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News Coverage of Cancer in the U.S.: A National Sample of Newspapers, Television and Magazines

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Abstract

A content analysis of cancer news coverage in a sample of local and national newspapers, television, and magazines was conducted for the years 2002 and 2003. Analyses compared proportions of mentions of cancer sites with proportional contribution to cancer incidence and mortality based on available epidemiological estimates. Analyses also examined relative attention provided to prevention, detection, treatment, causes and outcomes of various cancers. Results indicated that coverage reflected incidence rates more closely than they did mortality rates, but in both cases coverage under-represented the contribution of lung cancer to morbidity and mortality and over-represented the contribution of breast cancer. Of greater public health concern was the limited coverage of prevention and detection even for highly preventable or relatively easily detected cancers. Implications of findings are discussed.

According to the American Cancer Society (ACS), nearly 565,000 Americans died of cancer in 2006 (Jemal, Siegel, Ward, et al., 2006). Despite all of the attention and money devoted to fighting cancer since the passage of the National Cancer Act in 1971, cancer remains the second leading cause of death in the United States today. Clearly, cancer prevention and control are still major priorities for the health of Americans.

How mass media cover cancer may have important implications for cancer prevention and control. Recent studies suggest that past cancer prevention and control efforts are leading to reductions in cancer incidence and mortality (Greenwald, 2006; American Society of Clinical Oncology, 2007). Past studies also suggest that risk perceptions about health and safety risks are associated with the extent of news coverage of those risks (Combs & Slovic, 1979; Lichtenstein, Slovic, Fischhoff, Layman & Combs, 1978). Furthermore, news coverage of some health risks has been shown to influence public policy and individual behavior (e.g., Yanovitzky & Bennett, 1999; Yanovitzky, 2000). If under- or over-reporting of particular cancer issues (such as prevention and detection) or cancer sites are identified, the finding would provide a basis for studying how such inaccuracies are related to perceptions about cancer (Dorfman, 2003) or to public policies such as funding support for research on various cancer sites (Corbett & Mori, 1999; Reineke, Slater, Bettinghaus, &

Long, 2007). Moreover, the results could inform media advocacy and public affairs efforts directed at changing such coverage (Wallack & Dorfman, 2001), and hence risk perceptions, personal behavior, and perhaps social policy (Yanovitzky & Bennett, 1999).

Given the important influences that cancer news coverage may have on public health attitudes and policy, it is of prime importance to understand the nature of current media coverage of cancer. Cancer competes with other health issues for a limited amount of coverage in the general interest news media. At a given point in time, there is only so much available room within news media channels (be they the press, radio, television or another medium) for particular types of stories. Furthermore, different types of cancer, or stories that focus on prevention vs. detection vs. treatment for a given type of cancer, may in effect compete with one another for public attention. To the extent that the foci of cancer stories are in competition with one another for a limited 'news hole,' the effectiveness of the portrayal of cancer in the media with respect to attitudinal, behavioral, and policy outcomes may be diluted, or attention to one kind of cancer may come at the expense of attention to another.

The objective of this research was to characterize and analyze U.S. media coverage of cancer-related issues over a two-year period from a nationally representative sample of newspapers and television newscasts, as well as a sample of news magazines. Additionally, the study compares newspaper coverage of specific types of cancer to incidence and mortality rates to ascertain whether coverage of cancer is congruent with the realities of the disease.

Prior Studies of Media Influences on Cancer Perceptions and Content Analyses of Cancer news coverage

A few recent studies have begun to examine the nature of, and possible effects of, news coverage of cancer. It is to these studies that this paper now turns.

