

# Cancer and the Media

## How Does the News Report on Treatment and Outcomes?

Jessica Fishman, PhD; Thomas Ten Have, PhD; David Casarett, MD, MA

**Background:** Cancer receives a great deal of news media attention. Although approximately half of all US patients with cancer die of their illness or of related complications, it is unknown whether reports in the news media reflect this reality.

**Methods:** To determine how cancer news coverage reports about cancer care and outcomes, we conducted a content analysis of US cancer news reporting in 8 large-readership newspapers and 5 national magazines. Trained coders determined the proportion of articles reporting about cancer survival, cancer death and dying, aggressive cancer treatment, cancer treatment failure, adverse events of cancer treatment, and end-of-life palliative or hospice care.

**Results:** Of 436 articles about cancer, 140 (32.1%; 95% confidence interval [CI], 28%-37%) focused on survival and only 33 (7.6%; 5%-10%) focused on death and dying

( $P < .001$ ,  $\chi^2$  test). Only 57 articles (13.1%; 10%-17%) reported that aggressive cancer treatments can fail, and 131 (30.0%; 26%-35%) reported that aggressive treatments can result in adverse events. Although most articles (249 of 436 [57.1%]; 95% CI, 52%-62%) discussed aggressive treatments exclusively, almost none (2 of 436; [0.5%]; 0%-2%) discussed end-of-life palliative or hospice care exclusively ( $P < .001$ ,  $\chi^2$  test), and only a few (11 of 436 [2.5%]; 1%-6%) discussed aggressive treatment and end-of-life care.

**Conclusions:** News reports about cancer frequently discuss aggressive treatment and survival but rarely discuss treatment failure, adverse events, end-of-life care, or death. These portrayals of cancer care in the news media may give patients an inappropriately optimistic view of cancer treatment, outcomes, and prognosis.

*Arch Intern Med.* 2010;170(6):515-518

ONE OF EVERY 2 MEN AND 1 of every 3 women will be diagnosed as having cancer in their lifetime, and approximately half of all patients with cancer will die of their illness or of related complications.<sup>1</sup> Annually, 555 500 Americans are expected to die of cancer, and as the population ages, these rates are expected to rise significantly.<sup>1</sup> These figures have given cancer a prominent place in news reporting.<sup>2,3</sup>

### See Invited Commentary at end of article

**Author Affiliations:** Center for Clinical Epidemiology and Biostatistics (Drs Fishman and Ten Have), Annenberg School for Communication (Dr Fishman), VA Center for Health Equity Research and Promotion (Dr Casarett), Leonard Davis Institute of Health Economics (Dr Casarett), and School of Medicine (Drs Fishman, Ten Have, and Casarett), University of Pennsylvania, Philadelphia.

It is unknown, however, whether the content of cancer reporting reflects the outcomes that patients with cancer are likely to experience. For example, cancer news coverage may provide an unrealistic view if reports emphasize survival rather than mortality, cures rather than treatment failure and adverse events, and aggressive treatment rather than palliative alternatives.

It is important to determine whether cancer news coverage offers a realistic view of cancer treatment and outcomes be-

cause many people are exposed to news coverage of health issues.<sup>4-6</sup> Furthermore, studies<sup>4,7-9</sup> suggest that the amount and type of cancer news coverage influences patient and physician beliefs and behaviors. For these reasons, the Institute of Medicine<sup>10</sup> has stressed that mass media are critical to health communication across the cancer continuum. Therefore, we examined cancer news reporting in large-market US media to assess whether reporting emphasizes survival or mortality, cures or treatment failure and adverse events, and aggressive treatment or palliative alternatives.

## METHODS

### STUDY DESIGN AND DATA SOURCES

We conducted a content analysis of articles from 8 large-readership newspapers and 5 national magazines to examine the presence and type of cancer reporting in the news media.

