



European Monitoring Centre
for Drugs and Drug Addiction



Global markets, glocal threats

Early warning, preparedness, and response to new psychoactive substances



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Drug early warning systems – the key to preparedness and response to new psychoactive substances
Lisbon Addictions, 23 November 2022

Overview

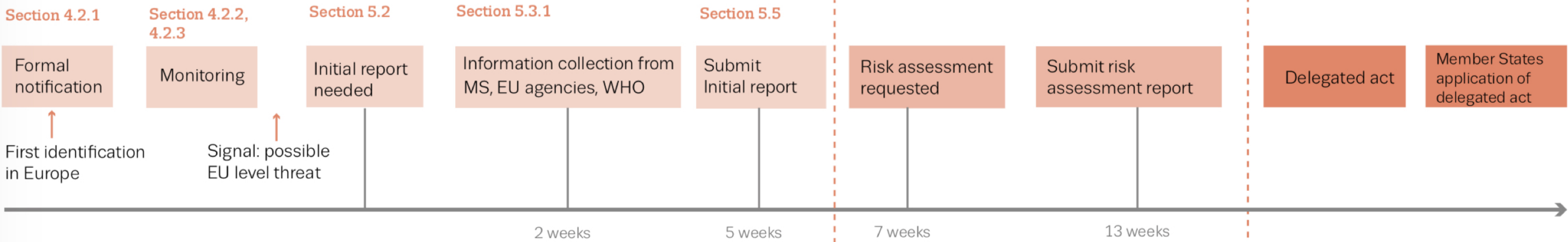
- Early warning and response to NPS in Europe
- Situation and trends
 - Synthetic cannabinoids
 - Opioids
- Risk assessment
 - 3-MMC and 3-CMC
- Key message

EU response to new psychoactive substances

Three-step approach

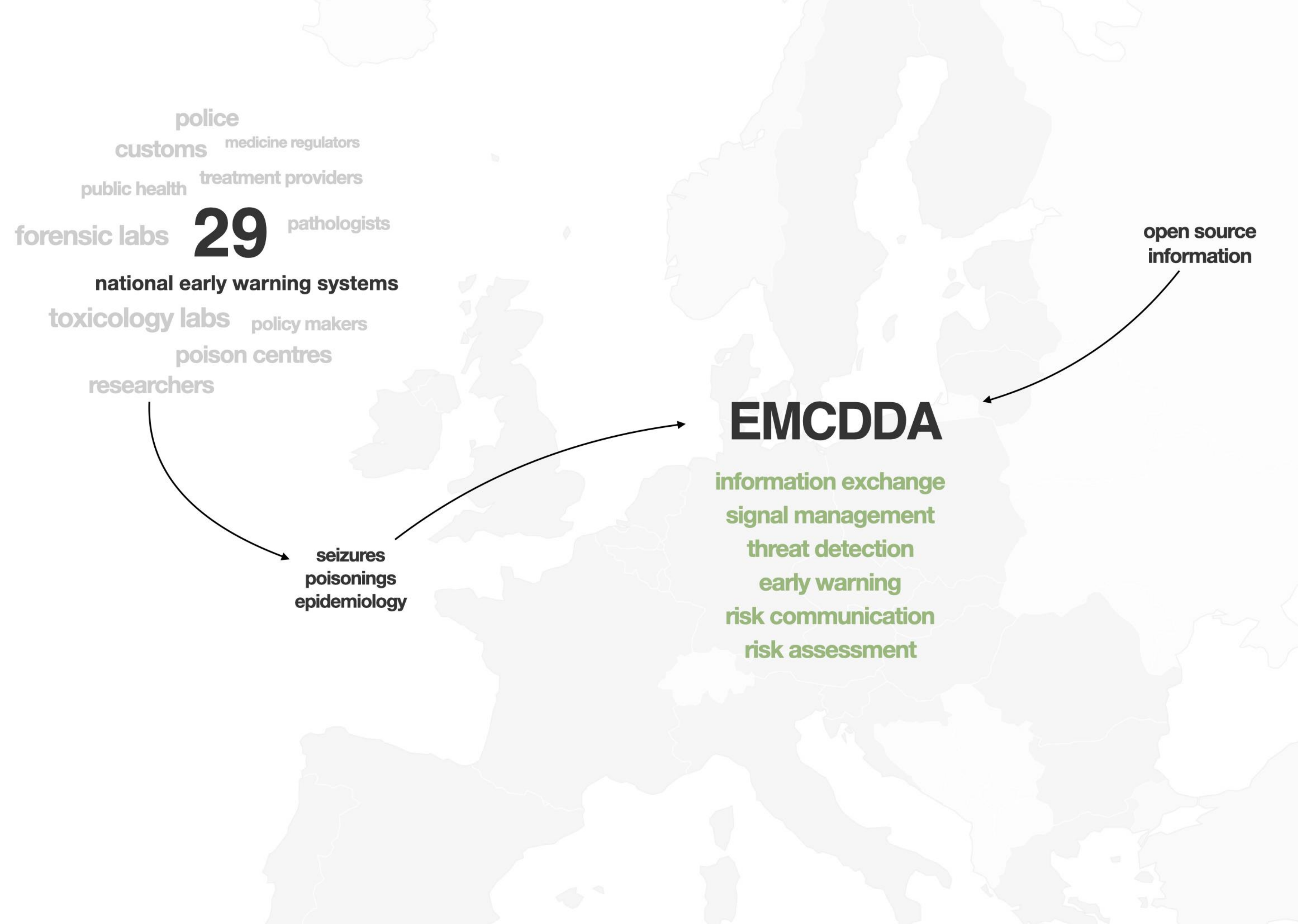


EWS operating guidelines



Regulation (EC) 1920/2006 (as amended by Regulation (EU) 2017/2101)

Council Framework
Decision 2004/757/JHA (as amended by Directive (EU) 2017/2103)



EMCDDA operating guidelines for the European Union Early Warning System on new psychoactive substances

About the guidelines
 These guidelines provide the rationale, steps, procedures, roles, and responsibilities for the operation of the EU Early Warning System. They reflect the requirements of Regulation (EC) No 1920/2006 (as amended) and Council Framework Decision 2004/757/JHA (as amended) with respect to information exchange and the early warning system, as well as for the initial report, risk assessment, and control measures.

GUIDANCE NOTE 1 Terminology and definitions

EMCDDA operating guidelines for the European Union Early Warning System on new psychoactive substances

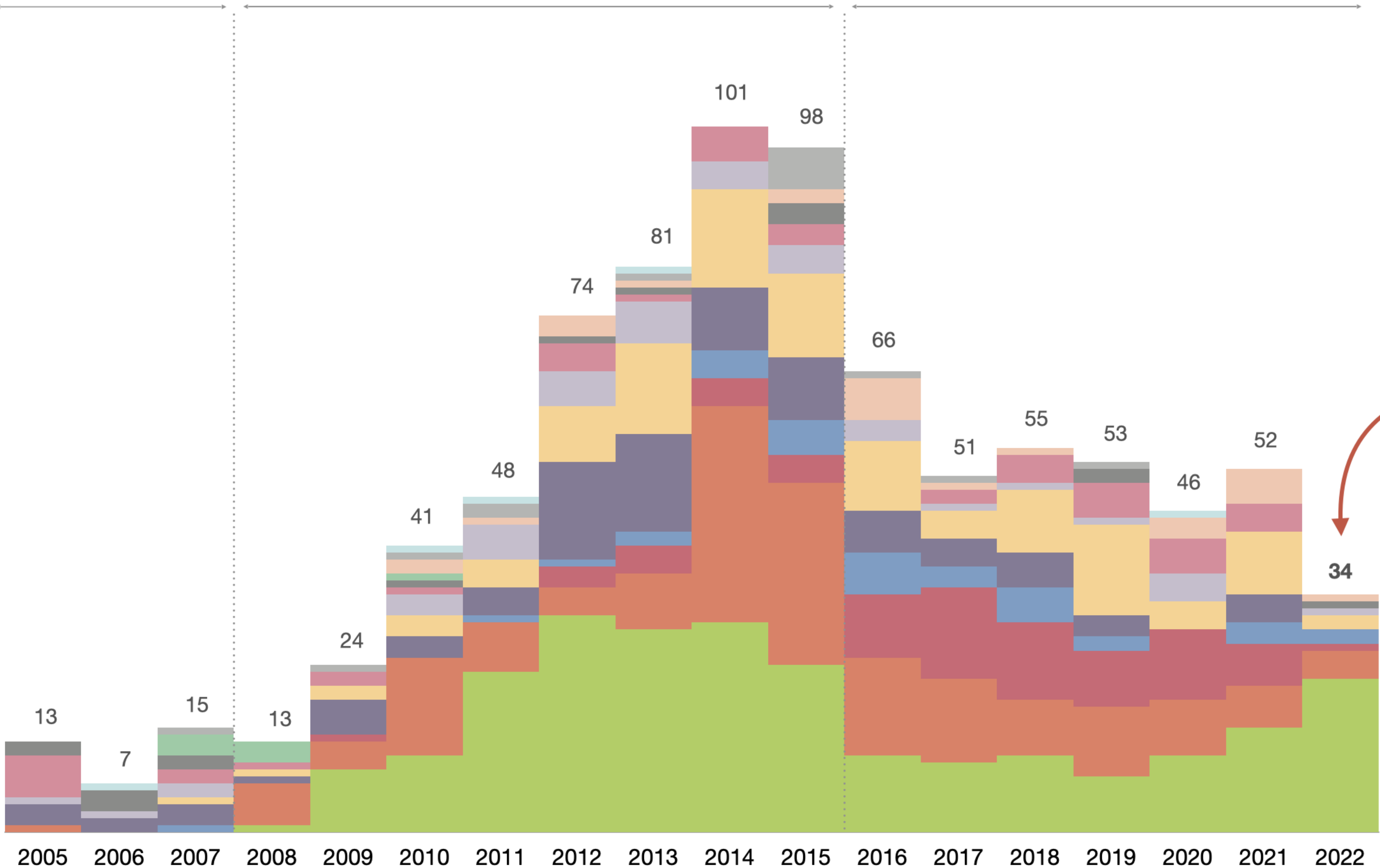
Where are we with new psychoactive substances?

