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HSC Public Health Agency
Project supported by the PHA


Understanding Vaping and Spice (Workforce)



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Housekeeping


- Breaks
- Microphones
- Internet connections
- Confidentiality
- Questions/comments



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Housekeeping

- Breaks
- Toilets and exits
- Fire drills
- Mobile phones
- Confidentiality




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Course Objectives

By the end of today, you will be able to:

- Explain what vaping is, including motivations for use and possible harms
- Describe the types of substances that can be vaped
- Explain the “pros and cons” (from the individual’s perspective) of vaping illicit substances




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Course Objectives

By the end of today, you will be able to:

- Describe Synthetic Cannabinoid Receptor Agonists ("Spice"), including effects and risks
- Identify harm reduction strategies for people vaping and/or using spice
- Identify sources of support (signposting)




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1 Introduction to Vaping

How many people in NI are vaping, and what is vaping anyway?

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QUIZ



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What Is Vaping?

- The first successful e-cigarette ("Ruyan" – pictured) was released in 2003 by a Chinese pharmacist and smoker, after his father died from smoking-related lung cancer
- Vaping not well-received initially – banned or restricted in many countries during the early-late 2000s
- Gradually embraced by public health and medicine as a smoking cessation tool



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What Is Vaping?



- E-cigarettes or vapes are battery-powered devices that heat a liquid* into vapour for inhalation
 - Disposables with pre-filled tanks (up to 2ml) → a limited number of uses
 - Often measured in "puffs" → shouldn't exceed 650
 - Rechargeables with refillable tanks
- Most frequently used for nicotine/0-nic, but can be used for other substances (e.g. cannabis herb, oils, concentrates/dab wax)
 - Dry herb vapes, dab rigs

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Cigalike E-cigarettes (pre-filled or refillable) Mod box Pod vape Disposable

Nicotine Vapes

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What Is Vaping?: E-Liquid Contents

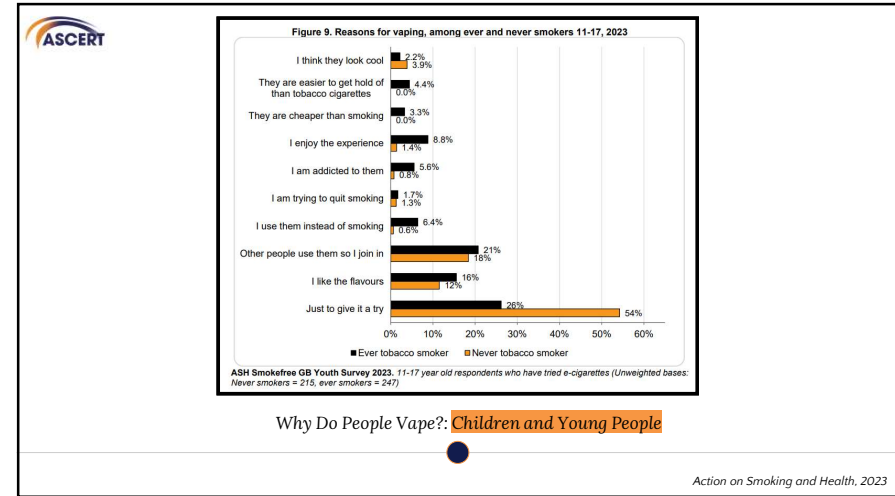
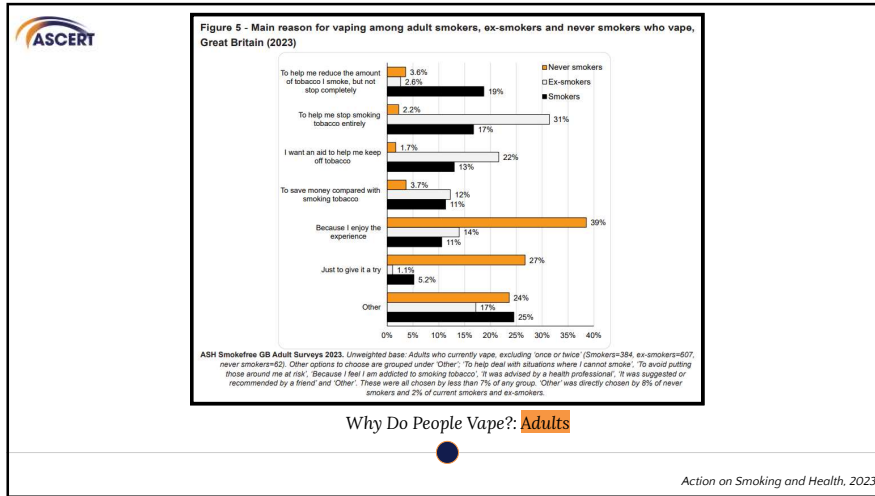
<p>Legal/MHRA-Compliant</p> <ul style="list-style-type: none"> ○ Water ○ Propylene glycol (PG) and vegetable glycerine (VG) – affect throat hit, flavour, and vapour/cloud production ○ Flavourings ○ Nicotine (freebase or "nic salt") up to 20mg/ml (2%) ○ CBD* 	<p>Non-Compliant and Illegal</p> <ul style="list-style-type: none"> ○ Nicotine concentrations or liquid volume (2ml disposable or 10ml refill container) exceeding MHRA regulations ○ Vitamins and stimulants (e.g. caffeine, taurine) ○ Vitamin E acetate, diacetyl, and other harmful additives ○ THC, Synthetic Cannabinoid Receptor Agonists ("spice"), and other illicit drugs
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Prevalence of Vaping in Northern Ireland

