New recreational drugs and the primary care approach to patients who use them

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In recent years, hundreds of new drugs have appeared on the recreational drugs market in Europe.[1] Some of these substances, such as ketamine and γ-hydroxybutyrate (GHB), have legitimate medical purposes. These compounds have been joined by many novel psychoactive substances that, combined with their online marketing, pose a challenge for policy makers and health providers.[2]

The origins of these new drugs vary from synthetic compounds (such as 4-methylmethcathinone, or mephedrone) to traditional herbal products (such as salvia divinorum and kratom). The synthetic compounds are often designed and promoted to avoid contravening drug, medicine, and consumer protection laws. Although mephedrone, other cathinones, and various other synthetic compounds (including several cannabinoids) were classified in the United Kingdom as class B drugs in April 2010, many other new substances with psychoactive potential remain legally available. Rapid changes in legislation, combined with diverse branding and poor quality control, have led to a marked variation in the composition of these products, making it difficult for users and clinicians to identify exactly what is being consumed.

We review some common examples of these new drugs, and provide a framework for conducting an interview in the primary care setting with people who may have problems with their use. Since evidence relating to these substances is inevitably limited, we have based this article on case series, observational studies, consensus guidelines, our own clinical experiences, and those of our colleagues.

SUMMARY POINTS

New drugs of misuse, including ketamine, γ-hydroxybutyrate (GHB), and a range of synthetic stimulants, have become part of global recreational drug culture

Use in combination with other substances (especially alcohol) is common and increases the associated health risks

These drugs are associated with non-specific risks of intoxication and substance specific toxicological harms

Assessment and feedback using a motivational approach and provision of information about harm reduction are useful interventions that can be delivered in primary care

Referral to specialist services might be needed to manage complex withdrawal or specific harms

SOURCES AND SELECTION CRITERIA

We searched Medline, PsycINFO, the Cochrane Library, and databases of England's National Treatment Agency and Drug Scope, the United States National Institute on Drug Abuse, and the European Monitoring Centre for Drugs and Drug Addiction, using the indexed MeSH terms "dependence", "abuse withdrawal", "harms", "death", "intervention", "assessment", "psychiatric", and "overdose" (1971-2011). We aimed to provide profiles of the use, effect, and risks of these drugs for general practitioners to identify, assess, and manage the common presentations associated with their use.

What are the characteristics of some of the new drugs?

To summarise the modes of action, routes of use, sought after effects, and possible clinical effects of these new drugs, we focused on three groups: γ-hydroxybutyrate (GHB) and its prodrugs, γ-butyl-lactone (GBL) and 1,4-butanediol; ketamine; and newer synthetic stimulants such as mephedrone, flephedrone (4-fluoromethcathinone), and methylenedioxypyrovalerone (MDPV) (tables 1-3). Most of these drugs are consumed with other substances, especially alcohol. Such combined use, along with underlying mental health problems, can greatly increase the risk of harms.

Cathinone stimulants

Mephedrone is a synthetic stimulant that is chemically related to cathinone, the psychoactive compound present in the khat plant.[3] Other synthetic cathinone stimulants include methylone. A recent crime survey in England and Wales reported mephedrone misuse in 4.4% of people aged 16-24 years in 2010-11 (the same proportion as cocaine misuse).[4] Perceived effects of cathinone stimulants are dose related and include euphoria, increased energy, feelings of empathy, increased libido, sweating, tachycardia, headache, and teeth grinding.[5] For mephedrone, the limited research so far suggests that its patterns of use and potential for misuse are similar to those of cocaine,[6] and that excessive consumption can result in emergency presentations characterised by extreme agitation, chest pain, and sweating.[7] Reported deaths, including suicide by hanging, have usually involved the use of other substances or underlying health problems.[8]

Table 1 | Mode of action, routes of use, and sought after effects of new recreational drugs

