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# Promoting Gynecologic Cancer Awareness at a Critical Juncture—Where Women and Providers Meet

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## Abstract

Given the absence of effective population-based screening tests for ovarian, uterine, vaginal, and vulvar cancers, early detection can depend on women and health care providers recognizing the potential significance of symptoms. In 2008, the Centers for Disease Control and Prevention's (CDC) *Inside Knowledge* campaign began distributing consumer education materials promoting awareness of gynecologic cancer symptoms. We investigated providers' in-office use of CDC gynecologic cancer materials and their recognition of the symptoms highlighted in the materials. We analyzed data from a national 2012 survey of US primary care physicians, nurse practitioners, and gynecologists ($N$ = 1,380). Less than a quarter of providers (19.4 %) reported using CDC gynecologic cancer education materials in their offices. The provider characteristics associated with the use of CDC materials were not consistent across specialties. However, recognition of symptoms associated with gynecologic cancers was consistently higher among providers who reported using CDC materials. The possibility that providers were educated about gynecologic cancer symptoms through the dissemination of materials intended for their patients is intriguing and warrants further investigation. Distributing consumer education materials in health care provider offices remains a priority for the *Inside Knowledge* campaign, as the setting where women and health care providers interact is one of the most crucial venues to promote awareness of gynecologic cancer symptoms.

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### Keywords

Primary care; Health promotion; Prevention; Patient education; Gynecologic cancer

## Introduction

Increasing gynecologic cancer awareness became a national health priority on January 12, 2007 when the Gynecologic Cancer Education and Awareness Act of 2005, or Johanna's Law [1], was signed into law by the 109th US Congress. The legislation authorized the Centers for Disease Control and Prevention (CDC), in collaboration with the US Department of Health and Human Services' Office on Women's Health, to develop a campaign to raise awareness among women and health care providers about the signs, symptoms, risk factors, and prevention strategies related to gynecologic cancers. CDC then began developing *Inside Knowledge: Get the Facts About Gynecologic Cancer* (www.cdc.gov/cancer/knowledge), a national multi-media campaign to raise awareness about the five leading gynecologic cancers—cervical, ovarian, uterine, vaginal, and vulvar.

Given the lack of effective population-based screening tests for gynecologic cancers other than cervical cancer (the Papanicolaou or Pap test), educating women and health care providers about potentially significant symptoms remains a critical strategy to increase early detection [2–6]. *Inside Knowledge* promotes awareness of specific symptoms associated with gynecologic cancers, as well as risk factors and disease prevention strategies.

In 2008, the campaign began developing consumer education materials, guided by formative and materials testing research with women and health care providers [7–11]. The campaign and its materials have been promoted in the mainstream media including television, radio, and Internet advertisements, as well as at medical conferences and in peer-reviewed publications [7–14]. More than 1.4 million copies of materials had been ordered or downloaded from the campaign's web site as of April 2013.

To inform provider outreach efforts, CDC's *Inside Knowledge* campaign investigated the characteristics of US primary care physicians, nurse practitioners, and gynecologists associated with the in-office use of CDC gynecologic cancer education materials and provider recognition of the symptoms that are highlighted in the materials.

## Methods

DocStyles is an annual, Internet-based survey that investigates the attitudes and clinical practices of US health professionals. The 2012 DocStyles survey was administered by Porter Novelli (Washington, D.C.) in July. A variety of provider groups took part, but the analyses reported here were limited to primary care physicians, nurse practitioners, and gynecologists.

### Participants

Physicians and nurse practitioners who participated in the 2012 DocStyles survey included those who practiced in the USA, actively saw patients, and had practiced for at least 3 years.

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The physician sample was randomly selected from the Epocrates Honors Panel®, which included 275,000 medical practitioners, to match the American Medical Association's (AMA) Masterfile® proportions for age, gender, and region. The identities of panel members were verified by checking each physician's first name, last name, date of birth, medical school, and graduation date against the AMA Masterfile at the time of panel registration. The nurse practitioner sample was drawn from Epocrates' Allied Health Panel® of over one million health professionals, including 78,668 nurse practitioners; the identities of nurse practitioners were not verified.