We selected magazines and newspapers as the mass media sources because for various age, sex, and racial/ethnic groups, these media are a primary source of trusted health informa-

tion.<sup>5,11,12</sup> We also considered including other news sources but excluded them for 3 reasons. We excluded the Internet, radio, and books because American adults are more likely to obtain health news from newspapers and magazines.<sup>5,11</sup> In addition, we ruled out Internet and television news because contemporary research has often shown that they are rated as less credible than newspapers and magazines.<sup>13-15</sup> Furthermore, televised news often provides content that is similar to that of newspapers and magazines (although television produces shorter, condensed news reports that less frequently focus on health issues).<sup>6,16-18</sup>

Using methods similar to those used in other content analyses of health reporting,<sup>19,20</sup> we randomly selected articles from news sources accessible through the 2005-2007 Lexis-Nexis and EBSCO MegaFILE databases. Using a list of the 30 largest circulating national magazines that excluded those with no cancer reporting, we randomly selected *Newsweek*, *Parade*, *People*, *Redbook*, and *Time*. In addition, 8 newspapers were selected that serve areas with the largest newspaper readership: *Chicago Sun-Times*, *Chicago Tribune*, *Daily Herald-Chicago*, *New York Daily News*, *New York Post*, *New York Times*, *Philadelphia Daily News*, and *Philadelphia Inquirer*. This sampling strategy emphasized reporting in major US media markets because it reaches large, diverse populations and influences the amount and type of coverage other sources provide.<sup>6,11,21</sup>

## ARTICLE SELECTION

Using a computer-automated process and programmed, validated search terms,<sup>22</sup> we identified 2228 cancer-focused articles (that were  $\geq 200$  words). We then selected a random sample of 436 articles (19.6%), stratifying to include 3 newspaper articles for every magazine article to reflect newspapers' more frequent health coverage<sup>6</sup> while manually confirming that articles met the inclusion criteria.

## DATA COLLECTION

To ensure reliable coding, we created, pretested, and piloted a coding instrument to determine the presence or absence of 6 specific variables in each story. Articles were coded to determine specifically whether they reported on (1) cancer survival (defined as  $\geq 1$  individual described as surviving or being cured of cancer); (2) cancer mortality (defined as  $\geq 1$  individual dead of cancer, dying of cancer, or given a terminal diagnosis); (3) aggressive cancer treatment (defined as any therapy, drug, or surgery intended to cure or prevent the recurrence of cancer or prolong the life of a patient); (4) cancer treatment failure (defined as mentioning that cancer treatment can fail to extend the life of the patient or prevent recurrence or that disease [eg, late stage] can be incurable or untreatable); (5) adverse events of cancer treatment (defined as mentioning any unintended negative consequences attributed to cancer treatments, such as long- and short-term adverse effects, including neuropathy, pain, hair loss, and nausea); and (6) end-of-life palliative or hospice care (defined as mentioning symptom management or pain management or using the term "palliative" or "hospice"). These variables were not mutually exclusive.

Two coders were trained to use the instrument's decision rules reliably for each variable. Coders also recorded the number of words per article, the news source (eg, newspaper vs magazine), and the types of cancer primarily discussed. For all the study variables, interrater reliability between coders was high<sup>23</sup> in a random 10% sample double coded to ensure that coders remained reliable in their assessments<sup>24</sup>; Krippendorff  $\alpha$  for each variable always exceeded .70, and the scores ranged from 0.79 to 1.0.

## SAMPLE SIZE CALCULATIONS

We sampled at least 400 articles to calculate a point estimate of the prevalence of each study variable, with a total width for the 95% confidence interval (CI) set at 10%, using the conservative assumption of a point estimate of 50% for each study variable.

## ANALYSIS

We calculated the proportion of articles containing each study variable, and comparisons between the study variables were conducted using Pearson 2-sided  $\chi^2$  tests for statistical significance. We considered  $P < .05$  to be statistically significant. Data were analyzed using a software program (STATA for Windows version 8.0; StataCorp LP, College Station, Texas).

## RESULTS

### ARTICLE CHARACTERISTICS

The sample included 436 articles, of which 312 were from newspapers and 124 were from magazines. The median length of the articles was 536 words (interquartile range, 360-756 words). Articles were most likely to focus on breast cancer (35.1%,  $n=153$ ) or prostate cancer (14.9%,  $n=65$ ), although 20.0% ( $n=87$ ) discussed cancer in general.

