

Real Time Methods for Quantifying Exposure to Illicit Drugs & Psychosocial Stress

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Investigators at the National Institute on Drug Abuse Intramural Research Program (NIDA IRP) and at the Johns Hopkins ALIVE Study are partnering to develop a set of field-deployable, state-of-the-art tools to measure exposure to psychosocial stress and addictive substances. Drug use and psychosocial stress will be assessed in near-real time through Ecological Momentary Assessment (EMA), in which participants use handheld electronic diaries to record events as they occur and to report recent or ongoing events in response to randomly timed prompts throughout the day. Real-time records of where the reported events occurred will be obtained by having participants carry Global Positioning System (GPS) devices to track their whereabouts with a likely spatial resolution of several meters. Broadening the definition of environmental factors, we will evaluate ‘neighborhood-level’ exposures to drugs and stress measured in terms of specially developed indices, the Drug Environment Index (DEI) and the Neighborhood Psychosocial Hazards index (NPH), each based on objective statistical data available from public sources and independent of self-report. For comparison, drug use will also be assessed through retrospective audio-computer assisted structure interview (ACASI) and from biological specimens (sweat and hair), and stress will be assessed through ACASI and physiological measures (heart rate and allostatic load). Investigators at the NIDA IRP will develop the devices and software and conduct the initial testing in a population of polydrug-dependent outpatients. EMA is already in use at the NIDA IRP with participants reliably carrying electronic diaries and entering real-time self-reports for up to 25 weeks. Following developmental work at NIDA, Johns Hopkins investigators will conduct field trials in participants recruited from the ALIVE study, a well-characterized community cohort of drug abusers, most of whom are not in drug treatment.