



## Increased risk of Hepatitis-C Virus and skin and soft tissue infections among people who inject Novel Psychoactive Substances

7th International Symposium on Hepatitis  
Care in Substance Users, Sept. 2018

Dr Andrew McAuley  
Principal Scientist, Health Protection Scotland  
Senior Research Fellow, Glasgow Caledonian University

### Scotland...

- Population ~ 5 million
  - 14 Health Boards
- 
- ~ 60,000 'Problem Drug Users'
    - ~ 20,000 PWID
    - ~ 25,000 Px OST
  - Widespread availability of IEP services
- 
- 15 Prisons
  - 1/3 prisoners test +ve for opiates
  - 1/3 prisoners has history of injecting



## Novel Psychoactive Substances (NPS)

*“substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat”*

United Nations Office on Drugs and Crime (UNODC) (2013)

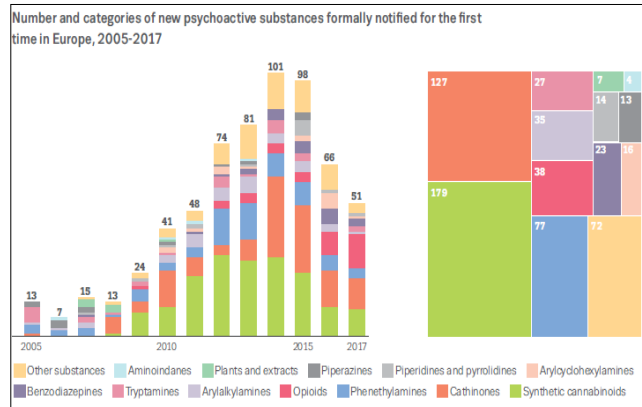
**AKA “Legal Highs”**



## NPS Prevalence

General population surveys estimate past-year NPS use between 0.4% and 5.9% (Khaled et al, 2016), but likely to miss:

- Prisoners
- Homeless
- PWID



## NPS use by PWID

'Outbreaks' of NPS injecting in recent years

- Romania
- Hungary
- Ireland
- UK



Cheaper, more easily accessible alternative to traditional psychoactive drugs?

## NPS use by PWID: key features

- Substitute/complement traditional psychoactive drugs
- High frequency of:
  - Injecting episodes
  - Equipment sharing



- Increased risk of SSTI / BBV?

**ADDICTION**  
RESEARCH REPORT

**SSA** SCOTTISH SURGEON ASSOCIATION

doi:10.1111/add.13898

**Assessing the impact of a temporary class drug order on ethylphenidate-related infections among people who inject drugs in Lothian, Scotland: an interrupted time-series analysis**

Alan Young<sup>1</sup>, Amanda Weir<sup>1</sup>, Hannah Austin<sup>3</sup>, Kirsty Morrison<sup>3</sup>, Donald Inverarity<sup>4</sup>, Jim Sherval<sup>3</sup>, Naomi Henderson<sup>4</sup>, Shruti Joshi<sup>1</sup>, Roisin Ure<sup>2</sup> & Andrew McAuley<sup>1,2</sup>

Bloodborne Viruses and Sexually Transmitted Infections Section, Health Protection Scotland, Glasgow, UK; School of Health and Life Sciences, Glasgow Caledonian University, Glasgow, UK; Department of Public Health, NHS Lothian, Edinburgh, UK; Department of Microbiology, NHS Lothian, Royal Infirmary of Edinburgh, Edinburgh, UK; and Scottish Haemophilus, Legionella, Meningococcus, Pneumococcus Reference Laboratory, NHS Greater Glasgow and Clyde, Glasgow, Royal Infirmary, Glasgow, UK

Scott Med J OnlineFirst, published on May 12, 2016 as doi:10.1177/0036933016649671

**SCOTTISH MEDICAL JOURNAL**

Scottish Medical Journal  
60(9) 1–10  
© The Author(s) 2016  
Reprints and permissions:  
sagepub.co.uk/journalsPermissions.nav  
DOI: 10.1177/0036933016649671  
sagepub.com  
SAGE

