Recruiting Participants to Local Clinical Trials using Ontology and the IoT

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Clinical trial recruitment is challenging. The pressure of clinical practice is such that often clinicians do not have time during their appointments to look up clinical trials and explain them to their patients. Meanwhile, patients have a strong interest in knowing what trials are available in their local area. Although national resources exist such as clinicaltrials.gov, participants do not find it easy to find studies in their local area or to find out how far they would have to go to meet a study coordinator or for their study appointments. Community engagement has been suggested as one solution to this problem. We are designing smartphone applications that allow physicians and patients to easily evaluate studies, the study schedule, and the location of the site closest to their home to determine their level of interest. Searching for studies can be done by typing in their disorder or choosing the type of trial they are interested in. When patients find a study which interests them they just push a button and their contact information is sent to the study coordinator who can contact them to begin the recruitment. Self-recruitment has the potential to speed enrolment and help us translate basic research into new therapies for our patients.

Clinical trials in our region will be registered into one of two Clinical Trial Management Systems. These systems will, on a regular basis, send registered clinical trials to a database backing web services. Our applications will access the clinical trial data via these web services. The data associated with a trial, such as the title, abstract, inclusion and exclusion criteria, will be codified with ontology terms using our Natural Language Processing (NLP) technology for easy search by prospective patients.

As we are still building these tools, we have not yet evaluated them. To evaluate the success of such a tool, it is necessary to measure the satisfaction of participants, study coordinators, and principal investigators, as well as the rates and geographic distribution of recruitment. It is important that the system be useful, but not intrusive or annoying.

Nationally and internationally, we currently have a serious problem with clinical trial recruitment. Information such as geographic data and study calendars, which can be downloaded from our clinical trial management system, decrease practical uncertainty for potential recruits. Speeding the time it takes to recruit patients to clinical trials has the potential to improve our rate of recruitment to clinical trials.

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