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Failure of many United States Department of Health Web sites to provide accurate information about the female condom

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Abstract

Uptake of the female condom (FC) in the United States has historically been low; inadequate promotion may be one barrier faced by potential users. We performed a content analysis of state and municipal health department Web sites to describe how the FC is being promoted for pregnancy and disease prevention. We found that only a slim majority (60.8%) of health department Web sites mention the FC at all and those that do include numerous inaccuracies in their messaging. These inaccuracies may discourage uptake of the FC or have a detrimental impact on the experience when using the product for the first time.

Keywords

Female condom; Department of health; Online health information; DOH Web sites; Contraception

1. Introduction

The female condom (FC) is the only Food and Drug Administration-approved, female-initiated contraceptive that also provides protection against sexually transmitted infections (STIs) during vaginal intercourse [1–3]. High-manufacturing costs has made its price higher than male condoms [4,5]; technical difficulties with its use, which requires positioning its inner ring over the cervix, along with documented complaints about noise made by the product during intercourse, have negatively influenced device uptake [6,7]. The second generation FC (FC2), which is made of nitrile, was released in 2009 [1]. The FC2 is cheaper and makes less noise during intercourse than its first-generation predecessor [8]. As uptake

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levels have remained less than optimal, however, promotion and educational support for the device may be inadequate to encourage demand [9].

The Internet is a commonly used source of health information, especially for women. While there is some mistrust of online information, trust may be higher for governmental sources such as departments of health (DOH) [10]. Therefore, we conducted a content analysis of information posted on the DOH Web sites of all 50 states and all major municipalities with a population of > 500,000 as per the 2000 US Census ($N = 29$) regarding the FC.

2. Material and methods

DOH Web site addresses were ascertained via Google®, and verified against a listing on the Centers for Disease Control and Prevention Web site. Information from Web sites of both municipal and state health departments was examined since municipal DOHs have similar but often separate responsibilities and functions independent of their respective state DOH [11]. After an initial review of some of the Web sites, one reviewer created a spreadsheet with categories of content about the FC that was deemed important and seemed to vary by Web site. Additional categories were added to this list as more Web sites were reviewed; previous Web sites were then rereviewed to input any missing information for any new categories that were added. The final list was then given to a second reviewer who conducted an independent review of all the Web sites, enumerating the information found within each category. Any cases where two reviewers disagreed about whether information was or was not on a particular Web site were reviewed by the two reviewers and a third reviewer, who then discussed until agreement was reached.

Web sites were reviewed between January and March 2014 by navigating to content areas on DOH Web sites likely to contain information on the FC, such as those related to pregnancy prevention and STIs. In addition, the search terms *female condom* and *FC2* were entered into the search engine of a Web site, if applicable. A Web site was classified as mentioning the FC if it had a page with FC information or a digital file posted on the Web site with FC information, even if that digital file had originally been published by another organization. In order to determine if a lack of mention of the FC on a Web site was an indication of a general lack of information about pregnancy and STI prevention methods or an omission specific to the FC, we reviewed all DOH Web sites that did not mention the FC to look specifically for any mention of the male condom or oral contraceptives for comparison.

3. Result

Overall, 48 (60.8%) of the 79 Web sites examined mentioned the FC. Of 48 Web sites that did mention the FC, only 23 (47.9%) displayed a visual depiction, either drawing or photograph, of the product. Sixteen (33.3% of those mentioning the FC) Web sites provided written instructions about how to insert the FC into the vagina, and nearly all Web sites that provided insertion instructions also provided details about how to remove it ($n = 15$, 31.1%). Only 11 of the Web sites that mentioned the FC (22.9%) provided illustrations depicting how to insert the device alongside written instructions (Table 1). Of the 14 state and 17 municipal Web sites that did not mention the FC, 11 (78.4%) state and 12 (70.6%) municipal

Web sites mentioned the male condom, and 6 (42.9%) state and 7 (41.2%) municipal Web sites mentioned oral contraceptives. (Data not shown.)