**The experience of an increase in the injection of ethylphenidate in Lothian April 2014–March 2015**

Con Lafferty<sup>1</sup>, Linda Smith<sup>1</sup>, Alison Coull<sup>2</sup> and Jim Shanley<sup>1,3</sup>

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

**ScienceDirect**

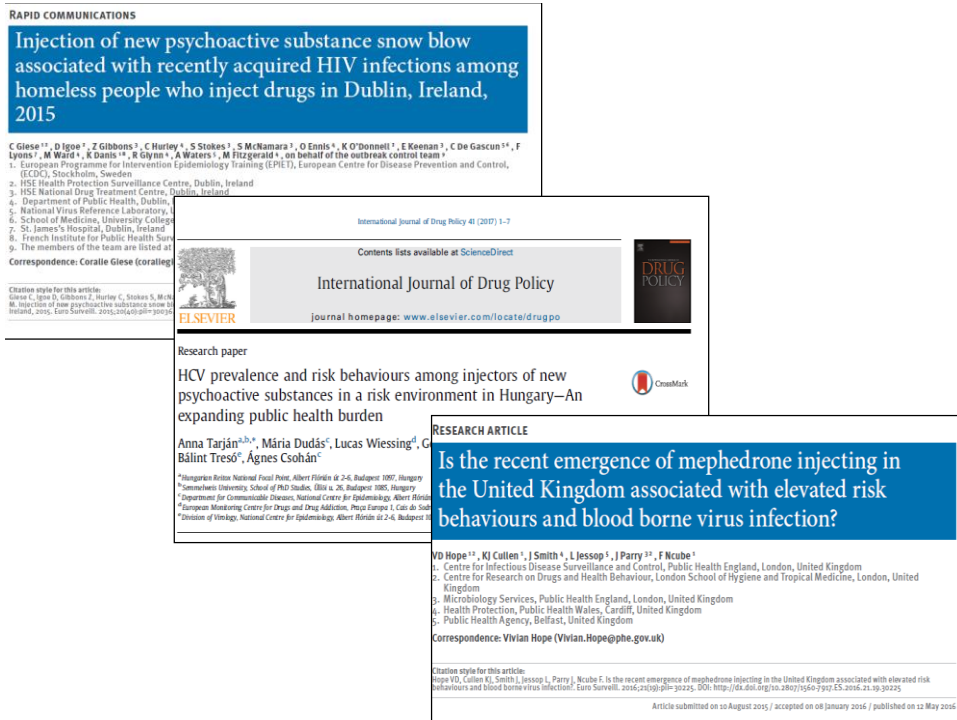
**ELSEVIER**

The Surgeon, Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland  
[www.thesurgeon.net](http://www.thesurgeon.net)

**THE SURGEON**

Correspondence: Letter to the Editor

**Injected novel legal highs associated with severe soft tissue infection: A regional hand unit's experience**



## Aims

- (i) To examine the prevalence of NPS injecting in Scotland **over time** among People Who Inject Drugs (PWID) and the factors associated with it;
- (ii) To assess the extent of injecting-related harms among those who inject NPS; specifically blood borne viruses (hepatitis c virus (HCV) / human immunodeficiency virus (HIV)) and skin and soft tissue infections;
- (iii) Explore the potential impact of NPS injecting on rates of incident HCV infection

