Opioid and Fentanyl Detection Program

Science and Technology

CHALLENGE: FIGHTING THE OPIOID THREAT

Provisional data from the Centers for Disease Control and Prevention (CDC) reported opioids to be responsible for over 80,000 overdose-related deaths in 2021, with nearly 9 out of 10 cases attributed to synthetic opioids like fentanyl. With distributors targeting all demographics, illicit opioids continue to cause significant pain and financial harm to families and communities across America. The Department of Homeland Security (DHS) has a significant role in countering the trafficking of opioids and other narcotics into the United States, including detection and interdiction of illicit narcotics, as well as investigative efforts to disrupt and dismantle smuggling operations. These missions, however, are challenged by high volumes of trade and travel, limited rapid and effective automated detection systems, and exploitation of the anonymity offered through unregulated dark web marketplaces and cryptocurrency used to support illicit manufacturing and distribution.

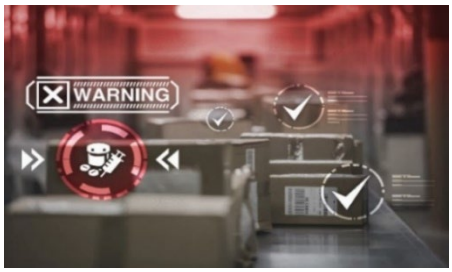
RESPONSE: OPIOID DETECTION PROGRAM

The DHS Science and Technology Directorate (S&T) Opioid and Fentanyl Detection Program is developing and evaluating advanced detection technologies and analytics to better target, interdict, and investigate illicit opioid and other narcotic smuggling into the United States. The program supports mission requirements of U.S. Customs and Border Protection (CBP), Immigration and Customs Enforcement's Homeland Security Investigations (ICE HSI), and state and local law enforcement.

PROGRAM SCOPE

The S&T Opioid and Fentanyl Detection Program is focused on four primary areas:

- High-throughput, nonintrusive screening technologies
- Automated alarm resolution technologies to provide confirmation of contraband
- Improved effectiveness of handheld detection systems employed by frontline operators to detect small amounts of drug materials, even when diluted
- Advanced analytics for evidentiary data fusion and information sharing to enable automated discovery of high-value targets and criminal associations



IMPACT

- Deliver the knowledge and detection tools necessary to enable DHS Components to maximize interdiction missions
- Transition investigative analytics to identify patterns, participants, and tactics used for trafficking in order to disrupt and dismantle drug trafficking organizations, and stem the flow of illicit drugs into the United States

ACCOMPLISHMENTS TO DATE

- In partnership with operational partners, S&T executed a $1.55 million global prize competition that developed novel prototypes for mail screening solutions [Fiscal Year 2020 (FY20)]
- Transitioned narcotics detection algorithm for primary screening technology for current operational pilot [FY20]
- Developed government-owned narcotics detection libraries for 18 deployed handheld detection systems [FY22]
- Transitioned prototype investigative analytics to support active counternarcotics law enforcement efforts [FY23]

UPCOMING MILESTONES (NEXT 1-2 YEARS)

- Publish test and evaluation results of deployed handheld detection systems equipped with upgraded narcotics spectral libraries [FY23]
- Complete operational data collection on a hybrid computed tomography/X-ray diffraction system for algorithm development [FY23]
- Transition production-ready suite of investigative analytics into ICE operational environment [FY24]

PARTNERS

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