Quota sampling involves deliberately setting the proportions of selected participant characteristics within a sample [15] and was incorporated into the 2012 DocStyles survey methods to ensure adequate representation of all provider groups surveyed. Sampling quotas were set at 1,000 primary care physicians (internists and family practitioners), 250 nurse practitioners, and 250 gynecologists. Email invitations to participate in the survey were sent to 2,175 primary care physicians, 456 nurse practitioners, and 489 gynecologists. Per sampling quotas, completed surveys were accepted from 1,001 primary care physicians, 252 nurse practitioners, and 250 gynecologists. In addition, providers who did not treat adult female patients and those who worked primarily in inpatient care settings were excluded from the analyses, which narrowed the sample to 892 primary care physicians, 240 nurse practitioners, and 248 gynecologists, ($N$ = 1,380). To protect confidentiality, no individual identifiers were included in the dataset provided to investigators, and the analyses reported here were exempted from CDC Institutional Review Board approval.

## Measures

Participants were asked to indicate where gynecologic cancer education materials were available in their offices. Responses included (1) patient waiting area, (2) examination room, (3) other location in my office, and (4) this material is not available in my office. Multiple responses were accepted unless "this material is not available in my office" was selected.

Participants who reported using gynecologic cancer education materials in their offices were asked what organization produced the materials. Responses included (1) American Cancer Society (ACS), (2) American Congress of Obstetricians and Gynecologists (ACOG), (3) Centers for Disease Control and Prevention (CDC), (4) Facts for Women: Reproductive Cancer Awareness campaign, (5) Inside Knowledge: Get the Facts About Gynecologic Cancer campaign, (6) National Cancer Institute, (7) Society of Gynecologic Oncologists, (8) WebMD, (9) other, and (10) not sure. Multiple responses were accepted unless "not sure" was selected.

Providers were also provided a list of symptoms highlighted in CDC gynecologic cancer education materials (Table 1) and asked which cancers they associated with each symptom. Responses included (1) cervical cancer, (2) ovarian cancer, (3) uterine cancer, (4) vaginal cancer, (5) vulvar cancer, and (6) none of these. Multiple responses were accepted unless "none of these" was selected.

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### Analyses

Within each provider group, descriptive statistics were used to examine and summarize participant characteristics and use of gynecologic cancer education materials. Next, Pearson chi-square and *t* tests were performed to investigate the associations between provider characteristics (gender, race, practice size, geographic region of practice location, and number of Pap tests performed monthly) and use of CDC gynecologic cancer education materials.

Pearson chi-square tests were used to compare the recognition of the symptoms highlighted in CDC gynecologic cancer education materials between providers who used CDC gynecologic cancer education materials and providers who did not (providers who used non-CDC gynecologic education materials and those who used no gynecologic cancer education materials).

## Results

### Participant Characteristics

Most participants were male (60.1 %), white (77.8 %), and practiced in settings with 2–9 other practitioners (54.1 %) (results not shown). Participants were relatively evenly distributed by geographic region: Northeastern states (27.0 %), Southern states (22.5 %), Western states (23.6 %), and Midwestern states (27.0 %). The mean number of Pap tests performed during a typical month varied by specialty: primary care physicians (13.7 tests), nurse practitioners (24.6 tests), and gynecologists (119.1 tests).

### Use of Gynecologic Cancer Education Materials

Among gynecologists, reported in-office use of gynecologic cancer education materials was almost universal (96.0%), and the majority of primary care physicians (73.4 %) and nurse practitioners (71.1 %) also reported the use of such materials (results not shown). More than half of the participants across provider groups reported that gynecologic cancer education materials were available in their patient waiting rooms (55.6%) and examination rooms (54.4%). The most common sources of gynecologic cancer education materials were ACOG (33.7 %), ACS (32.0 %), and CDC (18.1 %). Less than a quarter of providers (19.4 %) reported using materials developed by CDC or the *Inside Knowledge* campaign. In the remaining analyses, participants were classified as using materials produced by CDC if they reported using materials produced by CDC or the *Inside Knowledge* campaign.