Number of NPS identified for the first time each year

1. Imitation and esoterica

2. Legal highs and research chemicals

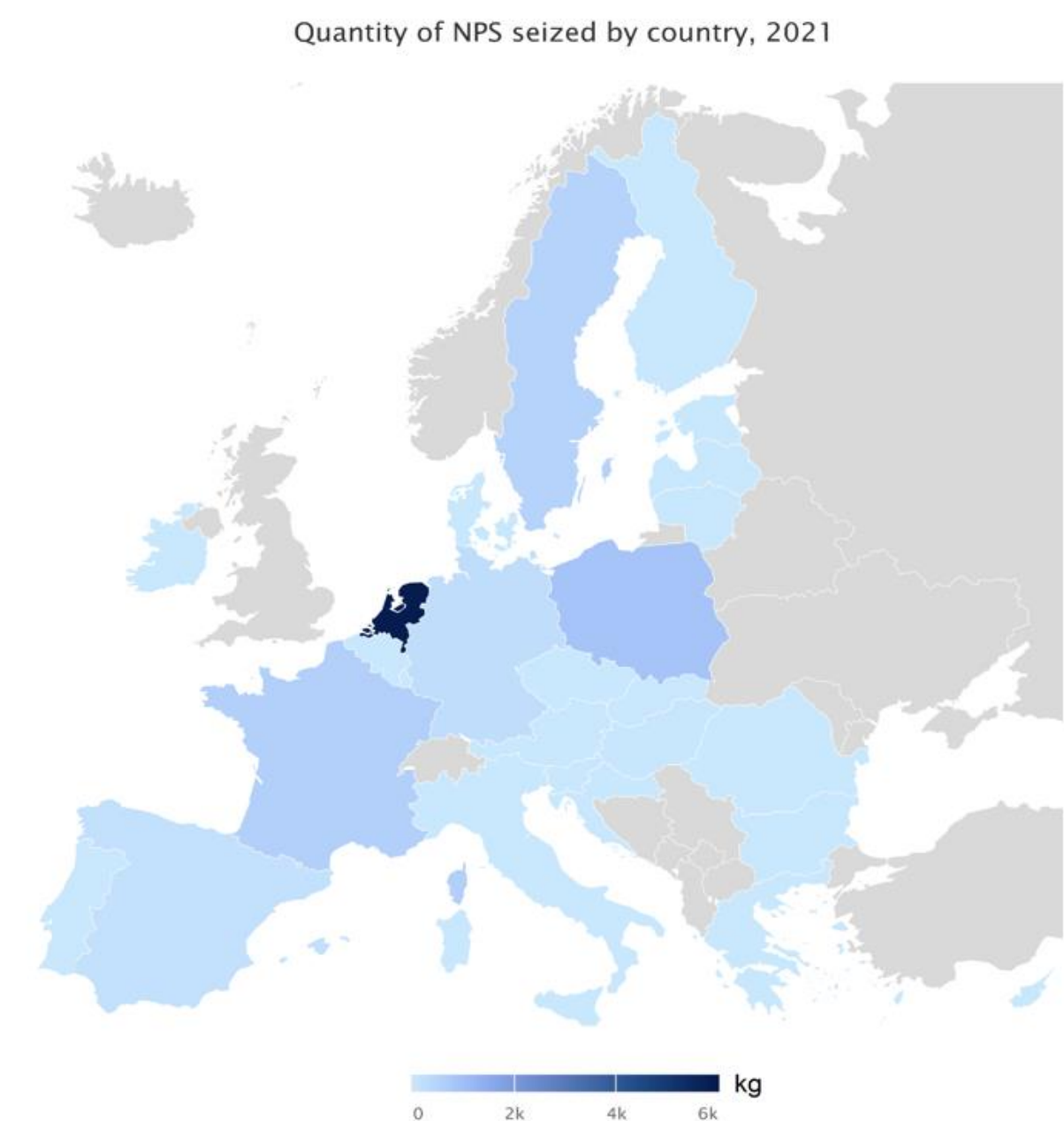
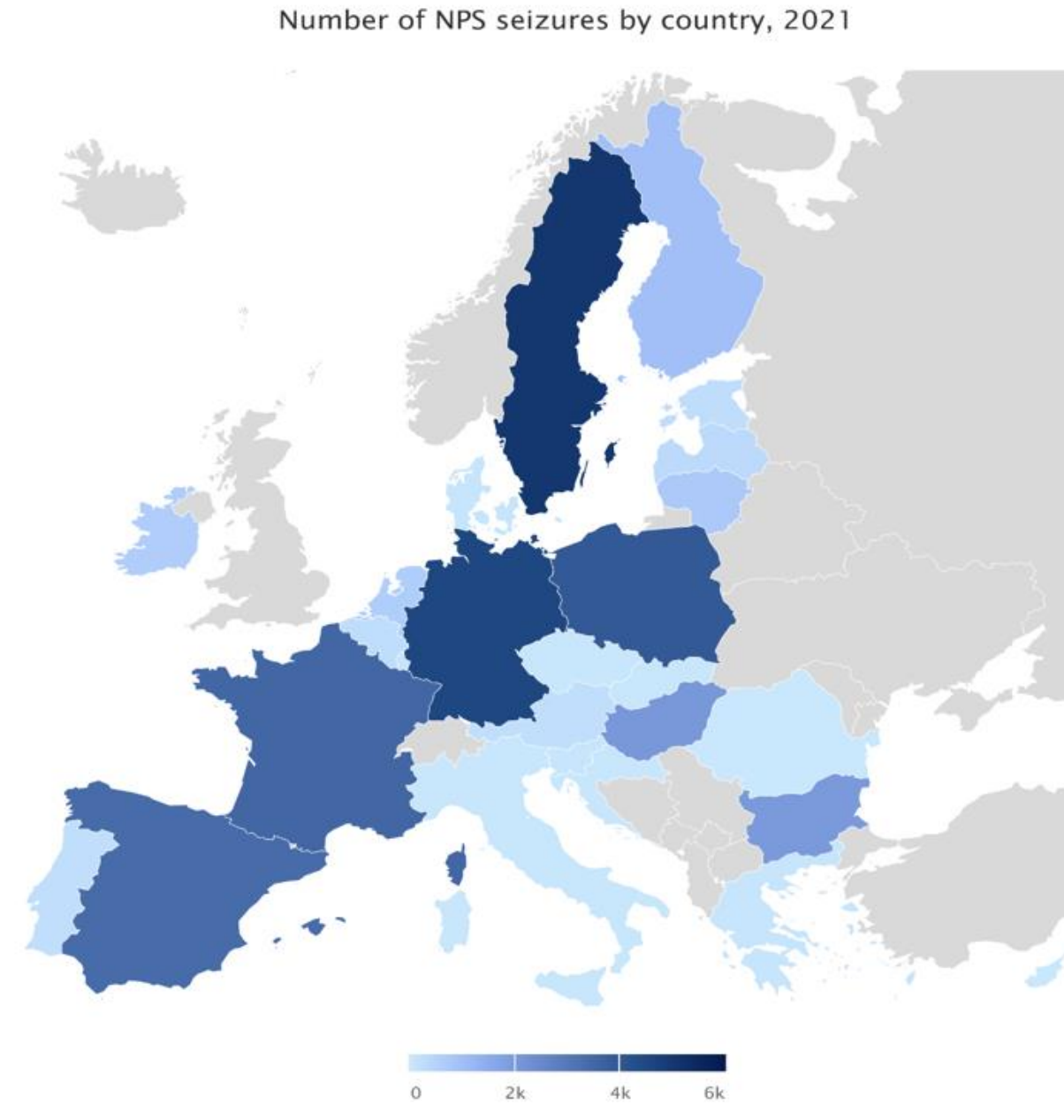
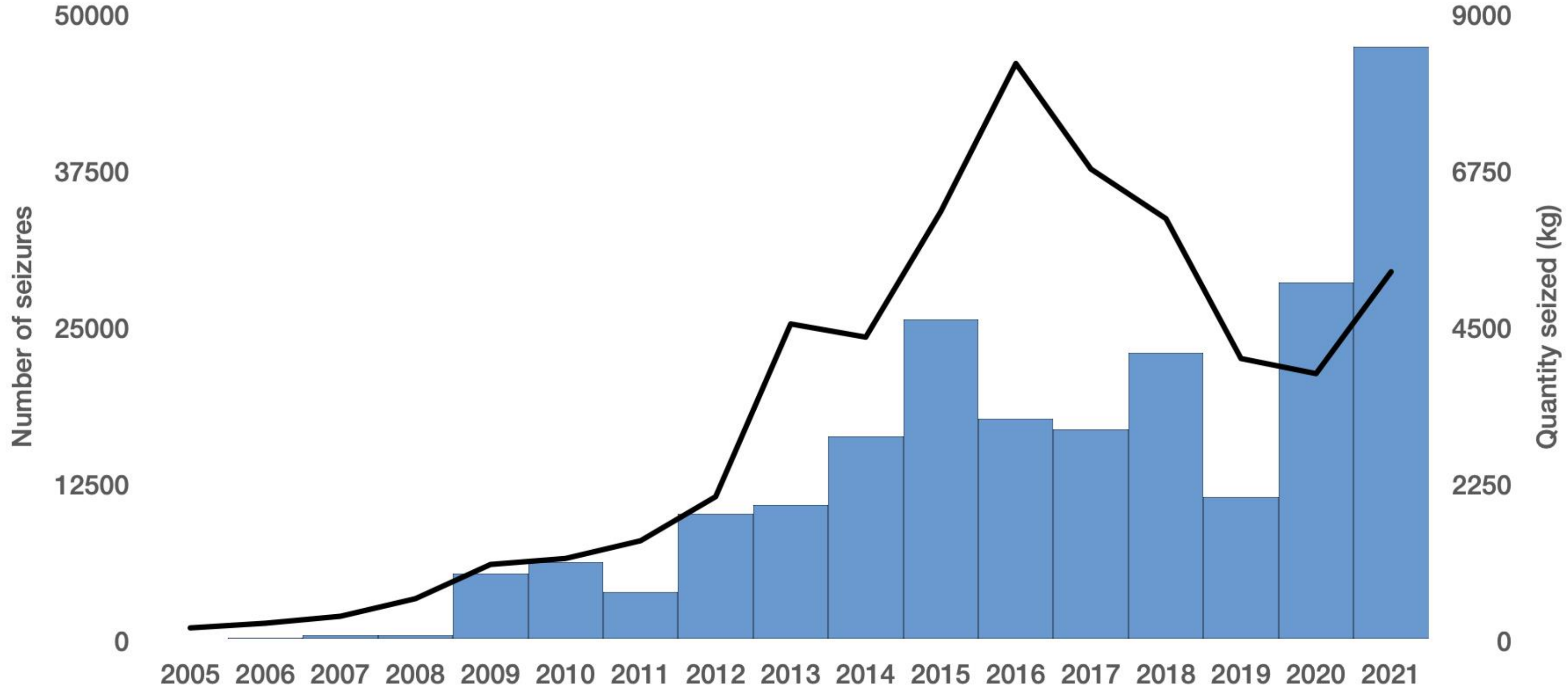
3. Integration and complexity



- 910+ NPS monitored
- Global markets, Global threats
- Highly potent substances
- MACD events
- New ways of taking drugs
- High risk of poisoning and outbreaks
- But what is happening in 2022?!

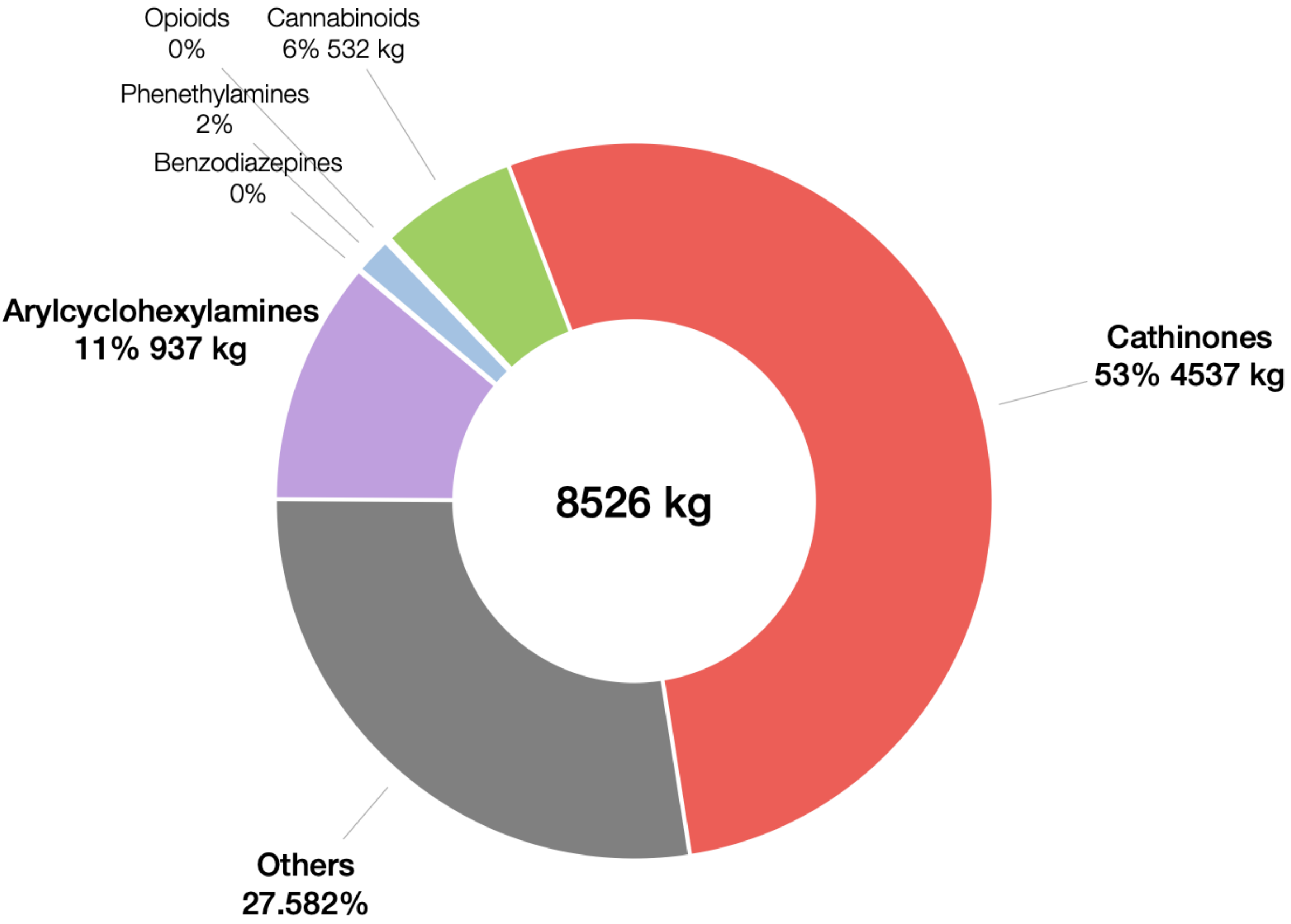
- Aminoindanes
- Piperidines & pyrrolidines
- Arylcyclohexylamines
- Plants & extracts
- Piperazines
- Tryptamines
- Arylalkylamines
- Other substances
- Phenethylamines
- Benzodiazepines
- Opioids
- Cathinones
- Cannabinoids

