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Purpose: To determine the volume and focus of articles on four chronic diseases in newspapers targeting First Nations, Métis, and Inuit in Canada.
Methods: From a sampling frame of 31 Aboriginal newspapers published in English from 1996–2000, 14 newspapers were randomly selected allowing for national and regional representation. Newspaper archives were searched at the National Library of Canada and articles selected if the disease terms cancer, cardiovascular disease, diabetes, or HIV/AIDS appeared in the headline, or in the first or last paragraph of the article. Articles were coded for inclusion of mobilizing information (local, distant, unrestricted, not specified, none) and content focus (scientific, human interest, commercial, other). Cancer articles were categorized by tumor site specificity. Data were analyzed by frequency, cross tabulations, and chi-square analysis.
Results: Of 400 chronic disease articles, there were significantly more articles on HIV/AIDS (167 or 41.8%) and diabetes (135 or 33.8%) and few articles on cancer (56 or 14%) and cardiovascular disease (30 articles or 7.5%) ($p < 0.001$). Slightly more than one third (36.5%) of the articles contained mobilizing information to enable readers to take further health action. Mobilizing information was virtually absent from cardiovascular (7/30 or 23%) and diabetes (29/135 or 21.5%) articles. Site specific cancer coverage differed significantly from chance ($p < 0.001$) with 41% of the articles on breast cancer and no articles on lung or colorectal cancers.
Interpretation: Given the burden of tobacco-related cardiovascular disease and cancer in Canadian Aboriginal people, the lack of coverage and limited mobilizing information in ethnic newspapers are a missed opportunity for health promotion.

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Introduction

People obtain health and medical information from multiple sources including physicians, nurses, family, friends, telephone hotlines, the workplace, television, radio, newspapers, magazines, pamphlets, and the Internet. Physicians and health care providers are often ranked by the public as the most important channel for health information but they may not in fact be the most important source of such information. Research has shown television and newspapers to be the most frequently cited source of cancer information (James, James, Davies, Harvey, & Tweddle, 1999), diet, exercise and health information (Hofstetter, Schultze, & Mulvihill, 1992), and genetic information (Frewer & Shepherd, 1994). Although health professionals were cited as the preferred source of cancer related information, more respondents actually received cancer information from the media than from health professionals (Johnson & Meischke, 1991). This may be due to the fact that while most people visit their physician sporadically and for very specific purposes (e.g., when individuals are ill), they are exposed to the mass media on a daily basis. People rely on newspapers and television current affairs over research publications, government pamphlets, consumer organization leaflets, and friends (Frewer & Shepherd, 1994). Their interest in new medical discoveries in the news is greater than their interest in sports and politics (Durant, Evans, & Thomas, 1989).

Although mass media inform the public about health risks, it may not be balanced proportional to the leading causes of population morbidity and mortality. For example, Hoffman-Goetz, Gerlach, Marino, and Mills (1997), Hoffman-Goetz and MacDonald (1999), and Gerlach, Marino, and Hoffman-Goetz (1997) have shown an overemphasis on the reporting of breast cancer in magazines targeting African American women and white North American women and an underreporting of risks for lung cancer, the leading cause of cancer death in North American women. This promotion of awareness of one disease condition over other more prevalent diseases may have an adverse impact on risk perceptions (Gottlieb, 2001).

