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Advancing Harm Reduction through Data Mapping:

The Role of Delaware's Overdose Response Center

Brent Waninger, MEd & Edward Schiavi, BA

Delaware Division of Substance Abuse and Mental Health

Abstract

Designed in 2022, the Overdose Response Center, was created to provide a centralized, near real-time center for raw data and street intelligence analytics, and deployment operations and coordination of community response assets across the state. As the center began to operate during 2023, it became clear that the utilization of geospatial mapping software was a critical component to providing targeted direction and responses. Today, the center regularly maps relevant data, providing staff with multi-layered analysis of the current situation around the state, allowing us to provide clearly targeted (and personally walk-able) zones for both internal state field teams and partner programs, organizations, and outreach teams.

During the height of the opioid epidemic and related overdose crisis, collectively, Delaware made great strides in becoming data-informed in the use of federal grant funding for our response and actions. Naloxone became widely available to the public, and initiatives were designed and implemented in response to available data. However, more recently there was a desire to shift from being data-informed and become "data-responsive." This strategy would accelerate beyond just analyzing what happened last year or last quarter, to also look at what was happening last week and last night to direct the actions of today and tomorrow. The Overdose Response Center (ORC) under the Delaware Division of Substance Abuse and Mental Health was the embodiment of that strategic shift. Beginning operation in mid-2023, the ORC provides a statewide hub for both near real-time surveillance and analysis, as well as the coordination of community-level responses to the ongoing opioid/overdose epidemic. A critical component of being 'data-responsive" leverages modern software tools to complete geospatial mapping and trend analysis. Using these tools, the ORC is able to more effectively support harm reduction strategies by targeting outreach interventions and efforts across the state. In Figure 1, sample overdose data shows the mapping visualization of different types of overdoses and the ability to highlight areas for or targeted previously for outreach.

Figure 1. Sample Overdose Data

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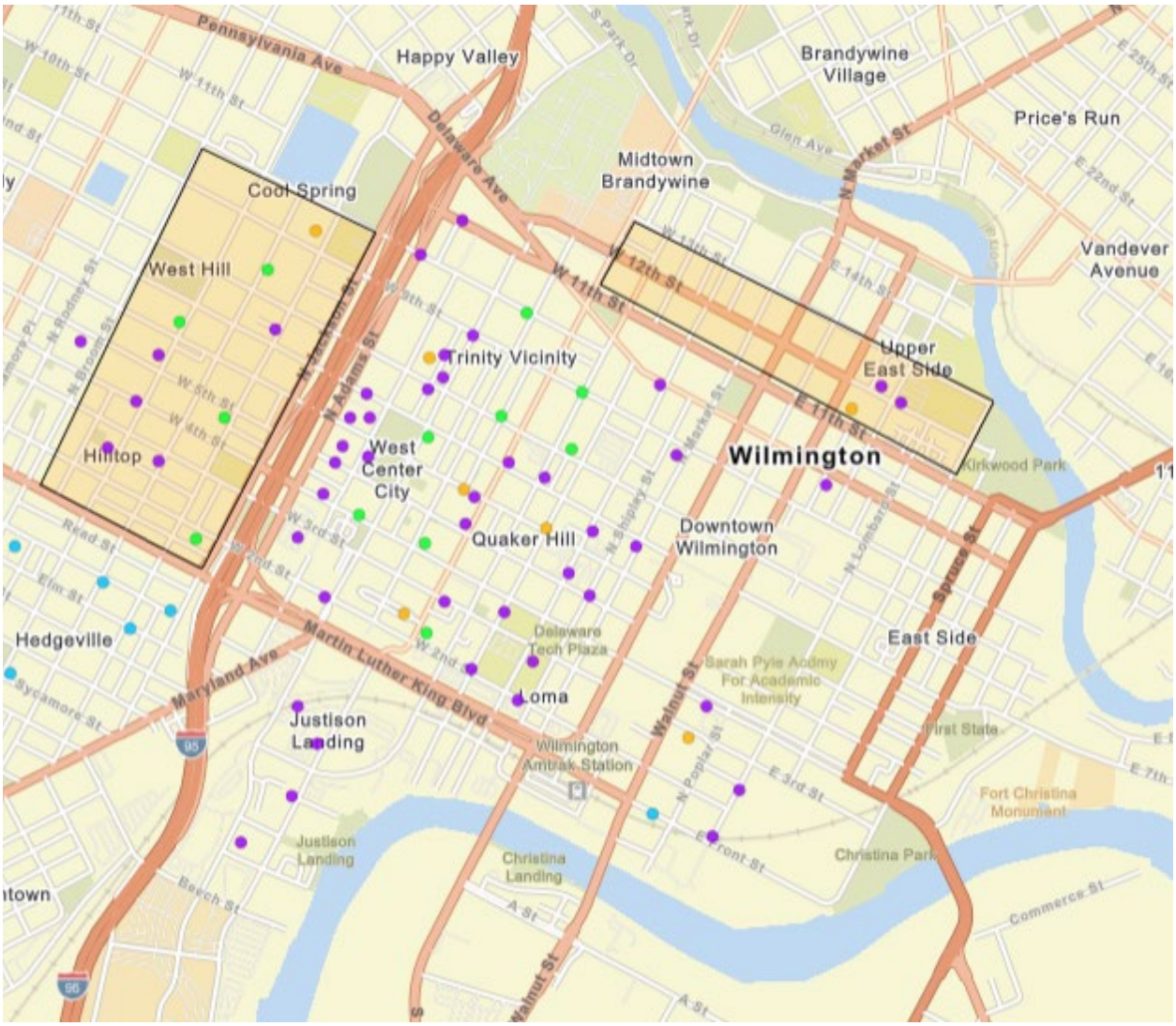

