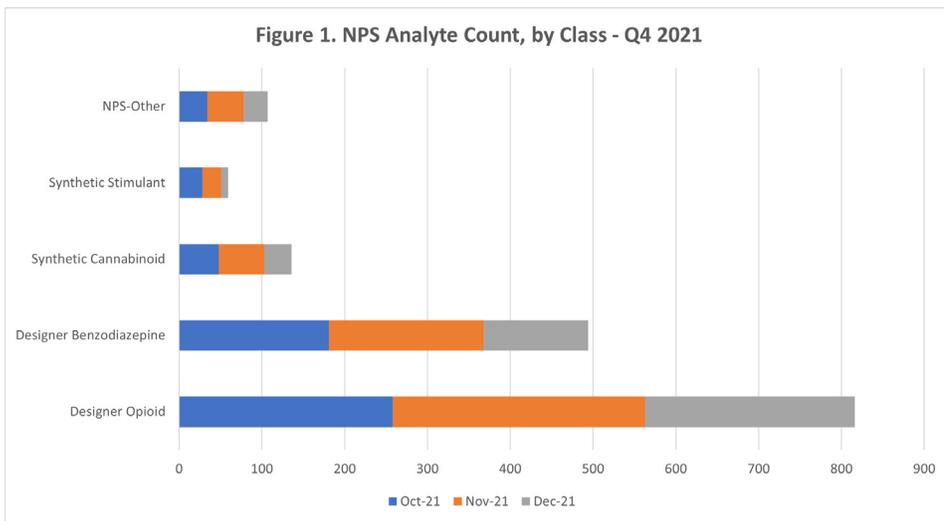


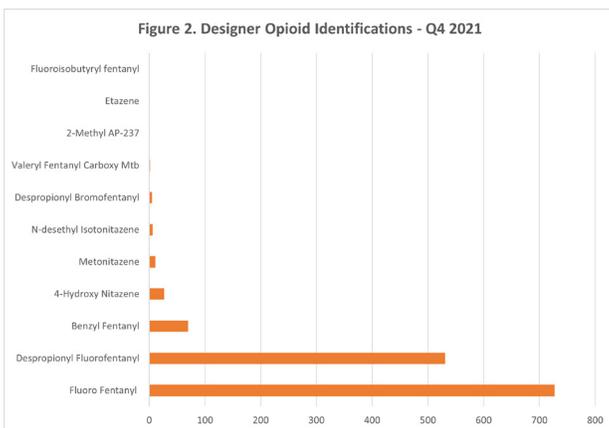
## Novel Psychoactive Substances Q4 Summary

Aegis offers healthcare providers the opportunity to evaluate their patients' substance use more completely by offering testing for numerous classes of novel psychoactive substances (NPS). Without advanced testing, individuals may use these substances undetected, which can interfere with prescribed therapy and could result in severe adverse events, including overdoses.

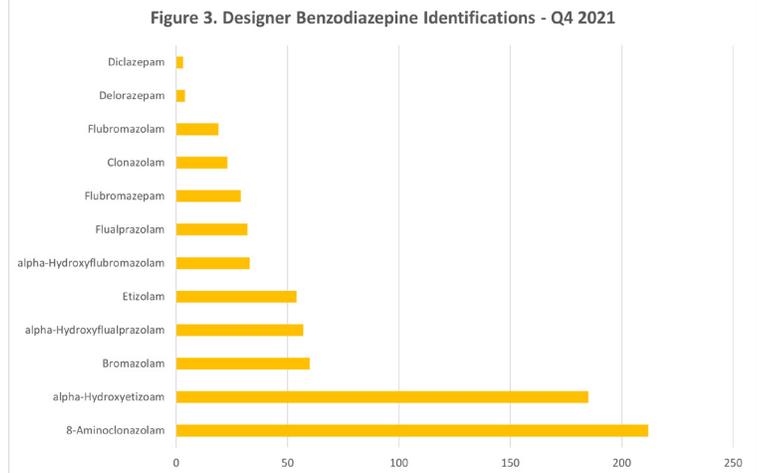


**Figure 1.** In the fourth quarter of 2021, Aegis detected over 1,500 NPS analytes in healthcare samples when the testing was ordered. This is an underrepresentation of actual positivity, as many samples do not include medical orders for NPS testing. Designer opioids were detected most frequently, followed by designer benzodiazepines, synthetic cannabinoids, "other NPS" and synthetic stimulants. In many instances, samples included multiple analytes from one drug class and/or analytes from multiple classes, such as designer benzodiazepines and designer opioids.

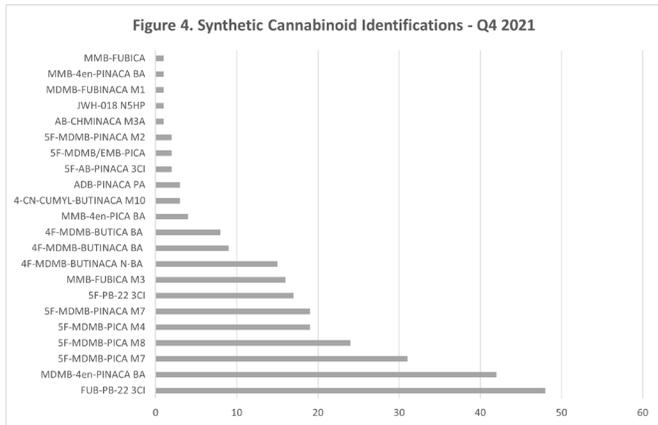
The following figures are intended to provide a detailed analysis of the NPS detected as part of Aegis' enhanced drug testing options:



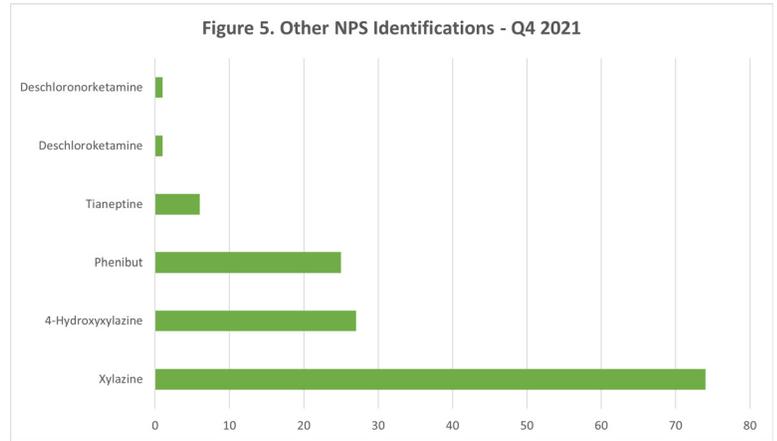
**Figure 2.** The designer opioids are commonly referred to as fentanyl analogs, or fentalogs, however other non-fentalogs are increasingly observed. Fluoro fentanyl was detected in 727 samples in the fourth quarter. Despropionyl fluorofentanyl is often detected with fluoro fentanyl and is believed to be either a process impurity from manufacture or a metabolite of fluoro fentanyl. Of particular interest, markers of isotonitazene, metonitazene, and etazene have been detected in the fourth quarter. Over the last year, there have been increasing reports of non-fentanyl opioids found in the illicit drug supply. This is believed to be a response by clandestine labs to circumvent increased regulation of the fentalogs by both US and international drug scheduling bodies.



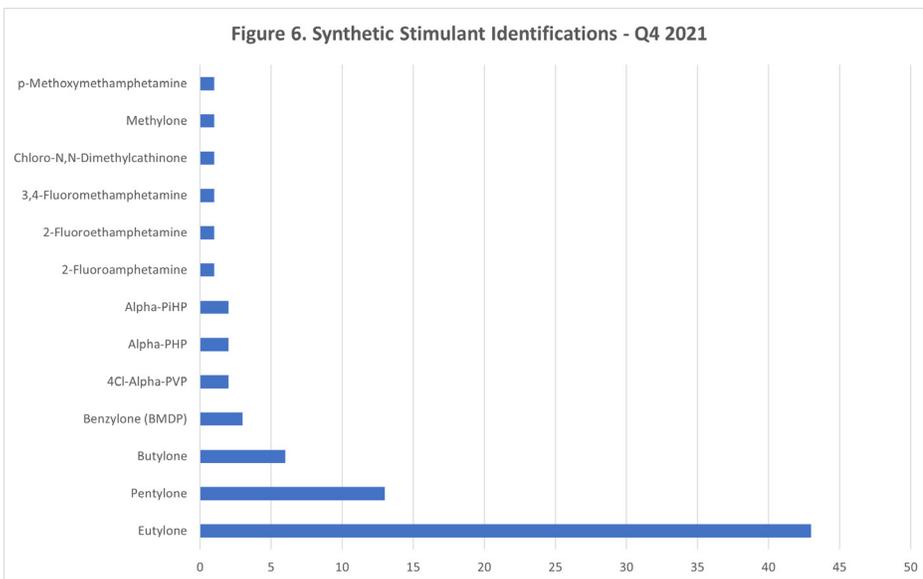
**Figure 3.** Designer benzodiazepine(s) were detected in 494 samples in the fourth quarter. Clonazolam and etizolam are detected most frequently, followed by bromazolam and flualprazolam. Designer benzodiazepines are often found as counterfeit versions of commonly recognized prescription benzodiazepines, such as alprazolam 2mg "bars" and, in many cases, more than one designer benzodiazepine is present in these counterfeit tablets.



**Figure 4.** Synthetic cannabinoids were detected 136 times in the fourth quarter. FUB-PB-22 was the most detected compound, detected in 48 samples in the fourth quarter. MDMB-4-en-PINACA continues to be frequently detected, in 42 samples this quarter. 5F-MDMB-PICA, and 5F-MDMB-PINACA complete the top five cannabinoids detected.



**Figure 5.** Aegis began offering testing for additional NPS in the second quarter of 2021. While testing has only been available for a few months, at least one analyte was detected in 107 samples in the fourth quarter. Xylazine, which is approved as a veterinary tranquilizer, has been most often detected in Aegis samples. It is a common adulterant found in heroin and illicitly manufactured fentanyl, where it is sometimes referred to as “tranq-dope” and is increasingly identified in overdose deaths involving illicit opioids. Tianeptine is used as an approved antidepressant elsewhere in the world but is only available in the US as a supplement. It is typically misused due to its ability to mimic the effects of opioids. Phenibut is also approved outside of the US but is used in the US as a supplement for its action at GABA receptors, with a similar action as benzodiazepines. Deschloroketamine is a ketamine analog which is purported to have a longer duration of action and be more potent than ketamine and was identified for the first time in the fourth quarter.



**Figure 6.** Eutylone continues to be the most detected stimulant in Aegis’ synthetic stimulant testing, which reinforces trends observed by many other surveillance sources, such as the DEA. Pentylone and butylone round out the top three stimulants detected in the quarter; collectively, these are classified as cathinones. Interestingly, there were four non-cathinone stimulants identified, which were all analogs of amphetamines. These analytes were, p-methoxymethamphetamine, 3,4-fluoromethamphetamine, 2-fluoroethamphetamine, and 2-fluoroamphetamine.