The mass media may also fail to capture disparities in health among subpopulations, minorities, and underserved groups. For example, in Canada, Aboriginal populations (First Nations, Métis, and Inuit) have higher morbidity and mortality rates than the general population (Young, 1993; Young, Moffatt, & O'Neil, 1993). Approximately one-third of the Aboriginal population in Canada, aged 15 and older, have been informed that they have a chronic physical illness (MacMillan, MacMillan, Offord, & Dingle, 1996). Prevalence of diabetes, HIV/AIDS, cardiovascular disease, hypertension, and cancer are higher than in the general population. Results of the 1991 Aboriginal Peoples Survey indicate diabetes mellitus prevalence rates of 6.4% for First Nations people, 5.3% for Métis people and 1.9% for Inuit people, as compared to the Canadian population average of 3.1% (Health Canada, 2000a). Although prevalence data must be viewed cautiously because of under-enumeration of Aboriginal peoples, tobacco use, a risk factor for cardiovascular disease and cancer, is substantially higher than in the general population (WUNSKA & SIFC, 1997). The evidence is similar across other North American jurisdictions; higher age-adjusted incidence and mortality rates for lung cancer characterize other aboriginal populations (Burhansstipanov & Dresser, 1994; Ehrsam, Lanier, Holck, & Sandidge, 2001). If information in the general media does not capture disparities in specific groups, perhaps these subgroups are getting their health information in culture-specific publications. This is not known.

Even when information on disease conditions is presented, the mass media often provide only information and fail to provide follow-up or mobilizing information to enable behavioral actions (Fink et al., 1978; MacDonald & Hoffman-Goetz 2001).

Information alone cannot change behavior. However, when health information is linked to community resources, individual and collective actions can lead to healthier people and communities (Clift & Freimuth, 1995). Intentions to perform detection behaviors were stronger after receiving a media message with performance information allowing greater self-efficacy than after a merely information-based message (Miller & Millar, 1998). Lack of mobilizing information in the media may be more an issue in communities that lack infrastructure and community resources than in communities with access to support services.

The purpose of this study was to describe the volume and type of coverage of cancer, diabetes, cardiovascular disease, and HIV/AIDS in newspapers serving the Canadian Aboriginal population. We were interested in determining whether the amount of coverage of chronic diseases in newspapers reflected available population statistics (prevalence, incidence, or mortality rates) associated with those diseases. A second objective was to determine the type and extent of mobilizing information about cancer, heart disease, diabetes, and HIV/AIDS embedded in the articles. Because many of the Aboriginal peoples live in rural and/or northern remote locations, mobilizing information which does is not easily enable health action or intention to action may be disregarded, not attended to, or serve as a barrier.

Methods

A list of Aboriginal (First Nations, Métis, Inuit) newspapers published within Canada was compiled from a variety of sources: the Aboriginal Multimedia Society (*http://www.ammsa.com/ams/amscanadapubs.htmlanchor167885*), the Canadian Advertising Rates and Data (CARD) publication for Ethnic Markets Winter/Spring 2002, and the Canadian Aboriginal Media Cooperative (*http://www.camcop.com/members/html*. Additional Aboriginal newspapers were identified from the Internet and hand-searches of published papers (Demay, 1993). A total of 41 Canadian Aboriginal newspapers was identified (Table 1) and from this sampling frame, items were excluded if not written in English, not published continuously from 1996–2000, published less than four times per year, target market was not Aboriginal peoples, or the publication was inactive. Of the 31 remaining newspapers, a sampling fraction of approximately 40% was used with the inclusion of at least one newspaper from each province or territory, with the exception of New Brunswick, Prince Edward Island, and Newfoundland/Labrador for which there were no Aboriginal newspapers which met the inclusion criteria. If the identified newspaper was not available at the National Library of Canada, an alternate for that province or territory was chosen. The following newspapers were included in this study: *Windspeaker, Micmac-Maliseet Nation News, Eastern Door, Wawatay News, Tekawennake, Wikwemikong News, Indian Life, Saskatchewan Sage, Alberta Native News, Western Native News, Ha-Shilth-Sa, Secwepemc News, News North*, and *Nunastsiaq News*.

Newspapers were searched for appropriate articles for 1996–2000 inclusive. Articles were selected if the terms cancer, heart disease, cardiovascular disease, hypertension, stroke, diabetes, or HIV/AIDS appeared in the headline, or in the first or last paragraph of the article. This search strategy has been used elsewhere (MacDonald & Hoffman-Goetz, 2001). With the exception of *Windspeaker*, none of the Aboriginal newspapers was available on searchable databases (Canadian Newsdisc or Lexis-Nexis); there were no Aboriginal newspapers indexed in searchable databases for the five-year time period under study. Disease mentions in non-health articles (e.g., obituaries, comics, and recipes) were excluded as these do not reflect editorial policy. For analysis purposes, cardiovascular disease included ischemic heart disease, hypertension, and neurovascular disease (stroke).

