Substance abuse in HIV-infected patients: what the clinicians should know

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Head of Clinical Trials, St. Stephen’s Centre (SSAT)
Consultant Physician, Chelsea and Westminster Foundation Trust
Reader, Imperial College
LONDON, UK
Mr P

- 63 years old
- British White Male
- MSM
- Specialist Nurse (TB)

*Past medical history*

- 1985  Acute hepatitis B
- 2002  HIV diagnosis, CD4 324 cells/mm3, VL 43282 c/mL, baseline resistance test: WT
- 2007  Criptosporidiosis
- 2013  Hiatus hernia with acid reflux
Mr P

Antiretroviral drug history

- Apr 2008    Atripla
- JUL 2008    VL < 40 c/mL
- Vivid dreams + restless sleep

- Aug 2014    Symptoms exacerbated, nightmares, disturbed sleep, fatigue, difficulty in concentrating, forgetfulness
Mr P

• Mar 2015  Switched to TDF/FTC + DTG within a clinical trial (SSAT056), VL < 40 c/mL, CD4 711 (33.9%)

• Apr 2015  Discloses recent (3-4 months) use of Chems (GHB, crystal meth, mephedrone) – injecting...
  no hx of recreational drugs use
Mr P

• May 2015  On TDF/FTC+DTG, no more vivid dreams/nightmares, happier, still tired

• Aug 2015  End of Study
    Switched from TDF/FTC + DTG to Triumeq (HLAB*5701 negative)
    Reports occasional use of mephedrone (injecting)
Mr P

- Sep 2015  Agitated, nervous, extremely anxious, paranoid; wants to come off Triumeq due to side effects

- Explains that the week before:

  - Resigned at work after feeling very confused, with episodes of difficulty speaking, agitation and confusion

  - Attended A&E department for onset of confusion, paresthesia in both arms, dry mouth, anxiety ++ and “near to death” feeling, discharged with flucloxacillin for thromboflebitis
Mr P

No signs of cerebral vascular accidents/TIAs
No previous hx of mental health disease
No typical ABC/Triumeq AEs

Anorexia, nausea, vomiting, diarrhea
Headache
Rash (without systemic symptoms)
Fever, lethargy, fatigue
Hypersensitivity reactions

When asked about Chems:

- Injected crystal meth and mephedrone at least 5 times in previous week and in other occasions in previous month
- Long discussion about Chems AEs, come-down post use, unlikelihood of symptoms to be Triumeq but refused to continue and switched to TDF/FTC + RAL
- Diazepam 2.5 mg for 2-3 days
- Referral to Chemsex support
Epidemiology of CHEMSEX
... of what?
Chemsex

- Recreational drug use linked with HIV/AIDS, commonest substances (early days) being ‘street drugs’: opiates, crack and cocaine
- Other recreational drugs are today used by MSM and BM
- Called ‘party drugs’ or ‘club drugs’, consumed in club or house parties, often during sex, which can last for several days
- Mix of substances used in a sexualized context such as:
  - methylenedioxymethamphetamine (MDMA)
  - ketamine
  - benzodiazepines (e.g. diazepam)
  - methamphetamine
  - gamma-hydroxybutyrate (GHB)
  - mephedrone
  - poppers
  - erectile dysfunction agents (EDA)
London, UK

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  - poppers
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Chemsex 'prevalence' (Europe)

• The European MSM Internet Sex (EMIS) survey

• Survey of 174,000 MSM across 38 countries
• Type and recency of drug use
• Prevalence of injection drug use
COUNTRY: France

DESIGN: Qualitative study

FOCUS: Slamming among MSM in Paris

KEY CONTEXTUAL FINDINGS:

• Injection drug use has emerged as new behaviour among MSM in Paris
• Acute need for safe injection advice
• Potential role of chemsex party organisers

STATUS: Published (Fourer et al, 2014)
Chemsex 'prevalence' (Europe)