	Neurobiological basis for action	Typical route and single dose amounts	Common routes of use	Sought after effects	Duration of effect
GHB, GBL, or 1,4-butanediol	Dopamine release and action at γ-amino-butyric acid (GABA) A and B receptor; primary effect as agonist at GABA B receptor	Colourless, odourless liquid of variable potency (GHB 2.5-5 mL, GBL 1-2 mL)	Oral*	Euphoria and stimulation*, prosocial effects, talkativeness, disinhibition, increased libido, sedation	1-4 h
Ketamine	Antagonist at N-methyl-D-aspartate receptors, μ and σ agonist at opioid receptors, and enhances monoaminergic transmission (resulting in pronounced sympathomimetic effects)	White crystalline powder (1/20-1/4 g)	Intranasal*, by injection, oral	Euphoria and stimulation*; synaesthesia; dissociation; floating sensations; tactile and visual distortion; hallucinations; intense psychedelic experiences; spiritual, out of body, and near death experiences (the "K hole")	1-2 h
New synthetic stimulants	Elevation in monoamine neurotransmitters through enhanced vesicular release, reuptake blockade, and reduced synaptic degradation	Powder, pills, and capsules of widely variable potency (1/20-1/4 g)	Intranasal*, oral*, by injection, transbuccal, by smoking, rectal	Euphoria and stimulation*, increased alertness, increased sexual desire, prosocial effects	1-12 h

*Primary route of use or primary sought after effect.

Table 2 | Signs of intoxication and harms from drug use

	Signs and symptoms of intoxication and overdose	Acute harms and other associated presentations	Chronic harms
GHB, GBL, or 1,4-butanediol	Initial arousal gives way to predominantly depressant effects: rambling incoherent speech, weakness, excessive sedation, ataxia, nausea, vomiting, agitation, involuntary jerking movements, nystagmus, urinary incontinence, ataxia, profound unconsciousness, respiratory depression, aggression and disorientation (especially on waking from an overdose)	Amnesia, agitation (rhabdomyolysis), hypothermia, respiratory depression, loss of gag reflex, bradycardia, hypotension, aspiration, seizures	Loss of relationships, psychological emotional deterioration, dependence, withdrawal risks
Ketamine	Predominantly stimulant and psychedelic effects: raised pulse and blood pressure; arrhythmia; dilated pupils, blurred vision, and diplopia; ataxia; nausea and vomiting; anxiety; dizziness; excitability; insomnia; immobility; inability to speak; abdominal tenderness; frequency of micturition; white powder in nostrils	Palpitations; chest pain; anxiety; agitation; disorientation; confusion; psychotic symptoms; reduced consciousness and immobilisation can place users vulnerable to assault and theft, accidental trauma, and unawareness of injury; urinary symptoms; frequency of micturition; dysuria; haematuria; epigastric pain	Psychological wellbeing, mood related harms (anxiety, depression, chronic dissociation, and flashbacks), dependence, cognitive impairment, urinary tract symptoms with toxic cystis and renal pathology, gastritis, dilated biliary ducts
New synthetic stimulants	Predominantly stimulant effects: dilated pupils, raised pulse and blood pressure, cold peripheries, bruxism, trismus, hyperthermia, excessive sweating, tremor, hyperarousal, nausea, psychotic episodes, white powder in nostrils	Tachyarrhythmias, anxiety, agitation, chest pain, overheating, dehydration, seizures, disorientation confusion, psychotic symptoms	Dependence, withdrawal, possible long term psychiatric sequelae (for example, depression)

Table 3 | Withdrawal symptoms and basic management of potential drug users

	Withdrawal symptoms	Recommended management
GHB, GBL, or 1,4-butanediol	Occurs within a few hours of last dose and resembles alcohol withdrawal; includes anxiety, tremor, nausea, vomiting, sweating, insomnia, elevated pulse and blood pressure, hallucinations, confusion, disorientation, self harming, paranoia, delirium, seizures, rhabdomyolysis, acute renal failure, death	Start benzodiazepine treatment (10-20 mg diazepam or 30 mg chlordiazepoxide) 1-2 hours before onset of withdrawal; 10-20 mg baclofen (three times daily) might also act as antispasmodic agent and reduce the need for benzodiazepines; specialist or inpatient advice might be needed to manage health risks, high doses of benzodiazepines, and close monitoring, treatment might be fatal with risk of seizures and traumatic injury; intravenous benzodiazepine doses with increased potency might also be needed. See patients daily, with gradual reduction in drug treatment titrated against symptom over 5-14 days; management in primary care not recommended
Ketamine	Poorly described and predominantly psychological symptoms, including agitation and anxiety; loss of analgesia could unmask underlying pain (for example, in the bladder) and be a motivator for continued use	Symptomatic treatment only. Use of benzodiazepines could help ease anxiety and provide adequate analgesia. If underlying urinary symptoms are identified, consider referral to specialist services for advice and inclusion of urologist services
New synthetic stimulants	Includes irritability, craving, lethargy, poor mood, increased appetite and fatigue	Avoidance of drug. Symptomatic treatment only. Education about the time limited duration and nature of withdrawal can help reduce patient anxiety and assist in accurate diagnosis of affective disorder