TABLE 1 Canadian Aboriginal Newspapers Identified in Sampling Frame

Newspaper	Province of Publication	Publisher; Community Served	Language	Circulation (estimate)*
Windspeaker	National	Aboriginal Multimedia Society; Canadian Aboriginal Peoples	English	18000
FirstNations Drum	National	Canadian Aboriginal Peoples	English	–
Native Journal	National	First Nations of Canada	English and French	10000
First Perspective	National	Canadian Aboriginal Peoples	English	10000
Kinatuinamot Ilengajuk	Labrador	Okalakatiget Society	–	–
Micmac-Maliseet Nation News	Nova Scotia	Mi'kmaq-Maliseet Nations News Association; Mi'kmac-Maliseet Nations in Atlantic Canada, Quebec, and Maine	English, French, Mi'kmac, Maliseet	3500
Indian Times	Quebec	Akwesasne Community	–	3000
The Nation	Quebec	Beesum Communications; James Bay Cree	English and Cree	6200
Eastern Door	Quebec	K. Deer (Kahnawake Mohawk Association)	English and Mohawk	2700
Anishnabek News	Ontario	Wikwemikong Development Commission	English	5000
Manitoulin Expositor	Ontario	First Nations of Manitoulin Island	English	5500
Métis Voyageur	Ontario	Métis communities of Ontario	English and French ?	5000
Turtle Island News	Ontario	Six Nations	English	10000
Wawatay News	Ontario	Sioux Lookout—Wawatay Native Communications	English, Cree, and Ojibway	8400
Tekawennake	Ontario	Woodland Indian Cultural Educational Centre/Six Nations Reserve	English	2050
Wikwemikong (Wiky) News	Ontario	Wikwemikong Unceded Indian Reserve	English	1000
Weetamah	Manitoba	–	–	5000
Natotawin	Manitoba	–	–	2500

(*Continued*)

TABLE 1 Continued

Newspaper	Province of Publication	Publisher; Community Served	Language	Circulation (estimate)*
The Drum	Manitoba	Taiga Communications; Brokenhead Ojibway Nation	English	7000
Thunder Voice	Manitoba	–	English	20000
Grassroots News	Manitoba	–	English	20000
Indian Life	Manitoba	Intertribal Christian Communications; First Nations Communities of Manitoba	English	–
Eagle Feather News	Saskatchewan	–	English	8000
The Indigenous Times	Saskatchewan	Aboriginal Times	English	10000
Newbreed	Saskatchewan	Métis Nation of Sakatchewan	English	–
Saskatchewan Sage	Saskatchewan	Aboriginal Multimedia Society of Alberta; Métis and First Nations in Saskatchewan	English	7100
Alberta Sweetgrass	Alberta	Aboriginal Multimedia Society of Alberta; Métis and First Nations in Alberta	English	7000
Kainai News	Alberta	Indian News Media	English	–
Alberta Native News	Alberta	Alberta Native News; First Nations, Métis Communities in Alberta, B.C., Manitoba, Ont., Western Arctic and Nunavut	English	14000
Kahtou News	British Columbia	K'Watamus Publishing; B.C. First Nations	English	5000
Ktuqcqakyam Newsletter	British Columbia	–	–	–
Raven's Eye	British Columbia	Aboriginal Multimedia Society; Aboriginal Communities in B.C. and Yukon	English	7700

(*Continued*)

