Personal Digital Assistants for HIV Treatment Adherence, Safer Sex Behavior Support, and Provider Training in Resource-Constrained Settings

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ABSTRACT

We developed a Web-based application delivered on PDAs (Colecta-PALM in Peru, Pambazuko-PALM in Kenya), to collect data from HIV patients and to facilitate HIV provider training. Colecta-PALM provides tailored feedback (behavioral messaging) based on risk assessment responses for HIV patients. Pambazuko-PALM collects patient risk assessment data, and delivers counseling protocol training and evaluation to nurses involved in HIV care.

INTRODUCTION

Innovative approaches are needed to enhance adherence to antiretroviral treatment (ART) and to support HIV transmission risk reduction for people living with HIV/AIDS (PLHA). Personal digital assistants (PDAs) can collect high-quality data, deliver chronic disease support and provider training, and are less expensive than laptops.

METHODS

1) We conducted in-depth interviews with PLHA in two clinics in Lima, Peru and among female PLHA in Mombasa, Kenya.
2) We modified a highly secure, open-source Web survey application: Distributed Health Assessment & Intervention Research, running on the Linux, Apache, MySQL, Perl, PHP platform. The application uses a wireless intranet connection to transfer Web survey pages from desktop server to wireless-enabled PDA.

To ensure data security, access to the Web application requires 128-bit SSL encryption. The user interface was optimized for delivery on PDAs, counselor photos were embedded, and Flash audio functionality was added so that all content can be heard through headphones.

The Colecta-PALM version in Spanish gives tailored behavioral messaging to PLHA to support ART adherence and safer sex. The Pambazuko-PALM version delivered in Kiswahili and English assesses HIV-patient risks in these areas, and includes a module for nurses engaged in HIV care. This module comprises an evidence-based counseling protocol that was previously evaluated with n=85 nurses in Kenya.
3) Usability testing will be undertaken with 15 PLHA in Lima, Peru (April 2007), and with 15 PLHA and 15 nurses in Nairobi, Kenya (July 2007) using a mixed method approach that includes observation as well as use of a standardized questionnaire.

RESULTS

Data from PLHA on ART in Lima (n=31) revealed that most 27/31 (74%), reported their willingness to use PDAs as a support for their HIV care. Data from interviews among female PLHA in Mombasa Kenya (n=10 HIV+ on ART) revealed that only 1/10 had ever used a computer, though most expressed willingness to be taught, and all had or had access to cell phones. All expressed interest in receiving text/audio messages for ART and safer sex.

DISCUSSION

This study suggests that PDAs may be a culturally appropriate way to support ART adherence and safer sex for PLHA. Use of tools such as PDAs among PLHA in some resource-constrained settings may be acceptable and can build on existing use patterns.

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