



Criminal Investigations  
and Network Analysis  
A DHS CENTER OF EXCELLENCE



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# Understanding and Disrupting the Formation of New Criminal Networks: The Case of Novel Illicit Drug Trafficking Operations

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Criminal Network Analysis

## SUMMARY

This research aims to create new prescriptive network analytics to understand and disrupt the emergence of a new criminal network during its formation process. Disrupting emergence will make it more difficult for the network to establish its operations, thereby making its activities less effective in the long run. We expect this work to apply also to disrupting the emergence of new segments of criminal organizations or their entry into new markets.

## PROBLEM STATEMENT

We seek to understand how new illicit synthetic opioid trafficking networks form across different geographic scales. We will conduct stakeholder-engaged, interdisciplinary research to create prescriptive network analytics that help law enforcement partners identify interdictions and disrupt emerging threats from trafficking networks. It will be important to understand how new supply avenues have impacted network formation. Local fentanyl distribution networks, such as at the county level, may form in ways that connect to the illicit opioid supply chain differently than traditional networks.

## APPROACH

Our approach is interdisciplinary and integrates techniques from criminology and operations research. We will conduct interviews and focus groups to deepen our understanding of the formation of synthetic drug trafficking networks.

We will then integrate knowledge from this qualitative data into quantitative dynamic network data that best captures the formation process. The project will create algorithms for an interdiction problem to disrupt the network formation process more effectively.

## ANTICIPATED IMPACT FOR DHS

This project aligns with 2020-2024 DHS strategic objective 2.1 "Secure and manage air, land, and maritime borders." It can serve the mission of CBP, TSA, and USCG to disrupt the flow of narcotics, crime, and violence into the United States by detecting and disrupting emerging criminal networks that traffic synthetic opioids such as fentanyl. This project will build the capacity of several USG agencies in disrupting emerging criminal networks and create stakeholder-based network analytics that can be used by several DHS partners.

The primary DHS component whose mission this research would serve is Homeland Security Investigations (HSI) with a goal to, "Investigate, disrupt, and dismantle transnational criminal organizations and other criminal entities that pose a threat to national security and public safety because they are involved in: a) human smuggling and/or trafficking; b) exploitation and trafficking of children and other vulnerable populations; c) drug trafficking." CINA will socialize this project by presenting the research and results to HSI, as well as the DHS Federal Law Enforcement Training Center (FLETC) for outreach to state and local law enforcement partners.