–2.2)	1.1 (0.5–2.7)
Hispanic	81	59.3	0.7 (0.3–1.6)	0.7 (0.3–1.9)
Other	17	52.9	0.6 (0.2–1.8)	0.6 (0.2–2.1)
Age				
18–24	175	66.3	1.3 (0.7–2.5)	1.1 (0.5–2.4)
25–34	127	67.7	1.4 (0.7–2.8)	1.2 (0.5–2.5)
35–44	50	60.0	Reference	Reference
45+	40	62.5	1.1 (0.5–2.6)	1.2 (0.5–3.0)
Sexual behavior in past 12 months				
Men who report sex with a man	37	81.1	2.6 (1.1–6.6)	1.8 (0.7–5.0)
Men who report sex with women only	185	64.9	1.1 (0.7–1.7)	0.7 (0.4–1.3)
Women who report sex with a man	169	62.7	Reference	Reference
Number of sex partners				
1	107	49.5	Reference	Reference
2–3	145	69.0	2.3 (1.4–3.8)	1.5 (0.8–2.7)
≥4	140	74.3	2.9 (1.7–5.1)	2.0 (1.04–3.8)
Frequent condom user				
Yes	269	73.2	2.9 (1.9–4.5)	2.1 (1.3–3.6)
No	123	48.8	Reference	Reference
Chose an alternative condom				
Yes	307	70.7	2.7 (1.6–4.4)	2.2 (1.3–3.9)
No	84	47.6	Reference	Reference

AOR adjusted odds ratio, CI confidence interval, COR crude odds ratio

^aMultivariate model includes all significant univariate factors, STD clinic, age group, and race/ethnicity

This study is one of only a few published evaluations of condom distribution campaigns. Current results add to the evidence of success of this social marketing campaign from the evaluation’s Phase I, which found high rates of awareness (76%) and use (69%).⁵ Other evidence that condom distribution programs promote awareness and use comes from Louisiana and Africa. After Louisiana’s condom distribution campaign was initiated, women with more than one partner were significantly more likely to report condom use and 61% of African American men reported using the health department’s free condom at last sex.³ When a \$0.25 charge was initiated, condom use at last sex dropped from 77% to 64%,⁷ demonstrating that cost is a barrier to condom use. In a condom social marketing campaign targeting youth in Cameroon, 21% of youth reported ever obtaining free condoms and 52% of male youth who obtained them used them.⁸ During a Mozambique condom social marketing campaign, 56% of residents were aware of the program’s condom.⁹ Our results here and in our smaller, previous report⁵ are the first published results of a successful condom social marketing campaign in a large US city, and we are the first to report on user satisfaction with a free condom.

TABLE 4 Nominal logistic regression of factors associated with type of condom respondent wants the health department to distribute

	Larger size vs. no condom named AOR ^a (95% CI)	Ultra thin/extra sensitive vs. no condom named AOR ^a (95% CI)	Extra strength vs. no condom named AOR ^a (95% CI)	Any other condom vs. no condom named AOR ^a (95% CI)
Race/ethnicity				
White	Reference	Reference	Reference	Reference
Black	2.7 (0.8–9.3)	0.5 (0.2–1.4)	1.2 (0.3–5.6)	1.0 (0.3–3.6)
Hispanic	1.7 (0.4–6.2)	0.2 (0.1–0.7)	1.3 (0.3–6.3)	0.9 (0.2–3.7)
Other	0.5 (0.1–3.5)	0.3 (0.1–1.4)	1.2 (0.2–8.5)	0.1 (0.01–1.6)
Number of sex partners				
1	Reference	Reference	Reference	Reference
2–3	1.6 (0.8–3.5)	1.5 (0.7–3.3)	2.2 (0.9–5.5)	0.9 (0.4–2.2)
4 or more	1.9 (0.8–4.4)	1.6 (0.7–3.9)	1.7 (0.6–4.9)	1.1 (0.4–2.9)
Frequent condom user	2.6 (1.3–5.1)	1.7 (0.9–3.4)	1.1 (0.5–2.4)	1.8 (0.8–3.8)
Residence in a District Public Health Office ^b	1.7 (0.9–3.4)	1.8 (0.8–3.6)	2.7 (1.2–5.9)	0.9 (0.4–2.0)
Sexual behavior in past 12 months				
Men who report sex with a man	1.1 (0.3–3.7)	1.6 (0.5–5.2)	2.2 (0.6–7.8)	2.4 (0.7–8.2)
Men who report sex with women only	3.1 (1.6–6.1)	2.3 (1.1–4.7)	1.3 (0.6–2.9)	2.0 (0.9–4.4)
Women who report sex with a man	Reference	Reference	Reference	Reference
Unemployed	1.0 (0.5–1.8)	1.4 (0.7–2.6)	2.3 (1.1–4.7)	1.1 (0.5–2.3)

