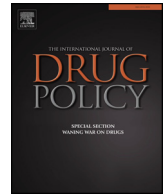




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## An urgent impetus for action: safe inhalation interventions to reduce COVID-19 transmission and fatality risk among people who smoke crack cocaine in the United Kingdom

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## ABSTRACT

Crack cocaine use is rising in the United Kingdom (UK), with smoking the primary form of administration. Provision of safe inhalation equipment for crack cocaine is prohibited under UK law. Pipes used for crack cocaine smoking are often homemade and/or in short supply, exacerbating COVID-19 transmission and respiratory risk. This is of concern, given high prevalence of respiratory health harms such as chronic obstructive pulmonary disease (COPD) among people who smoke illegal drugs. This commentary draws on scoping review and mixed method empirical evidence to argue for provision of safe crack inhalation equipment in the UK, with commensurate legal reform. Review of crack inhalation interventions illustrates the health protective and service engagement benefits of smoking equipment supply. Survey data generated with 455 people who inject drugs in London illustrate high prevalence of current crack use (66%,  $n = 299$ ). Qualitative accounts illustrate perceptions of relative smoking safety – alongside accounts of severe respiratory-related health harms. To date, injecting drug use has been of primary concern in relation to harm reduction initiatives. It is crucial that people who smoke illegal drugs are considered a vulnerable population in regard to COVID 19 transmission and fatality risk, with innovative harm reduction measures scaled up in response.

## Introduction

A primary focus of harm reduction research and intervention is mitigation of injecting-related health harms. Understanding and working to reduce the health harms associated with drug inhalation has, in the United Kingdom (UK), been comparatively neglected. It is crucial to rectify this deficit, particularly in the current COVID-19 context and in relation to crack cocaine (hereafter, 'crack') inhalation. In the UK very few treatment or harm reduction supports exist for the high and growing population of people who use crack. Although smoking is generally considered safer than injecting, legal provision is only available for injecting equipment distribution. As outlined in this article, this policy lacuna acts to heighten health harms and exacerbate COVID-19 vulnerability among an already very marginalised population.

The UK has the highest prevalence of people who use crack in the European region (EMCDDA, 2019). This is a growing population, with an 8.5% rise from 166,640 in 2012 to 180,748 in 2017 (Hay et al., 2019) highlighted as a matter of governmental concern (Public Health England and Home Office, 2019). An official inquiry into this increase reports heightened availability, affordability and acceptability of crack,

with expanded and 'aggressive' marketing also noted. While the majority of the increase in use is reported among people who inject drugs (PWID) and/or who are in receipt of opiate substitution therapy (OST), samples drawn from treatment and criminal justice services are subject to bias. Modelling data for 2017 estimate 52,677 people who use crack but not opiates (Hay et al., 2019). Women appear over-represented in this population, one that is largely 'hidden' from service or research data capture (Hope, Hickman & Tilling, 2005).

Well evidenced is the effectiveness of OST and needle and syringe programmes (NSP) in attracting stigmatised populations to services and reducing blood-borne virus transmission (Larney et al., 2017; Platt et al., 2018). The UK was an early adopter of this crucial harm reduction response, acting in 1986 to legalise needle and syringe provision to prevent an HIV epidemic among PWID. Commensurate action to protect the health and welfare of people who smoke crack is, however, stymied by legislative barriers. This commentary draws on mixed-method data from current research with PWID, coupled with review of the international academic and grey literature on crack smoking health impacts and interventions, to explore the case for review of UK policy pertaining to crack pipe supply. Just as the HIV epidemic provided a crucible for long needed legislative action regarding needle and syringe

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provision, the COVID-19 pandemic necessitates urgent action to expand and innovate harm reduction and drug treatment services for the benefit of people who smoke crack cocaine.

### Evidencing crack, attending to administration

Cocaine is one of the most widely used illegal drugs worldwide, with prevalence estimated at 0.4% (18.2 million) among people aged 15-64 (United Nations Office on Drugs and Crime, 2018). Global prevalence reports provide limited specificity regarding drug form, making it difficult to ascertain scale of crack cocaine versus powder (hydrochloride) cocaine use. National surveillance data specifying crack use are often stymied by sampling basis (recruitment services in the UK offering few crack-specific supports, for example) and thus likely to under-report prevalence, with seizure data subject to limitations due to the localised production of much crack product. Crack can, for example, be prepared in the home for personal use by heating powder cocaine with a base such as sodium bicarbonate (baking soda). Those with the economic and/or social capital to do so<sup>1</sup>, are less likely to fall within the demographic commonly associated with crack use and/or come to the attention of drug treatment services.

