

# **Fentanyles use in Estonia**

**\* not misuse of pharmaceutical opioids**

**TDI expert meeting**

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**Ave Talu**

**National Institute for Health Development**

**Estonian Drug Monitoring Centre**

## Fentanyl use in Estonia (1)

The synthetic opioid fentanyl is used widely for managing chronic and cancer pain in

In comparison to the potential of morphine fentanyl is 80 – 200,  $\alpha$ -methylfentanyl 200 – 1000, 3-methylfentanyl 6000 – 7000 times more powerful

Following a heroin shortage in 2001, illicit fentanyl produced in illegal clandestine laboratories were introduced to the illicit drug market in Estonia in 2002 causing a sharp increase in fatal drug poisoning

The number of lethal poisonings caused by the use of fentanyl was remarkably high in 2002-2009 (incl. lethal poisonings due to the usage of 3-methylfentanyl)

Illicit fentanyl produced in illegal clandestine laboratories mainly originates from Russia

## **ntanyles use in Estonia (2)**

Based on data from cross-sectional studies of HIV prevalence and related risk behaviour conducted among IDUs in Estonia shift in use from heroin and home-made opiates to fentanyles and amphetamine has occurred in recent years (*Platt et al., 2006; Uusküla et al., 2006; Wilson et al., 2007; Uusküla et al., 2007; Uusküla et al., 2008; Abel-O et al., 2009; Talu et al, 2010; Uusküla et al., 2010; Vorobjov et al, 2011*

Illegally produced fentanyles sold in powder form in Estonia are administrated by intravenous injection, and recent years smoking or inhalation

## Fentanyl use in Estonia (3)

Qualitative research conducted among IDUs by Vorobjov and her colleagues showed that

Exclusive injectors preferred injecting to other routes of administration due to the rapid / intense effects and its convenience

Other routes of administration than injecting of fentanyl were used to mitigate risks:

- related with injection (protect veins or if no syringe was available)
- prevent drug-related overdose when the quality (purity) of fentanyl was not known

Vorobjov S, Uusküla A, Des Jarlais DC, Abel-Ollo K, Talu A, Rüütel K. (2012). Multiple routes of drug administration and HIV risk among injecting drug users. *Journal of Substance Abuse Treatment*, 42(4)

# Prevalence of drug use among general population aged 15 to 64 in 2008 (%)

Drug	Prevalence in last 12 months (%)			Prevalence in last 30 days (%)		
	15-64			15-64		
	Men	Women	Total	Men	Women	Total
Cannabis	8.3	3.8	6.0	1.7	1.1	1.4
Heroin	0.4	0	0.1	0	0	0
Cocaine	0.8	0.4	0.6	0	0.1	0.1
Amphetamine	1.3	0.8	1.0	1.0	0	0.5
Ecstasy	1.6	0.8	1.2	0.3	0.1	0.2
LSD	0.2	0.2	0.2	0	0	0
Sleeping pills/ tranquilisers	11.2	22.6	17.1	7.7	14.9	11.4
GHB	0.2	0.1	0.1	0	0.1	0.1
Fentanyl	0.2	0	0.1	0	0	0
Popper	0.8	0.8	0.8	0	0.2	0.1

# Prevalence of drug use among general population aged 15 to 24 and 25-34 in 2008 (%)

	Prevalence in last 12 months (%)						Prevalence in last 30 days (%)					
	15-24			25-34			15-24			25-34		
	M	F	T	M	F	T	M	F	T	M	F	T
Cannabis	26	12.3	19.8	9.2	6.7	7.6	6.5	4.1	5.3	0.8	1.3	1.3
Heroin	2.2	0	0.8	0	0	0	0	0	0	0	0	0
Cocaine	1.3	2.6	2.0	1.3	0	0.7	0	0.7	0.3	0	0	0
Amphetamine	4.6	2.7	3.7	1.3	1.3	1.3	4.6	0	2.3	0	0	0
Ecstasy	3.3	3.3	3.3	2.0	0.7	1.3	1.3	0.7	1.0	0	0	0
LSD	1.1	1.3	1.2	0	0	0	0	0	0	0	0	0
Sleeping pills / tranquilisers	6.5	17.9	13.6	10.4	14.8	12.6	4.6	8.7	6.3	7.2	10.7	8.7
GHB	0	0	0	0.8	0.5	0.7	0	0	0	0	0	0
Fentanyl	1.1	0	0.4	0	0	0	0	0	0	0	0	0
Popper	2.2	4.0	3.3	1.7	0.5	1.0	0	0.7	0.4	0	0.5	0.5