Law enforcement seizures, 2005–2021

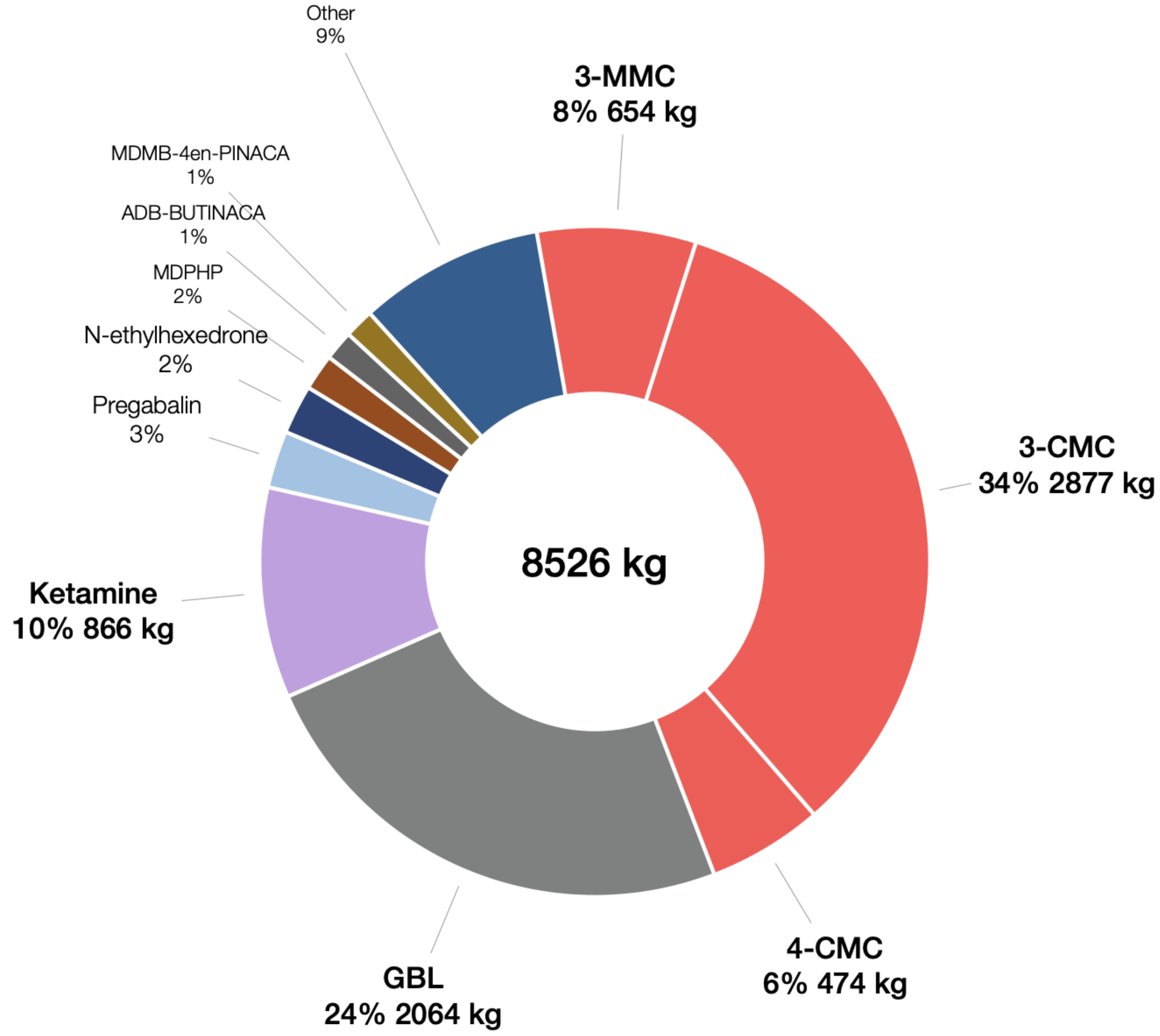


- N=29373 seizures and 8526 kg in 2021
- Largest quantity ever seized
- Driven by small number of large seizures
- Mostly 3 cathinones (3-CMC, 3-MMC, 4-CMC), ketamine, GBL

Quantity seized by category and substance, 2021



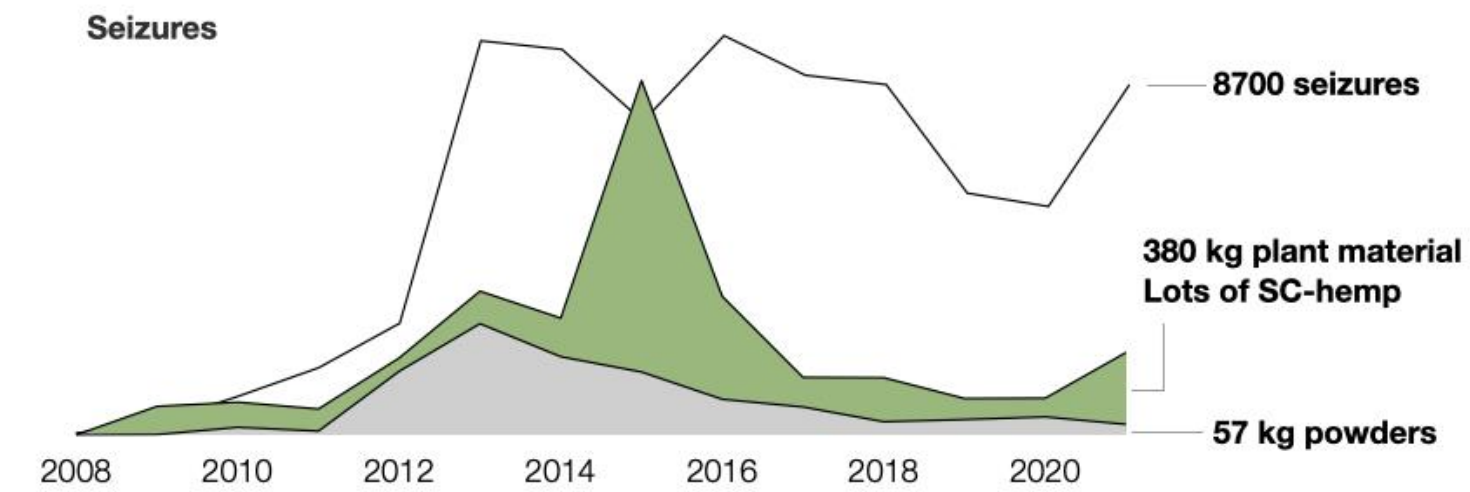
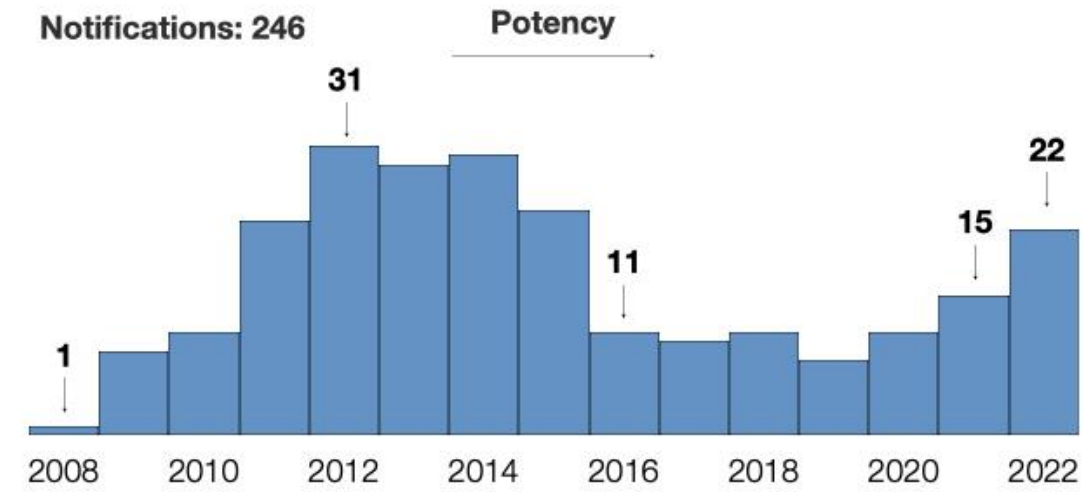
Quantity seized by category



Quantity seized by substance

15 years of Spice and synthetic cannabinoids

From legal highs to prisons, outbreaks, and adulterants



7 EU risk assessments

Spice appears in Europe

2004–2008

Rumours of ‘all natural’ legal high product with cannabis-like effects when smoked

Spice a serious problem in UK prison

December 2011

Widespread issue by 2013; 64% of prisons by 2014–15. Easy to smuggle and highly potent. Increase in poisonings, aggression, bullying, violence, debt

First seizures of Spice in Europe

2007

In 2008 Sweden reports 10 seizures of Spice to EMCDDA made in 2007

Acute kidney injury in US

March 2012

16 cases in 6 states. Unusual and unexpected. Link to 5-FUR-144

‘Mocarz’ outbreak in Poland

July 2015

300+ poisoned. Linked to fire sale of SCs linked to law change

SC sold as CBD in US and UK

December 2017

50+ poisoned in outbreak in Utah; CUMYL-4CN-BINACA sold as CBD. Similar mis-selling in UK

Hexahydrocannabinol (HHC) appears in Europe

May 2022

8 countries reporting detections. Hemp, vapes, edibles, foods

JWH-018 identified in Spice

December 2008

Confirmed in Germany & Austria. Self-experiment shows potent cannabis-like effects

MDMB-FUBINACA outbreak in Russia

September 2014

600+ poisoned inc. 15 deaths over two weeks

Brodifacoum outbreak in US

March 2018

400+ poisoned inc. 11 deaths in 11 states. Life-threatening bleeding. Many vulnerable, inc. people experiencing homelessness

SC sweets in Europe

January 2021

SCs in sweets sold as THC edibles. Detected in 5 EU countries. 5F-EDMB-PICA and ADB-BUTINACA identified

EMCDDA expert meeting

March 2009

Seen in 21/30 countries. Sophisticated marketing as legal highs. Open sale on internet and high street. First poisoning cases. Some use in prisons. China as possible supply of SCs.

Poisoning outbreaks in US

August 2013

22 poisoned in Georgia by ADB-PINACA. 220+ poisoned in Colorado linked to ADB-PINACA and ADBICA

‘Facebook’ outbreak in Hungary

August 2015

15 poisoned in Budapest after ADB-FUBINACA sold as ecstasy

SC-dope outbreak in US

July 2018

60 poisoned in Philadelphia. 5F-MDMB-PINACA, heroin, fentanyl mix

Generic controls in China

July 2021

Blanket ban for SCs. Replacements circumvent controls. Uptick in new SCs in Europe

First report of Spice in US

March 2009

1500 packets seized by customs in express parcel hub, Ohio. HU-210 identified

Spice use increases in vulnerable groups

2015

Media reports of Spice use among vulnerable, inc. unemployed and people experiencing homelessness in UK and US because it is cheap and highly potent

SC-hemp in Europe

January 2019-ongoing

SC adulterated hemp in Switzerland. Detected in 10 EU countries from 2020

Brodifacoum outbreak in Israel & US

September & December 2021

95 poisoned inc 3 deaths in Israel. 45 poisoned inc 2 deaths in Florida; ADB-BUTINACA and 4F-MDMB-BUTICA identified

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

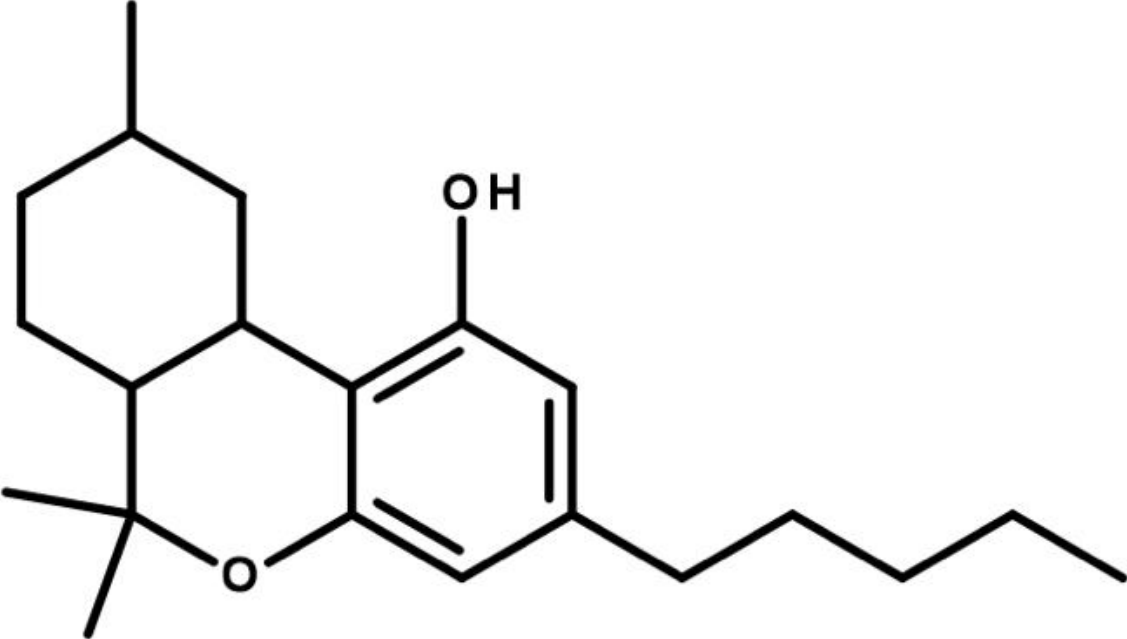
Hemp adulterated with synthetic cannabinoids – Europe, 2020-ongoing

- First case: January 2019, Switzerland
- Detected in 10 countries: Germany, France, Croatia, Italy, Cyprus, Luxembourg, Netherlands, Austria, Slovenia and Sweden
- Range of cannabinoids, many MDMB-4en-PINACA then ADB-BUTINACA
- Why? Increase in hemp products. Looks and smells like cannabis. Synthetic cannabinoids are potent and cheap
- People unaware: poisoning cases
- Decrease recently?