COUNTRY: Spain

DESIGN: Ethnography

FOCUS: Chemsex among MSM visiting saunas in Barcelona

STATUS: Poster presentation at 1st Chemsex forum 2016
Recency of any sex with a man

Barcelona
Turin
Amsterdam
Paris
Milan
Bologna
Madrid
Zurich
Brussels
Copenhagen
London
Rome
Sofia

Schmidt et al 1st Chemsex Forum 2016
Recency of chemsex drug use

Schmidt et al 1st Chemsex Forum 2016
Chemsex 'prevalence' (Europe)

COUNTRY: Germany

DESIGN: Qualitative study

FOCUS: Drug use among MSM in Berlin, Frankfurt and Cologne

KEY CONTEXTUAL FINDINGS:

• Addiction issues that are hard to address in generic drug services
• Demands placed on HIV organisations for drug support

STATUS: Conference proceeding (Deimel & Stover, 2015)
Chemsex among MSM in Germany

Prevalences of (sexualised) drug use

- Cannabis: 14.0%
- Erection enhancing drugs: 11.0%
- MDMA and amphetamine: 5.1%
- Other substances (ketamine, GHB/GIN ...): 4.5%
- Cocaine: 4.1%
- Methamphetamine ("crystal meth"): 1.6%
- Heroin: 0.5%
## Impact of sexualised drug use on well-being

Physical, psychological & social well-being

<table>
<thead>
<tr>
<th>Physical harms</th>
<th>Psychological harms</th>
<th>Social harms</th>
</tr>
</thead>
<tbody>
<tr>
<td>overdosing</td>
<td>increased aggression</td>
<td>problems in work environment</td>
</tr>
<tr>
<td>vulnerability to diseases</td>
<td>listlessness</td>
<td>problems in private settings</td>
</tr>
<tr>
<td>changing of one’s appearance</td>
<td>hallucinations/loss of touch with reality</td>
<td>social withdrawal</td>
</tr>
<tr>
<td>interactions with ART</td>
<td>psychoses, anxiety, depressions</td>
<td>legal consequences</td>
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</tbody>
</table>
Sir J A Henry and I R Hill (Nov 28, p 1731) report a fatal interaction between ritonavir and 3,4- methylenedioxymethamphetamine (MDMA, “Ecstasy”). MDMA plasma concentrations measured in their patient largely exceeded those expected after ingestion of 180 mg MDMA. They argue that concomitant treatment with ritonavir could be responsible for a metabolic interaction between both drugs, leading to toxic concentrations of MDMA, and that CYP2D6 (a polymorphic isoenzyme of cytochrome P450) would be involved in such interaction.1 Ritonavir is mainly a CYP3A substrate and secondarily a CYP2D6 and CYP2C9 substrate. Clinical interactions reported until now with CYP2D6 substrates seem less relevant than those associated with CYP3A.2

As the investigators mention, three factors should be taken into account: the patient had an impaired liver function because of alcoholism; treatment with ritonavir was started 2 months after the last alcohol intake; and there was no information on his HIV status.

Chemsex 'prevalence' (Europe)

COUNTRY: UK

DESIGN: Numerous studies

FOCUS: Drug use among MSM in London

Different publications from different areas in London and UK (England and Wales)

Bourne et al 1st Chemsex Forum 2016
Recreational drug use, polydrug use, and sexual behaviour in HIV-diagnosed men who have sex with men in the UK: results from the cross-sectional ASTRA study


Summary
Background Recreational drug use in men who have sex with men (MSM) is of concern because it might be linked to the transmission of HIV and other sexually transmitted infections. Evidence about drug use in HIV-diagnosed MSM in the UK is limited by representativeness of the study populations. We describe patterns of drug use and associations with sexual behaviours in HIV-diagnosed MSM in the UK.