The information provided on the usage of the FC was often incorrect or inconsistent with current manufacturer specifications. Just seven Web sites (14.6%) specifically referred to the product as the “female condom 2” or “FC2”. Only seven Web sites (14.6%) accurately mentioned that the FC is made of nitrile; of the 41 Web sites that did not list the correct material type, 24 (58.5%) Web sites incorrectly described the material, calling it polyurethane, plastic, silicon or synthetic rubber. Nineteen Web sites (39.6%) did not mention the FC material at all (Table 2).

Thirty-two Web sites (66.7%) failed to mention that the FC can only be used once, and 34 (70.8%) did not mention that the FC and male condom cannot be used concurrently. Among the 10 (20.9%) Web sites that mentioned that the FC could be inserted prior to vaginal intercourse, the time frame ranged from 2 hours to 12 hours before intercourse; the Web site for the National Female Condom Coalition states that, “for vaginal use, the Female Condom can be inserted right before or minutes in advance of vaginal sex” [12] (Table 1).

State Web sites were more likely than municipal Web sites to mention of the FC (72.0% vs. 41.4%, $p = 0.009$). On those Web sites, however, the proportion of Web sites providing written instructions was significantly lower for state than municipal Web sites (22.2% vs. 66.7%, $p = 0.013$), as was the proportion showing illustrations depicting use (13.9% vs. 50.0%, $p = 0.018$). Furthermore, state Web sites were significantly less likely to refer to the product as the female condom 2 or FC2 (5.6% vs. 41.7%, $p = 0.007$); the proportion of state Web sites specifying that the FC is made from nitrile was also significantly lower among state Web sites (2.8% vs. 33.3%, $p = 0.012$) (Table 1). The information provided about the FC on the state DOH Web site, in many cases, differed from what was provided on the DOH Web site for a municipality within the same state. For example, the Chicago DOH Web site provided written instructions for the FC while the Illinois DOH Web site did not (Table 2).

4. Discussion

DOH Web sites should be a source for accurate health information, and based on our review, some are failing in this goal for the FC. The absence of any mention of the FC on 39.2% of DOH Web sites might be taken by some to mean that the FC is not an effective contraceptive and STI prevention method. While information on DOH Web sites about sexual and reproductive health in general is often lacking, our review uncovered that information about the FC on these Web sites appears to be less available than that for other products. Furthermore, incorrect and conflicting messaging across Web sites might impact the user experience with and trust of the device; the fact that the majority of Web sites (66.7%) failed to provide any instructions for FC use is a missed opportunity to support a method known to have a sharp learning curve and for which acceptability tends to increase with experience [5]. Studies have found that when barriers related to lack of access to the FC and knowledge about how to use the device are removed, device uptake increases [9].

Differences between state and municipal DOH Web sites in the information that they present about the FC may be indications of real or assumed differences in the needs of their constituencies (e.g., the perceived need to prevent STIs may be stronger in urban areas than for the state as a whole). There may also be differences in the funding that DOHs have for maintaining and updating their Web sites, as well as differences in institutional culture and priorities that might impact what is included on the Web site.

This study had some limitations. We did not include information on the Web sites of smaller municipalities, which are less likely to have the funding to maintain up-to-date information on numerous health topics. This likely led to an overestimation of the information available about the FC on DOH Web sites. We also did not review the information available on non-DOH Web sites. In addition, it is possible that we missed some information as Web sites are sometimes difficult to navigate.

Despite these limitations, our findings support the concern that the educational support for the FC by many US health departments is lacking. Before we can interpret low uptake of the FC as a testament to its unacceptability, educational support for its successful use needs to be made widely available.

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Table 1

Quantitative summary of information provided about the FC on state and municipal US DOH Web sites.