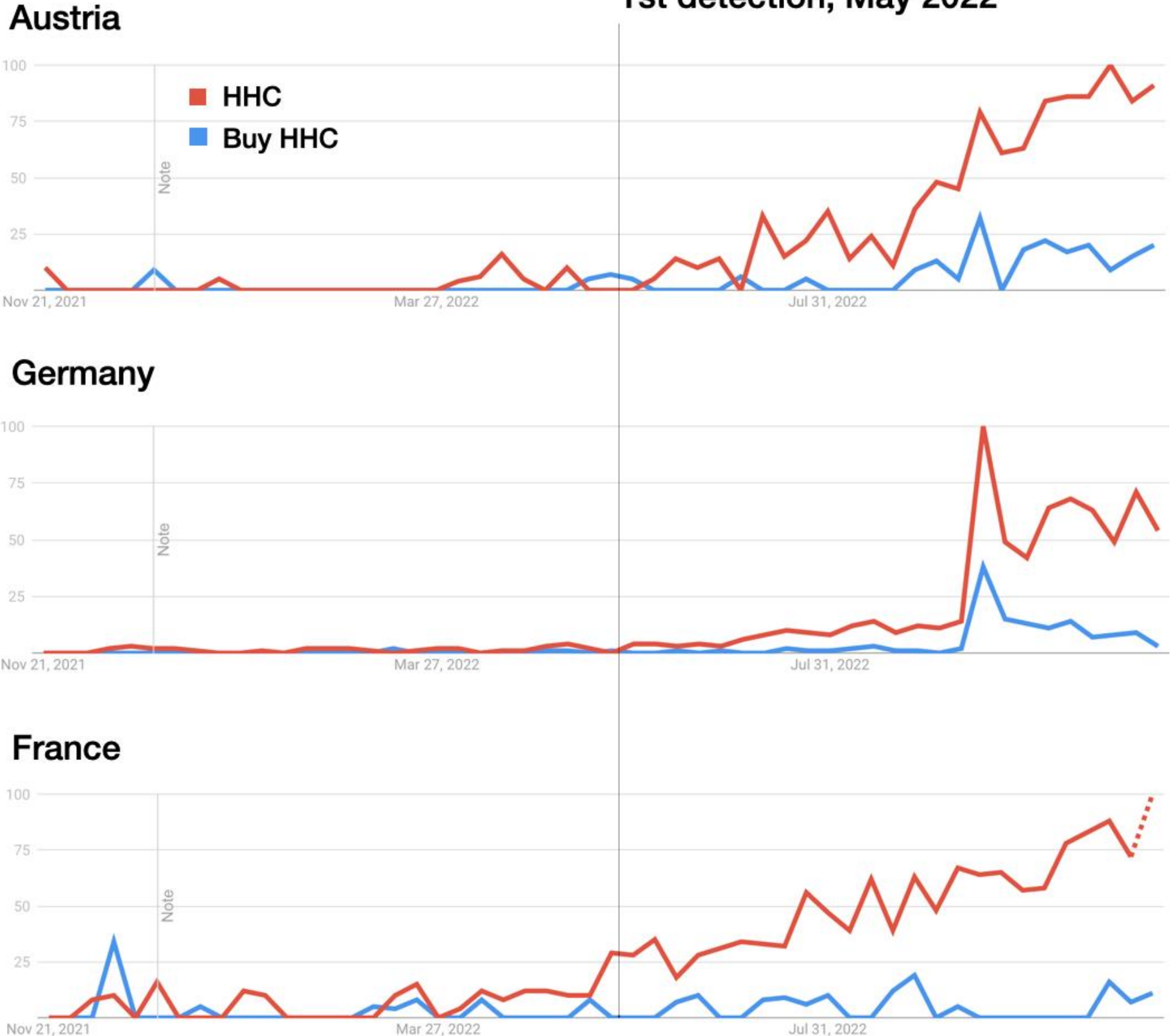


Hexahydrocannabinol (HHC) appears in Europe: Spice 2.0?

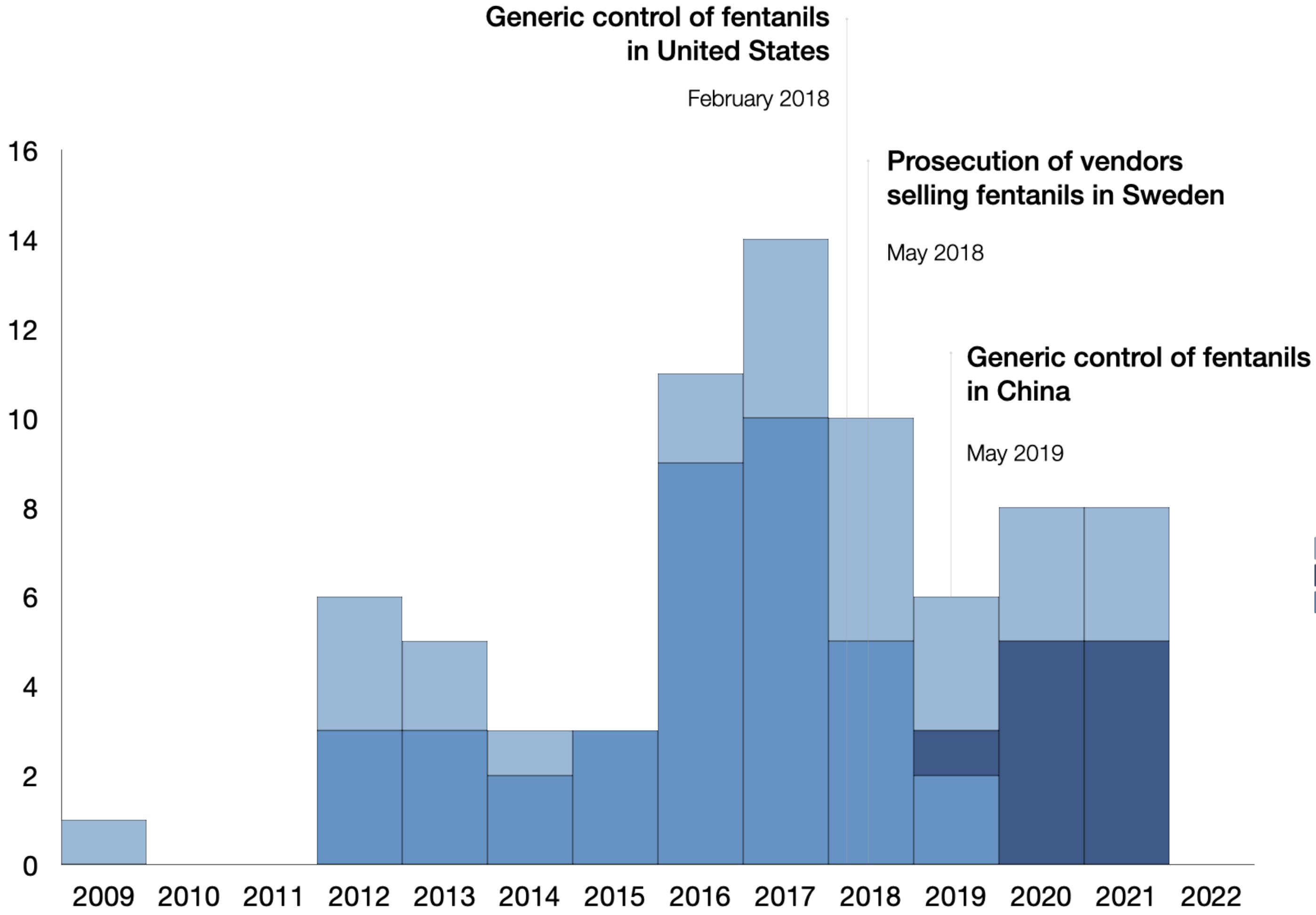
- Semi-synthetic cannabinoid first described in 1940
- First emerged in US market in 2021: another Farm Bill cannabinoid
- Cannabis and delta-9-THC like effects and sold as a 'legal' high
- Made from delta-9-THC or delta-8-THC
- Detected in 8 countries since May 2022
- Products: HHC sprayed on hemp, vapes, gummies, foods
- Not controlled in many countries



Google Trends interest



The rise and fall of new opioids appearing in Europe?



Identifications of opioids — Europe, 2009–2022

Responding to the situation of new synthetic opioids in Sweden

The presence of fentanyl and its derivatives on the Swedish drug market since 2014 is considered to be among the most serious developments that have affected Sweden’s drug-using population. Since 2015, these synthetic opioids have surpassed heroin in the number of drug-related deaths they cause.

In order to tackle this issue, the Swedish authorities introduced a raft of measures using a multiagency approach. The initiatives included prioritising investigation of fentanyl derivatives by the Public Health Agency of Sweden and proposals for fentanyl derivatives to be considered as goods dangerous to health or as narcotics. As a result, control measures were adopted on two occasions in 2017 and again in 2018. The National Forensic Centre developed procedures for safe handling of the substances and a multidisciplinary team was established to reduce drug-related mortality by making naloxone available. Other measures included a new provision enabling the Public Health Agency of Sweden and the Medical Product Agency to purchase samples of substances under consideration for regulation in order to analyse and chemically identify those substances.

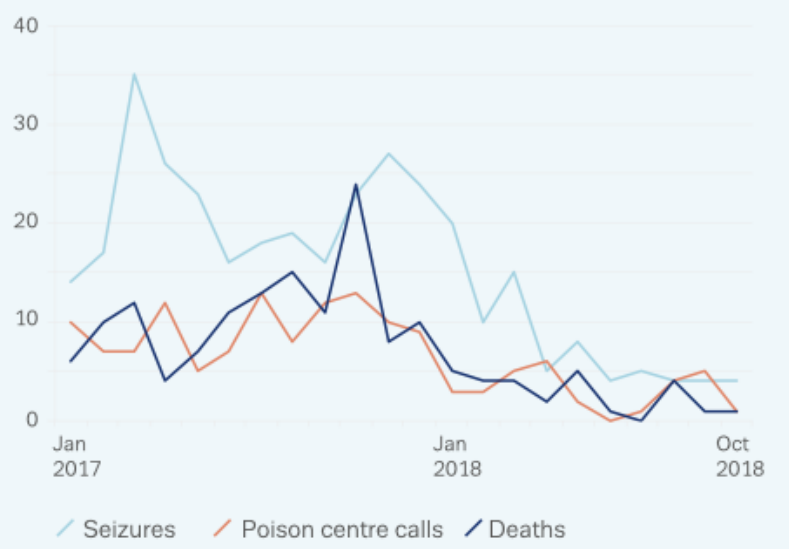
In terms of the law enforcement response, the strategy included knowledge support, international and interagency cooperation, crime prevention measures, informing regulatory responses and initiating investigations. Such investigations mainly targeted the sale and distribution of fentanyl and derivatives online. In Sweden, the sale of fentanyl derivatives takes place almost exclusively on the internet. Based on police information gathered since 2014, an estimated 300 of the 370 deaths related to fentanyl or its derivatives in Sweden can be traced back to internet purchases. The limited number of Swedish vendors implies that a small number of vendors appear to be behind the availability of fentanyl and its derivatives. Such vendors became

the focus of investigations. In a judgment in such a case in May 2018, two vendors who had sold fentanyl derivatives were convicted of eight counts of involuntary manslaughter; the judgment was referred to the Court of Appeal and in April 2019 the vendors were convicted of involuntary manslaughter and each received a prison sentence of four and six years respectively.

The trade may move to darknet markets as a result of intensive repressive measures against open sale online. However, the Swedish police consider that such a move would limit public exposure by reducing accessibility to these substances (Polisen, 2018).