Methods We used data from the cross-sectional ASTRA study, which recruited participants aged 18 years or older with HIV from eight HIV outpatient clinics in the UK between Feb 1, 2011, and Dec 31, 2012. We examined data for MSM, assessing the prevalence of recreational drug use and polydrug use in the previous 3 months and associations with sociodemographic and HIV-related factors. We examined the association of polydrug use with measures of condomless sex in the previous 3 months and with other sexual behaviours.

Findings Our analysis included data for 2248 MSM: 2136 (95%) were gay, 1973 (89%) were white, 1904 (85%) were on antiretroviral treatment (ART), and 1682 (76%) had a viral load of 50 copies per mL or lower. 1138 (51%) used recreational drugs in the previous 3 months: 608 (27%) used nitrites, 477 (21%) used cannabis, 460 (21%) used erectile dysfunction drugs, 453 (20%) used cocaine, 280 (13%) used ketamine, 258 (12%) used 3,4-methylenedioxy-N-methylamphetamine (MDMA), 221 (10%) used gamma-hydroxybutyrate or gamma-butyrolactone, 175 (8%) used methamphetamine, and 162 (7%) used mephedrone. In the 1138 individuals who used drugs, 529 (47%) used three or more drugs and 241 (21%) used five or more. Prevalence of injection drug use was 3% (n=68). Drug use was independently associated with younger age (p<0.0001), not being religious (p=0.001), having an HIV-positive stable partner (p=0.0008), HIV-serostatus disclosure (p=0.009), smoking (p=0.0001), evidence of harmful alcohol drinking (p=0.0001), and ART non-adherence (p=0.0001). Increasing polydrug use was associated with increasing prevalence of condomless sex (prevalence range from no drug use to use of five or more drugs was 24% to 78%), condomless sex with HIV-seroconcordant partners (17% to 69%), condomless sex with HIV-serodiscordant partners (10% to 25%), and higher-HIV-risk condomless sex after taking viral load into account (4% to 16%; p=0.005 for all). Associations were similar after adjustment for sociodemographic and HIV-related factors. Methamphetamine was more strongly associated with higher-HIV-risk condomless sex than were other commonly used drugs.

Interpretation Polydrug use is prevalent in HIV-diagnosed MSM and is strongly associated with condomless sex. Specialist support services for MSM with HIV who use recreational drugs might be beneficial in the reduction of harm and prevention of ongoing transmission of HIV and other sexually transmitted infections.

Funding National Institute for Health Research.
Figure 1: Recreational drug use in the past 3 months in HIV-diagnosed men who have sex with men
(A) Prevalence of recreational drug use in 2248 individuals. (B) Type of drug according to number of drugs used in 1138 individuals who used at least one drug. GH, gamma-hydroxybutyrate; GBL, gamma butyrolactone.
MDMA = 3,4-methylenedioxymethamphetamine.
Chemsex at CROI 2016

Positive voices: online survey of 777 PLWH (MSM=532)
30 HIV clinic in England and Wales May-Nov 2014

Adjusted percentage of sexually active HIV-positive MSM engaging in chemsex and slamsex and drug used (n=387)

Pufall et al. CROI, Boston, abstract 913, 2016
Is there an association between chemsex and STI diagnoses?

- 50% of men reported a bacterial STI diagnosis in the previous year, and 9.4% had ever been diagnosed with hepatitis C

- **Chemsex** was associated with an increased risk of being diagnosed with:
  - any STI (AOR: 3.42, 95% CI: 1.71-6.83)
  - gonorrhea (AOR: 2.76, 95% CI: 1.31-5.82)
  - hepatitis C (AOR: 6.26, 95% CI: 2.05-19.1)

- **Slamsex** was associated with increased odds of being diagnosed with:
  - any STI (AOR: 3.85, 95% CI: 1.26-11.8)
  - multiple STIs (AOR: 1.82, 95% CI: 1.18-2.79)
  - chlamydia (AOR: 3.09, 95% CI: 1.11-8.62)
  - hepatitis C (AOR: 9.12, 95% CI: 2.40-34.6)
ChemSex: Data on Recreational Drug Use and Sexual Behaviour in Men Who Have Sex with Men (MSM) from a Busy Sexual Health Clinic in London, UK