**Cross-sectional study of risk behaviour and HIV status conducted among  
 Us in Tallinn and Kohtla-Järve in 2007 (source: National Institute for  
 Health Development and University of Tartu, 2008)**

	EPP*	
	%	95% CI
Main drug injected during last 4 weeks		
<b>RDS study in Tallinn</b>		
Fentanyl	64.2	53.7-74.4
Amphetamine	33.5	23.1-44.1
Heroin	0.6	0-1.6
Sudafed	0.3	0-1.1
<b>RDS study Kohtla-Järve</b>		
Fentanyl	18.2	12.3-24.7
Amphetamine	16.2	10.7-22.3
Poppy liquid	49.5	41.7-57.0
Heroin	9.8	5.2-15.6
Sudafed	0.6	0-2.3
Other	6.7	0.4-7.5

# Cross-sectional RDS study of risk behaviour and HIV am

## US (Tallinn 2007 and 2009)

	overall		reported starting injecting drugs at 15 years or younger		reported starting injecting at or older	
	n	%	n	%	n	%
(drug injected last 6 months)						
heroin	411	61	105	67	305	61
cocaine	174	26	33	22	141	26
had non-fatal overdose						
	232	34	45	29	186	34
	441	66	111	71	330	66



**Cross-sectional study of risk behaviour and HIV status conducted among IDUs in Narva (source: National Institute for Health Development, 2011)**

	n	EPP	
		%	95% CI
Main drug injected during last 4 weeks			
Amphetamine	225	70.5	62.7-77.9
Fentanyl	67	13	8.9-19.5
Heroin	39	10.6	6.2-14.9
Poppy liquid (MAK)	13	2.8	1.0-4.7
Cocaine	1	2.1	0-5.3
other	5	1	0.1-2.3

# Comparison of HIV infection and risk behaviour of primary fentanyl and amphetamine injectors in Tallinn

75% (256/331) of participants reported fentanyl and 23% (75/331) amphetamine as their main drug of injection

Multi-drug injection was reported by 53% across the whole sample

68% primary amphetamine injectors and 43% fentanyl users injected on their main drug

In comparison of amphetamine injectors, fentanyl injectors had higher odds of overdose (AOR = 3.02, 95% CI: 1.65–5.54)

Sharing a needle/syringe with an HIV positive person (AOR = 3.00, 95% CI: 1.33–6.79)

Injecting in the street using a needle/syringe someone had used before (AOR = 2.39, 95% CI: 1.14–5.04).

Not in long-term drug treatment 2.49 (95% CI: 1.24–5.00)

Not being HIV positive (AOR = 2.89, 95% CI: 1.55–5.39)

## Drug-related deaths caused by fentanyles (1)

888 drug-related deaths occurred in Estonia during the period of 2000-2009  
(Tuusov et al 2012)