## Methods

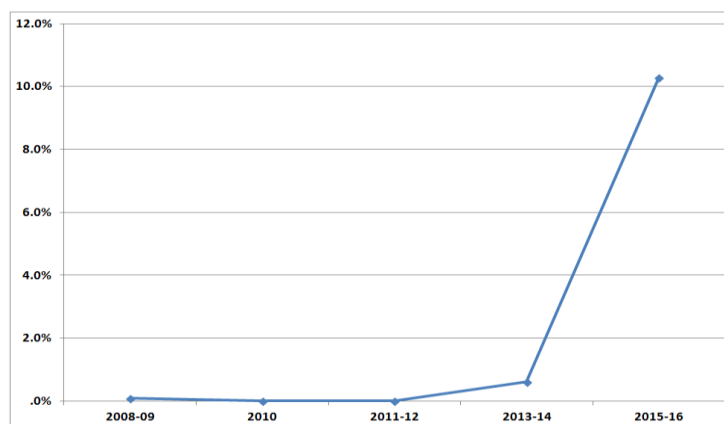
### Data

- Needle Exchange Surveillance Initiative (NESI)
  - Self-report data on demographics, behaviours, service engagement etc.
  - Voluntary dried-blood spot test for BBV
  - 'Current' injectors only

### Analysis

- Logistic regression models
- HCV incidence estimation

## Prevalence of NPS Injecting among PWID in Scotland, 2008-09 to 2015-16



Source: Needle Exchange Surveillance Initiative (NESI)

## Pooled NESI sample characteristics, 2008-2016

		All PWID	%	People who inject NPS	%
All		8878		236	
NPS	People who injected NPS only	24	0%	24	10%
NESI Year	2008-12	2081	23%	6	3%
	2010	2106	24%	0	0%
	2011-12	1435	16%	1	0%
	2013-14	1563	18%	44	19%
	2015-16	1693	19%	186	79%
Region of Scotland	Rest of Scotland	7631	86%	116	49%
	Lothian	1247	14%	120	51%
Gender	Male	6432	72%	173	73%
Age Group	<35 years	4637	52%	132	56%
Ever Been in Prison?	Yes	5412	61%	153	65%
Homeless in the Last 6 Months?	Yes	2267	26%	81	34%
Currently on Methadone?	Yes	6150	69%	151	64%
Injected Heroin in the Last 6 Months?	Yes	8373	94%	193	82%
Average Injecting Frequency in the Last 6 Months	4 or more times a day	917	10%	49	21%
Shared Needles in the Last 6 Months?	Yes	889	10%	35	15%
Average Needle Reuse in the Last 6 Months	5+ times	897	10%	50	21%

## (i) Factors associated with NPS injecting, Scotland, 2008-16

	OR (95% CI)	p	AOR (95% CI)	p
Age (Per Year Increase)	1.00 (0.98–1.02)	0.847	0.95 (0.93–0.97)	<0.001
<b>NESI Year</b>				
2008-09, 2010, 2011-12	1.00		1.00	
2013-14	27.11 (11.53–63.74)	<0.001	26.06 (10.99–61.78)	<0.001
2015-16	115.52 (51.14–260.96)	<0.001	120.65 (52.91–275.11)	<0.001
<b>Gender</b>				
Female	1.00		1.00	
Male	1.06 (0.79–1.42)	0.706	0.92 (0.65–1.29)	0.623
<b>Region of Scotland</b>				
Rest of Scotland	1.00		1.00	
Lothian	6.90 (5.30–8.97)	<0.001	5.57 (4.14–7.49)	<0.001
<b>Homeless in the Last 6 Months?</b>				
No	1.00		1.00	
Yes	1.56 (1.19–2.05)	0.001	1.42 (1.04–1.94)	0.030
<b>Injected Heroin in the Last 6 Months?</b>				
No	1.00		1.00	
Yes	0.25 (0.18–0.36)	<0.001	0.30 (0.20–0.46)	<0.001
<b>Ever Been in Prison?</b>				
No	1.00		1.00	
Yes	1.21 (0.92–1.58)	0.177	1.60 (1.16–2.22)	0.005

