Development of Mobile Health Interventions to Improve Adherence to Medication and Reduce Sexual Risk Behavior among HIV+ Youth

Statement of Problem

Adolescents and young adults account for nearly 40 percent of new HIV infections each year, with the most alarming rates occurring among certain groups of youth, such as young men who have sex with men and people of color. Antiretroviral medication (ART) can offer the prospect of a normal lifespan despite chronic disease caused by HIV, but youth are significantly less likely than their adult counterparts to achieve viral suppression, or very low levels of HIV in the body. An individual can only achieve and maintain viral suppression if they take ART medication exactly as prescribed with no missed doses. Optimal medication adherence can be particularly difficult for youth who experience unique physical, cognitive, social and emotional changes throughout development. In fact, fewer than half of HIV+ youth who are prescribed ART achieve viral suppression, compared to more than 75 percent of HIV+ adults.

Furthermore, the consequences of sub-optimal medication adherence can be quite severe, including the development of resistance and lack of viral suppression, rendering infected individuals more likely to transmit the virus to someone else through unprotected sex.

Despite these consequences, we have few interventions that target ART adherence and sexual risk reduction for HIV+ youth. As regular consumers of mobile technology, leveraging it represents a tremendous opportunity to provide support for improved health outcomes to HIV+ youth as they go about their daily lives and, ultimately, help them transition into healthy, productive adults.

Description

PolicyLab has formed a multidisciplinary team including an adolescent medicine and HIV specialist, mobile application (app) and game developers, a human-computer interaction specialist, and a young adult patient expert. The goal is to develop and pilot test a novel mobile health (mHealth) app intervention to improve adherence to ART and reduce sexual risk behavior among HIV+ youth using a unique patient-centered, incubator approach. Specifically, this project aims to:

1. Improve understanding of how HIV+ youth use mobile technology and identify strategies to improve medication adherence and other health outcomes through focus groups using nominal group technique, a structured variation of a small-group discussion to reach consensus
2. Use an incubator approach to further develop the app through usability-testing focus groups with HIV+ youth to help us design, develop, and refine a new adherence app for youth
3. Pilot test a theory-driven, patient-centered, mobile phone-based app intervention targeting medication adherence and sexual risk reduction among HIV+ youth

Based on initial feedback from youth and provider experience, the following features were prioritized for the first round of development: interactive, personalized, time-based medication and refill reminders, multiple options for

recording the taking of medication (i.e. a button or pill camera), immediate visual feedback with positive reinforcement for taking medication, an algorithm to detect multiple days of missed medication that triggers an alert to the youth and provider (or an adherence support partner) to call each other, a points system to win graphic (non-monetary) rewards, and the ability to join teams and offer support to others using the app anonymously.

Next Steps

If successful, this intervention may have broad implications for improving health outcomes for youth living with HIV and those at high-risk for HIV infection, as well as those living with other chronic diseases. This type of intervention, which is potentially high-impact and relatively low-cost, allows patients to receive support in real-time as they go about their daily lives and provides an opportunity to increase the value of care using mHealth technology.

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Related Tools & Publications

Behavioral and Health Outcomes for HIV+ Young Transgender Women (YTW) Linked To and Engaged in Medical Care
Article
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Dec 2015

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Article
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Nov 2020
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