Primary care physicians practicing in Northeastern states were less likely to report using CDC materials (11.0 %) compared with those practicing in other regions (18.8–19.6 %) ($\chi^2$=8.62, $p$ = 0.035). Among primary care physicians, the use of CDC materials was associated with higher Pap test volume: mean monthly Pap tests was 18.8 tests among those who used CDC materials and 12.7 tests among those who did not use CDC materials ($t$ = 3.79, $p$ <0.001).White primary care physicians and nurse practitioners were less likely to report use of CDC materials than practitioners of other races: 15.1 % of white primary care physicians compared with 21.8 % of primary care physicians of other races ($\chi^2$=5.66, $p$ = 0.017), and 24.2 % of white nurse practitioners compared with 52.9 % of nurse practitioners

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of other races ($\chi^2$=6.73, $p$ = 0.009). No significant predictors of using CDC gynecologic cancer education materials were detected among gynecologists.

### Recognition of Gynecologic Cancer Symptoms Highlighted in CDC Materials

Recognition of gynecologic cancer symptoms was generally higher among gynecologists than among primary care physicians and nurse practitioners (Table 1). Across provider groups, low recognition (<25 %) of at least one symptom of the cancers studied was found with the exception of uterine cancer—the majority in all provider groups recognized all of the uterine cancer symptoms studied. Symptom recognition was consistently higher among providers who reported using CDC gynecologic cancer education materials compared with other providers. When symptom recognition was analyzed in aggregate (all provider groups combined), providers who reported use of CDC materials were significantly more likely to recognize 11 of the 21 gynecologic cancer symptoms studied than providers who did not use CDC materials.

## Discussion

Reported use of CDC gynecologic cancer education materials was consistent with the large number of materials distributed by the *Inside Knowledge* campaign to date. Provider familiarity with the symptoms associated with gynecologic cancers varied widely, but those who reported in-office use of CDC gynecologic cancer education materials consistently exhibited higher symptom recognition. Given the cross-sectional design of this study, it is not possible to determine the extent to which providers gained knowledge from CDC materials or more knowledgeable providers selected CDC materials for use in their offices. The possibility of educating providers through the dissemination of materials intended for their patients is certainly intriguing and warrants further investigation.

Awareness of symptoms that can signal gynecologic cancer is low among US women [4, 8], and more education is needed. At the same time, care must be taken to emphasize that some symptoms known to be signs of gynecologic cancers can also be caused by many benign conditions. Disseminating consumer education materials that strike this delicate balance remains a priority for CDC's *Inside Knowledge* campaign. Routine examinations and visits for Pap tests offer opportunities for providers to counsel women about the symptoms that may be associated with gynecologic cancer—particularly, postmenopausal bleeding, which should trigger immediate consultation with a health care provider. In the absence of recommended population-based screening tests for ovarian, uterine, vaginal, and vulvar cancers, detection can depend largely on women informing providers that they are experiencing a symptom and providers investigating the underlying cause.

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**Table 1**

Recognition of symptoms highlighted in CDC gynecologic cancer education materials by in-office use of the materials (%), *United States, DocStyles Survey, 2012*