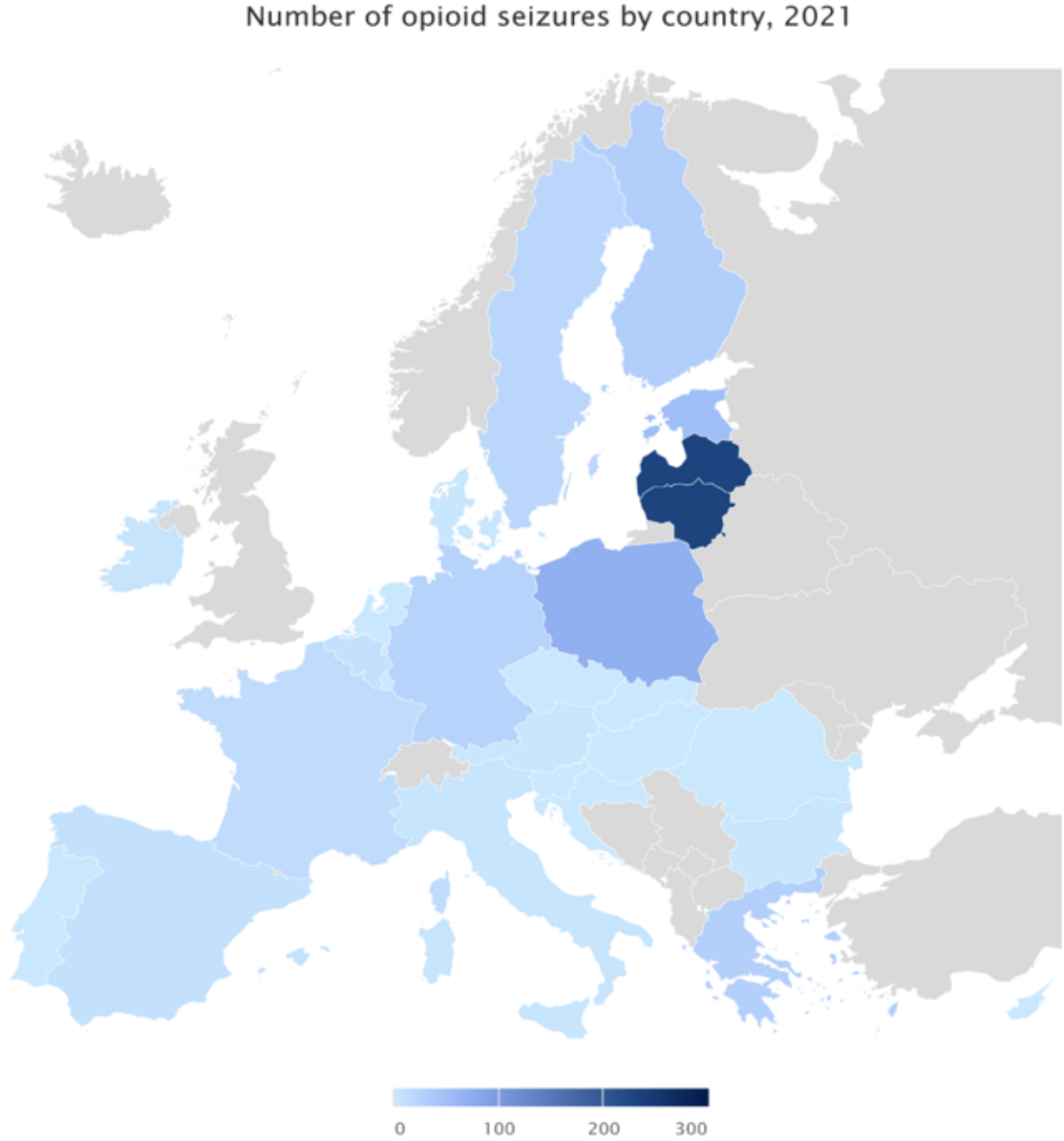
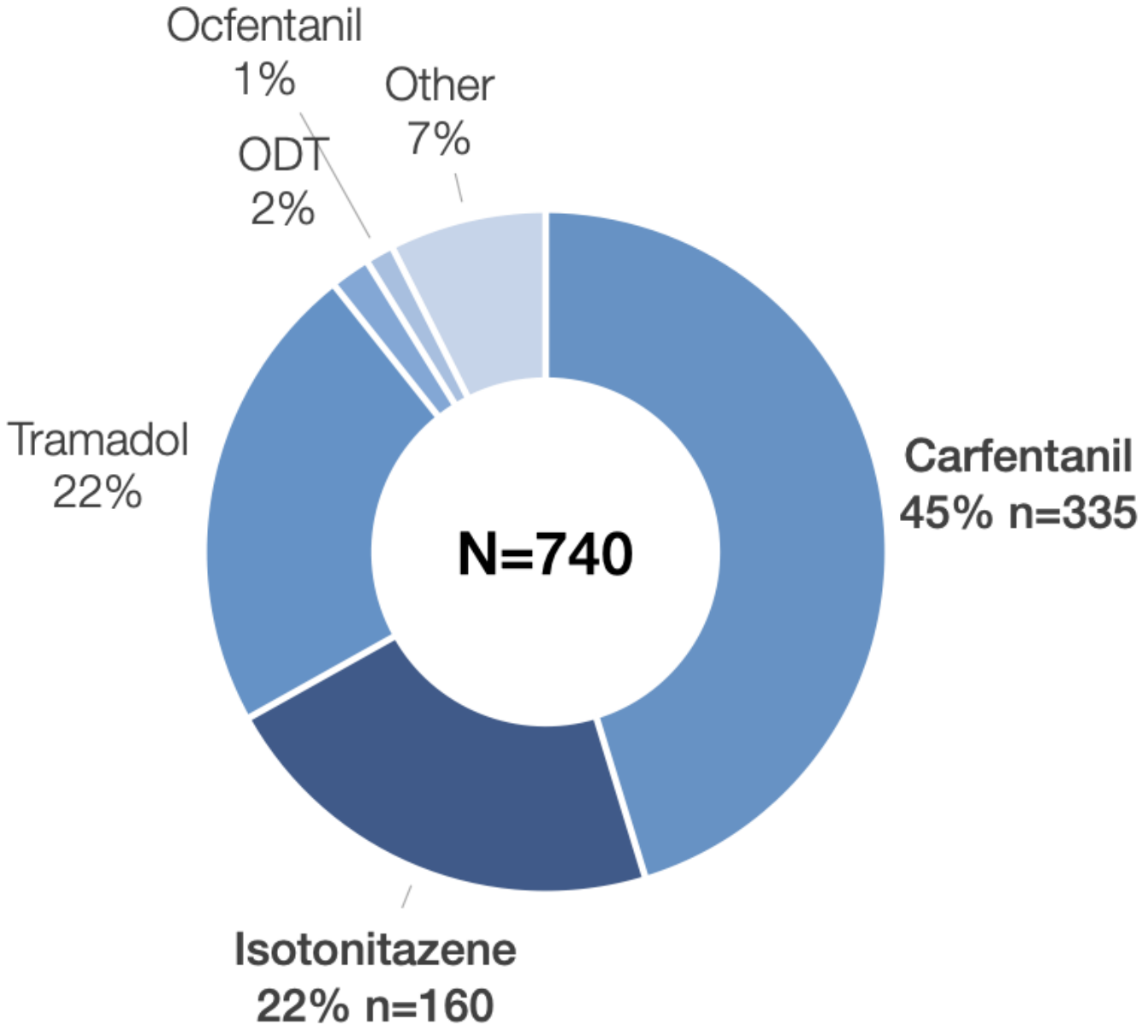
The combination of these measures seems to have been effective, as can be seen in the falling numbers of calls to the poison information centre and of the occurrence of fentanyl or its derivatives in post-mortem toxicology cases over the course of 2018 (see figure below).

Data related to fentanyl and its derivatives in Sweden: seizures, calls to the poison information centre and mentions in post-mortem toxicology cases (per month), January 2017 to October 2018

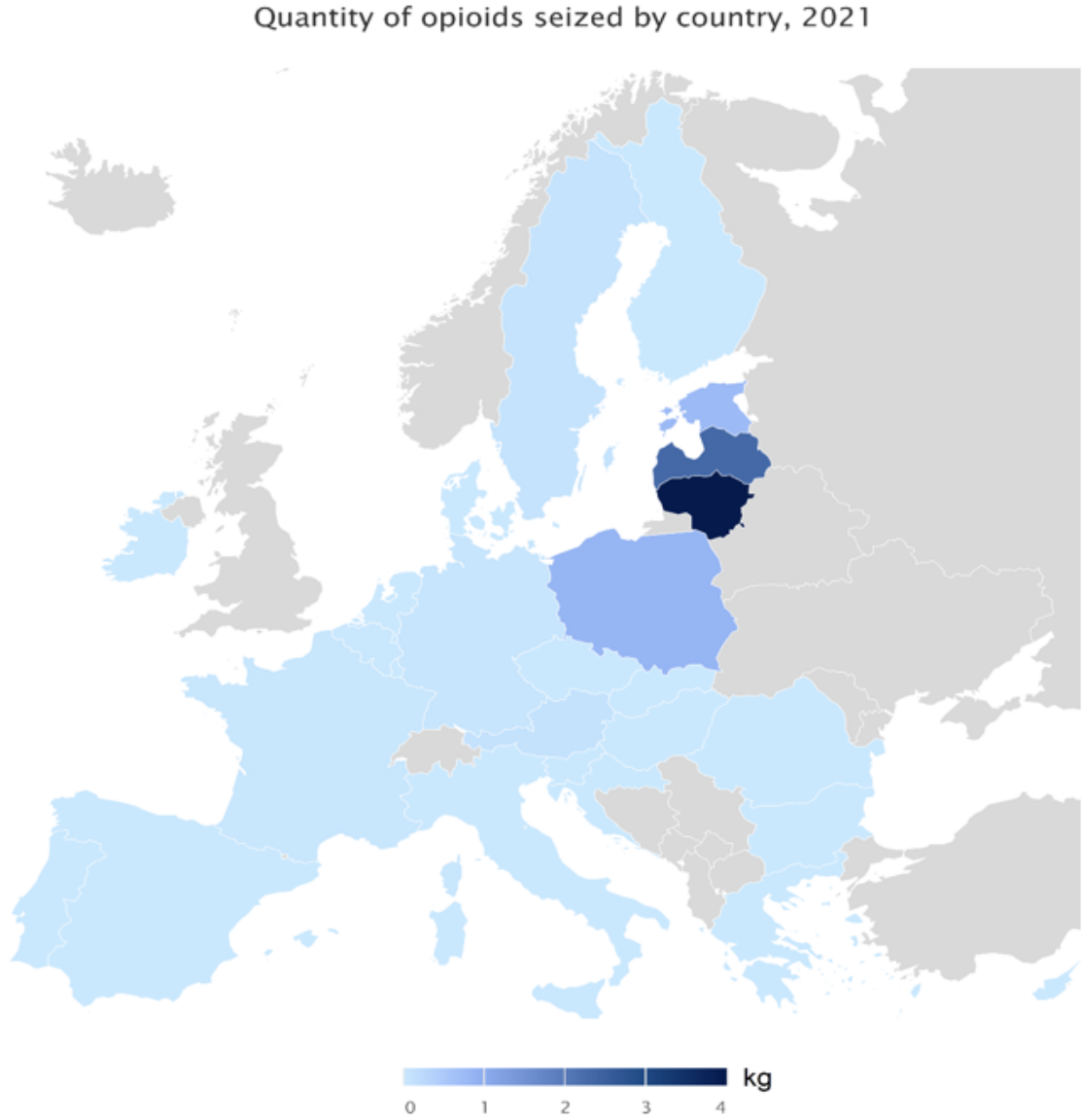
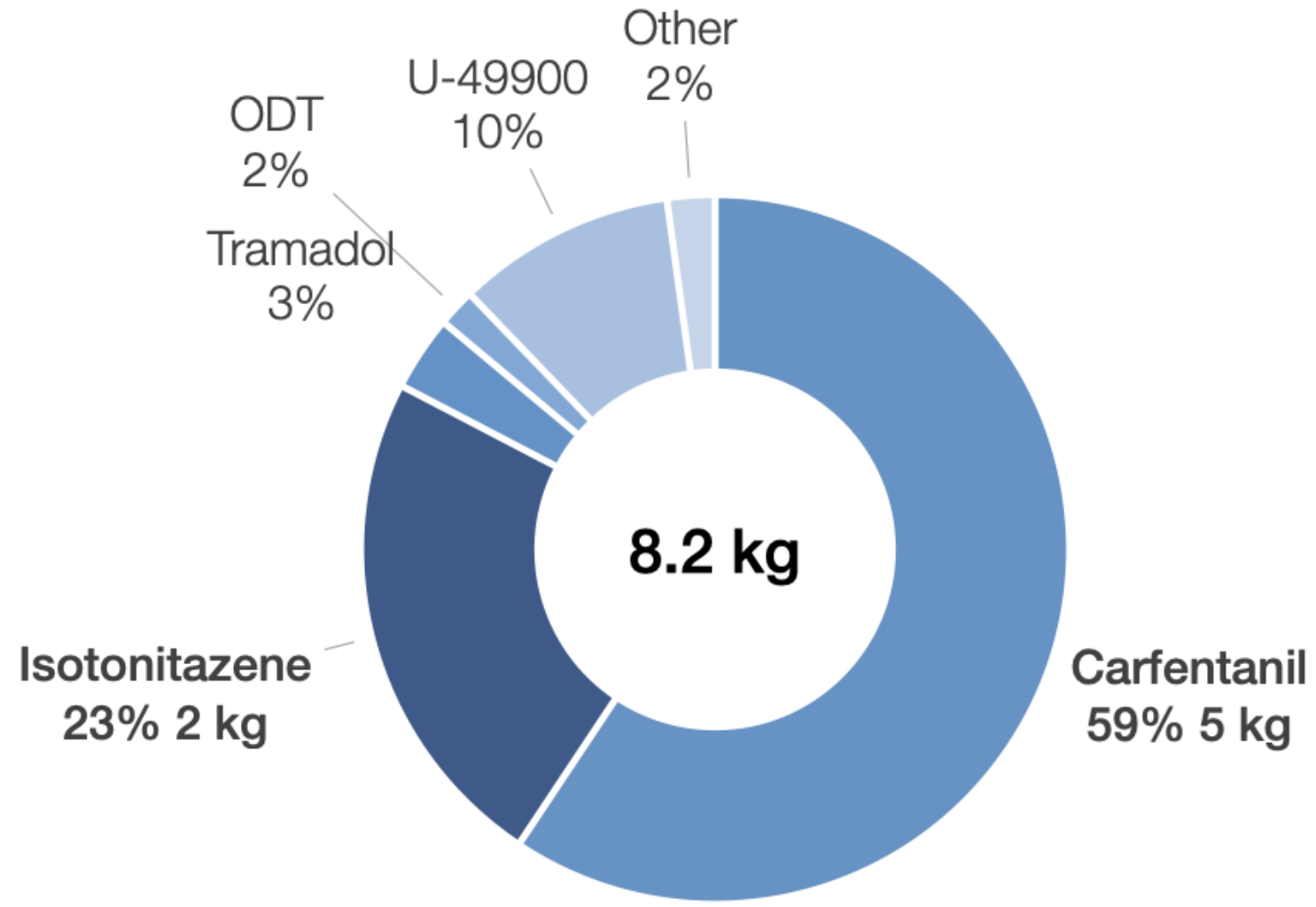
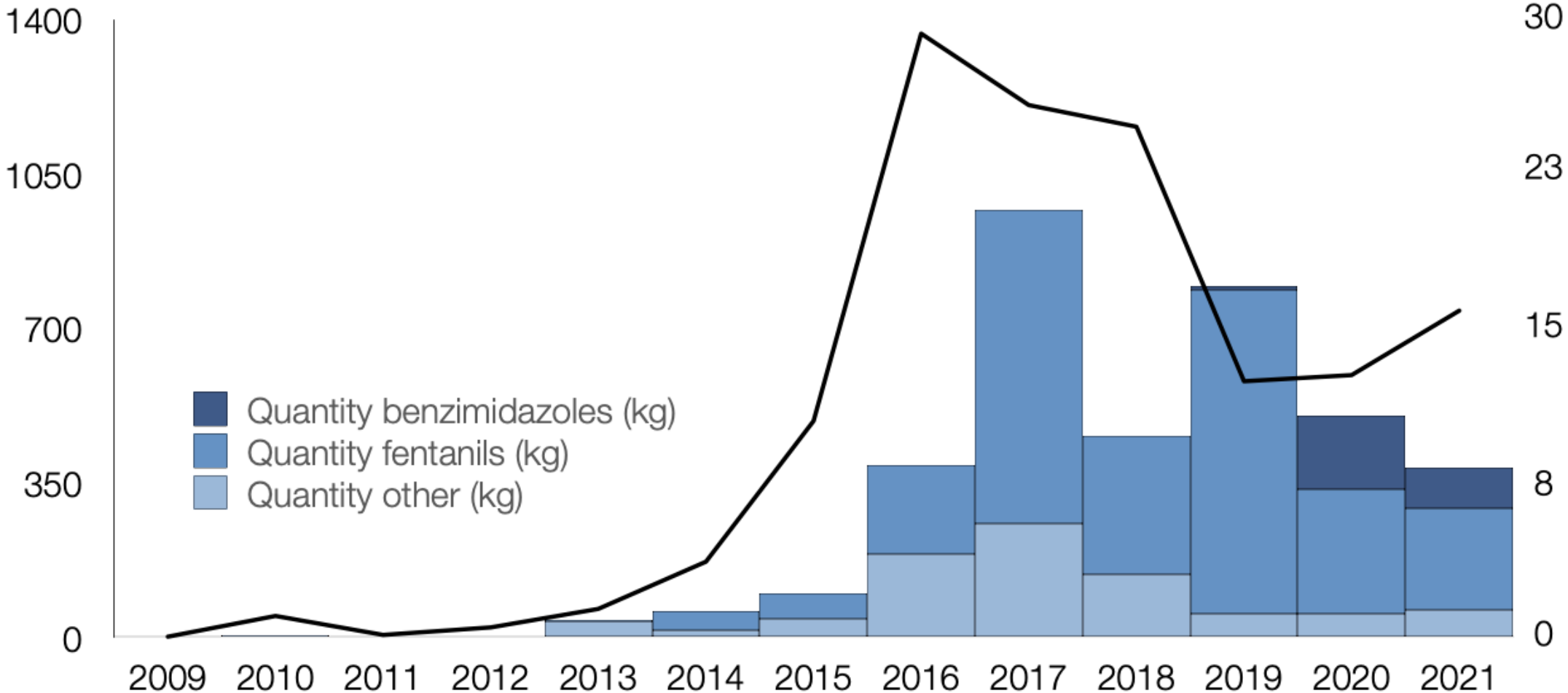


