Umar Khokhar

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Project Proposal: Am I Stoned
ResearchKit based application to measure impairment after THC

Intoxicated individuals are often unable to reliable estimate their functional impairment. This misjudgment about impairment raises public safety concerns. The proposed application will attempt to measure impairment and ultimately—in a later version—provide users an objective impairment rating. The final version of the application will be deployed to active cannibis and will be able to provide feedback to users in real time.

Initially, however, application-based measurements of impairment requires validation. The sensitivity and specificity of mobile phone based application measurements will have to be determined in controlled setting in response to fixed doses of intoxicants. Briefly, the research study has the following design:

36 experienced marajuana users will each be administered placebo, 7.5mg THC, and 15mg THC in three separate sessions. In each session, iOS ResearchKit based tests of memory, coordination, and cognitive capabilities will be administered in hourly intervals for 4 hours. Each test will be followed by an application based survey of subjective impairment. These results will be validated against desktop computer based tasks and surveys.

In the diagram below, a study participant is presented with an initial screen to input their ID. Participants can complete the consent module to grant consent for the study. Afterwards, participants can proceed through an initial survey and 4 active tasks: forward memory test, reverse memory test, tap coordination test, and arithmetic sequential addition test. Each active

task will be followed by a survey that interrogates the subject's self-assessment of impairment.