### REPORTING ON CANCER SURVIVAL AND CANCER MORTALITY

Articles were coded to determine whether they focused on cancer survival, mortality, or both. Of the 436 articles sampled, 140 (32.1%; 95% CI, 28%-37%) focused on 1 or more individuals surviving or being cured of cancer, and only 33 (7.6%; 5%-10%) focused on 1 or more individuals dead or dying of cancer ( $P < .001$ ,  $\chi^2$  test). Only 10 articles (2.3%; 1%-4%) focused on both outcomes.

Because the articles discussed varying numbers of patients, we also recorded the total number discussed in each. Outcomes in 216 individuals were discussed in 173 articles (39.7%; 95% CI, 35%-44%). Of these patients, 170 (78.7%; 73%-84%) were described as having survived and only 46 (21.3%; 16%-27%) as having died ( $P < .001$ ,  $\chi^2$  test).

### REPORTING ON CANCER CURES, TREATMENT FAILURE, AND ADVERSE EVENTS

We also coded how often the news reported that treatments may fail to cure and may result in adverse events. Few articles ( $n=57$ ; 13.1%; 95% CI, 10%-17%) reported that aggressive cancer treatments can fail to cure or extend life or that certain cancers (such as late-stage disease) can be incurable. In addition, less than a third of all the articles ( $n=131$ ; 30.0%; 26%-35%) mentioned that cancer treatments can result in adverse events, including long- and short-term adverse effects, such as neuropathy, pain, hair loss, and nausea.

## REPORTING ON AGGRESSIVE TREATMENT AND END-OF-LIFE CANCER CARE

Finally, we determined how frequently the news reported on aggressive treatment rather than end-of-life palliative or hospice care. Although most articles ( $n=249$  [57.1%]; 95% CI, 52%-62%) discussed aggressive treatments exclusively, almost none ( $n=2$  [0.5%]; 0%-2%) discussed end-of-life care exclusively ( $P<.001$ ,  $\chi^2$  test). In addition, only 11 articles (2.5%; 95% CI, 1%-6%) mentioned aggressive treatment and end-of-life care. For this finding, and all others, there were no differences in newspaper and magazine reporting after adjusting for article length (data not shown).

### COMMENT

Very few news reports about cancer discuss death and dying, and even those that do generally do not mention palliative and hospice care. It is surprising that few articles discuss death and dying considering that half of all patients diagnosed as having cancer will not survive.<sup>1</sup> The findings are also surprising given that scientists, media critics, and the lay public repeatedly criticize the news for focusing on death.<sup>25-28</sup> Indeed, as documented by several classic studies,<sup>25,27</sup> the news often equates misfortune with significance, dedicating a disproportionately large share of coverage to mortality and other bad events.

The tendency of the news to report on aggressive cancer treatments and survival but not on alternatives is also noteworthy given that unrealistic information may mislead the public about the trade-offs between attempts at heroic cures and hospice care. Several studies have suggested that end-of-life information may help patients with cancer develop realistic expectations for end-of-life medical care and improve outcomes.<sup>29-31</sup> News coverage may also influence patients' treatment decisions and expectations because patients' informational needs are often not met by their cancer care providers, who may avoid end-of-life discussions.<sup>29,32</sup>

Furthermore, the absence of reporting about hospice and palliative care is significant given the numerous well-documented benefits for patients and family members.<sup>33,34</sup> Specifically, hospice programs deliver high-quality care at the end of life, with excellent patient and family satisfaction, reduced costs, and decreased suffering at the end of life.<sup>35-40</sup> Because of these benefits, Institute of Medicine reports,<sup>34,41</sup> consensus panels,<sup>42</sup> and oncology professional societies<sup>43-45</sup> agree that comprehensive cancer care should incorporate more than disease-modifying treatment.