The ORC securely collects and manages overdose-related data from various emergency medical service agencies, law enforcement agencies, treatment providers, and community-based organizations. This information is compiled with “street intelligence” collected directly from individuals suffering from Opioid Use Disorder, outreach teams, and treatment facilities across the state. The ORC also incorporates all related information from other state partnerships or sponsored initiatives related to the epidemic, including wastewater testing and drug residue sample testing, to create the most complete picture of the opioid epidemic possible.

Leveraging the state’s existing access to the ArcGIS suite of software products, the ORC analyzes and uploads relevant pieces into a restricted portion of that platform specifically created for ORC use. Each component of information allows the center to create multiple map layers to be added and removed as needed to conduct various types of analysis and trend monitoring. This consolidated information and mapping is then used to create “deployment plans” that guide state-run teams (including the Bridge Clinic and Post-Overdose Response Teams) and our community partners’ outreach efforts to the areas of highest need or of emerging concern across the state. This coordination not only addresses the direct need, it also minimizes duplication of numerous teams self-responding to an area just because they are familiar with it.

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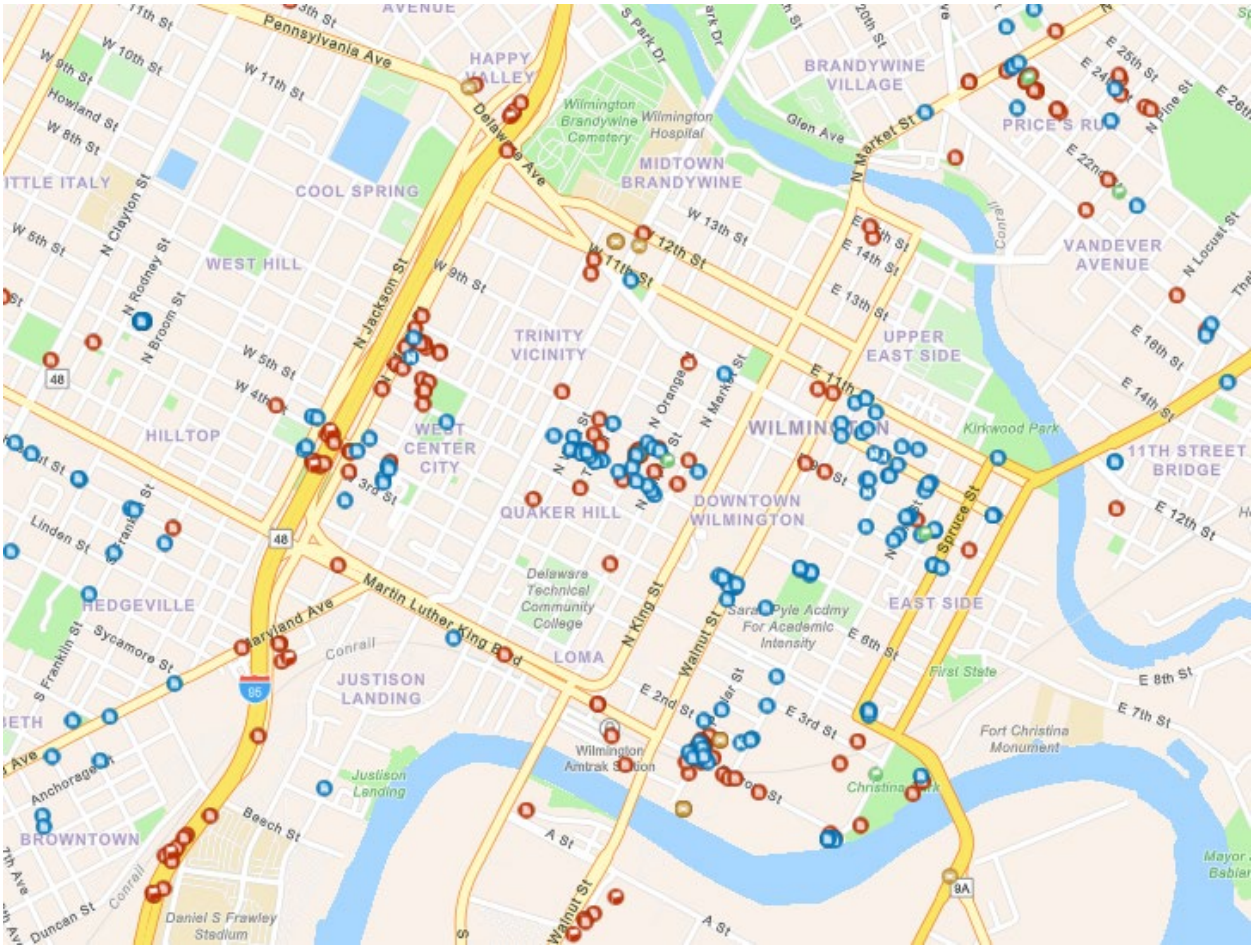
Activation and response of these community-level assets can take many forms, but all support harm reduction activities. This can be as simple as conducting naloxone training and distribution to help with the state's saturation goals, or delivery and discussion of educational materials, to the provision of assessment and treatment services on-site, or training on self-care of wounds triggered by xylazine contamination in the drug supply. The ORC supports data-responsive direction to both general outreach activity or "canvassing" of an entire area, and the targeted response to an individual to offer support and services after a non-fatal overdose. Outreach data sent back to the ORC allows real-time mapping of outreach and harm reduction efforts (figure 2).

Figure 2. Outreach Data



Using this approach, the ORC is not only able to identify the areas of the state in the most need of outreach and engagement, but also provide those outreach teams with additional layers of information about that area like population census information, local naloxone training/distribution partners, and nearby treatment provider locations/offices. With two-way feedback from the variety of outreach teams and partners, the ORC is also able to track trends and changes over time, ensuring coverage of Delaware's unhoused populations and the movement of encampment sites.

