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Age-related trends in utilization of the internet and electronic communication devices for coordination of cancer care in elderly patients

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ABSTRACT

Objectives: In this rapidly changing electronic era, we implemented a study to define age dependent variations in access and use of internet and electronic devices in the exchange of healthcare related information (HRI) and coordination of clinical care (CCC) among elderly patients with cancer.

Materials and Methods: Data was collected through independently completed surveys after obtaining IRB approval in a single institution cancer center over a 4-month period. Questions regarding internet access and use of electronic media to obtain health information and coordinate care were distributed. The sample was divided in two groups based upon the World Health Organization (WHO) definition of geriatric patients: <65 y/o (group A) and ≥65 y/o (group B).

Results: One hundred and twenty-six surveys were analyzed with 70 patients in group A and 56 patients in group B. Access to the internet and use of email was higher in the group A (77% and 71%) vs. group B (36% and 33%, $p < 0.001$). The younger group felt more comfortable using the internet when compared to the older group (70% vs. 40%, $p = 0.01$). Patients in group B demonstrated a strong preference for paper copy based HRI and phone calls to CCC than text messages or emails (73% and 95%, $p < 0.001$). A transition zone between the ages of 65 and 70 years was defined to identify patients with increased reluctance to use internet and electronic devices to exchange HRI and CCC.

Conclusion: The data supports that there is an age-defined underutilization of internet and electronic devices to exchange HRI and CCC. Characterization of this age-dependent transition zone will enable clinicians to identify patients who may not interface well with electronic communication strategies, and to improve delivery of HRI and CCC for the elderly.

1. Introduction

Communication with patients with cancer has unique characteristics that make it different from communication in other healthcare contexts. Patients with cancer diagnoses engage the healthcare system in several situations: screening, diagnosis, multi-modality therapy, post-cancer treatment, and survivorship programs. Care of patients with cancer

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requires a multidisciplinary approach, with different physicians and healthcare workers involved in the care of a single patient. This multidisciplinary approach is complex and requires effective communication between healthcare providers and the patient. Impaired communication may result in decreased quality of care.[1,2]

Once a diagnosis of cancer is given, patient and the families are fraught with anxiety and hence there is potential for impaired understanding of the information communicated by care providers. Communication during outpatient visits has become one of the most important targets to improve quality of interactions with patients. The ability to coordinate the laboratory testing, imaging and different specialist appointments is vital to decrease patient's anxiety level and avoid treatment delay. As recognized by the Institute of Medicine (IOM) in their "Crossing the Quality of Chasm" report, exchange of information and facilitation of patient navigation and empowerment are two of the six key functions for optimal patient health communication and outcomes.[3]

In this new era of the internet, mobile devices, and web-based information, healthcare providers are seeking appropriate ways for incorporating new technologies for communication with patients with cancer. Seventy-five percent of adults in the U.S. used the internet in 2011, and 80% of them looked up health-related topics.[4] Along with exponential growth in internet use, the utilization of smartphones and other mobile devices has increased. Forty-two percent of Americans owned a smartphone in 2009,[5] representing one of the only segments of market growth during the 2008 economic recession. It is not clear if the adoption of these new technologies improves quality of communication in patients with cancer, particularly the elderly. The National Cancer Institute reported that almost 53% of all cancer diagnosis made in the U.S. are in patients older than age 65.[6] In the United Kingdom 63% of cancer diagnoses are in patients older than 65 and more than 36% are in patients older than age 75.[7] The Pew Internet & American Life Project reported that only 16% of people older than age 65 use wireless internet compared to 80% use in the 18 to 29 age group or 66% in the 30 to 49 age group.[5] In the age group older than 65, access to internet is very limited with only 40% having access.[8] Therefore, elderly patients with cancer may not benefit from the use of the internet, mobile devices, and web-based information for coordination of clinical care (CCC) or exchange of health-related information (HRI). More importantly, retention of more traditional methods of communication may be required to ensure the accessibility of HRI and effective CCC for elderly patients with cancer.

In this study we surveyed 126 patients with cancer at the Roger Williams Medical Center to evaluate age-related patterns in internet access and preferences for methods of outpatient communication and exchange of HRI. The objective was to define age groups that are less likely to benefit from electronic communication and thus require more traditional methods for transmission of HRI and CCC.

2. Materials and Methods

We collected data after Institutional Review Board (IRB) approval. Surveys were distributed during a period of 4 months at the Roger Williams Cancer Center outpatient clinic and were independently completed by patients with cancer prior to scheduled appointments (Table 1). Two groups were defined to detect age-related preferences of the younger (<age 65, group A) or elderly (≥age 65, group B) patients with cancer. The age cutoff of 65 was chosen based upon the World Health Organization definition of an elderly or geriatric patient.[9] Statistical analysis was done using SPSS (Chicago, IL); chi-square was used for the statistical analysis.

3. Results

A total of 250 surveys were distributed with a 50% (126 surveys) response rate. From these 126 surveys, 70 (55%) were patients <65 years old (group A) and 56 (44%) were ≥65 years of age (group B). The mean age was 62, while the youngest patient surveyed was 28 years old and the oldest was 93 years old. Sixty-nine (55%) were females and 57 (45%) were males.

When evaluating access to the internet, 77% of group A and only 36% in group B had access to the internet ($p < 0.001$). Seventy-one percent in group A reported to use email daily, which was significantly higher than the 33% seen in group B ($p < 0.001$, Figs. 1 and 2). A significant difference was also seen between groups A and B when asked about how comfortable they feel using the internet. The younger group felt more comfortable using the internet when compared to the older group (70% vs. 40%, $p = 0.01$, not shown).

To evaluate the favored methods for CCC, the preferred method to be reminded of upcoming appointments was examined. Both groups preferred phone calls to coordinate appointments over text messages, emails or website notifications. Sixty percent in group A and 73% in group B preferred phone calls ($p < 0.01$). When asked about preferred methods to received educational HRI, 75% in group A and 95% in group B preferred a paper copy of the material over webpages, compact discs or USB drives with the information ($p < 0.001$, Fig. 3). When the groups were asked about the preferred

Table 1 – Patients survey questionnaire.

Survey questions
Do you have access to the internet?
a. Yes
b. No
Do you use email daily?
a. Yes
b. No
Do you feel comfortable using internet?
a. Yes
b. No
Preferred method to be reminded of upcoming appointments?
a. Phone call
b. Text message
c. Email
Preferred method to receive education material?
a. Paper copy of the material
b. Prefer to go online for educational material
c. Compact disc or memory stick
Preferred method to receive information about support groups and activities of the Cancer Center?
a. By mail
b. Accessing the Cancer Center website