## (ii) Harms related to NPS injecting, Scotland, 2015-16\*

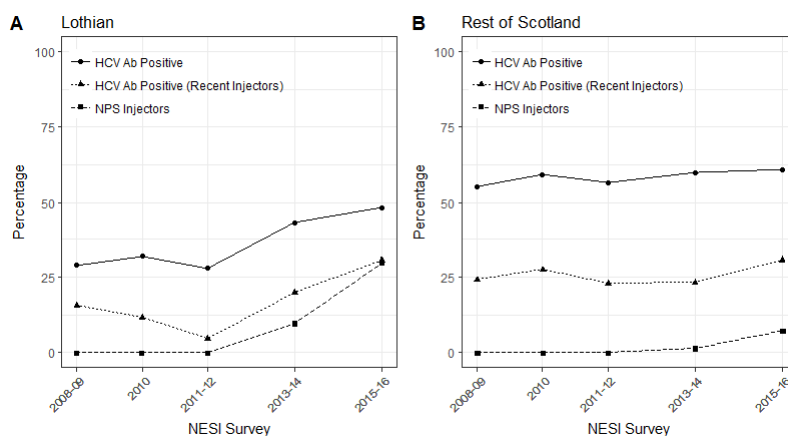
	HCV Ab+ (1252/2068)			HIV Ab+ (24/1129)	
	OR (95% CI)	p		OR (95% CI)	p
Injected NPS in previous six months?					
No	1.00			1.00	
Yes	1.71 (1.23–2.38)	0.001		1.92 (0.34–10.71)	0.457

	SSTI (self-report) (451/982)	
	OR (95% CI)	p
Injected NPS in previous six months?		
No	1.00	
Yes	2.22 (1.46–3.37)	<0.001

\*Adjusted for age, sex, region, homelessness, OST status, injecting frequency, needle/syringe sharing and re-use, and contraception as these factors are known to be associated with the outcomes.

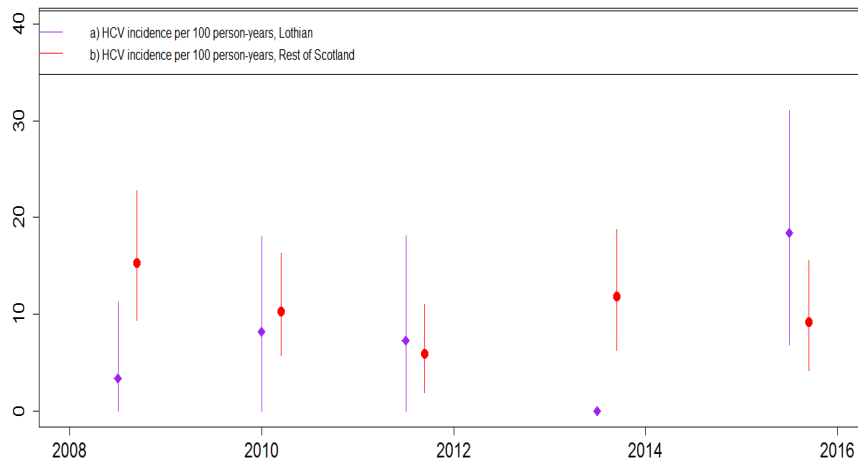
## (iii) NPS injecting and HCV infection



	HCV Ab +			HCV Ab +		
	OR	95% CI	p	aOR	95% CI	p
NESI Year	1.14	1.09 – 1.19	<0.01	1.07	0.97 – 1.19	0.19
% people who inject NPS	1.03	1.02 – 1.03	<0.01	1.01	0.99 – 1.03	0.21



## NPS injecting and incident HCV infection



## Summary

NPS injecting in Scotland increased in recent years...

- Not a new cohort
- Mainly confined to East/North East of Scotland
- Links to Homelessness

NPS injecting associated with increased risk of HCV...

- Despite high harm reduction coverage
- Threat to HCV elimination?



## Thank you

andrew.mcauley@nhs.net  
@arjmcauley

### Acknowledgments:

Alan Yeung, David Goldberg, Avril Taylor, Alison Munro, Sharon Hutchinson  
*and*

NESI interviewers, participants and staff from the West of Scotland Specialist  
Virology Centre