<p>Youth (11-16)</p> <ul style="list-style-type: none"> ○ 21% have used an e-cigarette/vape at least once – 6% of Year 8 and 44% of Year 12 ○ 9% of youth said they're current vapers, and 6% of current vapers said they did it regularly ○ The proportion of Year 12 currently vaping has increased significantly (10% in 2016 → 24% in 2022) along with regular vapers (6% → 17%) 	<p>Young People and Adults (16 – 75+)</p> <ul style="list-style-type: none"> ○ 16% have ever vaped, and 7% are currently vaping ○ Current vaping is highest amongst 16–24 year olds (12%; was 4% in 2014/15); between 6–9% for 25 – 64 year olds
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Sources: Young Persons Behaviour and Attitudes Survey (2022); Health Survey Northern Ireland (2022)




Risks Associated With Nicotine Vaping for Young People

Centers for Disease Control and Prevention: <https://youtu.be/uFFEvhx8j14?si=4MOCp13llgJW7yHG>

Risks Associated With Nicotine Vaping

- Dependence (particularly in people who have never smoked cigarettes)
- Increase in heart rate, blood pressure, and arterial stiffness
- Lung injury (particularly in people using unregulated products)
- Burns and related injuries
- Nicotine poisoning/toxicity
 - Seizures
 - Headache
 - Throat irritation
 - Dizziness and nausea



Banks et al., 2023

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2 Vaping and Illicit Drugs

Do people vape other drugs?


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Synthetic Cannabinoid Receptor Agonists (Spice) and Semi-Synthetic Cannabinoids (e.g. Delta-8 THC, HHC)

Cannabis (delta 9-THC)

Opioids (e.g. heroin, fentanyl, nitazenes)

Kratom (Mitragynine)



Benzodiazepines

Synthetic cathinones (e.g. MDPHP/ "monkeydust")

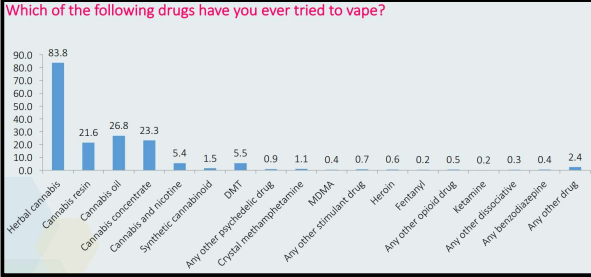
Methamphetamine

DMT and other base tryptamines (e.g. psilocybin)

Other **Drugs** That Can Be Vaped

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Which of the following drugs have you ever tried to vape?



Drug	Percentage
Herbal cannabis	83.8
Cannabis resin	21.6
Cannabis oil	26.8
Cannabis concentrates	23.3
Cannabis and nicotine	5.4
Synthetic cannabinoid	1.5
DMT	5.5
Any other psychedelic drug	0.9
Crystal methamphetamine	1.1
MDMA	0.4
Any other stimulant drug	0.7
Heroin	0.6
Fentanyl	0.2
Any other opioid drug	0.5
Ketamine	0.2
Any other dissociative	0.3
Any benzodiazepine	0.4
Any other drug	2.4

- 5.6% of cannabis users said vaping was their main method of use/route of administration
- 4.4% of synthetic cannabinoid receptor agonist (SCRA/"spice") users said vaping was their usual method of use


Global Drugs Survey 2017

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What (Non-Nicotine) **Drugs** Do People Vape?