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GHB, GBL, and 1,4-butanediol

GHB (G, GBH, liquid ecstasy) was originally developed as an anaesthetic and has been used to treat substance withdrawal and insomnia. GBL is found in solvent cleaning products. GHB and its precursors GBL and 1,4-butanediol share broadly similar effect profiles. Dose dependent, subjective effects (including euphoria, disinhibition, and increased sexual arousal) begin within 15 minutes of oral consumption and peak after 30-60 minutes.[9] GHB has a short half life of 27 minutes—and frequent redosing is common. Users might seem drunk, although agitation and self injurious behaviours have been reported. A steep dose-response curve exists with a narrow margin between euphoria and overdose, which is characterised by a rapid onset of respiratory depression and profound unconsciousness. High risk sexual behaviour might also occur. A retrospective review of emergency department cases found that the probability of overdose increased substantially with concomitant alcohol use[10] and that overdoses were typically self limiting, although fatal overdoses are seen. GHB was declared a class C drug in the UK in 2003, followed by GBL and 1,4-butanediol in December 2009.

Although dependence is rare, users of these compounds can develop tolerance, loss of control, and craving, and those who become dependent could dose continually every two hours.[11] Tolerance does not protect users against overdose. From a small case series, dependent users have reported personal and emotional isolation, a considerable loss of relationships, severe insomnia, and deterioration in physical health.[11] Withdrawal symptoms have been described as severe, unpredictable, and potentially life threatening, sharing features with alcohol withdrawal syndrome and starting 2-8 hours after last use of the drug. Evidence for the management of withdrawal symptoms comes from several small case series by specialist centres and consensus guidelines.[10-12] Many patients had persistent insomnia, anxiety, and depression for several weeks after withdrawal. A key principle of withdrawal management includes starting treatment with benzodiazepines before withdrawal begins. Withdrawal from GHB and its precursors should not be managed in primary care.

Ketamine

Ketamine (K, special K, super K, ketalar, green) is a short acting dissociative compound with anaesthetic and analgesic properties,[13] which was classified as a class C drug in the UK in 2006. Ampoules of the liquid anaesthetic form are dried to produce a white or yellowy crystalline powder that is then typically snorted ("bumped"). Illicitly manufactured formulations of ketamine powder are also available, with varying purity. Ketamine's effects, which last for about 2 hours, are strongly dose related and include feelings of euphoria, dream like hallucinations, and mystical experiences.[13-15] The drug is often used in combination with other substances to modulate its effect.

Major risks related to ketamine use are accidental trauma (often unrecognised while intoxicated), immobilisation, and personal vulnerability.[14-16] Intoxication can be associated with high risk sexual behaviour, but is not typically associated with increased violence. An emergency room case series reported that the most common acute presentations were impaired consciousness, lower urinary tract symptoms, abdominal pain (also known as "K cramps"), and dizziness.[17] Transient and self limiting

Box 1 | Brief screening procedure for possible users of new recreational drugs

Question 1: "Have you used any drugs in the following list in the past year, such as . . . cocaine, cannabis, ecstasy?"

If yes to any, go to question 2

Question 2: "Have you used any other substances, such as GHB, ketamine, or newer drugs such as mephedrone in the last year?"

If yes to any, go to question 3

Question 3: "Which of those drugs have you used most recently?"

Go to question 4

Question 4: "How often would you take this [or them]?"