David Stuart1,2, Nineka Nwokolo1,2,3, Alan McOwan1,2, Margherita Bracchi2,3, Marta Boffito1,2,4

168 Dean Street, London, UK; Chelsea and Westminster Hospital, London, UK; St. Stephen’s AIDS Trust, London, UK, Imperial College, London, UK

INTRODUCTION

874 individuals attending ChemSex support

- 52% HIV -
- 32% HIV +
- 12% HCV+ (40% also HIV+)

OBJECTIVES

To identify trends and determine risks, motivations and consequences of injecting drug use and sexual health among 874 individuals attending a ChemSex support service in a London Sexual Health Clinic.

METHODS

Individuals were asked by substance use support workers to disclose details of drug use, condom use, injecting drug use and frequency of drug-use episodes. Other details included: site of acquisition, acquisition and injection of people with HIV and hepatitis C virus (HCV) infection, experience of post-exposure prophylaxis (PEP) and sexual history.

RESULTS

Injecting Drug Use

29% were injecting drug users:

- 23% shared needles
- 27% never injected themselves (allowing others to inject them)
- 30% had been injected by both themselves and others

70% did not have any “sober sex” in previous 6 mo

98% had never previously accessed drug use support

45% average of between 4/10 partners per episode

11% 10 partners

64% of HIV+ patients NOT on cART reported ZERO condom use
2005: 3% of all presentations among MSM and bisexual men

2012: 85% of presentations
Gamma-hydroxybutyrate (GHB) and its precursors, GBL and 1,4-butanediol (1,4-BD) are central nervous system depressants

- GBH exists naturally in the brain as a metabolite and precursor of GABA
- Had been used in medicine since the 1960s for various purposes (as anaesthetic, alcohol and opiates withdrawal...)

- GBL is:
  - a solvent and reagent in chemistry
  - used as a flavouring
  - a cleaning solvent
  - a superglue remover

Cheap and easily accessible online (10 pence per dose)

GHB/GBL

Neuromodulates the GABA system, acting on dopamine release

Effects: induces euphoria and relaxation, enhances libido → facilitating sexual intercourses

Physically addictive

GHB/GBL

Consumed as a liquid (colourless, odourless, and tasteless)

Pharmacokinetic/dynamic data:

- Short half-life (20-60 minutes), multiple doses
- **Narrow therapeutic index → ANY DOSE CAN BE DANGEROUS**
- Metabolised by plasma enzymes (GHB dehydrogenase), enters the citric acid cycle and is excreted mainly through breath as $\text{CO}_2$

Data extrapolated from animal studies show **high first pass metabolism**: Possible role of CYP 450 family in the metabolism of GHB?

High doses = 3 mL can be life threatening (normal doses 0.5 – 1.5 mL)

GHB/GBL

**ADVERSE EFFECTS**

- Respiratory depression
- Tonic-clonic seizures
- CNS depression and coma
- Death

**Withdrawal syndrome:** auditory and visual hallucinations, tremors, tachycardia and hypertension - can last for several days, potentially life-threatening

Crystal Methamphetamine

Potent psychostimulant (phenethylamine and amphetamine classes), acts through release of noradrenaline, dopamine and serotonin

**EFFECTS:**
- Increases energy
- Induces confidence
- Enhances libido
- Allows for long-lasting sexual intercourses

Kish, CMAJ 2008, 178:1679-1682
Crystal Methamphetamine

- Costly: £100 per gram - usually unadulterated & in crystalline form
- Consumed in different ways (snorted, injected, smoked in a pipe)

Pharmacokinetic/dynamic data:

- Long half-life (up to 12 hours)
- High bioavailability
- Lipophilic, easily passes the BBB and reaches high concentrations in the CNS

