

A B S T R A C T

Local newspapers are an important source of health news, especially in small communities. We describe the amount and type of cancer information in Ontario daily newspapers dichotomized by circulation size (>400,000 or <40,000) and community size (>250,000 or <25,000 people) for 1991. All cancer articles (n=1027) in five newspapers with large circulations, serving large communities, and five newspapers with small circulations, serving small communities, were read and evaluated for focus and newsplay. Although large newspapers had an absolute greater number of cancer articles, there were no significant differences by newspaper size in the number of cancer articles per 1,000 pages. Large newspapers included more cancer articles with a scientific vs. human interest focus than did small newspapers ($p<0.001$). Large newspapers tended to use wire services whereas small newspapers tended to use staff reporters. Differences in the type and amount of cancer information varies by newspaper and community size, potentially contributing to differences in community cancer information resources.

A B R É G É

Les journaux sont une source importante de nouvelles sur la santé, surtout dans les petites localités. Pour décrire le nombre et le genre d'informations sur le cancer parues en 1991 dans les quotidiens ontariens, divisés selon leur tirage (>400 000 ou <40 000) et la taille de la localité (>250 000 ou <25 000 habitants), nous avons lu tous les articles sur le cancer (n=1 027) parus dans cinq journaux à grand tirage desservant de grandes localités et dans cinq journaux à faible tirage desservant de petites localités pour en évaluer la perspective et la source. En chiffres absolus, les grands journaux ont publié davantage d'articles sur le cancer, mais par tranche de 1 000 pages, nous n'avons constaté aucune différence significative liée à la taille du journal. Les grands journaux ont publié davantage d'articles sur le cancer de nature scientifique plutôt que d'intérêt général ($p<0,001$). À la différence des petits journaux, ils ont eu tendance à faire appel aux agences de transmission plutôt qu'à leurs propres reporters. Les différences dans le genre et le nombre d'informations sur le cancer varient selon la taille du journal et de la localité, ce qui pourrait contribuer aux écarts dans les ressources documentaires sur le cancer d'une localité à l'autre.

Cancer Coverage in Newspapers Serving Large and Small Communities in Ontario

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Mass media is a common source of health¹ and cancer^{2,3} information. While television is a pervasive news source, newspapers maintain an important role in informing the public. A 1998 NADBank survey found that 60% of Canadian adults had read a daily newspaper the day before, and 83% had read a daily newspaper in the previous week.⁴ Newspapers have an advantage over television news because they allow more discussion of issues, while television is usually limited to <60 second spots.⁵ Furthermore, newspaper presentations of a news story are better remembered than radio, television or computer presentations, across three measures of recall.⁶ An additional advantage of newspapers is that coverage can expand or contract with demands of the moment. Thus, newspapers are able to provide in-depth coverage of a variety of topics, which can be quickly tailored to address specific policy and community needs.

A potential drawback of relying on the mass media as a source of information is the knowledge gap hypothesis which suggests there is a tendency for higher socioeconomic status groups to acquire information more quickly than lower socioeconomic status groups.^{7,8} Some have argued that mass media attempts to equalize the distribution of information across social structure will not only fail but will actually increase inequities in information.⁹ For example, when the Swedish media actively covered a local cardiovascular disease prevention program, the groups who most

needed the information were least impacted.¹⁰ In contrast, a study assessing HIV knowledge following extensive media coverage of Magic Johnson's announcement found that those in the lower social classes gained proportionally more information relative to previous knowledge than those in higher socioeconomic groups.¹¹ Kristiansen and Harding¹² analyzed differences in health information in British newspapers targeting readers of different social classes and found multiple differences in the way health information was presented. Adding to the knowledge gap hypothesis debate is the ongoing concern about the size of the community in relation to the size of the knowledge gap.⁷

The purpose of this study was to assess the volume and focus of cancer coverage in Ontario daily newspapers as a function of newspaper circulation size and target community size. We hypothesized that the volume of cancer coverage in newspapers serving small communities would be absolutely and proportionally less than the volume of coverage in newspapers serving large communities.