(Lifetime Prevalence of UK Adults 16+ Who Have Used a Vape to Take Recreational Drugs)

Cannabis 65.7%	CHB 0.4%	Ketamine 24.6%	Tryptamines (e.g DMT) 25.4%
MDMA/Ecstasy 42.8%			alpha-PVP 25.8%
Cocaine (Powder) 39.8%			Heroin 25.8%
Mephedrone 30.9%	Cocaine (Crack) 30.5%	SCRAs/ "Spice" 28.4%	Fentanyl 26.7%




Blundell, Dargan, & Wood (2018)


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How Are Other Drugs Vaped?

- Solids dissolved into PG/VG e-liquids and placed into the vape tank (or cartridges)
- Ground/crushed plant material placed directly into the device (e.g. dry herb vape)
- Concentrates/extract waxes or oils used directly or diluted in e-liquids
- Directly dripped onto hot coils
- Foil and pipe “vaping”









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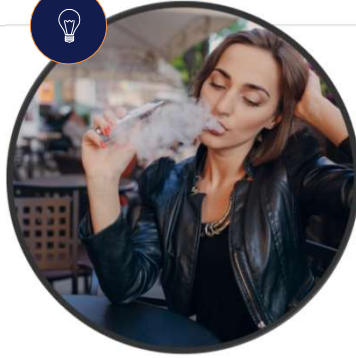
E-cigarettes (refillable) Mod box Pod vape Dry herb and concentrates vape Desktop "Volcano" vape (dry herb and concentrates) Disposable

Vapes for **Other** (Non-Nicotine) Drugs

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<p>W049139 Date Received: 12 Mar 2024 Postcode: BT12 - Purchase Intent: THC vape distillate Package Label: Packwoods sflure Sample Colour: Orange Sample Form: Liquid Consumption Method: Not Stated Self-Reported Effects: Euphoria, Increased Confidence, Enhanced Senses, Increased Libido, Relaxed, Breathlessness, Memory Loss, Confusion Sample Upon Analysis (Major): Tetrahydrocannabinol, Cannabidiol, Cannabinol Sample Upon Analysis (Minor):</p>  <p>Click to Enlarge</p>	<p>W051128 Date Received: 16 May 2024 Postcode: MK11 - Purchase Intent: THC vape Package Label: blue magic Sample Colour: Blue Sample Form: Liquid Consumption Method: Not Stated Self-Reported Effects: Not Stated Sample Upon Analysis (Major): MDMB-4en-PINACA Sample Upon Analysis (Minor):</p>  <p>Click to Enlarge</p>
<p>W032448 Date Received: 14 Apr 2023 Postcode: SL2 - Purchase Intent: DMT vape Package Label: DMT vape Sample Colour: Orange, Yellow Sample Form: Liquid Consumption Method: Not Stated Self-Reported Effects: Visual Hallucinations, Irregular Heartbeat, Memory Loss, Confusion, Loss of consciousness Sample Upon Analysis (Major): DMT Sample Upon Analysis (Minor): AMT, Psilocin</p>  <p>Click to Enlarge</p>	<p>W028400 Date Received: 21 Sep 2022 Postcode: IP16 - Purchase Intent: THC Vape Juice Package Label: THC Vape Juice Sample Colour: Orange Sample Form: Liquid Consumption Method: Smoked Self-Reported Effects: Euphoria, Increased Confidence, Relaxed Sample Upon Analysis (Major): 6-MAM, Mephedrone, Nicotine, Paracetamol Sample Upon Analysis (Minor): 6-Acetylcodaine, Caffeine, Codeine</p>  <p>Click to Enlarge</p>
<p>W051196 Date Received: 25 Apr 2024 Postcode: E12 - Purchase Intent: THC Package Label: THC vape juice Sample Colour: Blue Sample Form: Liquid Consumption Method: Not Stated Self-Reported Effects: Euphoria, Auditory Hallucinations, Visual Hallucinations, Relaxed, Breathlessness, Irregular Heartbeat, Nausea, Vomiting, Paranoia, Memory Loss, Confusion, Loss of consciousness, Depression Sample Upon Analysis (Major): No Active Component Identified Sample Upon Analysis (Minor):</p>  <p>Click to Enlarge</p>	<p>W029473 Date Received: 16 Nov 2022 Postcode: N07 - Purchase Intent: THC vape liquid Package Label: Not Stated Sample Colour: Colourless Sample Form: Liquid Consumption Method: Not Stated Self-Reported Effects: Euphoria, Relaxed, Nausea, Vomiting, Agitation, Insomnia, Depression, Erectile dysfunction Sample Upon Analysis (Major): Metonitazene, 7-azegabalin, Bromazolam Sample Upon Analysis (Minor): Bicitazene, Protonitazene</p>  <p>Click to Enlarge</p>