Metabolised by enzyme CYP2D6 (CYP450 family)

Crystal Methamphetamine

**ADVERSE EFFECTS**

- Anxiety
- Psychosis with persecutory delusions
- Hallucinations & paranoia
- “Comedown” post use: sleeplessness followed by increased somnolence, low mood, malaise

**Chronic use:**
- neurocognitive impairment
- pulmonary hypertension
- dilated cardiomyopathy

Mephedrone

“Amphetamine-like” substance: it promotes the release of monoamine neurotransmitters and inhibits their reuptake

Image by https://infogr.am/synthetic-stimulants
Mephedrone

- Semi-synthetic substance, belonging to the class of CATHINONE derivatives
  - Synthetic cathinones (mephedrone, methcathinone and methylone) used to be sold as “plant food” or “salt baths” – (legal highs)

- Available as a white/yellowish powder, soluble in water

- Snorted (common), ingested (bombed), inserted in rectum, injected

- Generally it’s highly adulterated and quite cheap (£10 to £15 per gram)

Gregg et al. Life Sci 2014; 97:27–30
Mephedrone

Pharmacokinetic/dynamic data:

• Short half-life (0.5-1.5 h):
  following oral ingestion/nasal insufflation the effects last up to 2 – 3 hours
  following intravenous injection, about 15 – 30 minutes

• Tolerance mechanism

• Multiple doses to maintain the desired effects (1-4 g of mephedrone per session)

Mephedrone metabolism occurs mainly through enzyme CYP2D6, with minor contribution of other enzymes

Mephedrone

ADVERSE EFFECTS

- Tremors
- Anxiety
- Hallucinations
- Tachycardia
- High blood pressure
- Respiratory and urinary difficulties
- Nasal irritation and bleeds

Schifano et al. Psychopharmacology. 2011;214(3):593-602
... new psychoactive substances completely modified the drug scene ... synthetic cathinones ("legal highs") produced/used to mimic effects of cocaine, MDMA, and methamphetamine ... produced in China and South East Asia ... internet new ... intentionally mislabelled and sold online under slang terms such as bath salts, plant food, plant feeders and research chemicals ... reasonable costs ... not only health actors but also the general public need to be clearly informed and aware of dangers ... somatic, mental, and addictive consequences ... with persistent unknowns for the future ...
ChemSex: concerns

1 Expansion of the HIV and HCV epidemic...
   ...and all other STDs

Subjects with acute HIV infection – Chems may mask seroconversion symptoms

Ostro et al, J Acquir Immune Defic Syndr 2009; Daskalopoulou et al. LANCET HIV 2014
HCV seroconversion increased from an estimated rate of:
0.42/100 person-years in 1991

to
1.34/100 person-years in 2012

“Among the seroconverters, a large proportion of infections were attributable to high-risk behaviors including mucosally traumatic sex and sex while high on methamphetamine”
Risk of late relapse or re-infection with Hepatitis C after Sustained Virological Response: meta-analysis of 66 studies in 11,071 patients

>21% of reinfections with Hep C in 5 years

Hill et al. CROI 2015 Feb 23-26, Seattle WA
ChemSex: concerns

2 Negative experiences and harms

- Paranoia/anxiety/panic attacks
- Hallucinations
- Severe respiratory depression
- *Overdose/death*
- Lungs/heart toxicity
- Withdrawal symptoms (sleeplessness/anxiety/paranoia/muscle waste/weight loss)
ChemSex: concerns

3. Poor adherence to cART and possible emergence of resistant viruses
Risk for drug-drug interactions:

- Increased exposure of Chems secondary to concomitant ARVs intake?