Go to question 5

Question 5: "Have you noticed any link between the problems you are having and your use of these?"

psychological experiences—for example, panic, paranoia, and frightening hallucinations—might also be seen.[18] Chronic consumption has been linked to severe and persistent urinary problems. In a recent cross sectional study of more than 1000 ketamine users, more than a quarter associated at least one urinary symptom with their use of the drug.[19] Symptoms seem to be dose related, but might persist on abstinence, and could progress to bladder atrophy and hydronephrosis.[19 20] Young people who present with dysuria and do not respond to antibiotic treatment might have urinary abnormalities associated with ketamine use.[19]

Tolerance to the sought after effects of ketamine develops rapidly within a using session. As a result, escalation in both frequency and dose can develop rapidly, with some patients reporting compulsive use and symptoms suggesting dependence (see "A patient's perspective").[19 21 22] Physical symptoms of withdrawal on cessation have not been consistently observed, although small case studies have reported sleep disturbance and irritability.[21 22] Both self report studies of recreational users and lab studies of users suggest that ketamine use leads to acute impairments in mood, memory, and perception.[23 24] A longitudinal study of 30 frequent users identified profound, dose related impairments in memory, although these effects might be reversible with abstinence.[25 26] The same study identified pronounced depressive and prodromal symptoms among current users. More recently, evidence from small clinical trials has suggested that repeated infusions of ketamine could rapidly (albeit temporarily) improve mood in people with treatment refractory depression.[27] Ketamine, in itself, is relatively safe in overdose; users are more likely to die from having accidents while intoxicated than from overdose.[15]

Approaching the question of drug use in primary care

Consultations that address any of these behaviours present an opportunity to ask about a patient's use of these new drugs. In this scenario, we recommend a brief screening procedure, outlined in box 1.

Clinical presentations directly related to drug use could occur in one of two ways. The patient might have clear concerns about their drug use or have a problem that they think is a consequence of drug use (for example, withdrawal on cessation of GBL). Alternatively, the patient might report a problem that could be drug related, but is not recognised as such (for example, urinary symptoms related to ketamine use).

Box 2 | Recommended approach to exploring problems related to substance use

Ask what the patient wants to talk about first: "What would you like to talk about today?"

Introduce the idea of a substance use assessment and invite the patient to accept it: "I usually ask people about their drug and alcohol use—would it be ok if we can cover that today as well?"

Negotiate time and priorities

For problems likely to be related to substance use, consider talking about substance use generally rather than telling the patient that you think their problem is directly attributable at this stage:

"Often when people are feeling like you do today I like to rule out substance use as a contributing factor—would it be ok if we spend some time with me asking some questions about this?"

"I have seen some patients in which this problem is related to drug or alcohol use—is it ok to explore this with you now?"

In both scenarios, as with other lifestyle behaviours that can be difficult to discuss, we recommend a guiding communication style based on motivational interviewing.[28] A good starting point is to assume that the patient might be ambivalent about change. The key to motivational interviewing is to ascertain the patient's concerns and respond accordingly; hold back from advocating change until a clearer picture is obtained. This strategy encourages the patient to actively participate in the consultation and favours a positive change in behaviour. Box 2 outlines a recommended approach if the problem of substance use is not immediately apparent but seems pertinent to exclude.

Seek the patient's permission before asking questions about substance use ("is it ok for me to ask you some questions about your GBL use?"); if permission is given, a reminder of the limits of confidentiality might still be needed. In cases where family members have raised concerns about a patient, doctors should explore the relative's concerns, the impact on them, and their coping, with signposting to relevant additional support if appropriate.

What is the approach to assessing patients who admit to problems related to drug use?

A good assessment should capture the key information outlined in table 4, and allow the patient to actively contribute. Open ended questions can achieve this aim as well as obtain relevant information ("Tell me about your drug use?", "What is your drug use over a typical week?"). Asking the patient to explain drug jargon and effects can also help to build rapport. During the assessment, use open questions to elicit and explore the patient's potential concerns ("What concerns do you have?", "You said that you experience discomfort on urination—how might that be related to your drug use?").

Simply providing feedback with specific reference to concerns the patient has identified can help the patient think about their drug use and its consequences in a new way. At this stage, substance use might still be ruled out as a problem, or the patient might deny any problems related to their drug use. If this scenario occurs, end the discussion by seeking permission to review the situation at a later date.