Information on Web site	Total Web sites N (%) [N=79]	State DOH Web sites N (%) [N=50]	Municipal DOH Web sites N (%) [N=29]	p Value
Any mention of FC on Web site ^a	48 (60.8)	36 (72.0)	12 (41.4)	0.009
Section of Web site with FC information				
Only contraception (e.g., family planning)	16 (33.3)	14 (38.9)	2 (16.7)	0.162
Only disease prevention (e.g., HIV/AIDS, STDs)	15 (31.3)	12 (33.3)	3 (25.0)	
Both contraception & disease prevention	15 (31.3)	10 (27.8)	7 (58.3)	
Visual depiction of FC on Web site				0.186
Photograph	14 (29.2)	8 (22.2)	6 (50.0)	
Drawing/Graphic	9 (18.8)	6 (16.7)	3 (25.0)	
None	26 (54.2)	22 (61.1)	4 (33.3)	
Written instructions given for vaginal insertion and removal of FC				0.013
Yes	16 (33.3)	8(22.2)	8 (66.7)	
No	32 (66.7)	28 (77.8)	4 (33.3)	
Illustrations depicting insertion method shown alongside written instructions (if applicable)				0.499
Yes	11 (68.8)	5 (62.5)	6 (75.0)	
No	5 (31.3)	3 (37.5)	2 (25.0)	
Specific mention of the FC as the FC2/female condom 2				0.007
Yes	7 (14.6)	2 (5.6)	5 (41.7)	
No	41 (85.4)	34 (94.4)	7 (58.3)	
Mention that the FC is made of nitrile				0.012
Yes	5 (10.4)	1 (2.8)	4 (33.3)	
No	43 (89.6)	35 (97.2)	8 (66.7)	
Among those that did not mention the FC being made of nitrile, what material did they mention?				*
Polyurethane	17 (39.5)	13 (37.1)	4 (50.0)	
Polyurethane & nitrile	2 (4.7)	2 (5.7)	0	
Plastic	3 (7.0)	3 (8.6)	0	
Silicon	1 (2.3)	1 (2.9)	0	
Synthetic rubber	1 (2.3)	0	1 (12.5)	
No material mentioned	19 (44.2)	16 (45.7)	3 (37.5)	
Explicit mention to use FC only one time				0.725
Yes	16 (33.3)	11 (30.6)	5 (41.7)	
No	32 (66.7)	25 (69.4)	7 (58.3)	
Explicit mention to not use FC and male condom concurrently during vaginal intercourse				0.139
Yes	14 (29.2)	8 (22.2)	6 (50.0)	
No	34 (70.8)	28 (77.8)	6 (50.0)	
Explicit mention that the FC can be inserted prior to vaginal intercourse				0.202

Information on Web site	Total Web sites N (%) [N=79]	State DOH Web sites N (%) [N=50]	Municipal DOH Web sites N (%) [N=29]	p Value
Yes	10 (20.8)	6 (16.7)	4 (33.3)	
No	38 (79.2)	30 (83.3)	8 (66.6)	
Number of hours FC can be inserted prior to vaginal intercourse				*
2 hours	2 (4.2)	0	2 (16.7)	
6 hours	1 (2.1)	0	1 (8.3)	
8 hours	7 (14.6)	6 (16.7)	1 (8.3)	
12 hours	1 (2.1)	0	1 (8.3)	
Not mentioned	38 (79.2)	30 (83.3)	8 (75.0)	

Two-tailed Fisher exact tests for criteria with two categories and the Freeman–Halton extension of the Fisher exact probability test for criteria with three categories were performed to evaluate significant differences between state and municipal DOH Web sites.

^aAcceptable references to the female condom include the female condom, FC, FC2, the female condom 2, the Reality® condom and Reality®.

* p-value not calculated due to small and zero cells.

Table 2

Qualitative Summary of Information Provided About the FC on State and Municipal US DOH Web sites.