In addition to deployment plans, the ORC publishes bulletins and reports to ensure up-to-date knowledge and understanding of the broadest range of partners. This includes brief one-page summaries of new or emerging substances of concern like xylazine and medetomidine (figure 3), and more recently the monthly Delaware Street Drug Report that identifies trends in street drugs

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that were sampled and analyzed from across the state (figure 4). This information, combined with the deployment plans gives individuals responding on the ground the best understanding of what they should expect and what they must be prepared for when attempting outreach work (figure 5).

Figure 3. Partner Information Bulletins

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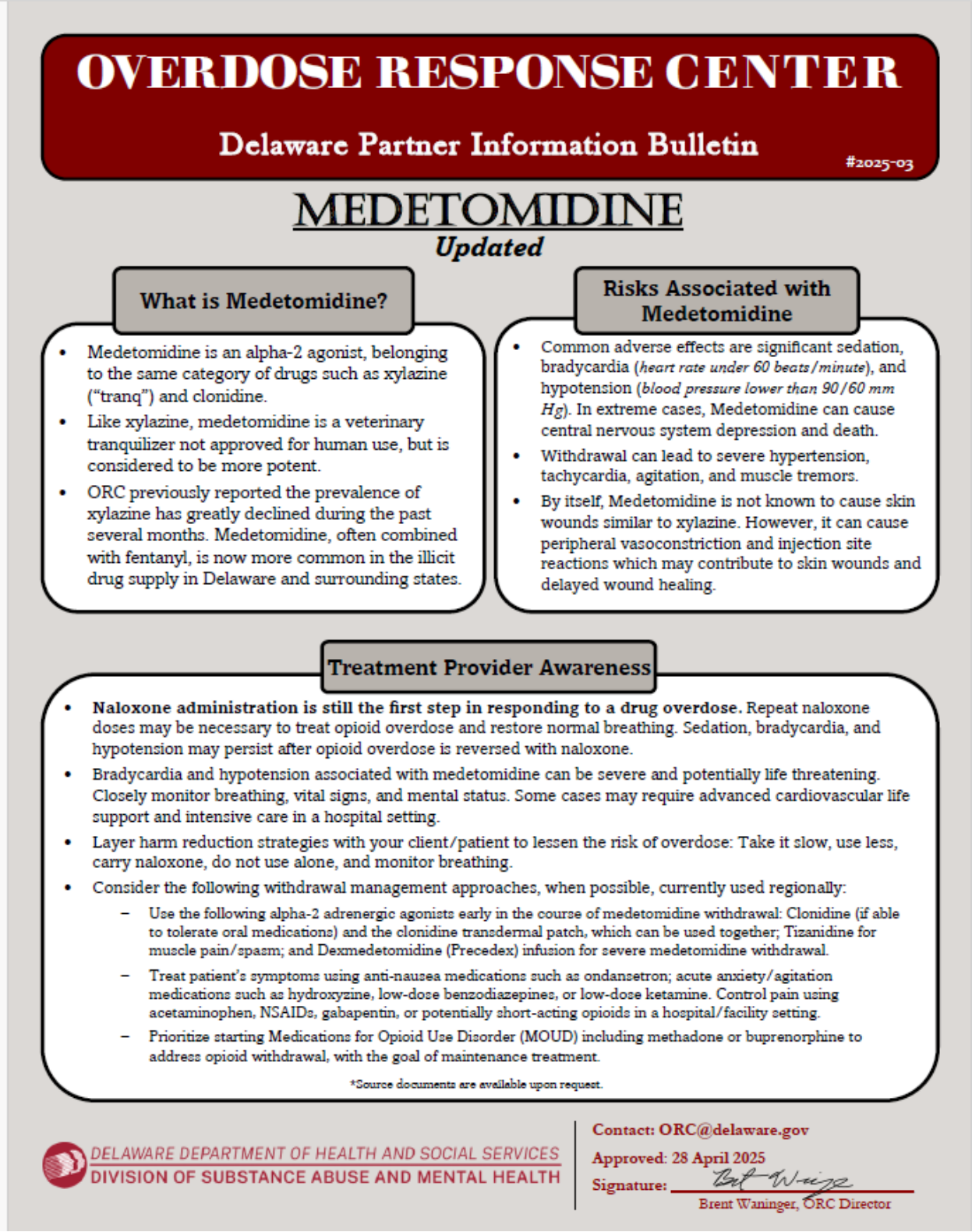