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Why might people vape other drugs, and what might be some risks associated with this behaviour?


In other words, consider the pros and cons of vaping as a route of administration for illicit drugs.

Sample ID	Date Received	Protocols	Package Label	Sample Colour	Sample Form	Consumption Method	Self-Reported Effects	Sample Upon Analysis (Major)	Sample Upon Analysis (Minor)
W00037000	14 May 2024	CF3D	THC vape	Not Stated	Yellow	Liquid	Relaxed, Memory Loss, Confusion	MDMB-4en-PNACA	
W049944	02 Apr 2024	Q12	THC vape e-liquid	Red	Liquid	Not Stated	Not Stated	MDMB-4en-PNACA	
W049373	18 Mar 2024	TD18	THC vape liquid	Yellow	Liquid	Not Stated	Euphoric, Enhanced Senses	MDMB-4en-PNACA	
W051128	16 May 2024	MM11	THC vape	Blue magis	Liquid	Not Stated	Not Stated	MDMB-4en-PNACA	
W049795							Incomplete effects form		
W049888	02 Apr 2024	DA12	Vape liquid (DHT)	Green	Liquid	Not Stated	Not Stated	MDMB-4en-PNACA	
W051439	13 May 2024	BH7	CBD vape oil	Not Stated	Green	Liquid	Euphoric, Relaxed, Anxious, Memory Loss, Confusion, Agitation	MDMB-4en-PNACA, ZADOL	
W049891	02 Apr 2024	DA12	THC vape liquid	Not Stated	Red	Liquid	Not Stated	MDMB-4en-PNACA	
W049139	12 Mar 2024	BT12	THC vape distillate	Orange	Liquid	Not Stated	Euphoric, Increased Confidence, Enhanced Senses, Increased Libido	Tetrahydrocannabinol, Cannabinoid, Cannabidiol	
W049140	12 Mar 2024	BT1	THC cart	Yellow	Liquid	Not Stated	Euphoric, Increased Confidence, Enhanced Senses, Anxious, Euphoric, Inebriated	Tetrahydrocannabinol, Cannabinoid, Cannabidiol	

Synthetic Cannabinoid Receptor Agonists (SCRAs)/Synthetic Cannabinoids

3

So really – what is "spice"?



Marketing "Magic Herbal Incense" at the Champs Trade Show in Las Vegas, 2009

DrugArchive; <https://www.youtube.com/watch?v=fAG6yjNY5zU>

Image source: wedinos.org

What Are Synthetic Cannabinoid Receptor Agonists (SCRAs)?

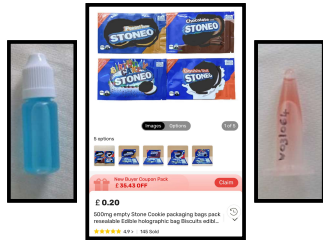
- Lab-made substances designed to mimic the effects of THC (delta-9 tetrahydrocannabinol)
 - Not derived from the hemp plant
- Also called synthetic cannabinoids/"spice"*
- Act on CB1 and CB2 cannabinoid receptors but bind more strongly than THC – more potent (2-100x) and potentially dangerous
- Often found in substances sold as THC, but also purchased intentionally

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Image source: wedinos.org; DHGate

What Are Synthetic Cannabinoid Receptor Agonists (SCRAs)?

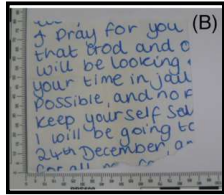
- Examples of current compounds
 - MDMB-4en-PINACA
 - MDMB-BUTINACA
 - 5F-PB-22
- Appearance/forms
 - Vape oils/juice (often coloured and thin consistency) – very common
 - 50% of THC vape products sent to WEDINOS between Jan 2023 – May 2024 were spice
 - Edibles – common



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What Are Synthetic Cannabinoid Receptor Agonists (SCRAs)?