AOR adjusted odds ratio, CI confidence interval

^aAdjusted for STD clinic, age group, and all variables included in the table

^bNew York City Department of Health and Mental Hygiene has three District Public Health Offices located in high-need neighborhoods

Condom distribution programs are not uncommon in sexual health or public health clinics. However, published evaluations examining product use and satisfaction levels of these distribution programs are not common. We identified one article that evaluated a condom distribution program in a family planning clinic. Results were positive—72% reported using the condoms, 15% reported that receiving the free condoms helped them to use condoms for the first time, and 51% reported that receiving the free condoms helped them to continue using them.¹⁰ These results, like those presented in this article, indicate condom distribution campaigns in STD clinics can be effective in encouraging condom use.

Other condom distribution programs have not examined what individual characteristics predict use of free condoms. We found those that had used NYC Condoms were more likely to have more sexual partners, be frequent condom users, and to have named another type of condom for DOHMH to distribute. Increased use by those with more sexual partners suggests the program has successfully targeted those at higher risk for HIV/STDs. This may partly explain the higher use seen in this STD clinic population vs. the street intercept study conducted for phase I.

Notably, proxies for socioeconomic status (i.e., DPHO residence and employment status) were not significant predictors of free condom use in this population.

Despite respondents' high satisfaction with the NYC Condom, 77% named another type of condom they wanted DOHMH to distribute in addition to NYC Condoms. The most commonly named were larger-size, ultra-thin/extra-sensitive, and extra-strength condoms. These overall results were similar to our street intercept survey among event attendees, where 80% named an alternative condom type and the top three condoms named were the same.⁵ Little has been published on the types of condoms that people prefer, despite being essential information for planning condom distribution programs.

The few studies published provide little useful information for condom distribution program planning. One 2007 study of brand and color preference was conducted only in African American MSM, who preferred Trojan brand and non-colored condoms.¹¹ In a 1993 study of men of all sexual orientations, Grady et al. gave respondents a list of condom characteristics and asked them to choose all characteristics that they look for when selecting a condom. Only three characteristics included could be considered separate condom types—thin, color, and ribbed—the rest were general condom characteristics (e.g., easy to put on, stays on, etc.). Similar to our findings, thin was chosen as an important characteristic by a substantial proportion of respondents (42%), 13% chose color, and 7% chose ribbing.¹² A third 1992 study examined condom preferences in a convenience sample of Danish couples; 40% preferred frizzy condoms (i.e., condoms studded with noodle-like latex nodules) and 14% preferred colored condoms.¹³ These last two studies' point estimates are substantially higher than ours likely because respondents could choose more than one condom characteristic, whereas in our study, respondents were limited to naming one condom. We believe our results more accurately reflect respondents' wishes because respondents were not given a pre-determined list of condom types but could name any one condom they wanted. Notably, extra-strength and larger-size condoms were not included as options in these studies at all.

Favored alternative condom products analyzed by demographic group have not been previously studied to our knowledge. Here, we found MSW were more likely to name both larger-size and ultra-thin/extra-sensitive condoms. MSW were also more likely to name any alternative condom. Hispanics were less likely than whites to name an ultra-thin/extra-sensitive condom. Those who were unemployed or resided in a DPHO were more likely to name an extra-strength condom. Larger-size condoms were more often requested by frequent condom users. Reasons for choosing these top three condoms were consistent, regardless of condom type named: better comfort, better feel, better protection against HIV/STDs, and more reliable/breaks less.

Our results are subject to at least two limitations. They are not generalizable to the entire NYC sexually active population. We systematically sampled STD clinic patients and those individuals differ from NYC's population (Table 1). However, our goal was to survey high-risk individuals with access to NYC Condoms so that satisfaction could be measured among NYC Condom users. We also limited generalizability by restricting eligibility to individuals 18 years and older. Secondly, this short questionnaire provided limited qualitative data on condom experiences and satisfaction. Focus groups might be a better source for gathering in-depth information about experiences and satisfaction with NYC Condoms.

In response to our results, DOHMH began distributing additional types of condoms in November 2008, including this study's most frequently named types—

ultra thin/extra sensitive, extra strength, and larger size. More than 7 million of these alternative male condoms were distributed between November 2008 and October 2009. Other jurisdictions should consider free condom distribution efforts that include multiple types of condoms. Future evaluation efforts will include measuring use of these condoms and whether offering a variety of condom types translates into overall higher usage rates.

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