METHODS

A listing of daily newspapers for Ontario was compiled from the Canadian Newspaper Association and Bowden's Media Directory. There were 38 daily newspapers for which total weekly circulations were obtained from the Canadian Newspaper Association.¹³ Newspapers were ranked by circulation with the top and bottom five included (extreme group comparisons). The year 1991 was selected because it was the most recent year for which archived records of the smallest circulating newspapers were available. An additional newspaper (*The Toronto Sun*, circulation: 1,734,434) was excluded because of the tabloid format and overlap

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TABLE I
Socioeconomic Profiles* of Communities Served by Large and Small Newspapers

	Toronto	Ottawa	Hamilton	London	Windsor	Pembroke	Lindsay	Kirkland Lake	Cobourg	Kenora
Population (1991)*	3,822,400	885,300	600,300	371,500	260,200	23,300	21,800	11,700	16,000	15,900
Percent of Canadian Population	14.26	3.30	2.24	1.39	0.97	0.09	0.08	0.04	0.06	0.06
Income†	27% above	24% above	12% above	10% above	11% above	11% below	9% below	11% below	6% above	10% above
Percent of Population with 4-year University Degree*	13.8%	17.6%	9.1%	11.7%	8.5%	6.0%	5.8%	4.9%	7.4%	7.3%

* Data are from *Canadian Markets 1991*—65th Edition. Financial Post Information Service

† Value is a percent of the National Personal Average Income 1991

in geographic range with another higher circulating newspaper.

Although newspapers with small circulations are not necessarily based in small communities, among the sample of Ontario communities with a daily newspaper, the bottom five newspapers with the smallest circulation were based in five of the smallest towns. The five smallest towns also tended to have lower socioeconomic profiles than the five largest cities included in this study (Table I). Table II lists the top and bottom Ontario daily newspapers by circulation and population figures. Penetration of large newspapers into smaller communities was minimal. For example, penetration of *The Toronto Star* into the five small communities ranged from 14.7% (Cobourg) to 2.1% (Kirkland Lake) to negligible (Kenora, Lindsay, Pembroke); penetration of *The Globe & Mail* was <1% of the population in the small communities.

Newspapers were searched and articles were included if the term 'cancer' appeared in the headline. Medical advice columns, recipes, obituaries, and letters to the editor were excluded as these are not driven by editorial policy.

Information was collected about article length, page and section number, and authorship (wire service, staff reporter, other contributor, not specified). Each article was classified as a general or a site-specific cancer article using categories of common cancers identified by the National Cancer Institute.¹⁴ When an article discussed more than one cancer site exclusively (e.g., breast and ovarian cancers), this was coded as a separate category.

Articles were dichotomized as scientific/informative or anecdotal/human interest.

To be categorized as scientific, the article had >75% of the total number of paragraphs on recent scientific findings or studies (e.g., new cancer statistics, cancer discovery, treatment or palliative approach) or had the goal of informing the reader (e.g., importance of mammography screening). Articles that did not meet this criterion were classified as human interest/anecdotal (e.g., articles with a focus on an individual's cancer experience, fundraising efforts, or community cancer events).

The number of cancer articles is reported as the absolute number of articles and per 1,000 pages. By reporting the number of cancer articles per standardized number of newspaper pages, differences in newspaper size could be held constant and a measure of density obtained. Comics were included in the total page count if they were a regularly appearing feature. Special advertising sections and television listings were excluded.

Articles were coded independently by researchers involved in this study, with the evaluators being blind to the coding results. Where discrepancies occurred in coding results, these were discussed until consensus agreement could be reached. The consensus coding was then used in the analysis. Consensus discussions occurred early in the data collection to allow this process to inform future coding. Discrete variables, such as the percentage of articles, were analyzed using Chi-square (χ^2). For all tests, the p value was set at 0.05.