TABLE 1 Continued

Newspaper	Province of Publication	Publisher; Community Served	Language	Circulation (estimate)*
Western Native News	British Columbia	Western Native News	English	10000
Ha-Shilth-Sa	British Columbia	Nuu-Chah-Nulth Tribal Council	English	3500
Secwepemc News	British Columbia	Secwepemc Cultural Education Society	English	2500
Innuvik Drum	Northwest Territories	Northern News Services; Gwich'in, Métis and Inuvialuit people of Beaufort Delta region	English	1500
Kivalliq News	Northwest Territories	Northern News Services; First Nations of Keewatin region	English and Inukitut	1400
Deh Cho Drum	Northwest Territories	Northern News Services; First Nations of Deh Cho region including Slavey and Métis people	English	1150
News North	Northwest Territories	Northern News Services; Dene, Métis and Inuit communities of NWT	English	11000
Tusaayaksat	Western Northwest Territories	Inuvialuit of Mackenzie Delta	English and Inuvialuk-tun	1200
Nunatsiaq News	Nunavut	Nortext Publishing	English and Inuktitut	8000

*Circulation numbers are estimates for 2001 based upon data reported in CARD, Aboriginal Multimedia Society, and personal communication with publisher. Note: – in a column indicates no information available.

Each article was coded for occurrence and type of mobilizing information (contact name, phone number, address, website, and agency) to enable follow-up health action. If mobilizing information was provided, specificity was recorded as *local* (e.g., telephone number within community area code, provincial postal code), *distant* (e.g., telephone number or address in another province or out of country), *unrestricted* (e.g., URL or toll-free number), and *not specified* (e.g., name of agency, organization, or individual but without specific contact details).

Articles were classified as *scientific/informative* or *anecdotal/human interest*. To be categorized as scientific, the article had $> 75\%$ of the total number of paragraphs (or sentences within a paragraph) on scientific findings or studies or about risk factors (e.g., new diabetes statistics; risk factors for heart attack) or with the goal of informing the reader to enhance self-efficacy (e.g., how to conduct a breast self exam). Articles which did not meet this criterion were classified as personal story/anecdotal (e.g., an individual's experience living with AIDS) (MacDonald & Hoffman-Goetz, 2001). Articles with

an equal coverage of scientific findings and human interest were classified as *both*. Articles which focused on fund-raising or product promotions were classified as *other*.

Cancer articles were further categorized as general or site specific using categories of common cancers identified by the U.S. National Cancer Institute. When an article discussed more than one cancer (e.g., breast and cervical), this was coded as *multiple sites*. *General* cancer articles included topics such as the role of fiber in reducing cancer risk or the importance of vitamins in fighting cancer.

Articles were coded independently by researchers involved in this study. Where discrepancies occurred in coding, these were discussed until consensus agreement was reached. The consensus coding was then used in the analysis and informed future coding. Articles were analyzed as frequencies, cross-tabulations, and chi-square (χ^2) using SPSS, version 10. For all tests, the p value was set at 0.05.

Results

There were a total of 400 articles on cancer, cardiovascular disease, diabetes mellitus, and HIV/AIDS obtained from the 14 Aboriginal newspapers over the time frame 1996–2000. The greatest number of articles was about HIV/AIDS ($n = 167$ or 41.8%), followed by diabetes ($n = 135$ or 33.8%) and cancer ($n = 56$ or 14%). The number of cardiovascular disease articles was low with only 30 (7.5%) published in five years. The distribution of chronic disease coverage differed significantly from that expected by chance alone ($\chi^2_{df(3)} = 227$, $p < 0.001$). When the number of disease articles was expressed as a density (number of articles/1000 pages of newsprint) there were an average ($\pm$ 1 standard error) of 7.1 ± 2.6, 6.0 ± 1.5, 2.0 ± 0.6, and 0.8 ± 0.3 articles/1000 pages for HIV/AIDS, diabetes, cancer, and cardiovascular disease, respectively.

Slightly more than one-third (36.5%) of the articles contained mobilizing information which could enable or facilitate further health information seeking or health actions. Mobilizing information was evident in 21.5% (29/135) of diabetes articles, 23% (7/30) of cardiovascular disease articles, 41% (23/56) of cancer articles, and 51.5% (86/167) of HIV/AIDS articles. Figure 1 shows the type of mobilizing information available (i.e., local, distant, unrestricted) within each of these disease categories. There was significantly more mobilizing information available locally than through other jurisdictions. Of the 23 cancer articles with mobilizing information, more than half (52.2% or 12 articles) were on breast cancer. There was no mobilizing information for articles on prostate, cervical, or ovarian cancers.