| Cancer | Associated symptoms | Primary care physicians | | Nurse practitioners | | Gynecologists | | All participants | |
|---|---|---|---|---|---|---|---|---|---|
| | | Used CDC materials (*N* = 151) | Did not use (*N* = 741) | Used CDC materials (*N* = 63) | Did not use (*N* = 177) | Used CDC materials (*N* = 54) | Did not use (*N* = 194) | Used CDC materials (*N* = 268) | Did not use (*N* = 1,112) |
| Cervical | Vaginal bleeding after sexual intercourse (not related to menstruation) | **68.9** | **60.1*** | 71.4 | 65.5 | 85.2 | 82.0 | **72.8** | **64.7*** |
| | Unexplained vaginal bleeding between periods or after menopause | 42.4 | 38.9 | 47.6 | 40.7 | **51.9** | **36.6*** | **45.5** | **38.8*** |
| | A period that lasts for an unusually long time or is heavier than usual | 21.9 | 18.5 | 30.2 | 20.3 | 25.9 | 19.1 | **24.6** | **18.9*** |
| Ovarian | Unexplained bloating | 76.8 | 78.1 | 90.5 | 81.9 | 94.4 | 94.8 | 83.6 | 81.7 |
| | Unexplained pelvic or abdominal pain | **80.8** | **87.6*** | 93.7 | 84.2 | 90.7 | 90.7 | 85.8 | 87.6 |
| | Unexplained back pain | 72.2 | 67.7 | 85.7 | 75.1 | 75.9 | 72.2 | **76.1** | **69.7*** |
| | A change in bathroom habits such as constipation or diarrhea | **57.6** | **46.7**** | 71.4 | 59.3 | **81.5** | **66.0*** | **65.7** | **52.1***** |
| | Urinating more often and more urgently than usual | 22.5 | 19.6 | 42.9 | 32.8 | **50.0** | **32.5*** | **32.8** | **23.9**** |
| | Unexplained vaginal bleeding between periods or after menopause | 16.6 | 12.8 | 33.3 | 22.0 | 13.0 | 8.2 | **19.8** | **13.5**** |
| | A period that lasts for an unusually long time or is heavier than usual | **17.2** | **9.3**** | 28.6 | 20.9 | **9.3** | **2.6*** | **18.3** | **10.0***** |
| Uterine | Unexplained vaginal bleeding between periods or after menopause | 86.1 | 87.4 | 87.3 | 84.7 | 94.4 | 96.9 | 88.1 | 88.7 |
| | A period that lasts for an unusually long time or is heavier than usual | 84.8 | 81.5 | 85.7 | 78.5 | 85.2 | 87.1 | 85.1 | 82.0 |
| | Unexplained pelvic or abdominal pain | 64.2 | 66.7 | 69.8 | 68.4 | 55.6 | 41.8 | 63.8 | 62.6 |
| | Vaginal bleeding after sexual intercourse (not related to menstruation) | 52.3 | 53.3 | 65.1 | 55.4 | 63.0 | 50.0 | 57.5 | 53.1 |
| Vaginal | Vaginal bleeding after sexual intercourse (not related to menstruation) | 57.6 | 49.4 | 58.7 | 48.6 | 42.6 | 38.7 | **54.9** | **47.4*** |
| | Unexplained vaginal bleeding between periods or after menopause | **41.7** | **29.7**** | 34.9 | 27.1 | 31.5 | 23.7 | **38.1** | **28.2**** |
| | Urinating more often and more urgently than usual | **20.5** | **12.8**** | 9.5 | 13.6 | 3.7 | 5.7 | 14.6 | 11.7 |
| | A period that lasts for an unusually long time or is heavier than usual | 13.2 | 8.8 | 12.7 | 8.5 | 1.9 | 6.2 | 10.8 | 8.3 |
| Vulvar | A rash or sore on the genitals or the skin on genitals becoming redder or whiter in color | **78.1** | **86.2**** | 85.7 | 85.3 | 94.4 | 94.3 | 83.2 | 87.5 |

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| Cancer | Associated symptoms | Primary care physicians | | Nurse practitioners | | Gynecologists | | All participants | |
|---|---|---|---|---|---|---|---|---|---|
| | | **Used CDC materials (*N* = 151)** | **Did not use (*N* = 741)** | **Used CDC materials (*N* = 63)** | **Did not use (*N* = 177)** | **Used CDC materials (*N* = 54)** | **Did not use (*N* = 194)** | **Used CDC materials (*N* = 268)** | **Did not use (*N* = 1,112)** |
| | Vaginal itching that does not get better with over-the-counter treatments/creams | 64.2 | 58.6 | 66.7 | 61.6 | 72.2 | 62.9 | **66.4** | **59.8*** |
| | Unexplained pelvic or abdominal pain | 10.6 | 9.0 | 9.5 | 9.0 | 5.6 | 2.6 | 9.3 | 7.9 |

Pearson chi-square asymp. two-sided tests; significant differences are in bold

* $p < 0.05$;

** $p \leq 0.01$;

*** $p \leq 0.001$