Viswanath et al. (2006) set out to examine risk behavior and health disparities in terms of knowledge gaps. Positing that individuals from relatively higher socioeconomic status (SES) groups would be more likely to acquire information faster than those from lower SES groups, Viswanath et al. (2006) examined responses to questions on the National Cancer Institute's (NCI) Health Information National Trends Survey (HINTS) regarding tobacco use and sun exposure, and their respective links to cancer. Among their findings, Viswanath et al. (2006) state that

Our data also show that heavier media attention could attenuate the knowledge gaps, though moderate publicity or lack of news coverage may actually widen them. Given the limited resources of public health, it is worth thinking about how best to attract news media attention, which can provide "free" publicity in contrast to paid campaigns that could be expensive whether done at local or national levels. (p. 15)

So knowledge about cancer risks is not just linked with media attention; the amount of attention to news media about cancer is critical. Moderate to low levels of publicity may actually be associated with greater gaps in knowledge about particular cancer issues in terms of higher and lower SES group membership. Furthermore, Viswanath et al. (2006) suggest that cancer news be considered as a way of publicizing particular cancer issues. Understanding the nature of coverage is therefore requisite to an understanding of public knowledge and perceptions.

Adelman and Verbrugge (2000) examined major U.S. newspaper coverage of six prominent diseases, including cancer (as well as AIDS, Alzheimer disease, arthritis, diabetes, and heart

disease) and compared that coverage with incidence, prevalence, and mortality data for those diseases from 1977 to 1997. Generally speaking, Adelman and Verbrugge (2000) found that newspaper coverage of these broad categories of afflictions was most responsive to mortality levels and trends. Specifically regarding cancer, Adelman and Verbrugge (2000) found that it was among the most covered, “high-mortality” diseases (along with heart disease), and that “Overall, trends in newspaper coverage of cancer mirror its mortality, prevalence, and incidence trends until recently; news has not yet followed the new mortality and incidence declines.” (Adelman and Verbrugge, 2000, p. 354). Though Adelman and Verbrugge (2000) link cancer news coverage with epidemiological data, they only examine the disease in a general sense, without attention to differences in coverage between different, specific types of cancer.

Hoffman-Goetz and Friedman (2005) examined Canadian mainstream and ethnic minority newspapers in order to describe the volume and type of coverage in those sources and to compare the coverage to Canadian cancer mortality rates. In terms of cancer site, breast cancer held the plurality in sampled articles from both mainstream and ethnic papers, with relatively little coverage of prostate, colorectal, and lung cancers. Hoffman-Goetz and Friedman (2005) concluded that, with regard to cancer sites, cancer news coverage was not representative of cancer mortality rates in Canada.

Cohen et al. (2006) studied differences between selected U.S. Black newspapers and general interest U.S. newspapers with respect to cancer news coverage. Neither type of newspaper accurately mirrored cancer site mortality rates; coverage was more indicative of site incidence rates. Furthermore, coverage in both types of newspapers emphasized breast cancer and under-represented other cancers with high incidence and mortality rates, especially lung cancer.

These findings are similar to those described by Stryker, Emmons, and Viswanath (2007). Coverage was predominantly focused on breast cancer and treatment (as opposed to other cancer sites and other cancer-related issues) for both major, general interest, U.S. newspapers and those targeting ethnic minority groups. Furthermore, Stryker, Moriarty, and Jensen (forthcoming) compared evidence from content analysis of major, general interest, U.S. newspapers and ethnically oriented newspapers with analyses of survey responses to HINTS in search of links between coverage, self-reported media attention, and reported cancer prevention behaviors. Stryker et al. (forthcoming) propose that greater coverage of factors that could help prevent cancer may indeed be associated with greater public knowledge about cancer prevention. This conclusion further suggests the need to gain a more complete understanding of cancer news coverage in the United States, as the nature of that coverage may have dramatic consequences for individual and public health.