- Appearance/forms
 - Herbal (chemicals sprayed onto inert plant matter in order to look like regular cannabis)
 - Rare with “buds” (whole flower), more likely to happen with “shake” (still rare overall) if sold as natural cannabis/THC
 - Very common when sold as spice
 - Powder – less common
 - Blotter/paper – rare (but more common in custodial settings)
 - Hash – rare




5F-MDMB-PICA infused paper confiscated from a prisoner (Norman et al., 2020)

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Why might someone opt to use spice over natural cannabis/delta 9 THC?

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Why Spice?

BBC Three; Drugs Map of Britain: Black Mamba in Wolverhampton; <https://youtu.be/WzaQ0x10fUE?si=Rnoud2TkJAKKi79>

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Synthetic Cannabinoids/ SCRA: Effects and Risks



MDMB-4en-PINACA and AB-PINACA mix (purchased as spice) from Liverpool

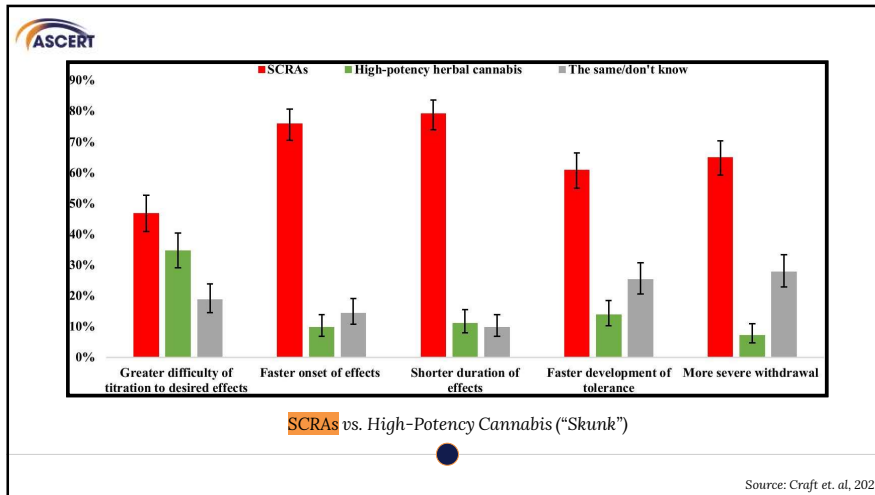
- Subjective effects
 - Variation between specific compounds
 - Compared to natural cannabis/delta-9 THC:
 - Overall similar effects, but more potent
 - More rapid onset of effects and shorter duration
 - Many users report near-immediate effects upon consumption and effects wearing off very quickly (approx. 40-60 mins)
 - Less common: effects lasting much longer than natural cannabis
 - Higher risk of unpleasant/unintended effects

Image source: weedinos.org


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Synthetic Cannabinoids/ SCRA: Subjective Effects

<p>Positive/Desired or Neutral</p> <ul style="list-style-type: none"> Appetite enhancement Relaxation/sedation Mood uplift/euphoria Feeling "light" Feeling "numb" Pain relief Time distortion Motor control loss Talkativeness 	<p>Negative/Undesired</p> <ul style="list-style-type: none"> Nausea/vomiting Feeling "disconnected from reality"/dissociation* Hallucinations* Anxiety and panic Uncomfortable "body high" (feeling "heavy", heart pounding, feeling too hot or too cold, shivering, spasms) Confusion Frequent/compulsive redosing Agitation
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SCRA-Related Risks: **Withdrawal**

Vice: "The Hard Lives of Britain's Synthetic Marijuana Addicts"; <https://youtu.be/t6pnc7Tpx4w?si=FOHRA0ubisSeeLUJ>

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Source: TripSit.me; Norman et al., 2020 (p. 550)

Synthetic Cannabinoids/SCRAs: Risks

- As with any illegal drug, the quality and content of active compounds in spice products can vary
 - Different compounds have different properties (e.g. dosages)
 - AB-FUBINACA "strong dose" = 1.5 to 3 milligrams
 - AB-CHIMINACA "strong dose" = 250-400 micrograms
 - Mystery blends and "hot spots" in herbal spice and paper/blotters