Synthetic opioids

- 74 monitored (8% of all NPS)
- Drop in fentanils but increase in other opioids that pose same risk
- Relatively small part of the European market
- Cheap and easy to obtain
- Replacements to heroin and other controlled opioids
- Outbreaks: fake medicines and adulterate heroin



Number of seizures of opioids by substance



Quantity of opioids seized by substance

37 risk assessments



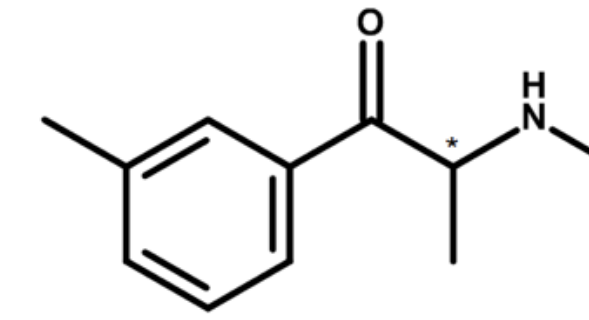
1998 MBDB
 1999 4-MTA
 2000 Ketamine*
 GHB
 2001 PMMA
 2003 2C-I
 2C-T-2
 2C-T-7
 TMA-2
 2007 BZP
 2010 4-MA
 2012 4-Methylamphetamine (4-MA)
 5-(2-Aminopropyl)indole (5-IT)
 2013 5-IT
 2014 Methoxetamine
 MDPV
 25I-NBOMe
 AH-7921
 4,4'-DMAR
 MT-45
 2015 α-PVP
 2016 MDMB-CHMICA
 2017 4F-iBF
 THF-F
 Carfentanil
 Furanylfentanyl
 Acryloylfentanyl
 2018 Methoxyacetylfentanyl
 Isotonitazene
 2020 Isotonitazene
 MDMB-4en-PINACA
 4F-MDMB-BICA*
 2021 3-MMC*
 3-CMC

* Critically reviewed by ECDD

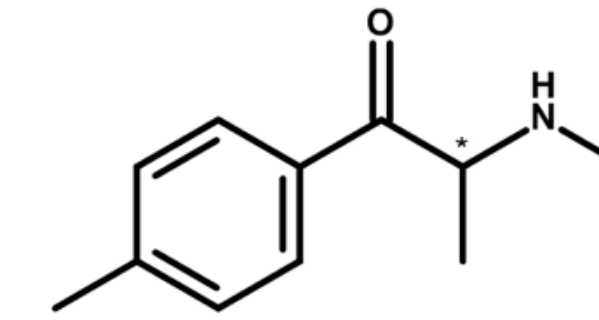
Controlled internationally

3-MMC and 3-CMC

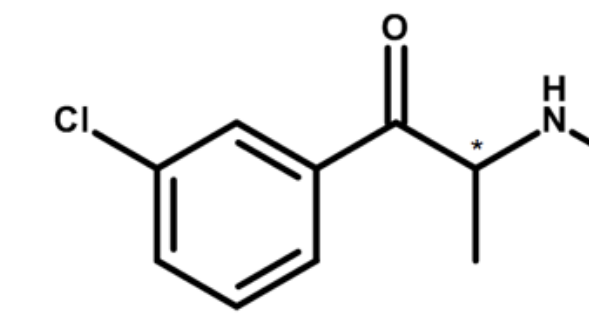
- Synthetic cathinone stimulants
- Sold in their own right as replacements to controlled stimulants
- Some mis-selling
- Sold as powders
- Snorted or swallowed. Occasional intravenous use
- Stimulant toxicity
- Not controlled in 6 EU countries at the start of 2021



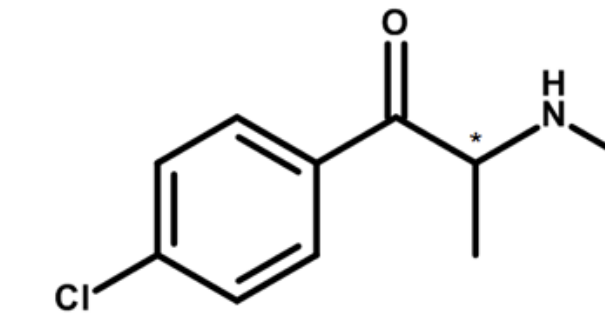
3-MMC



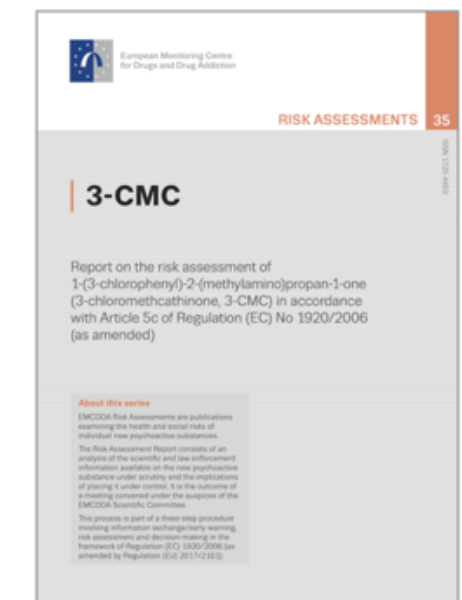
Mephedrone (4-MMC)



3-CMC



Clephedrone (4-CMC)



Timeline of EU response

3-MMC first identification

June 2012, Sweden

What happens?

3-CMC first identification

September 2014

Signal: Increased availability and harms

2 March 2021

Initial reports

September 2021

Risk assessments

November 2021

Commission adopts control measures

March 2022

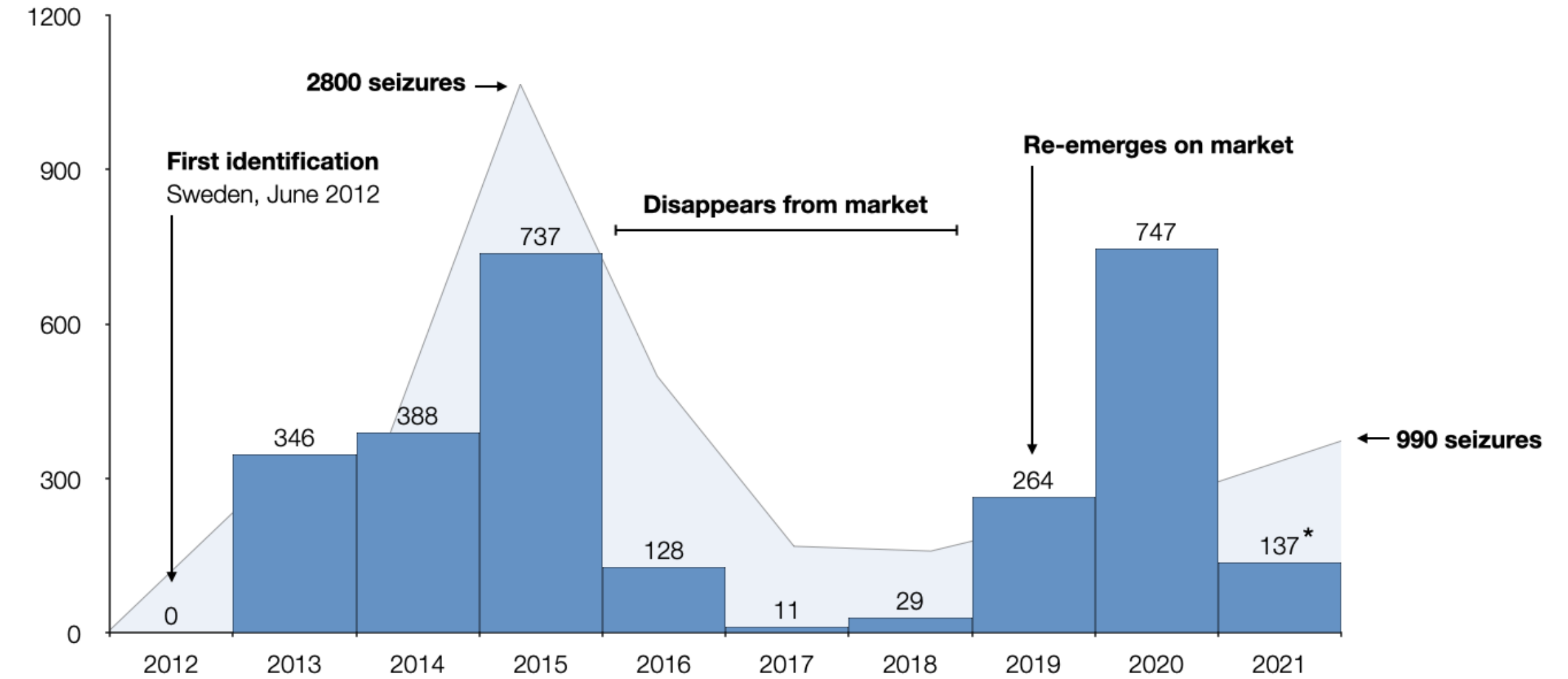
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

