Abstract
Seeking health information ranks as the third most popular online pursuit, next to email and using a search engine. People seeking health information increasingly use information and communication technologies (ICTs) to do so. The described work-in-progress research study will investigate the health information behaviors of ICT users in the University at Albany community using an alternative to commonly-used retrospective methodologies, namely a mobile diary. Investigating this highly-popular activity using a methodological approach that affords greater ecological validity would provide unique, valuable insights regarding the use of ICTs, including increasingly-used health wearables, for health information seeking and use. Such insights would be used to contribute to the development of a suitable conceptual model that will inform the design and development of health information resources and their user experiences.

Author Keywords
Health information behavior; mobile diary study; health system design
**ACM Classification Keywords**
H.5.2. Information interfaces and presentation (e.g., HCI):
User Interfaces

**Introduction**
People seeking health information increasingly use information and communication technologies (ICTs) to do so. The use of ICTs – including computers, laptops, tablets, smartphones, cellphones, and the increasingly popular health “wearables” [8] – to connect to critical health information resources is an important and growing activity [4, 5]. With eight out of ten Internet users, or 59% of all U.S. adults, looking for health information online, this activity ranks as the third most popular online pursuit, next to email and using a search engine [2]. Within this population, a small percentage of health information seekers go online to find others who share the same health concerns, so-called “peer-to-peer healthcare,” which typically occurs via social media [4, 3]. Alternatively, the use of mobile devices on the part of health information seekers has grown tremendously in the past two years, nearly doubling between 2010 and 2012 [5]. And, wearable health apps that track fitness and other health-related activity are growing 87% faster than any other app category [8].

The current study will investigate the health information behaviors of ICT users via a mobile diary study. In the area of mobile search, information behavior in general has been studied to some extent using mobile diaries. For example, Heimonen [6] used a mobile diary to investigate users’ mobile information access behaviors; while Sohn, Griswold, and Hollan [11] used a mobile diary to better understand users’ mobile information needs and how they are addressed. To date, however, there does not appear to be any studies investigating health information seeking and use of ICT users via a mobile diary.

**Expected Contributions**
We expect the following contributions of this study.
1. Offer an opportunity to investigate the highly popular activity of using ICTs to seek health information via a methodological approach that affords ecological validity.
2. Facilitate deeper user engagement in the health information behavior research processes – that will ultimately serve to inform the design of future health information systems, applications and devices (including health wearables) – via the study’s mobile diary methodological approach.
3. Allow researchers to gain the clearest possible understanding of the health information behavior of both consumers and patients, who are now taking a more central and active role participating in decisions regarding their health and healthcare. Doing so will enable development of conceptual models for health information delivery system design that are better targeted to these key users of health information resources.

**Previous Work**
A growing body of literature exists on the use of ICTs to seek and use health-related information. For example, in a recent conference presentation by Choi and Stvilia [1], researchers investigated college students’ use of mobile wellness applications and their perceptions of application quality and usefulness. In Santana, et al. [10], researchers surveyed European citizens on their health-related activity on the Internet, including its impact on citizens’ attitudes and behaviors toward health professionals and health systems. Yan [12] conducted an exploratory study of online health information-seeking behavior in Hong Kong and described the prevalence and patterns of this behavior. Finally, in Kontos, et al. [9], researchers investigated which segments of the adult population are/are not using social networking sites to get health information.
Current Work-in-Progress

Study goals
This research study seeks to further understand the use of ICTs – computers, laptops, tablets, smartphones, cellphones, and health wearables – for health information seeking and use. The study’s key research question asks: What is the ICT-related health information behavior of community members in the University at Albany community?