Rationale and Research Questions

Though the studies mentioned above provide valuable insights into the nature of cancer news coverage, there are several deficiencies in the literature that the present research was designed to address. Viswanath et al. (2006) examined self-reports of media exposure, without delving into the media’s content. Hoffman-Goetz and Friedman (2005) limited their analysis to 7 mainstream and 25 ethnic minority newspapers in Canada. Cohen et al. (2006) relied on 24 Black and 12 mainstream papers, and Stryker et al.’s studies (2007, forthcoming) relied on 44 major, daily, high-circulation papers in the Lexis Nexis database, and those papers as well as on 283 ethnic papers, respectively. There are other studies either focusing exclusively on ethnic and mainstream papers or magazines, or which use relatively small samples of mainstream publications (e.g. Donelle, Hoffman-Goetz, & Clarke, 2004, 2005; Friedman & Hoffman-Goetz, 2006). Friedman and Hoffman-Goetz (2003) examined cancer news coverage in publications marketed to seniors. Thus, many prior studies either

do not directly examine content at all, or focus mostly on content from media targeted to specific sub-populations rather than general interest news media.

Moreover, as Stryker (2007) notes, there have been several published studies focused on coverage of one particular type of cancer or another, especially breast cancer (e.g., Andsager & Powers, 2001; Clarke, 1999; Corbett & Mori, 1999; Donelle et al., 2004, 2005; Jones, 2004; Marino & Gerlach, 1999; McKay & Bonner, 1999; Whiteman, Cui, Flaws, Langenberg, & Bush, 2001), rather than attempting to compare coverage of different types of cancers. Stryker, Solky, & Emmons (2005) analyzed coverage of skin cancer only. Clarke (2004) examined coverage of a few cancer sites (breast, testicular and prostate) in magazines, but not the full variety of cancers that receive coverage. Past studies have often only concentrated on one or two aspects of cancer news coverage such as prevention (e.g., Stryker et al., forthcoming), genetics (e.g. Donelle et al., 2004, 2005), or risk and death (e.g. Frost, Frank, & Maibach, 1997), rather than comparing coverage in terms of a wider variety of possible cancer-related topics. Finally, aside from Whiteman et al.'s (2001) study, which focused only on breast cancer news coverage, previous studies have not addressed cancer news on television.

In summary, prior research presents a fragmented and incomplete depiction of cancer news coverage. The present study was designed to provide a definitive picture of cancer news coverage in the United States, by using a representative sample of U.S. local newspapers and local and national television newscasts, as well as a sample of general-circulation news magazines. The study will assess the following research questions:

- RQ1** How is cancer covered in terms of cancer topic (i.e., prevention, detection, treatment, cause, etc.)?
- RQ2** How is cancer covered in terms of cancer site?
- RQ3** Are there differences in cancer topic as a function of cancer site in newspaper articles?
- RQ4** How does cancer site coverage in newspapers compare to U.S. cancer site incidence rates?
- RQ5** How does cancer site coverage in newspapers compare to U.S. cancer mortality rates?

Method

Media Outlet Sampling Strategy

This study used a nationally representative sample of local nightly TV newscasts and local daily newspapers from 2002 and 2003. For comparison, we also sampled network evening newscasts, CNN, one national newspaper (*USA Today*), and three general-readership news magazines (*Time*, *Newsweek*, *U.S. News & World Report*). These were considered national, rather than local, media because they do not represent any specific local media market.

To create the sample, we stratified media outlets across the country based on their designated market area (DMA[®]), which is the most widely used approach to defining electronic media markets (Standard Rate and Data Service, 2000). The DMA is a particularly useful sampling unit because it defines markets at the local level, thus providing a way for researchers to select both local TV programs and daily newspapers from the same geographic area.

We divided the country's 210 DMAs into six strata, with each stratum consisting of approximately 1/6th of all U.S. households. Using six strata permitted reasonable regional

representation in all strata and reasonable homogeneity of market size within each stratum (see Long, Slater, Boiarsky, Stapel, & Keefe, 2005, for details on the content analysis sampling strategy).

To avoid problems associated with using random samples of media content (Riffe, Aust, & Lacy, 1993; Riffe, Lacy, & Fico, 2005; Riffe, Lacy, Nagovan, & Burkham, 1996) and the cost associated with using a census (Evans & Ulasevich, 2005), we created two 28-day constructed months, one for each year. For each constructed month, we created one constructed week per season of the year. Therefore, the sample was balanced with respect to day of week and season of the year to better represent news coverage during each year under study.