For many patients with cancer, it is important to know about palliative and hospice care because this information can help them make decisions that realistically reflect their prognosis and the risks and potential benefits of treatment. A lack of reporting on palliative and hospice care also has public health implications because when media bring increased attention to certain topics, they often enjoy greater individual, community, and political support.<sup>46</sup> This is true even for highly personal and private health behaviors.<sup>47-49</sup>

This study has one main limitation. Because data collection and analysis were limited to cancer news reporting in magazines and newspapers, the results may not be generalizable to other mass media. However, as noted

previously, many Americans obtain and trust health news from newspapers and magazines,<sup>5,11,13-15</sup> making it important to understand reporting produced by these media. In addition, previous research suggests that the study findings may, indeed, be generalizable to television news, which often provides content that is similar to that of newspapers and magazines (although television produces shorter, condensed reports).<sup>6,16-18</sup> Nevertheless, future research should empirically assess whether the findings differ in television or other media.

How often should the news media discuss treatment failure, adverse events, end-of-life care, and death and dying? Although there is no quantifiable answer, the same educational goals that ideally drive news coverage of cancer treatment and survival should also compel news organizations to address these topics. The media routinely report about aggressive treatment and survival presumably because cancer news coverage is relevant to a large portion of the population, and, for the same reason, similar attention should be devoted to the alternatives.

Accepted for Publication: October 23, 2009.

Published Online: March 16, 2010 (doi:10.1001/archinternmed.2010.11).

Correspondence: Jessica Fishman, PhD, Center for Clinical Epidemiology and Biostatistics, University of Pennsylvania, 711 Blockley Hall, 423 Guardian Dr, Philadelphia, PA 19104 (fishman1@mail.med.upenn.edu).

Author Contributions: *Study concept and design:* Fishman, Ten Have, and Casarett. *Acquisition of data:* Fishman. *Analysis and interpretation of data:* Fishman and Casarett. *Drafting of the manuscript:* Fishman and Casarett. *Critical revision of the manuscript for important intellectual content:* Fishman, Ten Have, and Casarett. *Obtained funding:* Fishman. *Administrative, technical, and material support:* Fishman. *Study supervision:* Fishman.

Financial Disclosure: None reported.

Funding/Support: This study was supported in part by research funds through the EPIC Center of Excellence in Cancer Communication Research (grant 5P50CA095856-05 from the National Cancer Institute) (Dr Fishman) and by grant MRS08-08-013-01-CPPB from the American Cancer Society (Dr Fishman).

Role of the Sponsor: The funders had no role in the design and conduct of the study; in the collection, analysis, and interpretation of the data; or in the preparation, review, or approval of the manuscript.

Disclaimer: The contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Cancer Institute or the American Cancer Society.

### REFERENCES

1. American Cancer Society. *Cancer Facts and Figures 2008*. Atlanta, GA: American Cancer Society; 2008.
2. Adelman RC, Verbrugge LM. Death makes news: the social impact of disease on newspaper coverage. *J Health Soc Behav*. 2000;41(3):347-367.
3. Viswanath K. Science and society: the communications revolution and cancer control. *Nat Rev Cancer*. 2005;5(10):828-835.
4. Shim M, Kelly B, Hornik R. Cancer information scanning and seeking behavior is associated with knowledge, lifestyle choices, and screening. *J Health Commun*. 2006;11(suppl 1):157-172.
5. Kaiser Family Foundation. Kaiser health poll report: public opinion snapshot on