Information on Web site	State DOH Web sites	Municipal DOH Web sites
Any mention of FC on Web site ^a	AK; AR; CA; CO; CT; DE; FL; GA; HI; IA; ID; IL; KY; MA; MD; MI; MN; MS; MT; NC; ND; NM; NY; OH; OK; OR; RI; SC; TN; TX; UT; VA; VT; WA; WV; WY ^b	Baltimore, MD; Boston, MA; Chicago, IL; Los Angeles, CA; Memphis, TN; Milwaukee, WI; New York City, NY; Philadelphia, PA; Phoenix, AZ; San Francisco, CA; Seattle, WA; Washington, DC
Section of Web site with FC information		
Only contraception (e.g., family planning)	AK; DE; FL; HI; MD; NC; NM; OK; RI; SC; WA; WV	Baltimore, MD; Memphis, TN
Only disease prevention (e.g., HIV/AIDS, STDs)	CA; CO; CT; GA; IA; IL; MA; MN; MT; OH; UT; VA; VT; WY	Philadelphia, PA; Phoenix, AZ; Washington, DC
Both contraception & disease prevention	AR; ID; KY; MI; MS; ND; NY; OR; TN; TX	Boston, MA; Chicago, IL; Los Angeles, CA; Milwaukee, WI; New York City, NY; San Francisco, CA; Seattle, WA
Visual depiction of FC on Web site		
Photograph	FL; HI; KY; NM; NC; NM; NY; SC; TX	Baltimore, MD; Chicago, IL; New York City, NY; San Francisco, CA; Seattle, WA; Washington, DC
Drawing/Graphic	AK; ID; MA; OR; WA; WY	Boston, MA; Philadelphia, PA; Washington, DC
None		Los Angeles, CA; Memphis, TN; Milwaukee, WI; Phoenix, AZ
Written instructions given for vaginal insertion and removal of FC		
Yes	DE; ID; KY; MA; NM; NY; OR; TX	Boston, MA; Chicago, IL; Los Angeles, CA; New York City, NY; Philadelphia, PA; San Francisco, CA; Seattle, WA; Washington, DC
No	AK; AR; CA; CO; CT; FL; GA; HI; IA; IL; MD; MI; MN; MS; MT; NC; ND; OH; OK; RI; SC; TN; UT; VA; VT; WA; WV; WY	Baltimore, MD; Memphis, TN; Milwaukee, WI; Phoenix, AZ
Illustrations depicting insertion method shown alongside written instructions (if applicable)		
Yes	ID; KY; MA; NY; OR	Boston, MA; Chicago, IL; Los Angeles, CA; Philadelphia, PA; San Francisco, CA; Washington, DC
No	DE; NM; TX	New York City, NY; Seattle, WA
Specific mention of the FC as the FC2/ female condom 2		
Yes	NY; OR	Chicago, IL; Los Angeles, CA; Philadelphia, PA; San Francisco, CA; Washington, DC
No	AK; AR; CA; CO; CT; DE; FL; GA; HI; IA; ID; IL; KY; MA; MD; MI; MN; MS; MT; NC; ND; NM; OH; OK; RI; SC; TN; TX; UT; VA; VT; WA; WV; WY	Baltimore, MD; Boston, MA; Memphis, TN; Milwaukee, WI; New York City, NY; Phoenix, AZ; Seattle, WA
Mention that the FC is made of nitrile		
Yes	NY	Chicago, IL; Los Angeles, CA; Philadelphia, PA; San Francisco, CA
No	AK; AR; CA; CO; CT; DE; FL; GA; HI; IA; ID; IL; KY; MA; MD; MI; MN; MS; MT; NC; ND; NM; OH; OK; OR; RI; SC; TN; TX; UT; VA; VT; WA; WV; WY	Baltimore, MD; Boston, MA; Memphis, TN; Milwaukee, WI; New York City, NY; Phoenix, AZ; Seattle, WA; Washington, DC