On each day sampled, one DMA was randomly selected from each of the six strata for a total of six DMAs per day of the sample. Then, the following procedures were used to sample local TV news programs, daily newspapers, and news magazines.

TV news program selection—After a DMA was chosen, one local, network-affiliated nightly newscast was randomly selected from that DMA. The sample was limited to only one local TV newscast per sampling date per DMA because of the high costs associated with obtaining local newscasts from across the country (Riffe et al., 2005). Network affiliation was balanced across all six strata on each sampling date such that two stations were chosen from each of the network affiliates. Other local newscasts, such as independent stations and the Fox network, were not included in the sample because at the time of the study, they did not consistently provide nightly newscasts.

The sample also contains national network news coverage. For each sample date, the national evening newscasts from the three major networks (ABC, CBS, and NBC) and CNN were sampled by obtaining newscasts from Vanderbilt University's Television News Archive.

The above sampling strategy resulted in the selection of approximately 560 TV newscasts, of which on any given sampling date, six were local TV news programs and four were network TV news programs.

Daily newspaper selection—After a DMA was chosen, three daily newspapers, representing different circulation categories, were selected from that DMA: the largest newspaper, one from above the median circulation split for that day, and one from below the split. The resulting sample was representative of all newspapers within the sampled DMAs (Long et al., 2005).

The above sampling strategy resulted in the selection of approximately 1,064 daily newspapers; on any given sampling date, 18 were local daily newspapers and one was *USA Today*.

News magazine selection—Three general-readership news magazines were also sampled (i.e., *Time*, *Newsweek*, and *U.S. News & World Report*). We randomly chose one issue per month for each magazine, which is the optimal sample size for representation (Riffe, et al. 2005). Using this sampling strategy, we obtained 72 magazine issues.

News Story Selection

Coders were trained to determine whether news, feature, and opinion items mentioned cancer in the beginning of stories. For print, coders read any story teasers, headline, subhead, and first two paragraphs of the story. For TV, coders watched any story teasers and

the first 15 seconds of the story; if the story was introduced by an anchor and then continued by a reporter, coders watched the first 15 seconds of the anchor's introduction and the first 15 seconds of the reporter's coverage. To identify qualifying stories, coders examined newspapers and news magazines from cover to cover and TV broadcasts from beginning to end.

To test the reliability for identifying cancer stories, coders coded a random selection of all types of media sampled. Because of the large number of news items that any given edition of a newspaper prints, we randomly selected 10 percent of the editorial pages from each newspaper and magazine in the reliability sample. For TV newscasts, coders watched the entire newscast.

Six coders participated in establishing initial reliabilities for story qualification and story selection. Cohen's kappas for print story identification ranged from .64 to .86, and kappas for TV story identification ranged from .77 to .90 (a range is provided because multiple pairs of coders tested coding scheme reliability). Kappas .61 and .80 indicate substantial agreement, and kappas above .80 indicate almost perfect agreement (Landis & Koch, 1977). Because of the lengthy time involved in selecting stories over the two-year period, we used Cohen's kappa to test cancer story identification for intercoder drift at three additional points: after 25 percent, 50 percent, and 75 percent of the sample had been coded. Five coders participated in coder drift tests. At the 25-percent of sample mark, kappas for story identification were .82 and .89 for print and TV, respectively. At the 50-percent mark, kappas ranged from .83 to .95 for print, and the kappa was .98 for TV. At the 75-percent mark, story identification kappas were .74 and .88 for print and TV, respectively.

Because a major goal of our study was to characterize news media coverage of cancer, all media stories that met our sampling criteria were selected for analysis. In total, 83 television news stories, 706 newspaper stories, and 59 news magazine stories were identified for further study.

