



## Research Summary

# Study of syringes collected in Estonian harm reduction services for drug residues 2022

The syringe residue study is **an effective drug market monitoring method** that provides a good overview of substances injected in Estonia as well as regional differences. Objective information about the substances used helps:

- to get an overview of the current situation in the selected region,
- the National Institute for Health Development and harm reduction service providers to plan better prevention activities for overdoses and overdose-related deaths,
- to inform users about dangerous substances on the market,
- to improve the provision of harm reduction, assistance, and treatment services.

To get an overview of the use of drugs, the **analysis of municipal wastewater** is also used in Estonia, which provides chemically objective information about a wider area (city, county). To plan harm reduction and prevention activities, **more precise information** about injecting drugs is necessary. Syringe residue study allows to create a specific sample which maps the use of drugs at a selected time with **greater regional**

**accuracy** than the wastewater allows. The study can be carried out with **minimal time**, and it is possible to get an overview of the general and regional current situation of the drug market (including when new substances appear on the market).

Based on the results of the study it is also possible to compare substance preferences in specific areas. To get an overview of drugs used, the contents of syringes used by people who inject drugs were chemically analyzed. A liquid chromatograph quadrupole mass spectrometer with a time-of-flight detector and, in some cases, a gas chromatograph mass spectrometer were used for analysis.

The analysis was carried out by the Estonian Forensic Institute. The first study of syringe residues in Estonia was conducted as a pilot study in 2021 at the sites where harm reduction services are provided in Tallinn and Narva. The chemical analysis of syringe residues has also been successfully carried out by other European cities that gather under the international **ESCAPE project** (European Syringe Collection and Analysis Project).

## Sample

The sample was formed based on syringes collected in the framework of Estonian harm reduction services. A total of **375 randomly selected syringes** were collected in May and June 2022. It was important that the syringes would be visually complete and recently used.

The numbers of participating services were following: five from Tallinn, four from Kohtla-Järve, three from Narva, one from Rakvere, Jõhvi, Maardu, Kiviõli, Tartu and Paide. From services with smaller clientele at least 15 syringes were selected and with larger ones 30 syringes.

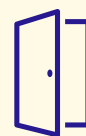
## Harm reduction services in numbers\*



46 places where service is available



3600 users



87 000 visits



1,7m syringes/needles shared

\*Data presented as of the end of 2022.

## The main drugs/groups of drugs used in total syringe sample (n=375)

66%  
amphetamine

18%  
buprenorphine,  
methadone

9%  
various drugs  
diazepam, pregabalin, pseudo-  
ephedrine, tropicamide, tizanidine