- health information sources: 2005. <http://www.kff.org/kaiserpolls/pomr0718050th.cfm>. Accessed July 1, 2005.
6. Nelkin D. *Selling Science: How the Press Covers Science and Technology*. New York, NY: WH Freeman & Co; 1995.
  7. Yanovitzky I, Blitz CL. Effect of media coverage and physician advice on utilization of breast cancer screening by women 40 years and older. *J Health Commun*. 2000;5(2):117-134.
  8. Nattinger AB, Hoffmann RG, Howell-Pelz A, Goodwin JS. Effects of Nancy Reagan's mastectomy on choice of surgery for breast cancer by US women. *JAMA*. 1998;279(10):762-766.
  9. Stryker JE. Media and marijuana: a longitudinal analysis of news media effects on adolescents' marijuana use and related outcomes, 1977-1999. *J Health Commun*. 2003;8(4):305-328.
  10. Committee on Health and Behavior and Board on Neuroscience and Behavioral Health, Institute of Medicine. *Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences*. Washington, DC: National Academy Press; 2001.
  11. *The Survey of the American Consumer*. New York, NY: Mediamark Research and Intelligence; 2007.
  12. Niederdeppe J, Hornik RC, Kelly BJ, et al. Examining the dimensions of cancer-related information seeking and scanning behavior. *Health Commun*. 2007;22(2):153-167.
  13. Flanagin A, Metzger M. Perceptions of Internet information credibility. *Journalism Mass Commun Q*. 2000;77:515-540.
  14. Kioussis S. Public trust or mistrust? perceptions of media credibility in the information age. *Mass Commun Soc*. 2001;4:381-403.
  15. Johnson T, Kaye B. Comparing Internet and traditional sources on media credibility measures. *Journalism Mass Commun Q*. 1998;75:325-340.
  16. Pribble JM, Goldstein KM, Fowler EF, Greenberg MJ, Noel SK, Howell JD. Medical news for the public to use? what's on local TV news. *Am J Manag Care*. 2006;12(3):170-176.
  17. Potter D, Kurpius DD. Public journalism and TV news. In: Eksterowicz J, Roberts RN, eds. *Public Journalism and Political Knowledge*. Lanham, MA: Rowman & Littlefield; 2000:77-90.
  18. Corbett J, Mori M. Medicine, media, and celebrities: news coverage of breast cancer, 1960-1995. *Journalism Mass Commun Q*. 1999;76:229-249.
  19. Danovaro-Holliday MC, Wood A, LeBaron C. Rotavirus vaccine and the news media. *JAMA*. 2002;287(11):1455-1462.
  20. Brown J, Chapman S, Lupton D. Infinitesimal risk as public health crisis: news media coverage of a doctor-patient HIV contact tracing investigation. *Soc Sci Med*. 1996;43(12):1685-1695.
  21. Glasser T, Slamon C. *Public Opinion and the Communication of Consent*. New York, NY: Guilford Press; 1995.
  22. Stryker JE, Wray R, Hornik RC, Yanovitzky I. Validation of database search terms for content analysis: the case of cancer news coverage. *Journalism Mass Commun Q*. 2006;83:413-430.
  23. Krippendorff K. *Content Analysis: An Introduction to Its Methodology*. Thousand Oaks, CA: Sage; 2004.
  24. Lombard M, Snyder-Duch J, Bracken CC. Content analysis in mass communication: assessment and reporting of intercoder reliability. *Hum Commun Res*. 2002;28:587-604.
  25. Bohle R. Negativism as news selection predictor. *Journal Q*. 1986;63:789-796.
  26. Haskins J. Morbid curiosity and the mass media: a synergistic relationship. In: Crook JA, Haskins JB, Ashdown PG, eds. *Morbid Curiosity and the Mass Media: Proceedings of a Symposium*. Knoxville: University of Tennessee and the Gannet Foundation; 1984.
  27. Gieber W. Do newspapers overplay negative news? *Journal Q*. 1955;63:311-318.
  28. Moeller S. *Compassion Fatigue: How the Media Sell Disease, Famine, War and Death*. New York, NY: Routledge; 1999.
  29. Wright AA, Zhang B, Ray A, et al. Associations between end-of-life discussions, patient mental health, medical care near death, and caregiver bereavement adjustment. *JAMA*. 2008;300(14):1665-1673.
  30. Weeks JC, Cook E, O'Day S, et al. Relationship between cancer patients' predictions of prognosis and their treatment preferences. *JAMA*. 1998;279(21):1709-1714.
  31. Prigerson HG. Socialization to dying: social determinants of death acknowledgment and treatment among terminally ill geriatric patients. *J Health Soc Behav*. 1992;33(4):378-395.
