Introducing Patient Navigation Electronic Log (PaNEL): An Innovative Platform to Facilitate Cancer Screening and Detection
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Abstract. The underutilization of cancer screening services results in later stage of diagnosis and higher mortality rates. Patient navigation has been recently proposed as a service that potentially could improve cancer screening and reduce cancer care disparities. There are no reports in the current literature describing computerized tools designed to support patient navigation in a community setting. The objective of this project was the development of an innovative computer-mediated patient navigation platform to support cancer screening and follow-up in community settings.

Introduction. The burden of cancer, which represents a major health problem in the United States, is distributed unequally with respect to race, age, and socioeconomic status. Representatives of underserved populations often experience substantial logistic, cultural, educational, and other barriers which impede the delivery of timely screening, diagnosis, and treatment of cancer. Pairing up disadvantaged patients with community representatives trained to navigate them through a complex net of health care services helps these patients successfully overcome the barriers they face in obtaining high quality cancer care.

Background and Objective. Patient navigators usually function in a community setting where they cope with multiple challenges that need to be addressed in a limited timeframe. Based on current guidelines, they identify patients eligible for cancer screening. For the eligible patients, the patient navigators review possible barriers and counsel on the ways to overcome them. They then implement tailored, practical solutions to address barriers to cancer screening and treatment. The patient navigators assist and support patients through the sequence from screening to diagnosis to treatment and follow-up. The patient navigators usually reside in the targeted community, have a high school education, and receive navigation training from a health promotion program. Health information technology may streamline various tasks performed by patient navigators and facilitate implementation of uniform interventions. There are no reports in the current literature describing computerized tools designed to support patient navigation in community setting. The objective of this project was the development of a computer-mediated patient navigation platform to support cancer screening and follow-up in community settings.

System description. Patient Navigation Electronic Log (PaNEL) is a computer-mediated system designed to support the patient navigation process. The platform consists of mobile patient navigator support units and a central server. The mobile units are used in the field by patient navigators to collect client information, implement clinical pathways for cancer screening and treatment facilitation, provide tailored counseling, schedule appointments and other relevant cancer care steps, document patient encounters, and exchange information with the central server. The mobile units are based on tablet PC’s with a touch-screen functionality. A relational model of the patient navigation process has been developed and implemented in an Access database that is installed on each mobile unit. Front-end software for the tablet PCs has been written in Visual Basic. The mobile unit assists patient navigators in identifying client barriers by prompting them to review an extensive library of screening barriers. Structured solutions for resolving the barriers are recorded in the system. The patient navigators are guided by the system in implementing tailored practical solutions to address a variety of barriers in various populations. During each patient encounter, action items are set up and associated with an action date. Dates for screening test and follow-up appointments are also stored by the system. Action and appointment dates are utilized by PaNEL computerized decision support. The mobile units implement a two-level alert system providing prompts and reminders to the navigators regarding tasks they are required to complete to assist the patient through the cancer screening process. The central server is used as a main data repository where all collected data are merged from the mobile units. The central server implements computerized decision support to monitor the success of the patient screening campaign, to identify issues requiring the attention of program coordinators, and to generate periodic reports.

Discussion and Conclusion. We implemented a computer-mediated patient navigation system aimed at facilitating cancer screening in community setting. The impact of the system is being evaluated under the Partnership for Healthy Seniors established by Johns Hopkins University in Baltimore.