3-MMC re-emerges

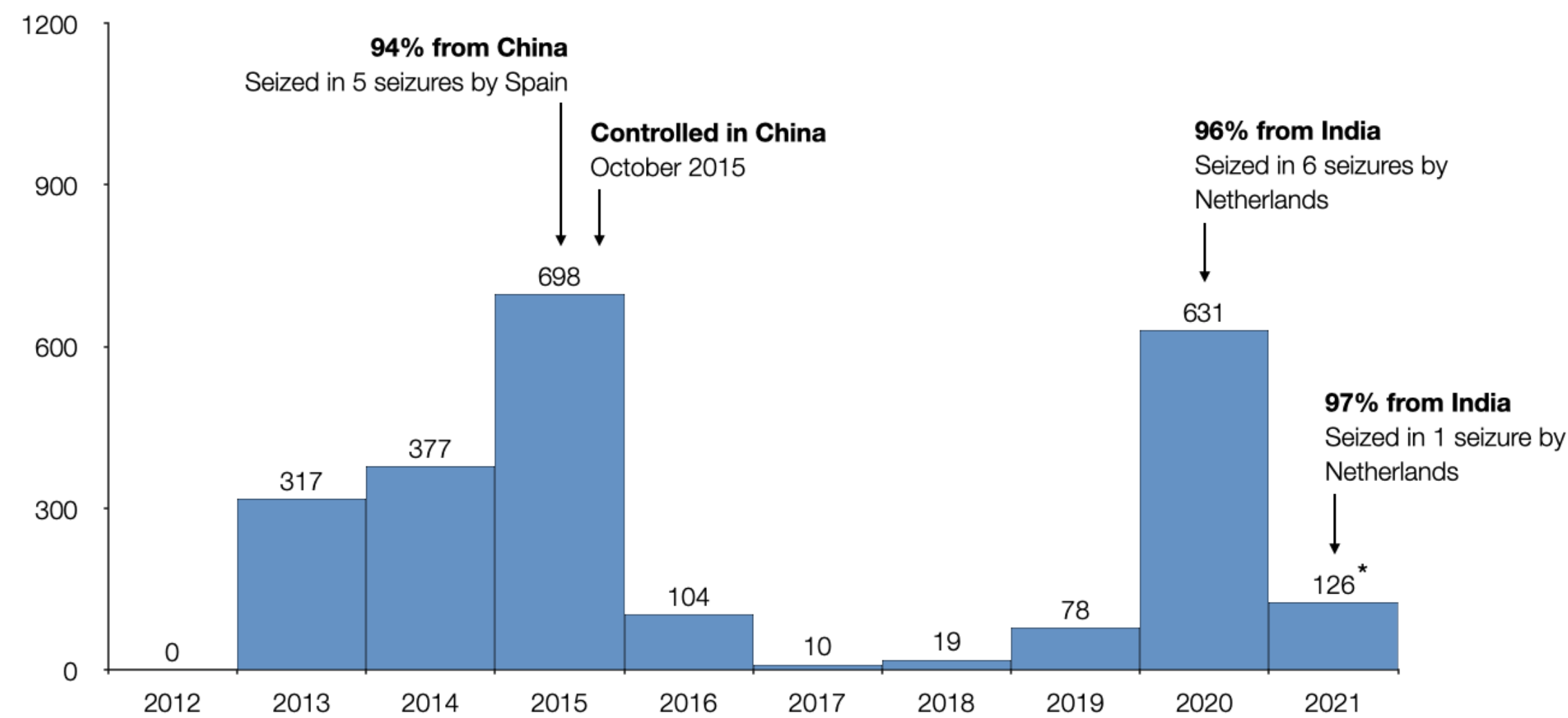
- First identified in June 2012
- Sold as legal replacement to mephedrone (4-MMC)
- Large quantities seized from China in 2015
- Controlled in China in October 2015
- Disappears from market from 2016-18
- Reappears with large quantities of highly pure substance seized from India in 2019

*Data from 2021 is incomplete and only includes some seizures made during the year. Not all seizure origins are known or reported. Number of seizures are for all physical forms.

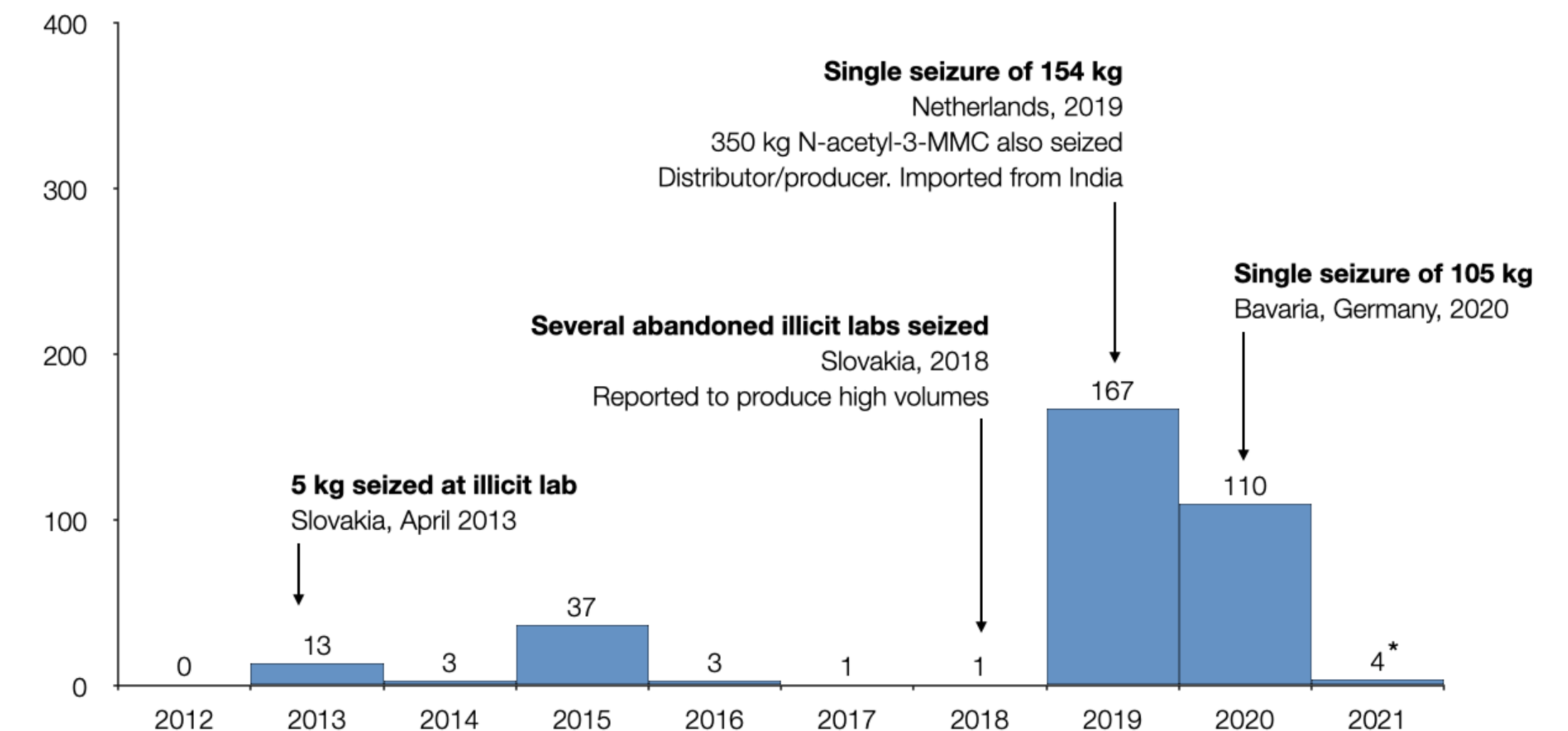
Total powders seized (kg)



Customs seizures of powders (kg)