There was little change in the total number of articles (cancer, cardiovascular disease, diabetes, HIV/AIDS) between 1996 and 2000 ($\chi^2_{df(4)} = 7.38$, $p =$ n.s.), ranging from a high of 91 articles in 1998 to a low of 62 articles in 2000. The majority of articles published on these chronic diseases were written to inform about the science (risk factors, prevention options, treatment modalities) (218/400 or 54.5%), with fewer stories of a personal nature (55/400 or 13.8%). A large proportion of the articles focused on news about community fund-raising events or commercial products (109/400 or 27.3%). There were few articles that overlapped more than one focus category (classified as scientific and human interest, 18/400 or 4.5%). The focus of the articles differed as a function of the disease type, with greater human interest coverage about HIV/AIDS (69.1%) compared with the other disease conditions (23.6% for cancer, 7.3% for diabetes mellitus). There were no human interest stories about cardiovascular disease.

Cancer coverage was further analyzed by tumor site specificity. Table 2 shows the number of cancer articles by site for all newspapers included in this study across years

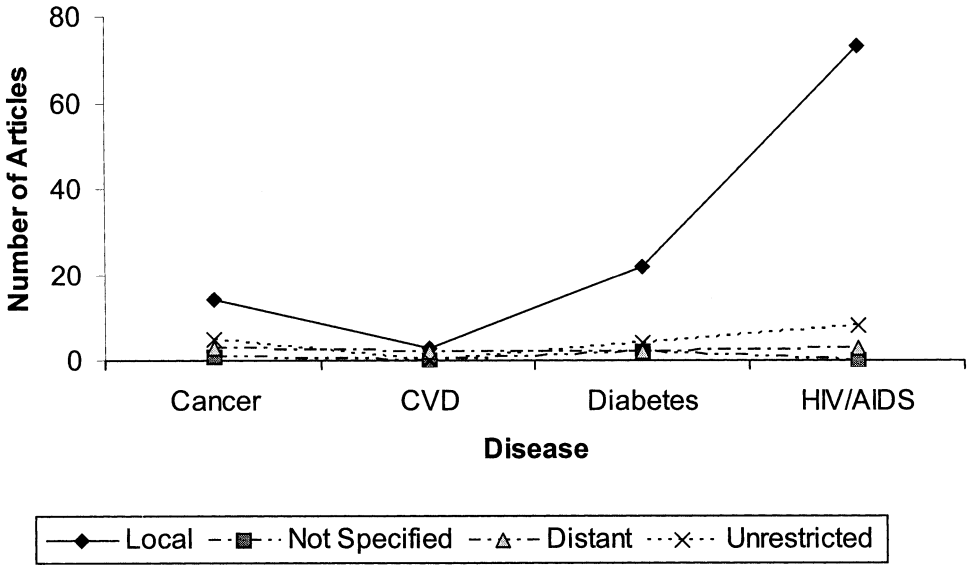

FIGURE 1 Types of mobilizing information found in cancer, diabetes, heart disease and HIV/AIDS articles in Aboriginal newspapers in Canada, 1996–2000.

TABLE 2 Types of Cancers Covered in 14 Aboriginal Newspapers, 1996–2000

Type of Cancer	Number of Cancer Articles in Aboriginal Newspapers, 1996–2000	Age-Standardized Mortality Rate per 100,000; Canada, 1997	Age-Standardized Mortality Rate per 100,000; Nunavut, 1993–1997[b]	Age-Standardized Mortality Rate per 100,000; N.W.T., 1993–1997[c]
Breast	23	27 (♀)	-	-
Leukemia	9	8 (♂) ; 5 (♀)	-	-
Melanoma	5	3 (♂) ; 1 (♀)	-	-
Ovary	1	8	-	-
Cervix	1	2	-	-
Prostate	1	28 (♂)	-	-
Colorectal	0	23 (♂) ; 15 (♀)	-	- (♂) ; 34 (♀)
Lung	0	70 (♂) ; 32 (♀)	160 (♂) ; 133 (♀)	68 (♂) ; 55 (♀)
Total Number of Cancer Articles[a]	56	230 (♂) ; 149 (♀)	356 (♂) ; 253 (♀)	212 (♂) ; 204 (♀)