To answer this question, researchers will investigate the health information behaviors of ICT users in the University at Albany community via a mobile diary study. Diary studies are a common methodological approach in human-computer interaction (HCI) research and allow participants to report their behaviors and experiences in situ, or in natural everyday situations. Such studies can help eliminate biases and inaccuracies sometimes introduced by retrospective techniques where participant recall may be less reliable [7]. The proposed study will employ a unique, custom-developed, mobile web-based diary as the primary participant tool of data collection. The use of a mobile web-based diary to collect data offers several additional advantages including (1) direct collection and storage of participant diary entry data in an easily accessible database, (2) immediate access to participant data for review and analysis, and (3) participant GPS location tracking.

Study design
A consent form will be provided to each participant prior to the start of the study. The study population would consist of University at Albany users of ICTs, such as the Internet, social media, or mobile devices (including health wearables), to seek and use health-related information.

Study participants will first be asked to complete an entry questionnaire with questions about their background and experience using computers and searching for information. Then, on a regular daily basis (up to one hour each day), participants will be asked to record entries in a mobile diary, using any web-enabled mobile device of their choice. For a two-week period, study participants will use the mobile diary to record activity related to their use of the Internet, social media and mobile devices to seek health information. At the end of the first week, they will be asked to participate in a one-on-one interview. At the end of the second week, another one-on-one interview will take place. Each interview is expected to last approximately 45 minutes and will be audio recorded. Once data collection is complete, it will be coded and analyzed using quantitative and qualitative methods.

Mobile diary
The study’s primary data collection tool, the mobile diary, will be accessible to subjects on their web-enabled mobile device via a secure mobile website. The mobile diary website is a responsively-designed web application, custom-designed for study participant mobile device users. To get access to their mobile diary, study participants must complete a brief online registration process. Once registered, participants will have the ability to record new entries in their diary as well as review previously recorded ones. Diary entries can take the form of a simple text-based entry and/or a picture taken on the participants’ mobile device. Additionally, upon submitting a diary entry, the application records information such as participant I.D., username, and date/time. Researchers have administrator access to all of the information and data provided by the study participants.

Regarding technical specifications, the user-facing, front-end of the mobile diary application was created using iWebkit which supports iOS, Android and Blackberry devices. Back-end programming for the application was completed using PHP 5. A MySQL database is used to store data entered by the study participants; and the application is hosted on an Oracle Linux server. Two screenshots of the mobile diary application are provided in the figure below for further clarification. Shown in Figure 1, is the main menu of the
mobile diary application at left, with its options to make a diary entry (“Insert”), review saved diary entries (“Diaries”), conduct web searches (“Search”), and review saved search results (“Searches History”). The mobile diary methodology described in this paper affords several advantages for the research study that are unique to the mobile diary tool.

Figure 1. Mobile diary main menu and diary entry screens

**Conclusion**
Currently, the study is in interface testing phase and will commence shortly. Based on preliminary feedback from the study’s current interface testing phase, use of mobile fitness applications appears prevalent as well as desktop-based Internet use. We expect the findings of this study could be used to improve health information delivery systems and their user experiences. For example, the feedback reported by participants in their own words, via the mobile diary entries, can potentially provide valuable information and insights directly from participants regarding their user experiences with various health information resources. Further feedback and insights may also emerge from the entry questionnaires and one-on-one interviews that could shed light on participants’ health information behaviors and impressions, from a user experience perspective, regarding the health information resources they use. Such insights can serve to inform the optimization of existing health information resources as well as to potentially generate ideas for novel health information resources that may better address participants’ health information needs.

Limitations of this work-in-progress study exist. A key study limitation is regarding the mobile diary application and its data tracking features and functionality. For example, upon submitting a diary entry, the application records the participants’ mobile device location, with their permission, via the device GPS; but, the development of this feature is still in progress. Additionally, the application does not currently track data such as participants’ search terms, diary entry session length, URLs visited within the app’s “Search” feature, and participant device details. However, note that the development and optimization of the mobile diary application is ongoing and researchers’ anticipate additional such tracking features, as well as improvements to existing functionality, will be available in an upcoming release of the application.

**References**