Figure 4. The Delaware Street Drug Report.

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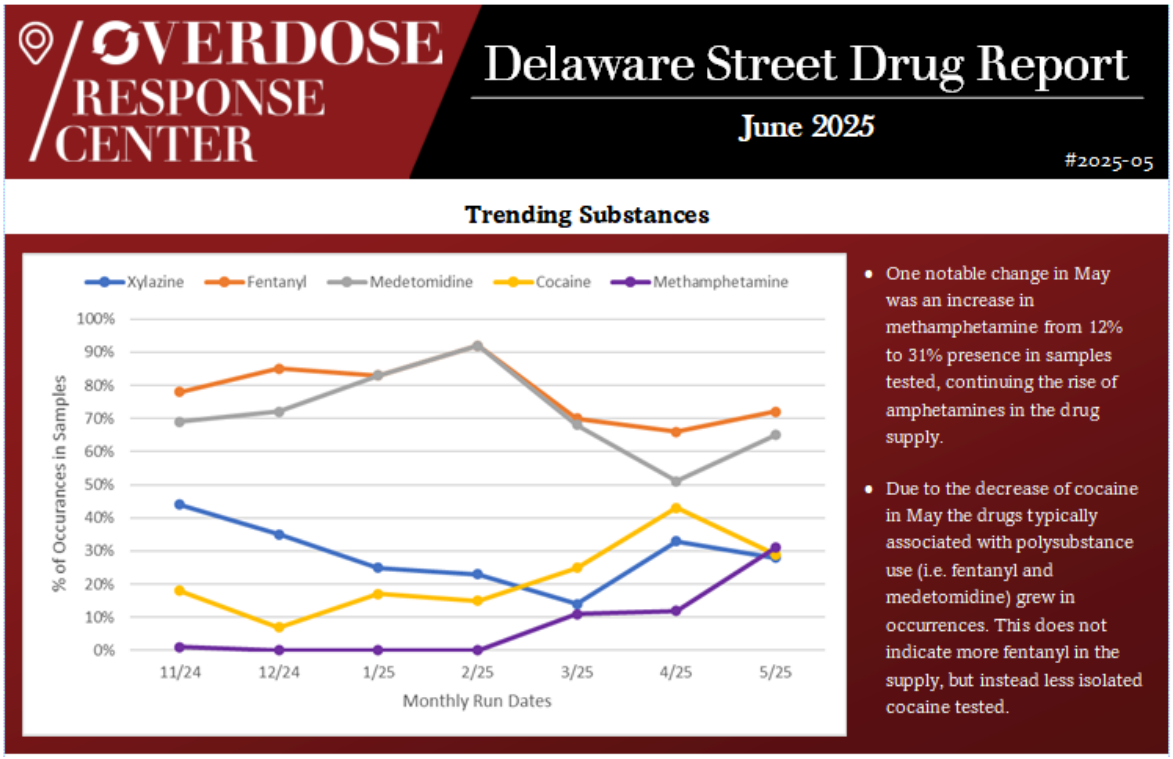
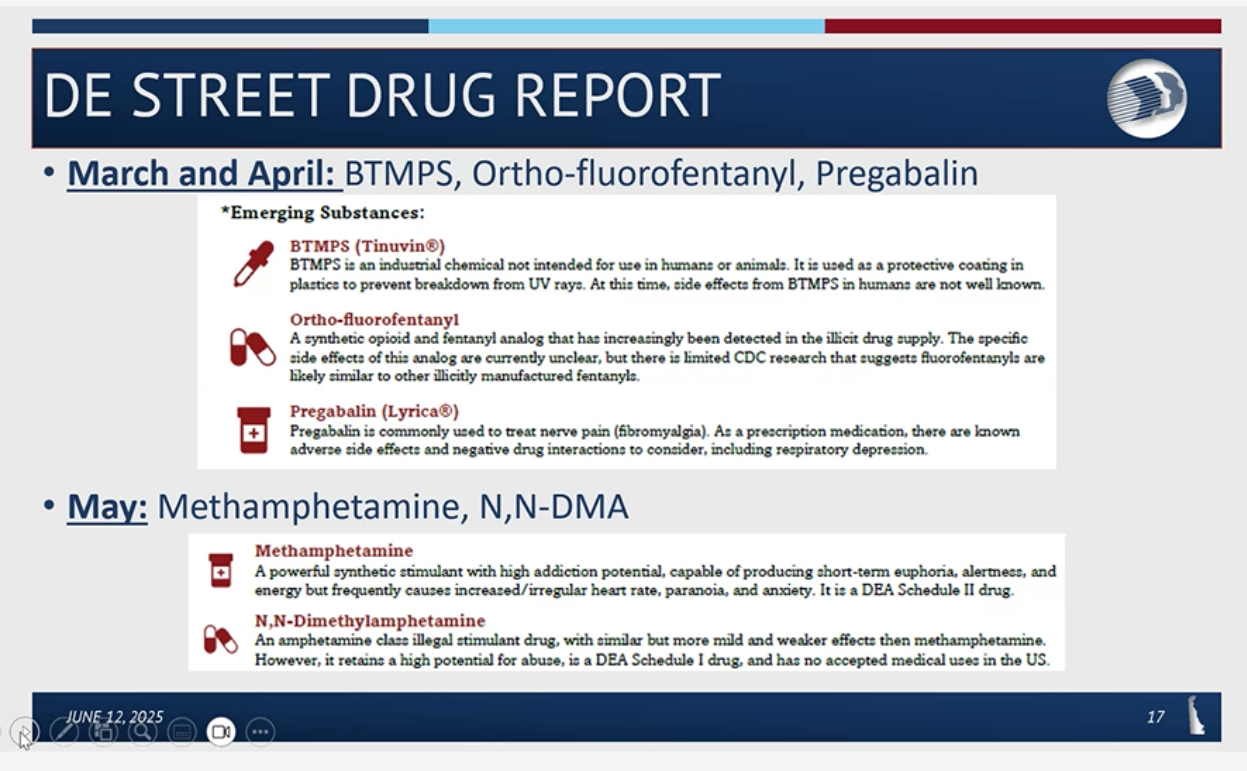


Figure 5. Recent Emerging Substances Identified in Recent Delaware Street Drug Reports



The security protocols and design of the ORC allows the center to receive and digest raw data and street intelligence as rapidly as partners can (or are permitted) to share that information. In addition, the ORC has recently begun piloting software tools that provide feedback loops directly

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from workers in the field into the ArcGIS mapping systems being utilized in the center. This allows the ORC to map back over the deployment plans and map layers to know where outreach was successful and impactful. Evaluation of this feedback loop over the next year will be used to directly measure the impact of harm reduction and outreach efforts. This feedback also allows for constant evaluation and re-assessment of the deployment plans and pivoting to address emerging areas almost as soon as they arise. This extra layer of feedback and analysis from the field, advances the ORC above most other forms of data-driven and data-informed efforts across the country, and allows the center to truly be "data-responsive," while enhancing harm reduction efforts of and for Delawareans in all corners of the state.

Mr. Waninger may be contacted at brent.waninger@delaware.gov.