[a]Includes all cancer articles (general cancer articles + specific cancer articles)

[b]Actual age-standard mortality rates for Nunavut with 83.9% of population enumerated as Aboriginal.

[c]Actual age-standardized mortality rates for Northwest Territories with 48.2% of population enumerated as Aboriginal (1996 Population Census, Statistics Canada *http://www.statcan.ca/english/Pgdb/People/Population/demo39a.htm*).

Note: - indicates less than 5 cases per 100,000 population (mortality rate data from National Cancer Institute of Canada: Canadian Cancer Statistics, 2001).

1996–2000. The coverage of cancer, by site, differed significantly from coverage expected by chance alone ($\chi^2_{df(8)} = 60.6$, $p < 0.001$). Of the articles each on cancer, 41% were on breast cancer, followed by 16% on leukemia/lymphoma, and 8.9% on melanoma. There were no articles on lung or colorectal cancers, and only one article each on prostate cancer and cervical cancer. Approximately one-quarter (23%) of the articles focused on general cancer issues. Mobilizing information was found in articles on breast cancer (12/23) and leukemia/lymphomas (5/9). None of the other site specific cancers covered by the 14 First Nations newspapers surveyed between 1996–2000 included mobilizing information (i.e., ovarian, prostate, melanoma, cervical, multiple sites).

Discussion

The results of this survey of chronic disease coverage in Aboriginal newspapers in Canada indicate significantly greater volume of coverage on HIV/AIDS and diabetes relative to the volume of coverage on cancer and cardiovascular disease from 1996–2000. The number of articles on cardiovascular disease (including ischemic heart disease, hypertension, and stroke) accounted for only 7.5% of the total health coverage whereas coverage of HIV/AIDS captured 41.8% of the health articles. Population statistics for cardiovascular disease among Aboriginal peoples in Canada indicate that age-standardized prevalence rates are about three times higher than the non-Aboriginal Canadian population. Moreover, there are significantly higher mortality rates for Aboriginal women than the general non-Aboriginal population for both ischemic heart disease and stroke (Heart & Stroke Foundation of Canada, 2000). In contrast, HIV prevalence in Canadian Aboriginal people is estimated at 5.5% of all prevalent HIV infections in Canada (Health Canada, 2000b) and HIV infection contributed 0.3% to the causes of death in Canada in 1997. According census statistics, the population percentage of Aboriginals is 3.7% of the Canadian population (Statcan, 1996). HIV/AIDS coverage represented over 40% of the health articles published between 1996–2000 in the Aboriginal newspapers surveyed.

Similar to cancer coverage in newspapers serving the non-Aboriginal population of Canada (MacDonald & Hoffman-Goetz, 2001) and in magazines targeting U.S. racial/ethnic minorities (Hoffman-Goetz, Gerlach, Marino, & Mills, 1997), cancer coverage in Aboriginal newspapers was limited in number (56/400 articles) and did not reflect the leading causes of cancer death. Age-standardized lung cancer mortality was much higher in the two Canadian territories (Nunavut; Northwest Territories) with significant Aboriginal population. There are no public data which disaggregate cancer rates by race or ethnicity in Canada. However, these deaths are likely higher, i.e., reflecting the greater prevalence of smoking. It has been estimated that 60% of Canadian Aboriginal people use tobacco on a regular basis (Canadian Medical Association, 1996). Moreover, among American Indians and Alaska Natives the age-adjusted lung cancer death rates increased by 1.7% (males) and 2.9% (females) between 1990 and 1998 (Gargiullo, Wingo, Coates, & Thompson, 2002). Alaska Natives had significantly elevated mortality rates for several smoking-related cancers (Ehrsam, Lanier, Holck, & Sandidge, 2001). In light of this burden of lung cancer, the Assembly of First Nations of Canada identified an epidemic of tobacco misuse among First Nations youth and called for resources for smoking prevention, cessation, and treatment programs at the First Nations community level (Assembly of First Nations, 2003). At least some of these resources could involve dissemination through local community newspapers.