FIGURE 6 (A) Sample F119/0100 from Prison 1: cut up note; (B) cut up note showing positions of six pieces which formed a physical fit and were used in the 5F-MDMB-PICA concentration mapping; (C) 5F-MDMB-PICA concentration mapping across paper (white squares indicate positions of samples taken for initial qualitative (screening) analysis) [Colour figure can be viewed at wileyonlinelibrary.com]

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Cardiac events (e.g. heart attack, stroke)

Acute kidney injury

Seizures

Serious gastrointestinal issues

Psychosis

Respiratory difficulties (depressed breathing, injury)

Serious Health Risks Associated with SCRA Use

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Harm Reduction for Vaping and Spice Use

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What sort of harm reduction advice could be given to those using spice?

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Harm Reduction Approaches for Vaping and SCRAs

In groups, look at the brief case study and consider harm reduction approaches you might suggest for the individual described.

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Harm Reduction Advice: Vaping


- Avoid dual use (cigarettes/tobacco + vapes)
- Use a suitable nicotine concentration to try to puff less
 - Fewer puffs = less exposure to other elements of vape liquid
- Monitor use/set limits
- Be safe with batteries – charge according to manufacturer’s instructions



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Harm Reduction Advice: Vaping

- If you’re unsure of the nicotine concentration, start low and go slow
- Avoid dry puffing
- Throw out disposables when they’re empty
- If using a modifiable/refillable device
 - Use and maintain it according to manufacturer’s instructions



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Harm Reduction Advice: SCRAs




- Start with a very small dose (head of matchstick size for herbal)
- Avoid using bongs or other routes of administration that give large “hits”
- Mix with tobacco or other smokable plant matter
- Make joints longer/thinner
- Take caution with bottom of the bag material

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Harm Reduction Advice

- Try to maintain an overall state of health and wellbeing
 - Rest and eat well before use; stay hydrated during use (1 pint/hr)
- Go low and slow
- Use with someone you trust
 - Ideally a “sober/trip sitter”
- Avoid mixing substances
 - Including alcohol, caffeine, and prescribed medications
 - Don’t use other drugs to come down



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Harm Reduction Advice

- Look up subjective user reports and other available information
 - Erowid; TripSit.me; Reddit; WEDINOS; PsychonautWiki
- Allergy testing (if using powder to dissolve into vape liquid)
 - Apply a small amount* (<1mg or 1/6th dose) to the skin; wait 1 hour
 - Apply small amount to lips; wait 1 hour
 - Ingest small amount (compared to normal dose); wait 24 hours
 - Ingest half of a normal dose; wait 24 hours


Smoked [Collapse]	
Dosage	
threshold	common
1 - 1	2 - 3
light	strong
Threshold	< 1 mg
Light	1 - 2 mg
Common	2 - 3 mg
Strong	3 - 5 mg
Heavy	5 mg +

AB-FUBINACA Dosage Chart from Psychonaut Wiki

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Harm Reduction Advice

- Watch out for one another and phone 999 if anything unexpected/worrying happens
- Carry multiple doses of naloxone (if possible), even if not using opioids
 - Drugs contaminated with NPS opioids/sold as non-opioid drugs
 - Many NPS opioids are more potent than "standard" opioids (e.g. heroin) and may require multiple doses of naloxone to reverse overdose
 - Know the signs of overdose



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Harm Reduction Advice: Signs of Overdose

<p>Depressants</p> <ul style="list-style-type: none"> Passing out Unresponsive Breathing is slow, erratic, or stopped <ul style="list-style-type: none"> Choking or gurgling sounds Lighter skinned people: skin goes blue/purple Darker skinned people: skin goes grey/ashy <ul style="list-style-type: none"> Limp body 	<p>Stimulants ("Overamping")</p> <ul style="list-style-type: none"> Overheating Rapid breathing Significant anxiety/paranoia or psychosis <ul style="list-style-type: none"> Nausea/vomiting Tremors or convulsions Chest pain/tightness <ul style="list-style-type: none"> Seizure Heart attack/stroke
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5 Signposting

Who's available to help?



 **NIDACTS**

Northern Ireland Drug and Alcohol Coordination Teams

drugsandalcoholni.info







 **Family Support NI**

familysupportni.gov.uk

A directory of various support services (e.g. mental health, finances) and registered childcare services in NI





 **Thanks!**

Any questions?

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