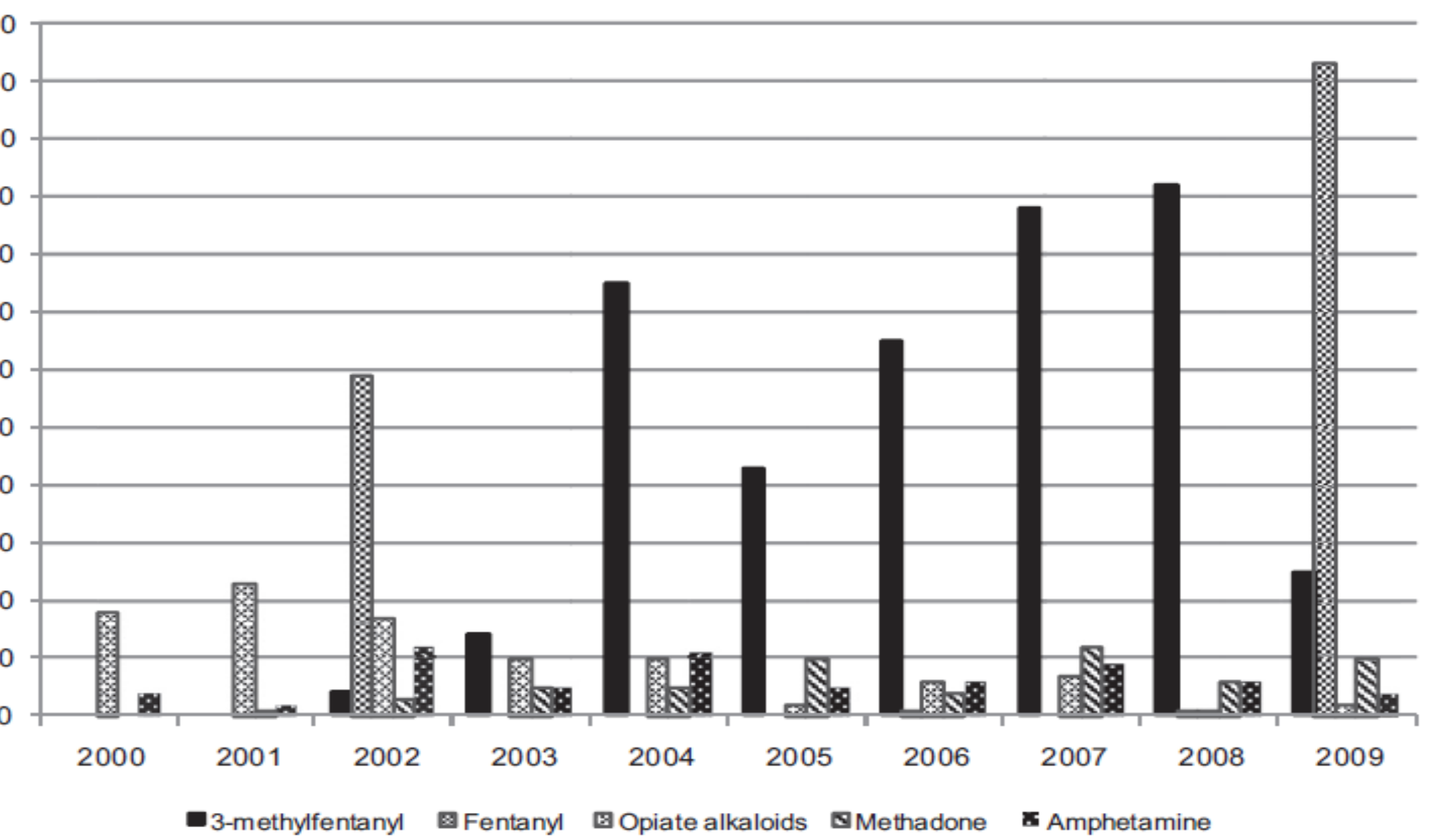
Most of those who died due to illegal drug poisoning were male (N=788) and aged 16-34 (N=764)