In contrast, the coverage of breast cancer was over-represented in the articles published in Canadian Aboriginal newspapers from 1996–2000 and accounted for over 40% of cancer articles. This over-representation of breast cancer articles parallels the

mainstream media (e.g., Hoffman-Goetz, Gerlach, Marino, & Mills, 1997; Clarke, 1999). Traditionally breast cancer incidence and mortality rates have been low among the Inuit (Gaudette, Gao, Freitag, & Wideman, 1993). Breast cancer incidence rates for American Indian women are also lower than for Hispanic women and non-Hispanic white women (Eidson, Becker, Wiggins, Key, & Samet, 1994). It is not clear why the reporting of cancer in newspapers does not reflect the impact that specific cancers have on the mortality or incidence rates among Aboriginal peoples. There are, however, several factors, other than cancer statistics, which may influence the reporting in these newspapers.

One factor may be mainstream advocacy groups outside of ethnic culture. Breast cancer has powerful advocacy groups (e.g., Avon Flame Foundation, the Canadian Breast Cancer Foundation, and the Canadian Breast Cancer Network) that influence public discussion, public policy, and the research agenda. For example, the Canadian Breast Cancer Research Initiative has a mandate to "to establish and maintain an alliance of partners consisting of national businesses, not-for-profit agencies, government and the community, to generate the resources necessary to aggressively pursue this initiative, building upon and enhancing existing programs and facilities." (Canadian Breast Cancer Research Alliance). Part of the advocacy agenda involves targeting the mainstream media. This advocacy does not differentiate by ethnicity to a large extent and thus obfuscates the particular cultural and health issues of Aboriginals and other "minority" Canadians.

A second factor may be a spill-over or "contamination" from the non-Aboriginal media. Of the 23 articles on breast cancer, 8 were obtained from wire services or unnamed sources. Wire services typically provide information that is geared for the general population. Aside from wire service "influence", it appears that in part because of the lack of disaggregating statistics on ethnicity and health, the Aboriginal media mirrors the mainstream media in disease emphasis.

A third reason for the greater coverage on breast cancer may relate to agenda-setting by the media, a process whereby groups compete to identify issues, move the issues to the public agenda, and then link the issues with persuasive symbols (Finnegan & Viswanath, 1997). Breast cancer is a powerful health issue that has political and social legitimacy in the larger population. By focusing on breast cancer, editors and reporters in the ethnic media could help to mobilize marginalized groups (e.g., First Nations women) around an issue that already has a strong voice and clearly recognized symbols in the mainstream press. Alternatively, agenda-setting on the topic of breast cancer could shift public perceptions about the leading causes of cancer death among Aboriginal peoples and reduce public discourse on the underlying determinants of these cancers (e.g., tobacco use with lung cancer, sexual violence and multiple sex partners with cervical cancer). Thus, understanding how health issues are constructed by the Aboriginal media will be an important area of future research if health information disparities are to be addressed in a meaningful way.

There was little mobilizing information accompanying articles in the Aboriginal newspapers. Slightly more than one-third (36.5%) of the articles (146/400) contained mobilizing information for which further details could be obtained. This finding supports research showing a general lack of mobilizing information in Canadian (MacDonald & Hoffman-Goetz, 2001) and American newspapers (Freimuth, Greenburg, DeWitt, & Romano, 1984) daily newspapers. Without the cues of mobilizing information, it may be difficult for individuals to be proactive and find ways to take charge of their health. Results from the present study also show that if articles contained mobilizing information, contact information was usually of a local nature (77%) rather

than distant or not specified (8%). This may or may not be a problem. At times, referrals to local sources of help may be essentially "dead ends" because of the lack of sustained provision of health and social services in both remote and less remote Aboriginal communities.