Information on Web site	State DOH Web sites	Municipal DOH Web sites
Among those that did not mention the FC being made of nitrile, what material did they mention?		
Polyurethane	AR; CT; DE; GA; HI; ID; MI; MN; MT; NM; TN; TX; VT	Baltimore, MD; Milwaukee, WI; New York City, NY; Seattle, WI
Polyurethane & nitrile	ND; OR	–
Plastic	FL; SC; WA	–
Silicon	NC	–
Synthetic rubber	–	Washington, DC
No material mentioned	AK; CA; CO; IA; IL; KY; MA; MD; MS; OH; OK; RI; UT; VA; WV; WY	Boston, MA; Memphis, TN; Phoenix, AZ
Explicit mention to use FC only one time		
Yes	ID; MT; NC; ND; NY; OK; OR; SC; TX; VT; WA;	Chicago, IL; New York City, NY; San Francisco, CA; Seattle, WA; Washington, DC
No	AK; AR; CA; CO; CT; DE; FL; GA; HI; IA; IL; KY; MA; MD; MI; MN; MS; NM; OH; RI; TN; UT; VA; WV; WY	Baltimore, MD; Boston, MA; Los Angeles, CA; Memphis, TN; Milwaukee, WI; Philadelphia, PA; Phoenix, AZ
Explicit mention to not use FC and male condom concurrently during vaginal intercourse		
Yes	AR; ID; MA; NC; ND; NY; OR; TX;	Boston, MA; Chicago, IL; Los Angeles, CA; Phoenix, AZ; San Francisco, CA; Washington, DC
No	AK; CA; CO; CT; DE; FL; GA; HI; IA; IL; KY; MD; MI; MN; MS; MT; NM; OH; OK; RI; SC; TN; UT; VA; VT; WA; WV; WY	Baltimore, MD; Memphis, TN; Milwaukee, WI; New York City, NY; Philadelphia, PA; Seattle, WA
Explicit mention that the FC can be inserted prior to vaginal intercourse		
Yes	DE; ID; NM; NY; OR; TX	Los Angeles, CA; San Francisco, CA; Seattle, WA; Washington, DC
No	AK; AR; CA; CO; CT; FL; GA; HI; IA; IL; KY; MA; MD; MI; MN; MS; MT; NC; ND; OH; OK; RI; SC; TN; UT; VA; VT; WA; WV; WY	Baltimore, MD; Boston, MA; Chicago, IL; Memphis, TN; Milwaukee, WI; New York City, NY; Philadelphia, PA; Phoenix, AZ
Number of hours FC can be inserted prior to vaginal intercourse		
2 hours	–	Los Angeles, CA; Washington, DC
6 hours	–	San Francisco, CA
8 hours	DE; ID; NM; NY; OR; TX	Seattle, WA
12 hours	–	Seattle, WA
Not mentioned	AK; AR; CA; CO; CT; FL; GA; HI; IA; IL; KY; MA; MD; MI; MN; MS; MT; NC; ND; OH; OK; RI; SC; TN; UT; VA; VT; WA; WV; WY	Baltimore, MD; Boston, MA; Chicago, IL; Memphis, TN; Milwaukee, WI; New York City, NY; Philadelphia, PA; Phoenix, AZ

^a Acceptable references to the female condom include the female condom, FC, FC2, the female condom 2, the Reality® condom and Reality®.

^b AK=Alaska; AR=Arkansas; CA=California; CO=Colorado; CT=Connecticut; DE=Delaware; FL=Florida; GA=Georgia; HI=Hawaii; IA=Iowa; ID=Idaho; IL=Illinois; KY=Kentucky; MA=Massachusetts; MD=Maryland; MI=Michigan; MN=Minnesota; MS=Mississippi; MT=Montana; NC=North Carolina; ND=North Dakota; NM=New Mexico; NY=New York; OH=Ohio; OK=Oklahoma; OR=Oregon; RI=Rhode Island; SC=South Carolina; TN=Tennessee; TX=Texas; UT=Utah; VA=Virginia; VT=Vermont; WA=Washington; WV=West Virginia; WY=Wyoming.