The average age of those who died were 28.1

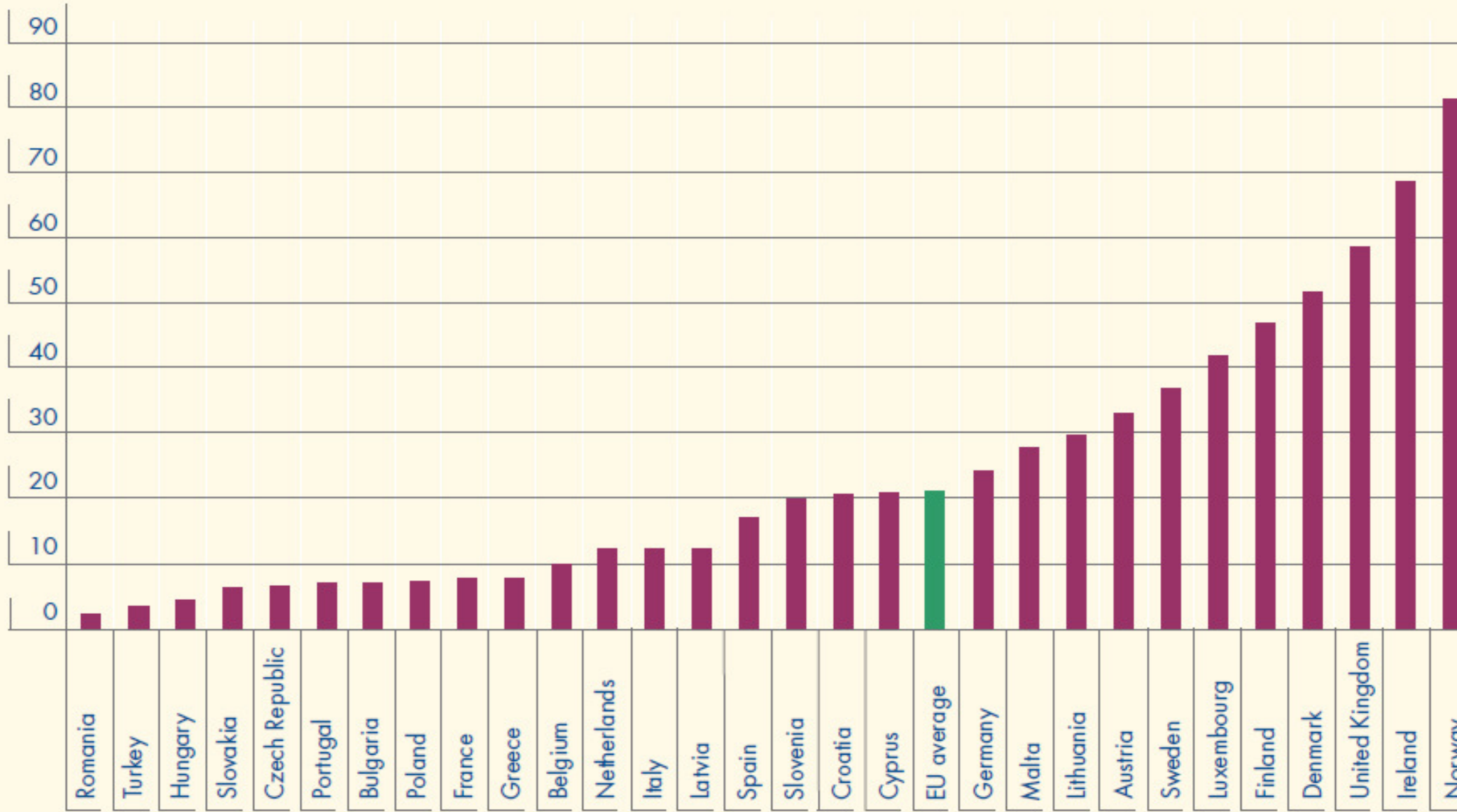
65.3% of all lethal drug poisonings were caused by fentanyles

Illegal drug poisoning with 3-methylfentanyl (45.7%) and fentanyl (19.5%) ranking highest (N=580; in total 65.3% all cases), followed by morphine/heroin (10.8%), amphetamine (7.2%) and methadone (6.3%)

# Illegal drugs causing most fatal drug poisonings in Estonia 2000-2009



# Mortality due to drug induced deaths per million population aged 15-64 years



# Drug-related deaths caused by fentanyles (1)

usov and her colleagues from the Estonian Forensic Science Institute suggested that:

inding 3-methylfentanyl and fentanyl in blood samples indicates the pure/incorrect synthesis of both above mentioned illicit drugs in illegal clandestine laboratories

Fatal poisoning involving fentanyles was frequently combined with amphetamines

fentanyles combined with amphetamine - Estonian version of 'speedba

# Conclusion

The fentanyl (illegally produced!) injection epidemic among IDUs in Estonia is the longest reported such epidemic in Europe

It was probably caused by changes in local illegal drug market (heroin shortage in 2000)

The shortage of heroin probably contributed to an increase in the injection of amphetamines, but this needs to be studied further

Illegally produced fentanyles have continue to be the predominant opiates used mainly among IDUs and lately among NIDUs in the Estonian

Approximately two-third of lethal drug poisonings during the period of 2000-2009 were caused by fentanyles

HIV prevalence among primary fentanyl injectors is very high (62%) (95% CI: 56.97–67.03) which is significantly higher (at  $p < 0.001$  level) comparing amphetamine injectors (20.5%: 18.45–35.51).

Source: 2005 cross-sectional RDS study among IDUs (N=331) (Talu et al., 2010)

IDUs who injected fentanyl (only or fentanyl +amphetamine) in the past 6 months were more likely to be HIV positive compared with IDUs injecting amphetamine only (63% vs 20.5%,  $p < .001$ ).

**Thank you!**