UrInterpret smartphone app for the rapid interpretation of urine drug testing: an adjunct of the HARMS Program for safer opioid prescribing

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ABSTRACT:
Opioid addiction levels have reached epidemic levels here in Canada. A large burden of responsibility is placed on physicians to adequately treat chronic pain while reducing the rate of opioid addictions. Currently, many physicians struggle to find balance in their prescribing techniques, potentially leaving their patients with undertreated pain by limiting opioid prescriptions altogether. Random urine drug testing (UDT) using point-of-care immunoassay and confirmatory spectrometry techniques have been shown to change clinical decision making regarding opioid prescribing. UDT gives objective data about a patient's illicit substance use, prescription compliance and allows confirmation of parts of their clinical history. In Marathon, Ontario the HARMS Program is a clinic-wide system built to support random UDT by addressing barriers to implementation in clinical practice and to monitor patients prescribed opioids for pain. Early evidence suggests that the HARMS Program works, and it has now been packaged for clinical dissemination to other sites. Despite guidelines recommending its use, the literature suggests UDT is under utilized because of a general misunderstanding on how to interpret its results. Keeping this in mind we wanted to design a smart phone application that can assist with interpreting both immunoassay and spectrometric UDT results with the hopes that physicians will implement UDT into their daily practice. A literature search was performed to identify the performance of urine drug testing including false positives, false negatives, the detection of urine tampering, drug detection windows and drug cross reactions. The results from the literature review were used to generate algorithms that ultimately formed the application called UrInterpret. This tool can rapidly interpret UDT results in a comprehensive fashion. Together, with the HARMs Program and the UrInterpret application, we hope to guide physicians with their prescribing techniques by helping them identify patients who opioids will likely harm while still treating chronic pain patients who benefit from their use.