Cancer and other chronic disease information is prevalent in Canada. Despite the overwhelming volume of health information available, minorities, individuals living in rural communities, and the poor are less knowledgeable about health promotion and disease prevention issues than the general population (Breslow, Sorkin, Frey, & Kessler, 1997; Brownson & Jackson-Thompson, 1992). Moreover, it appears that media information is not tailored to the epidemiologically documented health concerns of Aboriginal Canadians in a sustained way. Disparities in type and degree of exposure to health information may contribute to differences in health status (Benjamin-Garner et al., 2002). Yanovitzky & Blitz (2000) found that media coverage of cancer issues was important for individuals without regular contact with health services; mass media and physician advice were seen to complement one another in facilitating mammography utilization.

The preferred channels for health information may vary by ethnicity and social class. Individuals with high school education were more likely to use newspapers as a source of health information than those with some college or post-secondary education; the use of print media for health information varied by race/ethnicity with white Americans, Hispanic Americans, and Asian/Pacific Islander/Native Americans ("other") reporting greater use than black Americans (Benjamin-Garner et al., 2002). Delivery of health information via the radio was effective for Spanish-speaking, less acculturated Hispanics (Gombeski et al., 1981). Little is known about the preferred channels of exposure to cancer and other health information among the First Nations, Métis, and Inuit.

There are potential biases in this study. Only Aboriginal newspapers available in English were included. It is possible that health information presented to Aboriginal peoples in languages other than English provides a more balanced coverage of disease risks. It is known that acculturation, "the process whereby the attitudes and/or behaviors of persons from one culture are modified as a result of contact with a different culture" (Moyerman & Forman, 1992, p. 163), influences health and health behaviors of ethnic and cultural groups (Campbell & Kaplan, 1997; Kahn, Sobal, & Martorell, 1997). Culturally appropriate cancer information was associated with increased screening rates among non-English speaking minority women (Mitchell, Hirst, Mitchell, Staples, & Torcello, 1997). It is not known if the type and quality of disease coverage in mass print media varies as a function of acculturation.

It is possible that other print media available to the First Nations, Inuit, and Métis described cancer and health issues to a greater extent than the newspapers included in this survey. It would be difficult to determine the extent to which these group are exposed to health and cancer articles published in media not aimed at native populations. Therefore, this analysis was limited to Aboriginal people's newspapers in an attempt to gauge the coverage of cancer and health issues directed specifically at this target readership.

Moreover, because only 14 Aboriginal newspapers were reviewed, other Aboriginal newspapers may have covered health issues to a greater extent than those included here. This study would then underestimate coverage of health and cancer in Aboriginal newspapers. An exhaustive review of all Aboriginal newspapers published in Canada would be extremely difficult to conduct since these ethnic media are not indexed in databases such as the *Reader's Guide to Periodical Literature* and are not available through archival sources.

This study has shown that the distribution of cancer and other chronic disease information in newspapers serving the Aboriginal peoples of Canada under-reports

information about tobacco related diseases. Breast cancer was over-reported in newspapers despite lower population mortality for this disease compared with the non-Aboriginal population and parallels the distribution of breast cancer coverage in the mainstream media. The lack of coverage on heart disease and lung cancer was striking given the prevalence of smoking and lung cancer among the First Nations, Métis, and Inuit peoples and the vigorous anti-tobacco legislation in Canada. These results strongly suggest the need for research on effective strategies to reduce health information disparities among minority populations. Greater and more balanced coverage of risks in the public press may contribute to an increase in Aboriginal people's awareness and, ultimately, knowledge of threats to their health. Nonetheless, in the absence of disaggregating statistics (by health and ethnicity), cultural and disease specific health promotion information will not be possible in the ethnic media.

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