RESULTS

There were a total of 1,027 cancer articles in 1991 obtained from all 10 newspapers.

On an absolute basis, the large newspapers (circulation >400,000) had more cancer articles than the small newspapers (circulation <40,000) (Table III). *The Toronto Star* had the greatest number and percent of cancer articles (218 or 21.2% of all cancer articles) and *The Cobourg Daily Star* had the fewest number of articles (38 or 3.7% of all cancer articles). Surprisingly, when the volume of cancer coverage was reported as a rate, the small newspapers tended to have more cancer articles per 1,000 pages than did the large newspapers. However, the difference by coverage expressed as rate did not significantly differ between large vs. small newspaper category ($p=0.06$).

The focus of an article (scientific vs. human interest) differed significantly across the 10 newspapers ($p<0.001$). This difference remained when large and small newspapers were analyzed separately ($p<0.05$ for large and $p<0.01$ for small newspapers). Among the large newspapers, the percent of articles in the scientific vs. human interest categories were 55.1% and 44.9%, respectively. Among the small newspapers, the percent of articles in the scientific vs. human interest categories were 35.8% and 64.2%, respectively.

Across all newspapers, most cancer articles were of a general nature (452/1027 or 44.0%), followed by breast cancer articles (144/1027 or 14.0%). Other categories were: leukemia/lymphomas (73/1027 or 7%), brain and nervous system (65/1027 or 6%), liver and pancreas (49/1027 or 5%), lung (44/1027 or 4%), and gastrointestinal tract (33/1027 or 3%). All other cancers (e.g., pediatric cancers) contributed approximately 2% of the total cancer articles in 1991.

TABLE II
Top and Bottom Ontario Daily Newspapers by Circulation Size and Population Size of the Community Served

Newspaper	Circulation Size of Newspaper*	Rank	Population Size of Community†	Rank
TOP				
Toronto Star	3,477,157	1	4,615,800	1
Ottawa Citizen	995,769	2	1,064,900	2
Hamilton Spectator	643,250	3	665,000	3
London Free Press	633,872	4	414,900	4
Windsor Star	464,768	5	292,500	5
BOTTOM				
Pembroke Daily Observer	40,452	5	24,300	5
Lindsay Daily Post	33,355	4	22,500	4
Northern Daily News (Kirkland Lake)	28,313	3	10,198	1
Cobourg Daily Star	27,120	2	16,500	2
Daily Miner & News (Kenora)	21,290	1	17,000	3

* The circulation figures reflect the total copies sold weekly

† The population figures reflect census tract information from the FP Markets-Canadian Demographics 1999 resource

Note: Bottom five newspapers ranked from lowest to highest, i.e., Kenora= lowest circulation but third lowest population

TABLE III
The Number and Percent of Cancer Articles in Ontario Daily Newspapers for 1991

Newspaper	Total Number of Cancer Articles	% of Total Number of Cancer Articles	Number of Cancer Articles/1,000 Pages
Toronto Star	218	21.2	6.2
Ottawa Citizen	157	15.3	6.7
Hamilton Spectator	177	17.2	11.7
London Free Press	144	14.0	7.8
Windsor Star	99	9.6	6.9
Pembroke Daily Observer	44	4.3	11.2
Lindsay Daily Post	62	6.0	12.0
Northern Daily News (Kirkland Lake)	45	4.4	9.4
Cobourg Daily Star	38	3.7	8.8
Daily Miner & News (Kenora)	43	4.2	10.5

A large percentage of Ontario newspaper articles about cancer came from wire services (63.6% and 44.4% for large and small newspapers, respectively). The number of cancer articles in each author category varied significantly by newspaper size ($p < 0.001$). Small newspapers had more cancer articles written by local staff reporters than did large newspapers (37.9% and 23.8%, respectively).