Story-Level Coding

To test the reliability for story-level variables, two trained coders coded a random selection of stories that represented approximately 15 percent of the sample in each media type. Cohen's kappa for primary cancer topic was .76, and the Scott's pi for primary cancer site was .76. Because pi is based on the same principles as kappa, the same ranges outlined earlier in this paper apply to it. Once reliability was established, each story was coded for the variables defined below.

Primary cancer topic—Coders read or viewed the beginning of each story to determine which cancer topic was emphasized the most. We assessed the primary cancer topic in this way because the beginning of a typical media story acts as a strong organizing element for the story. Coders chose from among the following topics: causes, prevention, detection/diagnosis, treatment, health care industry, survivorship, funding, death of a person, or other.

Primary cancer site—To determine the primary cancer site discussed in the story, coders read the entire story. Then they chose from among 25 types of cancer or a general mention of cancer.

Data Coding, Inclusion, and Exclusion Criteria

In the newspaper data, stories that primarily dealt with cancer in general ($n = 274$) were set aside for analyses involving cancer site, and stories that had a value of "other" for cancer topic ($n = 28$) or site ($n = 5$) were omitted from analysis. This left 431 newspaper stories that

mentioned specific cancer sites and 677 that mentioned specific cancer topics. Several magazine stories were also left out of analyses resulting in 36 magazine stories concerning specific cancer types and 57 concerning specific cancer topics. For the television newscast data there were 78 stories that dealt with a clear cancer topic, and 59 stories that dealt with a particular cancer site. Given the small number of magazine and television stories that covered cancer, analysis beyond descriptive frequencies of topic and site was conducted using the newspaper data only.

The rank-ordered cancer topic and cancer site variables were used to determine the rank-order correlation between cancer site and cancer topic, and to cross-tabulate site with topic. The cancer site rankings were also compared with ACS cancer site incidence and mortality estimates from 2003 (Jemal, Murray, Samuels, et al., 2003).

To compare these proportions, Z tests for the difference in proportions were conducted for each of the 10 cancer sites that were mentioned most frequently in the newspaper sample as described by Hayes (2005, p. 167–173). This test yields a Z-score and associated p-value used to test whether a sample proportion (the proportion of the newspaper sample) was, statistically speaking, the same as ($p \geq .05$) or different from ($p < .05$) a population proportion (the proportions from incidence and mortality provided by ACS).

Results

Recall that research question 1 asked how cancer topics were covered in U.S. newspapers, magazines, and television newscasts. As Table 1 shows, treatment is the most frequent topic of newspaper cancer news coverage, followed by causes and death; prevention—along with detection the most important for public health—was the least frequently covered topic. Table 1 also shows that treatment is the second most frequent topic in both television and magazines, as it is superseded by detection/diagnosis (26.3%) in magazines and by death (29.5%) in television newscasts.

Research question 2 asked how frequently different cancer sites were covered in U.S. newspapers, magazines, and television newscasts. Table 2 shows that breast cancer is mentioned much more often in newspapers than cancers of other sites – colon cancer, in second place, has less than half the coverage of breast cancer. Prostate, lung, and brain cancer round out the top five cancers reported in newspaper coverage. For both magazines and television, breast cancer is the most frequently covered cancer site, followed by prostate cancer.

Research question 3 asked how cancer site and cancer topic related to each other in U.S. newspaper coverage. There was no linear relationship indicated between the topic ranks and site ranks ($r = .000$, $p = .993$). However, as shown in table 3, a cross-tabulation of the five cancer sites that were most frequently mentioned in newspapers and cancer topics suggests some differences in how various types of cancer are covered. It is interesting to note that newspaper coverage does not cover prevention more for those cancers where prevention programs could show results, (e.g., skin, lung, cervical, and colon) or cancers where we know little about primary prevention (e.g., breast, prostate). Although most of the five most-covered cancer sites follow the same basic pattern of coverage in general (i.e. relatively more coverage of treatment and causes, relatively less coverage of prevention and detection/diagnosis), there were fairly dramatic differences when it came to lung cancer. For example, 25.0% of lung cancer coverage dealt with detection/diagnosis and 30.6% was primarily concerned with death, consistent with lung cancer's high mortality rate.

