

Wastewater-based Estimation of Substances Discharged at the Rest Areas along the State Highways in Kentucky

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The availability of licit and illicit stimulants and its adverse consequences on public health has emerged as a major drug threat to communities in the United States. Despite several drug-involved traffic incidents along the interstate highways, this report represents the first comprehensive and quantitative report of drugs discharged at the rest areas along the interstate highways. In this *National Institute of Justice*-funded study, the amount of several discharged drugs focusing on stimulants but also including opioids and prescription antipsychotics are being measured in raw wastewater collected from five rest areas and a truck servicing facility using a state-of-the-art mass spectrometry technique. Three stimulants (cocaine, methamphetamine, and amphetamine), two opioids (hydrocodone and tramadol), THC metabolite, and four antidepressants (venlafaxine, citalopram, fluoxetine, and sertraline) were detected in all of the collected wastewater samples in the early phases of the project. Methamphetamine was the most prevalent stimulant (40.0-1240 mg/d) followed by the cocaine metabolite (9.18-385 mg/d) and amphetamine (14.9-97.9 mg/d). The rest area users normalized methamphetamine discharge in Christian County rest area (I-24E) was 1.8 folds higher than in Whitehaven rest area (I-24W) and 7.8 folds higher than in the Laurel County truck service facility (I-75). The significantly higher ratio of cocaine and its metabolite (>1.0) found in the Whitehaven rest area suggested the possibility of a direct discharge of cocaine in two select days in October. Overall, we established a unique collaboration among the Appalachian High Intensity Drug Trafficking Area (HIDTA), the Kentucky Transportation Cabinet, Cabinet for Health and Family Services, Murray State University and the University of Kentucky.