Any further questioning could begin with a simple open question: "Where would you like to go with this next?" If the patient does not know, invite them to consider that your medical expertise may help them; for example, ask: "Is there anything I can specifically help with?" This step could involve further information about the presenting problem or drug use, harm reduction advice, guidance about changing or reducing substance use, managing physical or psychiatric problems, or referring the patient to a specialist service.

If the patient clearly attributes an identified problem to drug use, they will probably begin to ask questions or be receptive to expert information (tables 1-3 and 5 provide substance specific information). A set of principles applies to the exchange of information at this stage, which

Table 4 | Key considerations for assessing drug use and identifying associated risks

Key parameters of assessment	Descriptor	Function
Amount and change over time	Determine amount consumed per dose and total amount consumed per day	Increasing amounts per dose or per day suggest tolerance
Frequency	Determine dosing interval (number of days per week or per month) and average daily use	Increasing frequency is consistent with tolerance and could indicate physical dependence
Duration of use	Time since first ever use of drug and duration of current episode of use	Extended duration of use is associated with increased risk of harms and dependence
Route of use	Oral, intranasal, or by injection	Identify associated risks
Consumption in combination with other substances (especially alcohol and prescribed drugs)	Types of other substance taken, function, and consequence	Identify risks related to intoxication, toxicological harms, and behavioural changes
Function	Mood state sought or enhanced	Identify clues to underlying psychopathology or existence of physical dependence
Risk behaviours related to intoxication (for example, sex, driving, violence)	Determine activity and whether use of drug is in isolation or in public places	-
Major perceived health concerns (including exacerbation of underlying conditions of physical or mental health)	Describe psychological, physical, relationship, and behavioural consequences of use	Identify risks related to intoxication, as basis for advice on harm reduction, motivational interventions, referral guidance, and monitoring
Attempts to control or reduce misuse	Determine whether patient tried to stop and how many days spent recently without use	Identify loss of control, compulsive use, and withdrawal discomfort and risks on the reduction or cessation of use
Withdrawal discomfort on cessation of use	Determine psychological and physical consequences after marked reduction or cessation of use	Identify negative reinforcement of withdrawal relief and existence of high risk withdrawal symptoms (such as delirium and seizures)
Urine analysis	The new recreational drugs are not usually detected by routine drug screens, although most can be detected (if specifically requested) by specialist toxicology laboratories	

Table 5 | Harm reduction advice for drug users

	Specific advice on harm reduction	General harm reduction advice
GHB, GBL, or 1,4-butanediol	Avoid drug use with alcohol. If patient is dependent on the drug, avoid sudden cessation	Avoid the development of tolerance by using infrequent dosing and reduced amounts of drug Avoid drug consumption in combination with other substances (such as CNS depressants, alcohol, or stimulants) Plan ahead to minimise the probability of behaviours related to high risk intoxication Avoid use if patient is already on prescribed drugs, particularly for psychiatric, neurological, cardiovascular, or chronic pain conditions Use of a drug for the first time should be avoided if the person is alone or already intoxicated with another substance; recommend that having a non-using trusted person present can be helpful if adverse reactions occur Explain what is expected on cessation of drug use and outline when help should be sought
Ketamine	Reduced risks are associated with routes of use other than injection Remain well hydrated and seek medical assistance early if patient has urinary symptoms Users should not be left alone because of the risk of accidental harm, or be left in situations in which drug use could increase personal vulnerability; ideally, a non-drug affected person should be present	
New synthetic stimulants	If patient has never taken stimulant before, be wary of variable potencies of different compounds Reduced risks are associated with routes of use other than injection Avoid overheating and dehydration Remind patient that what they think is legal might not be Internet purchases do not have quality control or consumer protection; remind patients that labelling on the packet might have little relation to the composition of the enclosed substance	

ADDITIONAL EDUCATIONAL RESOURCES

Talk to Frank (www.talktofrank.com)—self help website with telephone helpline providing confidential advice on drug misuse

Erowid (www.erowid.org)—extensive database of expert and user opinions on various legal, prescribed, and illegal substances

Substance Misuse Management in General Practice (www.smmgp.org.uk)—special interest website for general practitioners regarding drug and alcohol misuse

