



Finding Answers Online

Comprehensiveness and accuracy in online information about breast cancer

Kim Walsh-Childers, PhD
Heather M. Edwards, MA

University of Florida

APHA Annual Meeting

November 5, 2007



Background & Rationale

- Women name breast cancer as their No. 1 health fear
- The Internet increasingly is used as a source of health information for consumers, including cancer patients
- Searching for health information online can be an empowering activity or it can result in confusion and frustration
- Many studies have questioned the quality and accuracy of online health information



Research Questions

- What topics would women encounter in an online search for breast cancer information?
- How accurate is the information women would find in a search online for breast cancer information?



Methods

- Most Internet health searches begin with general search engine
- Google search terms used:
 - *Breast cancer*
 - *Breast cancer treatment*
 - *Breast cancer prevention*
 - *Breast cancer cure*
- Web pages gathered in May 2006



Methods

- First ten unique URLs produced by each search were chosen
- Random link selection resulted in up to 5 Web pages per site
- Pages analyzed by 4 biomedical doctoral students according to coding sheet and “key facts” sheet developed by expert panel



Coding Sheet

- Coding sheet had 77 questions in 7 categories
 - Risk factors
 - Screening & diagnosis
 - Treatment (surgery, chemo/hormone therapy, radiation)
 - Outcomes, prognosis & recurrence
 - Coping & quality of life after cancer
 - Referrals to other information sources
 - Funding issues
- Items coded as *mentioned* or *not mentioned*



Key Facts

- Key Fact list with 33 statements in 7 categories:
 - Risk factors
 - Screening & diagnosis
 - Surgery & other options
 - Radiation
 - Chemotherapy/endocrine or hormone therapy
 - Alternative/complementary therapies
 - Outcomes, prognosis & recurrence
- Statements coded as *fully accurate*, *partially accurate*, *not accurate*, or *not mentioned*



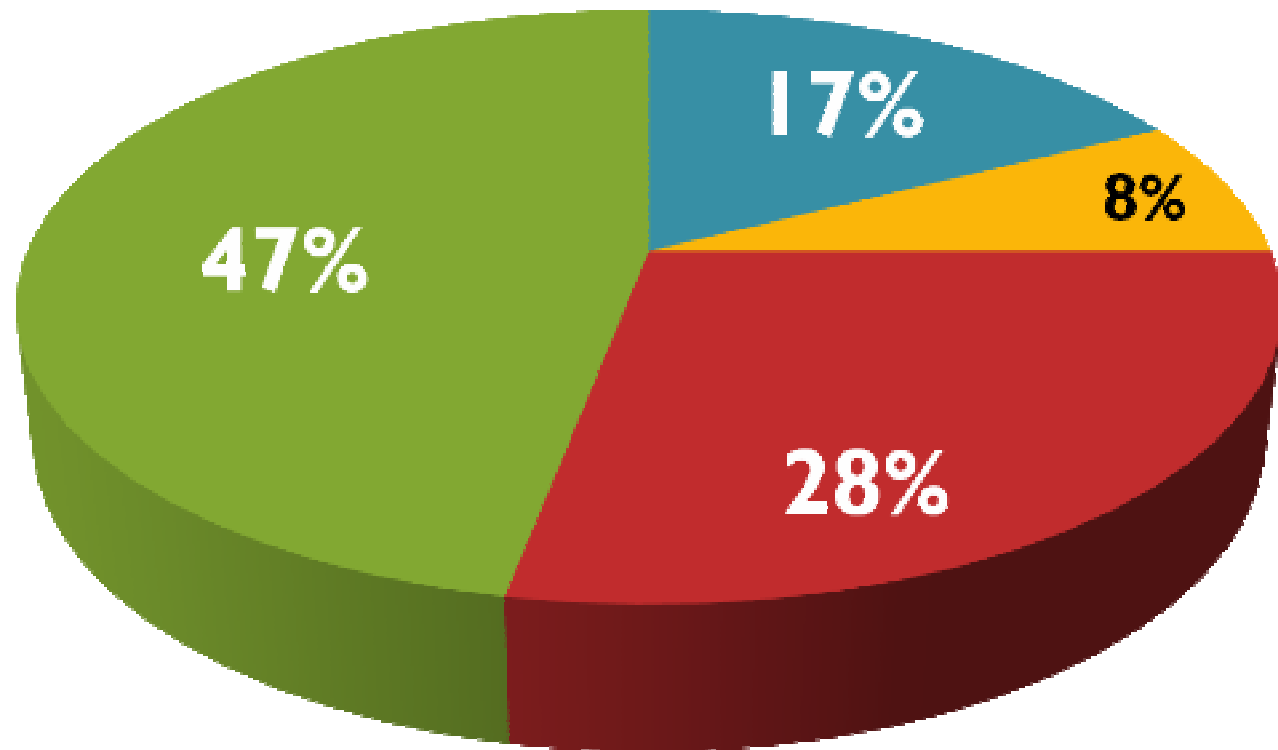
Results

- Search resulted in a total of 132 Web pages
- Intercoder agreement was 94%
- Study included pages from .com, .edu, .gov, and .org domains