Research question 4 asked how cancer site coverage in newspapers compares to U.S. cancer site incidence rates. Table 4 presents comparisons between coverage of the 10 most-covered

cancer sites and incidence figures from 2003. For nearly every site the proportion of coverage is significantly different from the proportion of incidence. Breast cancer ($Z = 6.37$, $p < .001$), colon cancer ($Z = 1.82$, $p < .05$), brain cancer ($Z = 9.34$, $p < .001$), leukemia ($Z = 4.80$, $p < .001$), cervical cancer ($Z = 3.73$, $p < .001$), and liver cancer ($Z = 2.11$, $p < .05$) had greater proportions of site-specific coverage than their respective proportions of incidence in 2003. Prostate cancer ($Z = -4.73$, $p < .001$), lung cancer ($Z = -3.35$, $p < .001$), and lymphoma ($Z = -2.35$, $p < .01$) had less coverage than 2003 incidence.

Research question 5 asked how cancer site coverage in U.S. newspapers compares to U.S. cancer site mortality rates. Table 4 also shows comparisons of site-specific coverage and mortality rates for 2003. Breast cancer ($Z = 16.26$, $p < .001$), prostate cancer ($Z = 3.24$, $p < .001$), brain cancer ($Z = 5.48$, $p < .001$), leukemia ($Z = 1.91$, $p < .05$), pharyngeal cancer ($Z = 2.72$, $p < .005$), and cervical cancer ($Z = 4.63$, $p < .001$) all had greater proportions of coverage than proportions of mortality in 2003. Lung cancer ($Z = -10.24$, $p < .001$), pancreatic cancer ($Z = -2.41$, $p < .01$), and lymphoma ($Z = -2.27$, $p < .05$) had coverage proportions that were less than their mortality proportions in 2003.

Discussion

Previous research has examined media coverage of cancer in a less-comprehensive manner; the findings of the present research provide a more authoritative description of cancer types and topics in U.S. newspapers. The results confirm numerous disparities between the cancer news coverage and the realities of the disease in the United States.

Consistent with findings from several studies (e.g. Cohen et al., 2006; Hoffman-Goetz & Friedman, 2005; Stryker et al., 2007), breast cancer dominated coverage about specific cancers – it was the primary focus of 29.6% of newspaper stories that dealt with particular cancer sites, and similar proportions of magazine and television stories. One point that bears emphasis here is that our magazine coverage estimates were based on national news magazines to provide a better basis of comparison to the other media; were women's magazines included, the proportion of breast cancer news coverage would no doubt have been even higher. The disproportionately high amount of coverage of breast cancer is likely due to long term and very successful advocacy efforts for this particular type of cancer (e.g. Clarke & Everest, 2006; Lantz & Booth, 1998; Gerlach, Marino, & Hoffman-Goetz, 1997). Similar advocacy efforts for prostate, colon and lung cancer are more recent, and not yet nearly as well organized or supported as those for breast cancer. There may also be a lag effect. Breast cancer mortality rates have only recently dropped significantly; it is possible that neither the media nor the public have caught up to this change.

It may be that other factors can impact relative coverage of cancer sites, such as treatment or screening breakthroughs, pharmaceutical company promotional efforts, and celebrity diagnoses. The relative contribution of these factors remains a research question of interest.

Cohen et al. (2006) previously noted the under-coverage of lung cancer relative to incidence rates for that cancer. This finding was replicated in the present research, and even more striking is the disparity between lung cancer news coverage and the proportion of cancer deaths attributable to lung cancer. However, when lung cancer was covered, death was the primary topic more often than any other. This relatively greater emphasis on death for lung cancer seems to suggest a similarly greater likelihood that those who read stories on lung cancer would be made aware of its lethal nature.