European Monitoring Centre for Drugs and Drug Addiction (www.emcdda.europa.eu)—the drug monitoring agency of the European Union has many up to date and useful risk assessments and monographs

The Party Drug Clinic (www.national.slam.nhs.uk/services/adult-services/partydrugs) at South London and Maudsley NHS Trust and the Club Drug Clinic (www.clubdrugclinic.com) at Central North West London NHS Trust—medically led specialist services providing assessment and withdrawal support for substance users

Helpfinder at DrugScope (helpfinder.drugscope.org.uk/)—DrugScope's database of drug treatment services

follows the circular process of eliciting the patient's interest ("Would you like to know a bit more about how mephedrone can affect your mood?"), providing information ("When people use stimulants over a weekend and don't get any sleep, it can lead to a reduction in the chemicals in your brain that help keep our mood stable and feeling happy"), and eliciting the patient's response to that information ("How does that fit with your experience?").[29]

These principles of information exchange also apply to the provision of harm reduction information and exploration of risk behaviours related to drug use, such as sex (table 5).[30] This stage of the consultation could lead to a discussion about a possible change in substance use. Do not assume that the patient wants to change or even needs expert help to change. To introduce the idea of change, ask an open question: "We've spoken about some of the concerns you have and how your drug use might be related to this—where do we go from here?" A direct question might be: "Would you like to do something about your drug use?"

If the patient indicates that they wish to change, ask them how they might do this and whether they think they need professional support. If the patient does not know what they should do, this stage might be an opportunity

A PATIENT'S PERSPECTIVE: A USER'S ACCOUNT OF URINARY SYMPTOMS ASSOCIATED WITH USING KETAMINE

My ketamine misuse started off recreationally but escalated. The first time I visited a doctor because of problems with my bladder I was given antibiotics and sent on my way. I urinated what looked like a thick jelly, sometimes with blood in it, and had nasty involuntary bladder spasms that left me unable to walk upright. I even told the doctor about my ketamine use, but he just said I was a silly boy for taking drugs. The antibiotics did not work so I went back to the doctor and was told just to drink lots of water and cranberry juice to flush out what was left of the infection. My symptoms did not resolve so I self medicated with ketamine because it seemed to be the only thing that helped to alleviate the terrible pain, and I stopped seeing doctors for a while.

After about a year of constant ketamine misuse, I became really ill for the first time. I had intense bladder and abdominal pain and I was admitted to hospital. I managed to do about a month clean without ketamine after this, while taking the painkillers (diclofenac) that I was prescribed from the doctor at the hospital, but I started using ketamine again.

Over the next six months, I made three more attempts to stop using ketamine, all of which failed. None of the services I accessed at the time seemed to help. During this time, I passed a clot that was about the thickness of my little finger, and from this point on, I was incontinent of urine. The painkillers had stopped working. As I was a drug user, my doctor would not prescribe me anything stronger for pain. So I just continued using the one thing that helped—ketamine—knowing that every time I took it I was doing more damage. At least if I took ketamine I could walk to the shops in no pain and just about get on with things. As time went on, my bladder pain got worse. I started to get scared of eating meals because defecating was even more painful than when I was just urinating, because of contraction of the abdominal muscles, and afterwards I might urinate blood for days. Ketamine also affected my mind. I could not remember what had happened a couple of days earlier. I started to forget passwords, PIN numbers, even people's names.

I made a few attempts to kill myself and an old friend of mine, who had observed the change in me, made me register at a local general practitioner. My friend had done some investigation and found out about the specialist drug and alcohol service and the inpatient unit in the city. I asked the doctor that I was assigned to for the referrals I needed and for help.

I needed strong pain relief if I was to stop taking the ketamine completely. My doctor helped me to try different painkillers to see what worked. I tried tramadol, diclofenac, and Buscopan [hyoscine], but they did nothing. Oromorph [morphine solution] stopped the pain, but was not ideal; my doctor was not happy with my having a big bottle of morphine in the house—since my memory was not very good and because of my previous suicide attempts. I then moved on to Zomorph [morphine capsules], 10 mg twice daily with a daily collection from the chemist. I started to notice a dramatic reduction in pain lasting for roughly 6 hours after taking the first pill in the morning. This would then wear off and leave me feeling uncomfortable for the hours leading up until my next dose. From this point my ketamine intake started to decrease, as I wanted to use ketamine only when I was in pain. I explained this to my doctor, and she increased my dose of Zomorph until my admission to an inpatient addiction unit in Bristol.

