2388

eResearch suite: A comprehensive platform for electronic consent and data collection

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OBJECTIVES/SPECIFIC AIMS: The goal of the eResearch platform is to make consenting for clinical trials more convenient, accessible, and faster while retaining an ethical and informed consenting process. eResearch e-consent also allows for enhanced standardization and efficiency for research collaborations across academic research institutions, which, ultimately, helps drive discovery of better health care for our patients and communities. METHODS/STUDY POPULATION: The UMN's CTSI and AHC Information Systems developed software, called eResearch Suite, for electronic consenting. The eResearch Suite includes viewing a consent, a "Check Your Understanding" quiz to assess comprehension of critical study details, and a signature block that captures the participant signature electronically and with an automatic date and time stamp. The eResearch Suite also has the capability to randomize participants, track participants via a master list, collect participant data, collect internal study data, and generate emails to participants. The eResearch Suite platform is written in Ruby on Rails. RESULTS/ANTICIPATED RESULTS: We have pilot tested the eResearch platform with one study thus far. Preliminary results of the study show that all participants consented via eResearch, with 64% of participants consenting remotely via eResearch before their first study visit. Participants e-consented using various devices including desktop computers, tablets, and smart phones. Participants also filled out surveys and questionnaires before their study visits, which saved the study team time and money. DISCUSSION/SIGNIFICANCE OF IMPACT: eResearch electronic consenting (e-consenting) changes the way potential participants consent for studies. e-Consenting is important because it allows individuals, or their Legally Authorized Representatives, to consent remotely. This may be faster, more convenient for people, reduce coercion, increase comprehension, and allow for consenting information or process to be shared with an individual's family/friends. In acute and emergent settings we anticipate eResearch e-consenting will result in significant reduction of consent time by replacing faxed and paper consent with e-consent available via email and mobile devices. This allows legally authorized representatives to sign consent remotely, reduces the time physicians spend faxing consents, and allow them to avert more focus back on their patients. Time savings, whether for consent or study visits, may also result in a cost savings for studies.

2433

Real-time health activity reporting of citizens in Lagos, Nigeria using mHealth app node

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OBJECTIVES/SPECIFIC AIMS: This study sought to develop a mHealth application which was capable of predicting the spread of infectious diseases during the height of the Ebola outbreak in Lagos, Nigeria. Following the success of this primary task, the research then sought to understand behavioral health issues which are indicative of chronic diseases, such as sedentary behaviors and where they occur at a geospatial level in real-time. The results of this study are now being used to develop a larger scale 500 person study in Rochester, NY, USA. METHODS/STUDY POPULATION: During a 3-month period individuals were asked to install a mobile health application known as Node onto the their android device. Consent was done remotely, individuals were recruited through the Lagos University Teaching Hospital, Nigeria Institute of Medical Research, and the University of Lagos. Participants were paid 50 USD/month for each month of study completion, while continuous location data was collected in addition to survey information about participants. RESULTS/ANTICIPATED RESULTS: During the study period 70 individuals enrolled, using this data we were able to create network based models which indicated that diseases were more likely to spread at the beginning of the week, and also indicated who would be most susceptible to being patient zero. In phase 2 we have started to look at behavioral patterns to determine the risk of chronic disease among our study population, by examining their human mobility patterns, since we can determine average sleep patterns, activity patterns using machine learning classifiers, and time spent in traffic—all of which we can visualize in a real-time geospatial manner with higher objectivity than traditional mechanisms for data collection. DISCUSSION/SIGNIFICANCE OF IMPACT: In developing countries, using Nigeria as our example most chronic disease and household studies only enroll a few thousand participants for a country numbering 150 million plus. Using our rapidly available application we were able within 1 week to enroll 70 participants on 1 year of funding, this creates a framework for larger scale public health studies which can be done in developing countries and also demonstrates the value in mHealth which can both answer questions of infectious disease and chronic diseases at the same time. Our results indicate that at an infectious disease level in city environments diseases may be prevented by targeting events early in the week. While at a chronic disease level the lack of reliable power results in less sedentary behavior as individuals seek locations to charge phones, while those with more stable western-like lifestyles have started to exhibit the conditions which cause such outcomes as obesity, which has begun to rise in developing countries. Ultimately, these results serve as a staging point to launch a more wide scale study both in the United States and Nigeria within the year, now that feasibility has been established.

2502

mZAP (Zonas, Accion y Proteccion): Empowering communities with mobile strategies for mosquito-borne disease control in tropical environments

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OBJECTIVES/SPECIFIC AIMS: Our objectives with this project are to engage communities through technology creating a communication channel with affected communities and stakeholders about mosquito-borne illness, vector control and environmental health risk. Furthermore, engaging communities to electronically map ecological risks that impact mosquito-borne illness with the goal of creating a mobile application that will work as an ecological surveillance against mosquito proliferation and potential mosquito population reduction, and finally pilot test and evaluate potential benefits in communities where the application was used. METHODS/STUDY POPULATION: We propose a methodology to perform formative community work that will underscore a distributed, democratized ecological surveillance through an integration of multidimensional health behavior theories that address the challenges of ZIKV in Culebra, a marginalized island community off the coast of the main island of Puerto Rico. Using participatory design, we will develop, test, and evaluate users' experiences towards mobile applications using qualitative (interviews) and quantitative (survey) methodologies. A mobile application with the capacity of mapping, use of social-media, crowdsourcing, and photo-voice in a dynamic and simple way will allow community members to alert "hot-zone" locations to the stakeholders interested in creating ecological action in their community. This multidimensional concept integrates explanatory and prospective approaches and will generate systematic short-term solutions for mosquito control and long-term solutions providing the necessary tools for community empowerment. RESULTS/ANTICIPATED RESULTS: Our proposed design will facilitate better understanding of the interactions between community members and socio-environmental determinants of mosquito-borne diseases. Furthermore, our proposed project will not only facilitate communication among members of a community, but also it will provide a platform for engagement and empowerment, establishing a change in the preventive paradigm of how communities face the negative impacts of micro-ecologies that surround them. DISCUSSION/SIGNIFICANCE OF IMPACT: Our proposed community collaboratory mHealth tool mZAP! (Zonas, Accion y Proteccion) will address the lack of community participation efforts against mosquito-borne diseases contributed simultaneously by the disengagement and disempowerment of community members. mZAP! will serve as an innovative tool to engage marginalized and communities made vulnerable in Puerto Rico. This approach should be successful as Puerto Rico is one of the most digitally connected countries in Latin America, with high mobile phone usage rates and social media use. Using mZAP!, communities will report and map breeding sites, use social media and crowd sensing, targeting against powerful tools against mosquito ecologies in their own environments. This application could result in an effective way to change the paradigms for public health approaches to use Information Communications Technologies (ICTs) to empower communities.

2537

Usability and adoption of the first enterprise-wide app prescribing platform, RxUniverse, in an academic tertiary care hospital

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OBJECTIVES/SPECIFIC AIMS: To assess the usability and adoption of RxUniverse, a novel platform that enables health care providers to directly disseminate proven, evidence-based mobile health apps to patients.

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