Results

Domain Types

■ .com ■ .edu ■ .gov ■ .org





Key Facts Results

- Key Facts mentioned 222 times of 4,356 opportunities (5.1%)
- 77.9% (n = 173) statements about the Key Facts were fully accurate; 19.8% (n = 44) were partially accurate, and; 2.3% (n = 5) were not accurate
- Nearly 45% of the pages (n = 59) did not mention a single Key Fact



Content Results

- Very few of the coding sheet topics were found in the analyzed Web pages



Content Results

Percent of Web Pages that Mentioned Coding Sheet Topics

Coding Category	%
Referrals	48.5
Chemotherapy	36.4
Risks	34.8
Diagnosis	31.8
Surgery Issues	18.9
Quality of Life	16.7
Outcome Issues	15.2
Radiation	11.4
Funding Issues	11.4

Key Facts Results

# KF	#	%
0	59	44.7
1	24	18.2
2	19	14.4
3	9	6.8
4	10	7.6
5	3	2.3
6	2	1.5
7	1	.8
8	2	1.5
14	2	1.5
15	1	.8
Total	132	100

Key Facts Results

Key Fact Statement	# Pages	% Pages
A family history of breast cancer is a risk factor.	24	18.2
Breast cancer risk increases with age.	16	12.1
Endocrine therapy may be prescribed to reduce the risk of recurrence.	15	11.4
Nulliparity, early menarche, late menopause, late first pregnancy are risk factors for breast cancer.	15	11.4
The link between breast cancer and hormone replacement therapy use is still controversial, but it appears there is a small increase in risk among those taking HRT.	14	10.6
DCIS, a pre-cancerous condition, will be treated similarly to breast cancer.	12	9.1
Immediate breast reconstruction surgery is appropriate in some women after mastectomy.	10	7.6
Annual or bi-annual mammography is important for women 40 and older.	9	6.8
Women should have a clinical breast exam annually.	9	
Any breast lump should be evaluated by a physician.	9	6.8
The drugs used in clinical trials are those scientists believe are at least as effective – and possibly more effective – than standard treatments already approved by the FDA.	9	6.8

Key Facts Results

Key Fact Categories	Sites Mentioning Statement in
Risk	26%
Chemo or Hormone	22%
Diagnosis	20%
Surgery	12%
Radiation or Biosimilars	6%
Recurrence	5%

Results

	Percentage within Website Type			
# KFs mentioned	.com	.edu	.gov	.org
0	30.4	50.0	29.7	44.7
1-2	39.1	10.0	35.1	32.3
3+	30.4	40.0	35.2	9.7

Chi-square (df=6) = 16.453, p. = 0.12



Conclusions & Discussion

- Good news about accuracy
 - When women find breast cancer information online, it is more likely than not to be accurate.
- Bad news about comprehensiveness
 - Using simple search terms, women are unlikely to find single pages that contain most of the information they are most likely to need about breast cancer.



Discussion

- Internet information could supplement, support, or impede treatment and recovery.
 - Popular website information appears to differ from what health professionals believe women most need to know.
- Study raises the question – what *did* these pages discuss?



Implications

- For health care professionals:
 - Need to understand that patients will continue to seek health information from the media and the Internet
 - Patients may not be adept at judging the quality and authority of Web sites
 - Information received from the Internet may be different from that which is provided by a patient's medical team



Implications

- For patients:
 - Efforts to increase health & Web literacy, including the ability to evaluate Web site quality
 - Clear communication between medical team and patients regarding treatment decisions and health maintenance issues



Implications

- For public health:
 - More research into how people use the Internet for breast cancer information, including the role the Internet plays in interpersonal communication



Limitations & Questions

The study used a search and selection protocol supported by the literature, but we do not know how well this matches the reality of women's health information searches.



Limitations & Questions

- Do women use Google's narrowing search features?
- How do women decide which links to select?
- How do information seekers evaluate the pages' sources?