After the first couple of days at the detox unit, I started to come out of my shell and participate in inpatient discussion groups. In the inpatient unit, I was put on a benzo reducing regimen to help the ketamine detox—a reducing dose of Librium [chlordiazepoxide] for a week along with my other painkillers, followed by Phenergan [promethazine hydrochloride] when needed as I came off the Librium.

I came out of the inpatient addiction unit and started to change my life. The first six months were a really slow process with regard to my bladder healing itself. It started becoming manageable six months after my last ketamine use, but it continued to be very sore and painful at times. I have to drink plenty of fluid and avoid caffeine. My bladder capacity is slowly improving but I had to wear absorbent pads at work for a long time and struggled with waking frequently in the night to go to the toilet. I am now two years clean from ketamine. My bladder and urinary functions are at about 80% of what I remember them to have been. I have not used any drugs since 10 months after my detox. I still have to drink a lot. If I do think about using ketamine, it doesn't take long to remember what it did to me.

to provide harm reduction advice. Since little is known about these substances, guidance on harm reduction is usually limited to common sense advice, including limiting consumption, reviewing the progression of any health concerns with a period of cessation, and total avoidance of the drug for people in high risk groups, such as those with pre-existing mental health issues.[3] For patients who seek information on internet forums about a drug before procuring it, remind them that although online reports can be useful, they can also be unreliable or irrelevant to a particular substance. Irrespective of whether the patient expresses an interest in change, end the consultation by asking for permission to review the issue in the future.

Are psychological interventions and specialist referral needed?

The National Institute for Health and Clinical Excellence does not have literature specifically related to these new recreational drugs, but its guidelines for psychosocial interventions for drug misuse[31] and substance misuse among vulnerable young people[32] highlight the value of motivational interviewing.[28] The benefits of a single session of motivational interviewing in addressing substance misuse by young people are supported by findings from a cluster randomised trial, with effect sizes ranging from 0.34 for alcohol to 0.75 for cannabis.[33] The same study showed that this approach can be used to target use of several different substances in a generic fashion. Substance specific interventions have shown broader positive effects, for example, on mood and on the use of other substances, as shown by a randomised controlled trial of cognitive behavioural therapy in amfetamine dependence.[34] Most users of new recreational drugs will be intermittent temporary users and will not experience any serious harms. We recommend a staged approach to management that begins in the primary care setting with the type of brief intervention outlined in this article. If a clinical problem or accompanying mental health problem is identified and the patient does not respond to a brief motivational intervention, consider referral to a specialist service for substance misuse if the patient is willing. Monitoring the association between drug use, cessation, and the progression of physical and mental health symptoms over time will help to inform the need for specialist referral.

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ANSWERS TO ENDGAMES, p 48 For long answers go to the Education channel on bmj.com

PICTURE QUIZ
A blistering eruption after a holiday in India

1 The diagnosis is contact dermatitis to paraphenylenediamine (PPD). This chemical is widely used in hair dye and is an ingredient in many other products, including black henna, which is used in temporary tattooing.
2 To confirm the diagnosis and identify any crossreactants, patch testing must be performed using one of the commercially available European standard series of allergens.
3 PPD contact dermatitis is managed with potent topical or oral corticosteroids as well as topical emollients. Advise patients to avoid the allergen and potential crossreactants.

STATISTICAL QUESTION
External and internal validity in clinical trials

Statements *a* and *b* are true, whereas *c* is false.

CASE REPORT A restless night's sleep

1 Restless legs syndrome.
2 The condition has no cure—treatment reduces symptoms and improves quality of life. For mild symptoms, advice about sleep hygiene may be all that is needed; for moderate to severe symptoms, dopamine agonists are the first line treatment.
3 She developed a complication of drug treatment known as augmentation.
4 The goal is to maintain the patient on as low a dose of the dopamine agonist as is possible.