DISCUSSION

The absolute number of cancer articles was greater in the Ontario newspapers with larger circulations. Contrary to our initial hypothesis, there was no difference in the number of cancer articles per 1,000 pages from newspapers with small compared with large circulations. Nevertheless, communities that receive an absolute larger volume of cancer articles may have overall greater cancer information exposure. It remains to be determined, however, if sheer volume of reporting is more important than the rate of reporting. It is possible that much of the large circulation

newspaper content is ignored and that the rate of reporting is more important than the sheer volume if it is buried (with less prominence) in other content.

While the small newspapers did not differ in the cancer articles per 1,000 pages from the large newspapers, the majority of articles were of a human interest focus. The amount of practical and mobilizing information tends to be less in human interest stories than in scientific articles. Differences in the types of cancer articles may contribute to the knowledge gap hypothesis observed between small and large communities.⁷

The daily newspapers included in this study highlighted interesting trends in authorship of cancer articles. Wire services were the most common source of articles in both large and small newspapers. This may be due to a limited number of staff health reporters at most newspapers included in this study. Reliance on wire services for cancer articles has a number of implications for dissemination of cancer information in diverse communities. First, news wire services are not subject to the

same time constraints as are local reporters and such services often employ writers with expertise in the medical and health arenas.¹⁵ These articles are potentially more accurate and/or informative. However, because wire stories are often printed in newspapers that serve a number of different communities with varying social-structure and health characteristics, inaccuracies will be perpetuated and tailoring of information to local community needs is limited.

Similar to the findings of other studies,¹⁶⁻¹⁹ newspaper coverage of cancer in this study does not reflect population cancer site-specific incidence. For example, lung cancer was the most common cause of cancer mortality in men in 1991²⁰ but accounted for only 4% of the cancer articles in newspapers. Colon cancer was also under-reported (33 articles), despite being the second most common cancer site among men and women in 1991. Therefore, it appears that the information presented in newspapers may not be balanced with respect to the population incidence of each cancer. This lack of balance may contribute to distortions in readers' perceptions of cancer risk.

There are important limitations of this study. First, the newspapers included in this study represent only Ontario daily newspapers and may not be reflective of cancer coverage in other provincial jurisdictions. Second, newspapers are just one media outlet through which individuals gain information about cancer issues. While newspaper circulation was used as a proxy for cancer information exposure, it was an imperfect proxy at best. Exposure

to cancer information through newspaper outlets may not translate into the intended audience actually attending to the information. Third, the coverage of cancer in newspapers in 1991 may not be representative of recent trends in cancer news reporting. To determine whether 1991 coverage was representative, a four-month period (February 1 to May 1) in 1991 and 1998 was compared for the large newspapers. Although there was a significant increase in the number of cancer articles over time (267 articles in 1991 to 424 articles in 1998), the proportion each newspaper contributed to the total number of articles, as well as the number of articles per 1,000 pages, were not significantly affected by year. Fourth, the number of cancer articles in any newspaper reflects multiple individual, community and policy factors, such as the cancer experiences of prominent individuals, editorial policies, etc. This study did not address the reasons for differences in cancer coverage between large and small circulating newspapers. Finally, the impact of media texts on reader understanding of cancer articles and the impact cancer articles have on reader cancer knowledge have not been addressed by this study.

Newspapers can be an effective channel for disseminating cancer information in predominantly rural communities.²¹ Newspapers, more than other daily media outlets, can provide details and information that relate important health news to the local community.²² This study shows that newspapers serving larger Ontario communities tend to frame cancer infor-

mation as scientific articles in contrast to newspapers serving small communities which frame cancer information as human interest stories. On an absolute basis, the amount of cancer information in newspapers serving small communities is less, although the rate of reporting does not differ between large and small newspapers. Cancer coverage in large and small newspapers may be an area of further research in terms of attention to content and retention of knowledge.

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Received: December 7, 2000

Accepted: June 14, 2001