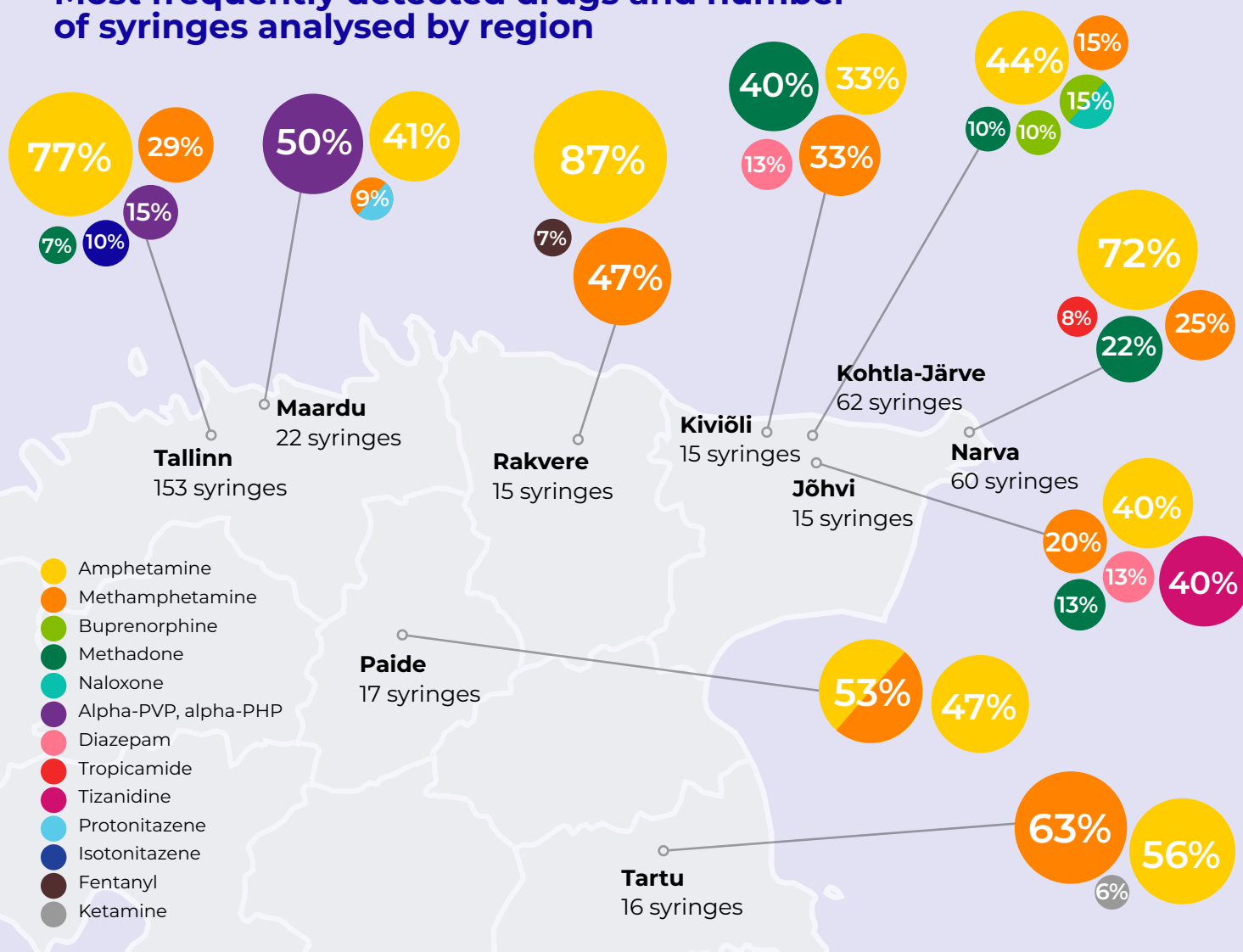
28%  
meth-  
amphetamine

10%  
cathinones  
alpha-PVP, alpha-PHP

6%  
synthetic opioids of the nitazene group  
protonitazene, metonitazene, isotonitazene

4%  
fentanyl and its analogues  
furanylfentanyl, carfentanyl, fentanyl

## Most frequently detected drugs and number of syringes analysed by region



## Conclusions

- A significant finding in the study is detecting synthetic opioids belonging to **the group of nitazenes** (isotonitazene, metonitazene and protonitazene) from the used syringes. Isotonitazene has appeared on the Estonian drug market before, but the findings of **metonitazene and protonitazene** appeared for the first time in 2022. These are **extremely dangerous substances** for the user and require quick responses to reduce damages (early warning system, naloxone program, etc.).
- After the collapse of the fentanyl market in 2017, the availability of the substance has been limited, which in turn has brought **greater volatility to the Estonian drug market**. Users have compensated for the lack of fentanyl and its analogues (carfentanyl, furanylfentanyl) primarily with increased amphetamine use, but also with the use of synthetic cathinones ( $\alpha$ -PVP,  $\alpha$ -PHP) and various drugs.
- The study confirmed that there is still no heroin on the Estonian drug market.
- Findings of medications used in opioid agonist treatment (OAT) (buprenorphine with naloxone and methadone) in used syringes indicate **possible medication abuse and the black market**. In the case of opioid addiction, when used in a controlled manner in OAT, the risk of becoming addicted to these medications is small, but there is a high risk of drug addiction when used without medical supervision.
- In addition, the study also showed the use of both prescription drugs and conventional drugs (diazepam, pregabalin, pseudoephedrine, tropicamide, etc.), but it is not a large-scale phenomenon.