

## Cancer Information Seeking, Beliefs, and Knowledge in the Information Age: A Snapshot of New Hampshire through a Cancer Control Lens

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According to popular culture, we live in the Information Age<sup>1,2</sup>. Technology-based communication is ubiquitous and is increasingly becoming how people access health information and how healthcare delivery systems connect with patients and communities. The Pew Research Center conducted a national survey in 2012 to understand the role of the Internet in health and healthcare<sup>2</sup>. At that time, almost two-thirds of U.S. adults looked for health information online, and over one-third used the internet to try to diagnose a medical condition<sup>2</sup>. The internet was also used to find other people with similar symptoms, conditions, or health concerns (16%); to look for reviews or rankings of health care providers (30%); and to follow someone else's health-related experience (26%)<sup>2</sup>. As cancer control efforts increase their online presence, it is important to understand how individuals and communities in New Hampshire seek and consume information, what information gaps might exist, and how best to reach varied populations for activities along the cancer control continuum.

We know that internet access is still inadequate for some populations and geographic areas. In 2015, the Federal Communications Commission (FCC) set the standard for broadband or 'high speed internet', as  $\geq 25$  mbps<sup>3</sup>. As of 2015, 95% of urban households in New Hampshire had access to download speeds that qualify as high-speed internet, but only 72% of rural households did<sup>3</sup>. Given that almost 40% of the NH population lives in a rural area, limited access to broadband can have notable impacts on health information and communication. However, other modes of communication with health care providers, community members, and people with shared interests are still critical components of how health and health care are experienced. We sought to understand health information seeking behaviors, cancer knowledge, and cancer beliefs in a recent study conducted in New Hampshire intended to inform cancer control efforts in our state and region (New Hampshire and Vermont).

In late 2017 to January 2018, Norris Cotton Cancer Center researchers partnered with UNH to survey 1,792 people using both a telephone (land-line and cell phones) and internet-based sampling strategy. Communication and cancer-related questions were largely taken from the National Cancer Institute's (NCI) Health Information National Trends Survey (HINTS), now in its 7<sup>th</sup> cycle of administration<sup>4</sup>. We also collected basic sociodemographic and geographic characteristics of respondents and personal history of cancer.

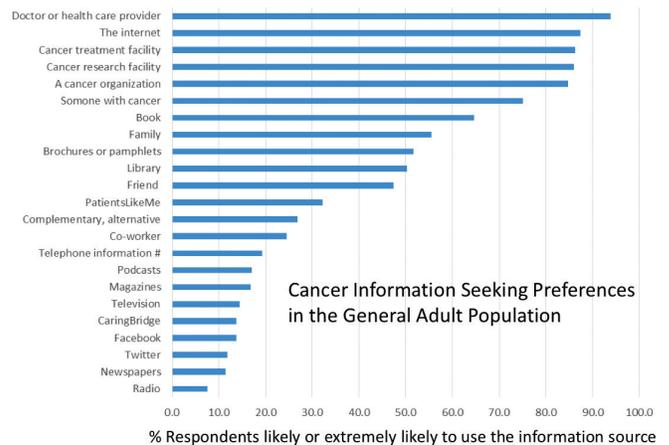
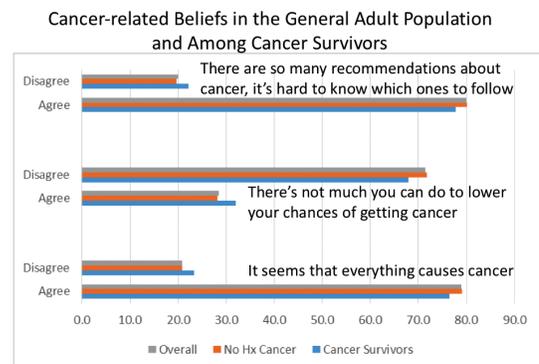


Figure 1

Overall, 60% of respondents reported ever having looked for information about cancer. When asked if they were likely or extremely likely to use particular sources to find cancer information, the highest ranking sources included (in order): Doctor or health care provider (94%), the internet (87%), cancer treatment facility (86%), cancer research facility (86%), a cancer organization such as the American Cancer Society (85%), and someone with cancer (75%). (See Figure 1). Interestingly, use of



Note: 14% (N=209) of respondents reported a personal history of cancer

Figure 2

telephone information lines and some sources of social media were relatively low in the likelihood of use. It could be that

social media platforms may be used to communicate personal experiences, but not to seek information. These preferences did not vary much between cancer survivors and those without a personal history of cancer. However, cancer survivors were twice as likely to strongly agree that it took a lot of effort to get the information they needed, to feel frustrated while searching for the information, and to find the information difficult to understand. Over half of people – regardless of survivorship status – were concerned about the quality of information.

