ARCH TOOLS FOR HIV RISK ASSESSMENT VISION DOCUMENT

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1. Motivations

Screening for the risk of HIV infection in patients is crucial in helping doctors prescribe preventive treatment for at-risk individuals. The propagation of this potentially deadly disease across the world can be dramatically reduced with early protective measures, such as a prescription of preexposure prophlylaxis (PrEP), a daily pill which reduces infection rates by over 90%. Currently, clinicians determine the risk of contracting HIV using pen-and-paper forms, which are slow to complete, error prone, and cumbersome. The CDC wishes to provide clinicians with a simple and secure electronic tool-set for assessing the HIV risk of populations. Table 1, shown below, outlines the problem statement our product will work to address.

Table 1. Problem Statement

The problem of	Providing a simple and secure method for health professionals to assess the risk of HIV infection in at risk populations.
affects	Clinicians and the demographics they are informing of HIV risk: men who engage in sexual activity with other men, couples where one partner has HIV, and intravenous drug users.
the impact of which is	Clinicians waste time with less efficient method and potentially less accurate methods.
A successful solution would be	A web interface and software for tablets and cell phones.

Our product is backed by the CDC and is based on peer-reviewed criteria to give the most accurate assessment of the possibility HIV infection. There are a few products that are available on the market now, such as “STD Risk” and “ARCO” in the App Store. However, these applications analyze the user’s risk of HIV infection based on only a few simple conditions. For example, “ARCO” only asks the user three questions to determine the risk. CDC has also made a similar app called the HIV Risk Reduction Tool (HIV RTT) that helps analyze patients’ risks of HIV infection, but it was made only for patients’ use themselves, as opposed to our product which provides scientific information and analytics for professionals like clinicians. Our product not only breaks down the probability into separate behaviors for deeper analysis, but also extrapolates the risk over weeks, months, and years of continuous unhealthy lifestyle choices. As we are in cooperation with the CDC, we believe that our analysis will be much more accessible and valuable for clinicians. Table 2, shown below, describes our product position.

Table 2. Product Position

For	Clinicians
Who	Assess the risk of HIV infection in their patients
Our System	Cross platform web application using HTML5
That	Allows clinicians to determine their patient's risk of contracting HIV.
Unlike	CDC HIV RTT, ARCO, STD Risk, HIV Risk Reduction Tool
Our Product	Is targeted directly towards clinicians, and uses the latest criteria to give an accurate likelihood of contracting HIV.

2. Users

The target end users of our application are clinicians responsible for evaluating the risk level of patients from one of three major HIV at-risk categories: couples where one partner has HIV, males who have male sexual partners, and intravenous drug users.

We expect these clinicians to have varying amounts of computer experience, so the easier our application is to navigate for a first time user, the better. Additionally, medical professionals often have busy schedules, so the app should be quick to access and utilize.

Finally, because our app is being backed by the CDC, a reputable source in our target user base, users will expect our app to be technically sound in its evaluation of at-risk patients.

While clinicians are the target audience, anyone with a device and internet access will be able to access the application. Because of this, the app needs to be understandable to a layman while still providing all the information that a clinician would need.

3. Constraints

There are a few things we must consider when crafting the solution to this problem. First there is the matter of ensuring security. Second is the product's usability on mobile devices. And lastly is the adherence to the Section 508 amendment to the Rehabilitation Act of 1973.

Due to the sensitive nature of medical history data, the client has requested we follow several stipulations to ensure user security. We are barred from saving any data permanently on the server. All data that is saved temporarily, such as the cache, must be wiped when the user exits the product. There can be no communication with other devices about the user's data. These restrictions will require the team to integrate the security features early into the design of the project but otherwise should not adversely affect development.

The client has also required us to have the product capable of running on mobile devices, and in particular on tablets. Their research shows that 40% of clinicians, our target audience, use a tablet device when operating in the office. We plan to use HTML5 as our development language to solve this. Due to the robustness of HTML5, achieving cross platform accessibility on mobile devices will not require extensive platform-specific consideration.

As the client is a government organization and this product will be provided by them to the public, the product itself must abide by Section 508 accessibility standards. While some portions of Section 508 must be included in the original design, such as formatting the pages with few redundant links, much of the functionality can be added after basic implementation of the product. This allows us to proceed with development without delay but leaves us open to extensive addition of features for the disabled later on.

The client has stated that they will take full control of publishing the product which frees us from the cost of maintaining the server as well as buying a domain name. They have also stated that all other developer costs will be our responsibility. However, at this time, there are no additional costs for us to consider.