

## Introduction to Minitrack: PDAs, Handheld Devices and Wireless Healthcare Environments

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Healthcare personnel are a highly mobile population, so the need for portable tools is essential. The continuous proliferation of medical information and research discoveries contribute to the healthcare practitioner's complex work environment. Immediate access to reference sources that can assist in the decision making process at the point of care is vital. Researchers have shown that when information resources are available, they will be used in decision-making. Connectivity to the Internet has been facilitated by the proliferation of wireless networks. These wireless networks and network access modules in PDAs and handheld devices provide an environment for rapid, convenient access to information where it's needed.

The goal of this minitrack is to offer a forum for exploring the many research projects, devices, and applications of PDAs and the use of wireless networks in healthcare. We solicited papers across a wide range of topics, including decision support tools, evaluation studies, innovative applications, evidence-based medicine, and patient to provider communications. This year, the first for this minitrack, four papers are presented..

The first paper, "A Multi-Interface, Multi-Profiling System for Chronic Disease Management Learning," by Jim Warren, et al., develops a system to facilitate partnerships between patients and providers for the management of diabetes. Handheld devices are used for decision support, data capture and notification of patient concerns in consultation. The system's architecture implements an approach to patient-provider partnership and integration across platforms, users, and devices. Consultation data integrates with Web-based learning environments for podiatry students and patients. The authors discuss upcoming field trials that will evaluate the system's usefulness.

The second paper, "Development of Evidence-Based Medicine Resources: Bridging Clinical Research to Medical Practice," by Paul Fontelo, Michael Ackerman and George Kim, reports on a project to

provide continuous and ubiquitous access to National Library of Medicine (NLM) information sources (MEDLINE, PubMed, and Clinical Trials) for the mobile physician and healthcare provider to support of the practice of evidence-based medicine. The system consists of wireless networks (802.11b, Infrared, Bluetooth) and applications to search the NLM databases. The authors present their yearlong experience and evaluation of handheld devices; wireless access capabilities and analysis of log access data from servers. They also discuss users' feedback about the system.

The third paper, "Triage of Acute Abdominal Pain in Childhood: Clinical Use of a Palm Handheld in Emergency Department," by Wojtek Michalowski, et. al, also discusses the use of mobile technologies for evidence-based medicine. The authors develop computerized protocol for the early triage of the abdominal pain patient and implement the protocol as a component of a mobile clinical triage support system called *MET* (Mobile Emergency Triage). The *MET* system employs a client-server architecture, with mobile clients running on Palm handhelds. The system provides triage recommendation "on demand", irrespective of the completeness of the clinical information and allows for data capture and interaction with the hospital's patients' database.

The fourth paper, "Design and Implementation of a Wireless Prescription System," by Sherali Zeadally and J. Pan, presents the design and implementation of a J2EE (Java 2 Platform, Enterprise Edition) architecture for a wireless prescription system. The system provides wireless services to physicians and Web-based services to pharmacies and administrators. The authors present a performance evaluation of the implemented wireless prescription system using latency as the performance metric. They investigated the overheads associated with different components of the underlying J2EE architecture, which includes the Session Bean, Entity Bean and the database.