- No DDI PK/dose-effect relationships data between Chems and ARVs

- Information regarding potentially toxic DDIs can be theorized from case reports or cohort studies

**Letter**

Possible fatal interaction between protease inhibitors and methamphetamine

Gillian Hales*, Norm Roth† and Don Smith†

National Centre for Epidemiology and Clinical Research, Faculty of Medicine, University of New South Wales, 376 Victoria Street, Darlington, NSW 2010, Australia

†Pratman Market Clinic, 131 Commercial Road, South Yarra, Victoria 3141 Australia

On ritonavir (400 mg twice daily), soft gel saquinavir (400 mg twice daily) and stavudine (40 mg twice daily)
Increasing use of ‘party drugs’ in people living with HIV on antiretrovirals: a concern for patient safety

Margherita Bracchi\textsuperscript{a}, David Stuart\textsuperscript{b}, Richard Castles\textsuperscript{c}, Saye Khoo\textsuperscript{d}, David Back\textsuperscript{d} and Marta Boffito\textsuperscript{a, b, e}

\begin{table}[h]
\centering
\caption{Party drugs’ pharmacological characteristics.}
\begin{tabular}{|l|l|l|l|l|l|}
\hline
Drug name (alternative/ & Route of administration & Bioavailability when & Metabolism & Half-life & Interaction potential \\
street names) & & orally administered & & & \\
\hline
Crystal methamphetamine & Oral ingestion, smoke, insufflation, & 67–80\% & CYP2D6; & \textasciitilde12 h & Moderate (C081/RTV inhibition of CYP2D6) \\
(Crystal, Tina, Meth) & rectal insertion, IV & & Other non-CYP pathways (minor) & & \\
\hline
MDMA (Ecstasy, X, Mandy) & Oral ingestion insufflation (capsules/tablets/powder) & 40–60\% & CYP2D6; & \textasciitilde7 h & Moderate (C081/RTV inhibition of CYP2D6) \\
& & & CYP1A2, CYP2B6 and CYP3A4 (minor) & & \\
\hline
Mephedrone (Miaw Miaw, & Oral ingestion, insufflation (most common), rectal insertion & 10\% & CYP2D6; & 30 min–1.5 h & Moderate (C081/RTV inhibition of CYP2D6) \\
plant food, bath salts) & (dissolved or as gel forms), IV & & & & \\
\hline
Cocaine (Charlie, C, Coke) & Oral ingestion insufflation (most common), smoke, IV & 30–60\% & NA/DH-dependent enzymes (minor) & 0.5–2 h & Low to moderate \\
& or IM & & Plasma/tissue cholinesterases & & \\
\hline
Ketamine (K, vitamin K, & Oral ingestion, insufflation, IV or IM & 20–45\% & CYP3A4; & 1.8–2.8 h & High (C081/RTV inhibition of CYP3A4) \\
special K) & & & & & \\
\hline
CHIR/CHIR/CHIR CD (C, Cina, & Oral ingestion (liquid), (syrup, IV) & CHIR: 50–65\%, & CHIR: CHIR DH and SSA DH & 30–60 min (CHIR & Unknown \\
liquid E) & & CHIR: 85\% & CHIR: 85\% & and 14 BD are rapidly & \\
& & & & and 14 BD are rapidly & \\
& & & & converted to CHIR & \\
& & & & & \\
\hline
Bezodiazepines (alprazolam, & Oral ingestion (tablets) rectal gel forms) IV (crushed tablets) & Diazepam: 100\% & Diazepam: CYP3A4; & Alprazolam: 12–15 h & High (C081/RTV inhibition of CYP3A4) \\
diazepam) & & Alprazolam: 90\%, & CYP2C19 (minor) & Diazepam: 43–56 h & & \\
& & Lidocainai: 41\% & Alprazolam: CYP3A4 & Stildesfatt: 11 h & & \\
& & Tadalafl: 80\% & CYP3A4 & & & \\
& & Vardenafili: 15\% & & & & \\
\hline
\end{tabular}
\end{table}

