



Editor-in-Chief Pick, February 2023

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Minding the Gap

This month's POTM by **Shastri et. al** ([Cocaethylene cardiotoxicity in emergency department patients with acute drug overdose](#)) focuses on the synergistic toxicity caused by co-use of cocaine and ethanol. This combination leads to the endogenous synthesis of a new molecule, cocaethylene, which has been known for decades as a potent cardiotoxin in animal models, owing to its increased arrhythmogenic and coronary vasoconstrictive properties.

In terms of precedence and scale, this is the first study to clearly show that humans using recreational drugs who have the cocaethylene molecule in their blood have increased risk of death, coincident with evidence of acute heart injury. The importance of this originates from most clinical shifts in the ED, which usually involves the care of a patient with some type of recreational drug use. This study highlights the difference between the real world and funded research. From experience, emergency providers recognize that people who use drugs often use many drugs simultaneously. However, little funded research explores the interaction of recreational drugs on acute physiology. Shastri and colleagues show with clarity that mixing of drugs can increase risk of death, and therefore has implications on research potential for new antidotes.

From a larger public health perspective, this work serves as evidence about the giant gap between the focus of most funded research into drug use, versus the actual needs of many patients. By extension, virtually nothing is known about the biochemical and physiological effects of third or fourth recreational drugs, and even less about the superimposed effect of medications ordered by physicians to control the behaviors of these patients.