We find similar disparities for other cancers; lymphoma in particular receives much less media attention than it is due given its associated incidence and mortality. It appears that the second-leading cancer in terms of attention in the news varies by medium: colon cancer is

second in newspapers and prostate cancer is second on television and in magazines. The reason for this difference is not apparent. It may be an anomaly of this particular sample or it may be that the visual emphasis of magazines and television made colon cancer a less attractive candidate for coverage.

Perhaps the most notable findings are the high amounts of coverage for causes and treatment coupled with the low proportion of coverage dedicated to information about prevention. This pattern is even apparent for readily preventable cancers, such as skin cancer. (An exception was pancreatic cancer, for which nearly all the very modest amount of coverage was dedicated to prevention). Similarly, there is only moderate coverage of screening/early detection options, such as the use of mammograms, the PSA test, or colonoscopy. This is particularly unfortunate, given that prevention and screening behaviors are actionable, and coverage related to prevention and screening might well stimulate such behaviors among news consumers. Research on the impact of such content-specific coverage on cancer prevention and screening behavior would be desirable.

Overall, U.S. newspaper coverage of cancer more closely mirrors incidence rates than mortality figures. Nevertheless, findings suggest that, more often than not, the proportions of coverage dedicated to specific cancers do not accurately reflect incidence or mortality rates for those cancers. Furthermore, the greater emphasis put on treatment and lesser emphasis put on detection, screening, and prevention suggest a public conceptualization of cancer as something to be addressed after it occurs, not before. These results suggest that there is significant room for improvement in U.S. cancer news coverage, particularly with respect to increased emphasis on prevention and detection.

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Table 1

Cancer topic coverage frequencies

Newspaper topic	Magazine topic	Television topic
% (n)	% (n)	% (n)
Treatment	Detection / diagnosis	Death
17.4% (118)	26.3% (15)	29.5% (23)
Causes	Treatment	Treatment
16.8% (114)	24.6% (14)	20.5% (16)
Death	Causes	Prevention
15.4% (104)	17.5% (10)	12.8% (10)
Survivor	Industry	Survivor
14.5% (98)	8.8% (5)	10.3% (8)
Funding	Funding	Causes
10.9% (74)	7.0% (4)	7.7% (6)
Detection / diagnosis	Survivor	Intervention
10.0% (68)	7.0% (4)	7.7% (6)
Industry	Prevention	Detection / diagnosis
7.7% (52)	5.3% (3)	6.4% (5)
Prevention	Death	Funding
7.2% (49)	3.5% (2)	5.1% (4)
<i>Total</i>	<i>Total</i>	<i>Total</i>
<i>100.0% (677)</i>	<i>100.0% (57)</i>	<i>100.0% (78)</i>

Note. Total percent may not add to exactly 100 due to rounding.

Table 2

Cancer site coverage frequencies (percent of stories mentioning a specific cancer site)

Newspaper cancer site	Magazine cancer site	Television cancer site
% of all sites coded (n)	% of all sites coded (n)	% of all sites coded (n)
Breast	Breast	Breast
29.6% (126)	25.0% (9)	27.1% (16)
Colon	Prostate	Prostate
11.3% (48)	22.2% (8)	16.9% (10)
Prostate	Cervical, Colon (tie)	Brain
9.6% (41)	11.1% (4)	13.6% (8)
Lung	Lung, Skin (tie)	Skin
8.7% (37)	8.3% (3)	11.9% (7)
Brain	Lymphoma, Leukemia (tie)	Lung, Stomach (tie)
7.0% (30)	5.6% (2)	6.8% (4)
Leukemia	Testicular	Leukemia
6.3% (27)	2.8% (1)	5.1% (3)
Pancreatic	--	Bone, Colon, Head & neck, Oral, Testicular (tie)
3.3% (14)	--	1.7% (1)
Pharyngeal	--	--
3.1% (13)	--	--
Cervical	--	--
2.8% (12)	--	--
Bone, Liver, Lymphoma (tie)	--	--
2.6% (11)	--	--
<i>Total</i>	<i>Total</i>	<i>Total</i>
89.5% (381)	100.0% (36)	100.0% (59)

Note: Other cancer sites accounted for the remaining 10.5% of newspaper stories.