1,4 BD: 1,4 butanediol; C081, cuboxinat; DH, dehydrogenase; EDA, erectile dysfunction agents; GBL, gamma-butyrolactone; GHB-DH, gamma-hydroxybutyrate dehydrogenase; IM, intramuscular; IV, intravenous; RTV, ritonavir; SSA-DH, succinic semialdehyde dehydrogenase.
ChemSex: concerns

Other substances:

Poppers

**Ketamine** (CYP3A4)

Cocaine (CYP2D6)

**EDA (erectile dysfunction agents) (CYP3A4)**

Benzodiazepines (CYP3A4/2D6)
ChemSex: concerns

Not all recreational drugs and antiretrovirals are characterized by a high potential for drug–drug interactions:

- Efavirenz, etravirine and nevirapine can induce drug metabolism and decrease desired effect (e.g. EDA, BDZ)

- NRTIs, rilpivirine, raltegravir, dolutegravir, and maraviroc are characterized by a low potential for drug–drug interactions
| Stimulants       | ATVr | DRVr | FPVr | IDr | LPVr | SQVr | EFV | ETV | NVP | RPV | MVC | DTG | EVG | RAL | AEC | FTC | JTC | TDF | ZDV |
|-----------------|------|------|------|-----|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Amyl nitrate    | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| (Poppers)       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Cocaine         | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Ecstasy (MDMA)  | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Mephedrone      | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Methamphetamine | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Alcohol         | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Alprazolam      | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Codeine         | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Diazepam        | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| GHB (gamma      | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| hydroxybutyrate) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Heroin (Diamorphine) | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Hydrocodone     | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Hydromorphone   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Ketamine        | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Pethidine (Meperidine) | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Methadone       | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Midazolam (oral)| ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Morphine        | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Oxycodone       | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Temazepam       | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Triazolam       | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Cannabis        | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Hallucinogenic  | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| Lysergic acid  | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
| diethylamide (LSU) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| Phencyclidine (PCP, angel dust) | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   | ☒   |
Management

Crystal Meth/mephedrone

If patients present with what appears to be drug-induced psychosis:

- Re-assure that they are safe
- Assess if patient is a risk to themselves or to others, and refer to A&E if you feel it appropriate
- Diazepam 5 mg twice daily for 2 days maybe useful
Management

GHB/GBL detox

If patients are using GHB/GBL:

• Check if they are using every day (for 4 consecutive days or more) → in this case, they should be advised not to stop using without medical advice

• If they have no more supply of GBL, they ought to go immediately to A&E. Call ahead to ensure the A&E duty staff are aware of the GBL withdrawal dangers

• Detox involves high levels of benzodiazepines, and baclofen over 5 days
Guidelines on when to call an ambulance to take recreational drug users to A&E

Call an ambulance if ANY of the following are present:

1. AVPU assessment graded as either P or U
   A=Alert
   V=Responds to voice i.e. talking to
   P= Responds to painful stimuli only
      (e.g. pressure across a finger nail)
   U=Unconscious

2. Chest pain similar to a 'heart attack' (i.e. like a pressure on the chest, like a band around the chest).

3. Any history of seizures (i.e. a convulsion similar to an epileptic fit) during this episode

4. More than 2 'poisoned clubbers' per 'club medic'

5. Temperature >38°C not settling after 15 minutes of rest
   OR a temperature >40°C at any time

6. Heart rate >140 beats per minute not settling within 15 minutes

7. Blood pressure Systolic <90 or >180, Diastolic >110 on 2 readings 5 minutes apart

8. Confusion, significant agitation (e.g. pacing around the room) or significant aggression not settling within 15 minutes

9. Any concerns on behalf of the medical personnel involved

10. IF IN DOUBT CALL AN AMBULANCE

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What does the clinician need to know?

- Importance of asking about Chems use
- Increased STI / HIV / HCV transmission risk
- Adherence to cART
- Drug interactions with cART?
- Management
- Management of come-down post use
- Referral pathways for support
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