  32. Hagerty RG, Butow PN, Ellis PM, Dimitry S, Tattersall MH. Communicating prognosis in cancer care: a systematic review of the literature. *Ann Oncol*. 2005;16(7):1005-1053.
  33. Sanders DB. *Improving Palliative Care: We Can Take Better Care of People With Cancer*. Washington, DC: Institute of Medicine, National Research Council; 2003.
  34. Field MJ, Cassel CK; Committee on Care at the End of Life. *Approaching Death: Improving Care at the End of Life*. Washington, DC: Institute of Medicine; 1997.
  35. Kane RL, Berstein L, Wales J, Rothenberg R. Hospice effectiveness in controlling pain. *JAMA*. 1985;253(18):2683-2686.
  36. Casarett DJ, Hirschman KB, Crowley R, Galbraith LD, Leo M. Caregivers' satisfaction with hospice care in the last 24 hours of life. *Am J Hosp Palliat Care Med*. 2003;20(3):205-210.
  37. Teno JM, Clarridge B, Casey V, et al. Family perspectives on end-of-life care at the last place of care. *JAMA*. 2004;291(1):88-93.
  38. Miller SC, Mor V, Teno J. Hospice enrollment and pain assessment and management in nursing homes. *J Pain Symptom Manage*. 2003;26(3):791-799.
  39. Miller SC, Mor V, Wu N, Gozalo P, Lapane K. Does receipt of hospice care in nursing homes improve the management of pain at the end of life? *J Am Geriatr Soc*. 2002;50(3):507-515.
  40. Casarett D, Karlawish J, Morales K, Crowley R, Mirsch T, Asch DA. Improving the use of hospice services in nursing homes: a randomized controlled trial. *JAMA*. 2005;294(2):211-217.
  41. Foley K, Gelband H. *Improving Palliative Care for Cancer*. Washington, DC: Institute of Medicine, National Research Council; 2001.
  42. National Consensus Project for Quality Palliative Care. *Clinical Practice Guidelines for Quality Palliative Care*. 2nd ed. Pittsburgh, PA: National Consensus Project for Quality Palliative Care; 2009.
  43. National Comprehensive Cancer Network. *Palliative Care: NCCN Clinical Practice Guidelines in Oncology*. New York, NY: National Comprehensive Cancer Network; 2006.
  44. McNiff KK, Neuss MN, Jacobson JO, Eisenberg PD, Kadlubek P, Simone JV. Measuring supportive care in medical oncology practice: lesson learned from the Quality Oncology Practice Initiative. *J Clin Oncol*. 2008;26(23):3832-3837.
  45. American Society of Clinical Oncology. Cancer care during the last phase of life. *J Clin Oncol*. 1998;16(5):1986-1996.
  46. McCombs M, Shaw D. The evolution of agenda-setting research: 25 years in the marketplace of ideas. *J Commun*. 1993;43:58-68.
  47. Rogers EM. *Communication Strategies for Family Planning*. New York, NY: Free Press; 1973.
  48. Brown JD, Walsh-Childers K. Effects of media on personal and public health. In: Bryant J, Zillmann D, eds. *Media Effects: Advances in Theory and Research*. Hillsdale, NJ: Lawrence A Erlbaum Associates; 1994:380-415.
  49. Fan D. Impact of persuasive information on secular trends in health-related behaviors. In: Hornik R, ed. *Public Health Communication: Evidence for Behavior Change*. Mahwah, NJ: Lawrence A Erlbaum Associates; 2002.

---

**INVITED COMMENTARY**

---

## Covering Cancer

**O**n April 13, 2008, *60 Minutes* aired a segment touting a new radio wave machine that “may be one of the most promising breakthroughs in cancer research in years.” The device had “cooked cancer to death” in mice, with “no side effects.” Although human trials were at least 4 years away, Dr Steven Curley of the MD Anderson Cancer Center in Houston, Texas, told correspondent Lesley Stahl that “in 20 years of research, this is the most exciting thing I’ve encountered.”<sup>1</sup>

The history of cancer news reporting in the United States is replete with similar examples. Whether in 1949, when *Time* magazine put the inventor of the first Food and Drug Administration–approved cancer drug on its cover, or in 1998, when the *New York Times* offered up its Sunday front page to the “cautious awe” greeting the first anti-angiogenesis drugs because they “eradicate tumors in mice,”<sup>2</sup> the nation’s leading media institutions have set a low bar for routine coverage of the nation’s long-running war on cancer. Hype is the norm.