Table 3

Cross-tabulation of primary cancer sites and cancer topics in newspaper stories

Rank	Site	Story Topic							
		1 Treatment	2 Causes	3 Death	4 Survivor	5 Funding	6 Detection/Diagnosis	7 Industry	8 Prevention
1	Breast								
	Count	23	22	5	18	17	16	9	2
	% Breast	20.5%	19.6%	4.5%	16.1%	15.2%	14.3%	8.0%	1.8%
	% Total	8.7%	8.3%	1.9%	6.8%	6.4%	6.0%	3.4%	0.8%
2	Colon								
	Count	13	7	1	10	0	6	5	6
	% Colon	27.1%	14.6%	2.1%	20.8%	--	12.5%	10.4%	12.5%
	% Total	4.9%	2.6%	0.4%	3.8%	--	2.3%	1.9%	2.3%
3	Prostate								
	Count	7	10	3	1	1	10	2	5
	% Prostate	17.9%	25.6%	7.7%	2.6%	2.6%	25.6%	5.1%	12.8%
	% Total	2.6%	3.8%	1.1%	0.4%	0.4%	3.8%	0.8%	1.9%
4	Lung								
	Count	2	7	11	4	0	9	2	1
	% Lung	5.6%	19.4%	30.6%	11.1%	--	25.0%	5.6%	2.8%
	% Total	0.8%	2.6%	4.2%	1.5%	--	3.4%	0.8%	0.4%
5	Brain								
	Count	16	3	7	3	1	0	0	0
	% Brain	53.3%	10.0%	23.3%	10.0%	3.3%	--	--	--
	% Total	6.0%	1.1%	2.6%	1.1%	0.4%	--	--	--
	<i>Total</i>								
	Count	61	49	27	36	19	41	18	14
	% Total	23.0%	18.5%	10.2%	13.6%	7.2%	15.5%	6.8%	5.3%

Note. Topic ranks are from all cancer stories, including those not mentioning a specific cancer site.

Table 4

Comparison of coverage and incidence and mortality rates for top 10 most-covered cancer sites in newspapers

Coverage Rank	Cancer Site (% coverage)	2003 Incidence Rank (% Top 20 Incidence) <i>Z_{coverage - 2003 incidence}</i>	2003 Mortality Rank (% top 20 mortality) <i>Z_{coverage - 2003 mortality}</i>
1	Breast (29.6%)	2 (17.8%) 6.37****	3 (8.1%) 16.26****
2	Colon (11.3%)	4 (8.8%) 1.82*	2 (11.6%) -.19
3	Prostate (9.6%)	1 (18.5%) -4.73****	5 (5.9%) 3.24****
4	Lung (8.7%)	3 (14.4%) -3.35****	1 (31.8%) -10.24****
5	Brain (7.0%)	16 (1.5%) 9.34****	10 (2.7%) 5.48****
6	Leukemia (6.3%)	11 (2.6%) 4.80****	7 (4.4%) 1.91*
7	Pancreatic (3.3%)	10 (2.6%) .91	4 (6.1%) -2.41**
8	Pharyngeal (3.1%)	12 (2.3%) 1.10	17 (1.5%) 2.72***
9	Cervical (2.8%)	20 (1.0%) 3.73****	19 (.8%) 4.63****
10	Bone (2.6%)	-- -- --	-- -- --
	Liver (2.6%)	17 (1.4%) 2.11*	8 (2.9%) -.37
	Lymphoma (2.6%)	5 (5.1%) -2.35**	6 (5.0%) -2.27*

Notes.

* p<.05,

** p<.01,

*** p<.005,

**** p<.001

Bone cancer not in incidence or mortality top 20.