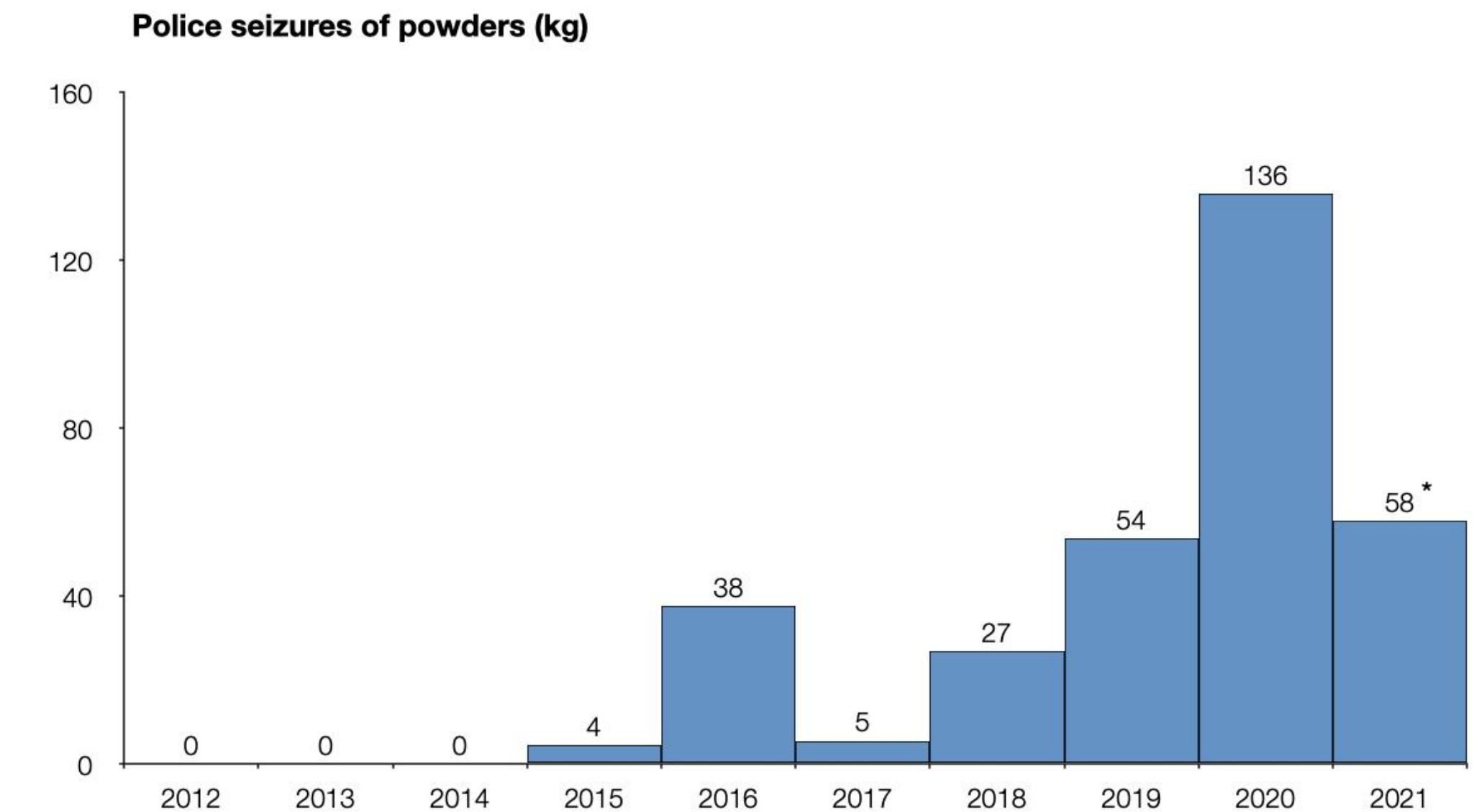
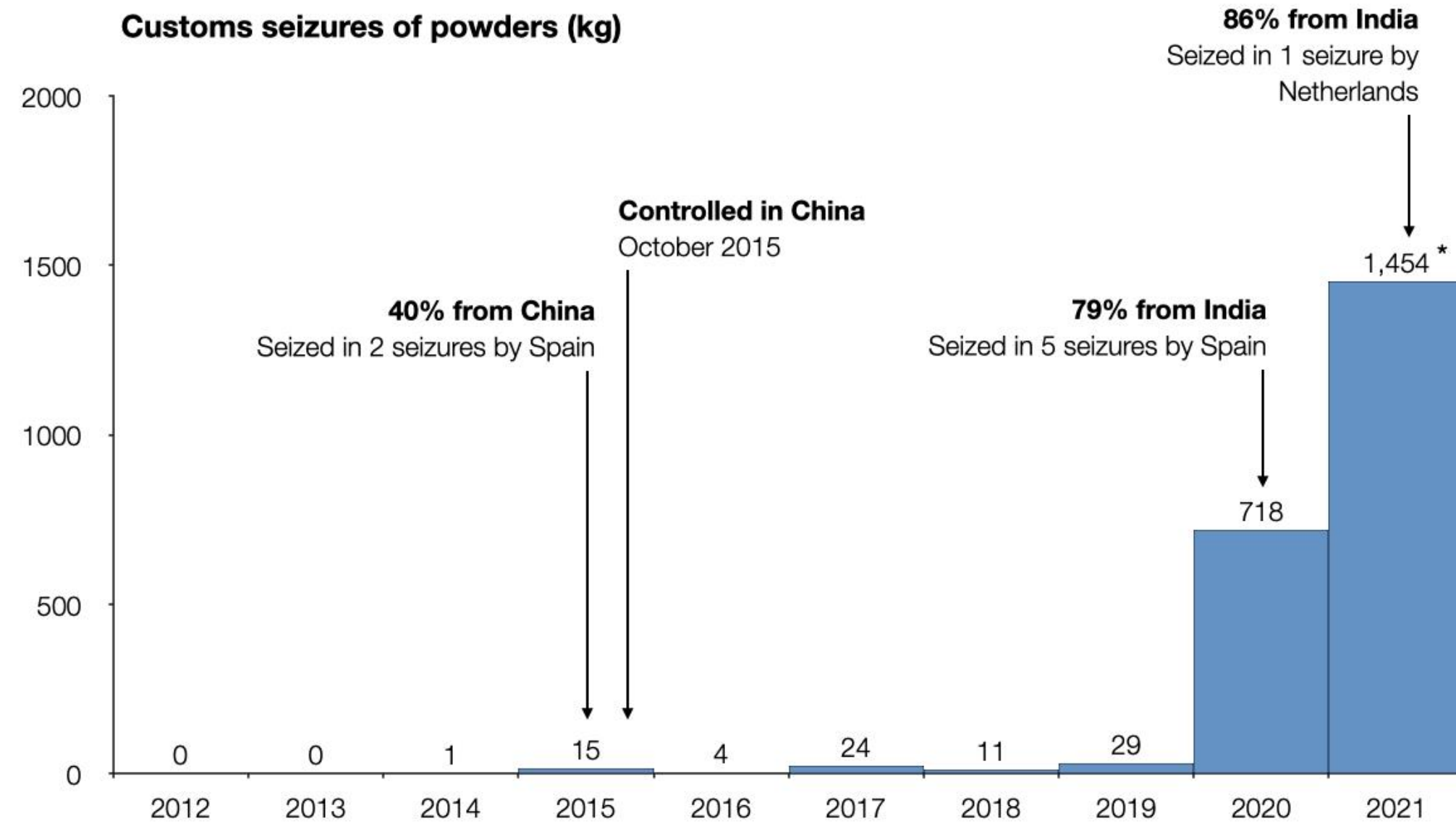
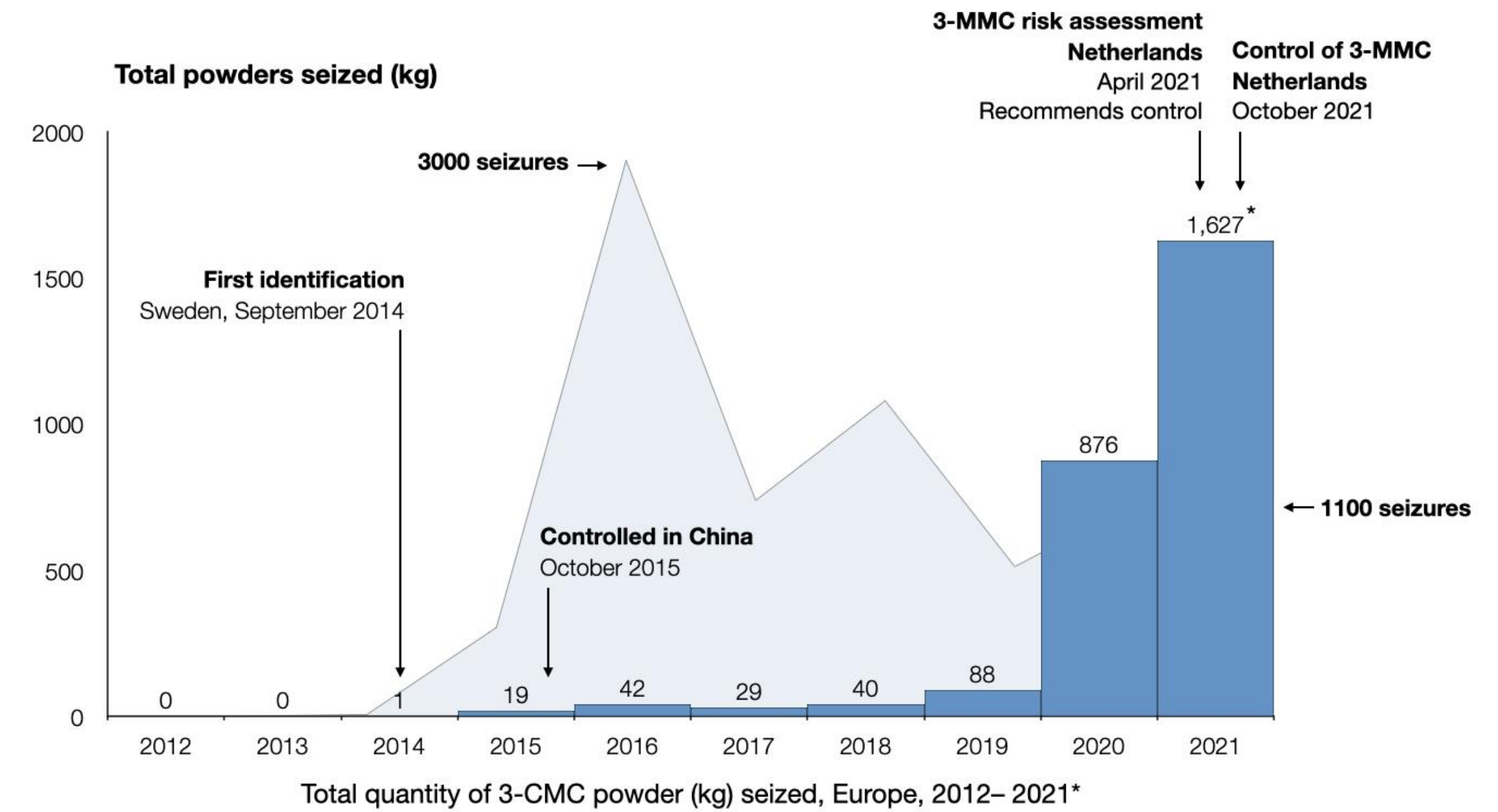
Police seizures of powders (kg)



3-CMC re-emerges

- First identified in September 2014
- Sold as legal replacement to clephedrone (4-CMC)
- Controlled in China in October 2015
- Small quantities seized 2014-19
- Reappears with large quantities of highly pure substance from India in 2020
- Any real demand?

*Data from 2021 is incomplete and only includes some seizures made during the year. Not all seizure origins are known or reported. Number of seizures are for all physical forms.



3-MMC and 3-CMC

Continued challenges

- Global markets, glocal threats
- Re-emergence driven by globalised markets, the internet, and exploiting differences in drug laws in producer countries and Europe
- Easily available, low cost

Positives

- Prepared: Early warning → early action
- Timely, high-quality reporting → signal detection → early response
- Customs data on large-scale seizures essential to signal re-emergence
- Poison centre data on acute poisonings was essential to signal harms

New challenges

- Replacement with 2-MMC? Less potent but more stimulant-like effects
- India as major producer of cathinones. Few NPS controlled?

Expect the unusual and unexpected!



Swedish customs report increase in 3-CMC seizures in 2021, with 15kg seized January to June in letters and packets, 86% from post/courier

Key message

- Early warning systems → information for action
- Data, analysis, assessment → potential and identified threats
- Early action → prevent, prepare, respond, and recover
- But information must reach the right people, at the right time, and right place... and be...

Heard

Understood

Remembered

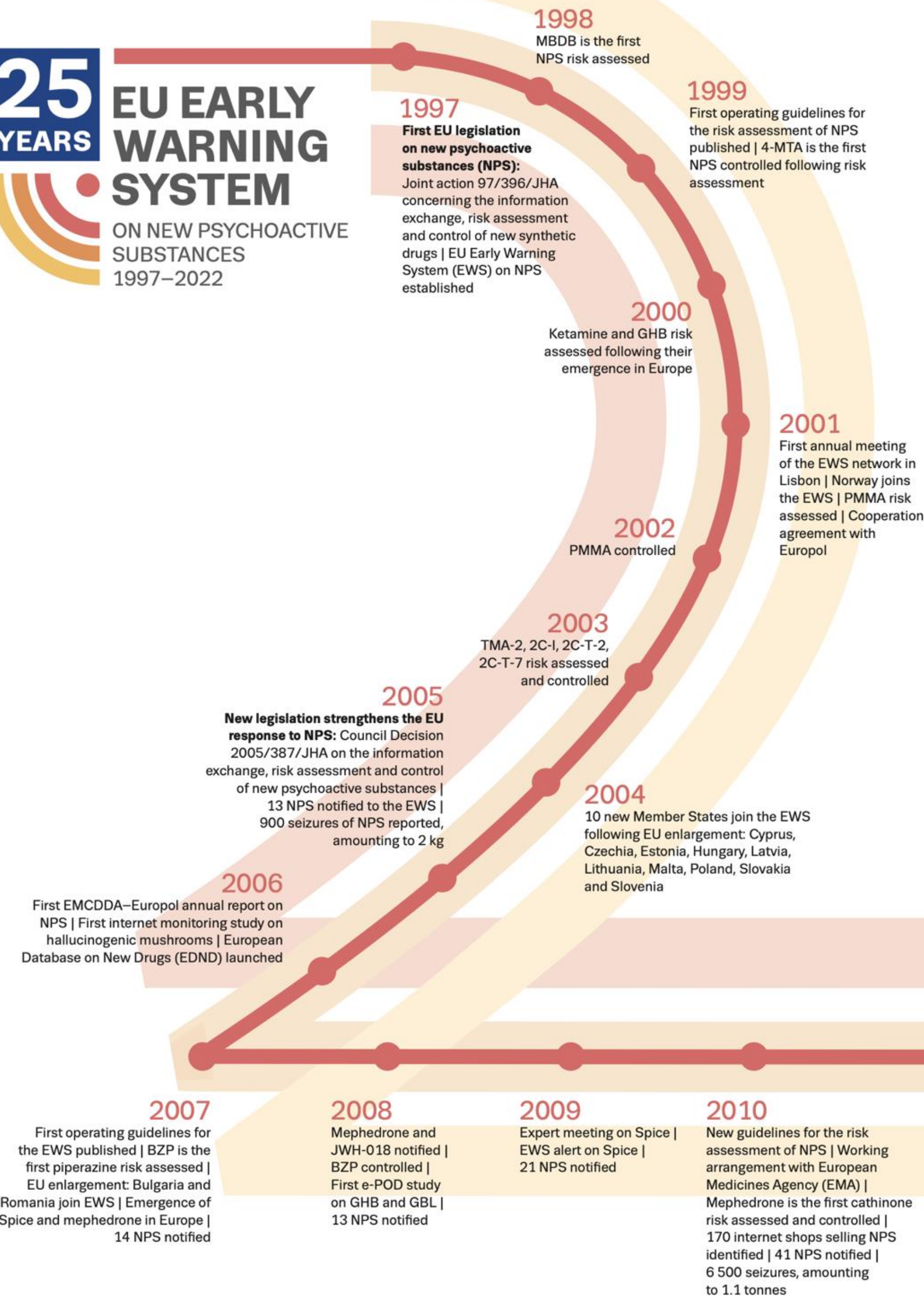
Acted on

How do we make sure this is happening?

Acknowledgements and image copyright holders

- Early Warning System correspondents of the Reitox national focal points
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- checkIt! Vienna
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25 YEARS EU EARLY WARNING SYSTEM ON NEW PSYCHOACTIVE SUBSTANCES 1997–2022



Selected events from 25 years of early warning and response to new psychoactive substances in Europe



European Monitoring Centre for Drugs and Drug Addiction



New psychoactive substances: 25 years of early warning and response in Europe

An update from the EU Early Warning System
June 2022