Understanding general trends in cancer information seeking for the New Hampshire population is important to effectively target messages and facilitate engagement in health and treatment. But awareness of underlying beliefs and knowledge related to cancer can also reveal important areas for patient education or public awareness campaigns. We found that most people reported that the quantity of cancer-related recommendations is so large that it is difficult to know which ones to follow. The vast majority of respondents felt that there were ways to lower their chances of getting cancer, but largely agreed that “everything seems to cause cancer”. (See Figure 2). Cancer survivors did not differ much from non-survivors in their cancer related beliefs.

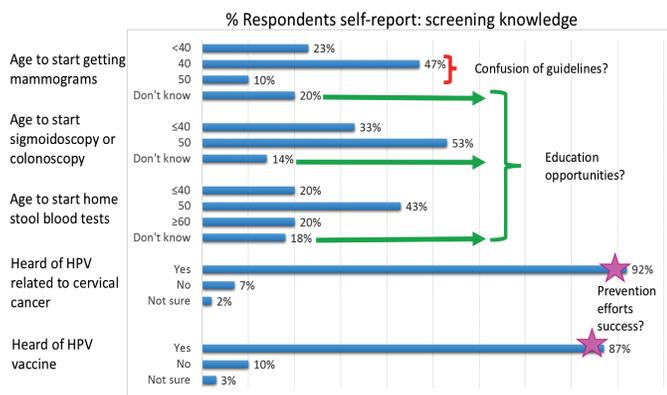


Figure 3

Knowledge of cancer screening recommendations varied by cancer type (See Figure 3). The vast majority of respondents had heard of HPV (92%) and the HPV vaccine to prevent cervical cancer (87%), which may indicate success in cancer prevention efforts in our state. For breast and colorectal cancer screening, there was notable variation in the age at which the respondents thought screening should begin. For breast cancer, 47% thought mammography should begin at age 40 and 10% thought it should begin at age 50. However, the remaining almost 40% of people reported other ages, or did not know. These findings are likely to reflect the multiple, inconsistent breast cancer screening guidelines that are generally accepted, such as by the United States Preventive Services Task Force (USPSTF), the American College of Radiology (ACR), and the American Cancer Society (ACS). Similarly, for colorectal cancer screening, over half (53%) reported that colonoscopy or sigmoidoscopy and 43% reported home stool blood testing should begin at age 50, although the remaining half of respondents did not know or selected other ages. These results suggest that targeted education for early detection and prevention of colorectal cancer may be needed.

This regional survey of cancer communication, beliefs, and knowledge can help us target our outreach, education, and intervention activities related to cancer control in New Hampshire. Further analysis may also point to specific subgroups that require tailored responses by health officials – such as rural residents, the elderly, young adults, and racial/ethnic minorities. For example, a 2016 national analysis of internet use for cancer-related information showed that the over-65 population, and Hispanics, are now as likely to use the internet in this way as 18-35 year-olds and non-Hispanics<sup>5</sup>, however, cancer knowledge and beliefs may be different, requiring targeted information to be deployed on the internet. Also, with close to half of the population of our state living in a rural area<sup>6</sup>, the messaging campaigns may be a highly effective means of disseminating cancer-related information. Health communication is increasingly recognized as a key factor in providing population-based and patient-centered health care and health improvement. Even NCI has an entire branch devoted to this domain (Health Communication and Informatics Research Branch), given that we live in an increasingly ubiquitous digital environment. Population assessment of communication behaviors, information seeking preferences, and cancer perceptions should become an ongoing arena of surveillance in New Hampshire, as in the national HINTS survey, so that we can evolve our cancer control strategies with population trends.

#### Acknowledgement:

This research is funded by the National Cancer Institute P30 Supplement Grant #P30CA023108. Research reported in this work was supported by the National Cancer Institute of the National Institutes of Health under Award Number P30CA023108. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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NH Comprehensive Cancer Collaboration in partnership with Dartmouth-Hitchcock Norris Cotton Cancer Center and its NCI National Outreach Network Community Health Educator Site.