Limitations in the evidencing of crack use extend to mode of administration. Concurrent crack and heroin use are commonly reported among PWID in North American and UK research data, but mode of crack administration is not always specified. Given that crack can be injected (after conversion with an acid to a soluble hydrochloride, see Harris et al., 2019) the assumption may be that this is the primary practice or, conversely, if focusing on injection-related health harms, crack smoking may not be of interest or disclosed. The 'Care & Prevent' study provides an example. Survey data, generated with 455 PWID in London, orientated around understanding injection practices but also associations between skin and soft tissue infection (SSTI) and the renal disease, AA amyloidosis (see Harris et al. 2018, for rationale and methods detail). Renal risk necessitated addition of smoking related questions (McGowan et al., 2020). These highlighted a higher prevalence of current crack use (66%, n=299) than would have been captured by injecting specific questions alone (45%, n=207). Notably, mode of administration varied for many – with 92 exclusively smoking crack, 114 exclusively injecting and 93 combining crack smoking with injection.

Understanding and evidencing mode of administration is important, given variability of attendant health harms and needed intervention response. Crack injection is associated with reuse and sharing of injecting equipment (Del-Rios et al., 2019; Hickman et al., 2007), enhancing risk of viral and bacterial infections, such as HIV, hepatitis C and SSTI (Leyva et al., 2020). Crack smoking is associated with pulmonary and respiratory problems such as pulmonary oedema and chronic obstructive pulmonary disease (COPD) (Prudenti et al., 2019; Reino & Lawson, 1993; Restrepo et al., 2007), but also infections secondary to sores, burns, or cuts, with some evidence of blood-borne virus transmission from shared crack pipes (Butler et al., 2017; DeBeck et al., 2009; Fischer et al., 2008; Macias et al., 2008). The current COVID-19 pandemic casts into stark relief smoking related harms and in doing so calls into question traditional harm reduction hierarchies of risk. As noted in a qualitative account below, for some, transitioning away from smoking to injecting may be a pragmatic response to COVID-19 related risk.

<sup>1</sup> Crack cocaine is generally available in smaller weights and thus lower prices than powder cocaine. It is able to be consumed immediately, whereas the 'washing up' process necessitates time, some expertise and access to a safe private space.

### Smoking related respiratory risk

Reported COPD diagnosis among the C&P participant sample was 14% (n=65). This likely reflects limited diagnosis within this population. A UK study providing spirometry testing to 807 drug treatment clients with similar characteristics to the C&P participants, found that 47% (319) had COPD and, of these, 59% were previously undiagnosed (Peat et al., 2016, see also Nightingale et al., 2020). Spirometry testing is not routine or employed at many drug treatment services in the UK and, as illustrated by C&P qualitative accounts, access to medical care is infrequent and characterised by delay. Ross spoke of living with severe respiratory pain for three weeks before ambulatory admission to hospital:

It was awful, it was like someone stabbing me, every time I was breathing in... Severe pain and then when I'd have a hit of heroin it would work, it would stop the pain for about 2 minutes and then I'd be back in pain and then I had a fever and then eventually my girlfriend phoned the ambulance.

For others, continuing to self-medicate and/or lacking a partner to call an ambulance, acute respiratory symptoms may not come to medical attention. Dean, for example, stated: "I can't breathe sometimes, I struggle to get to the chemists to pick my Methadone up, I get out of breath and I still haven't been to the hospital for that". Prolonged delays in seeking care can compound injury, necessitating lengthy hospital stays: "I've had collapsed lungs, I was in hospital for about 3 or 4 months with that, then I had crack lung, I was in hospital for about 4 months for that, smoking too much crack" (Jeff).

Smoking risk is rarely prioritised in harm reduction interventions, which predominately orientate around injecting practices. This perception of risk hierarchy is reflected in many accounts, with smoking framed as the 'healthier option': "I don't want to inject anymore ... If I can get a decent, enough blows off of a pipe it's not going to do that much damage is it" (Ian). Kirsty however, had recently transitioned to injecting after ten years of smoking crack cocaine, saying: "I can't really smoke it because my asthma's too bad. That's why I've started doing this [injecting]". Participants desired access to safer smoking technologies. Craig who referred to himself as having "an entrenched smoking habit" said "the perfect solution for me would be that I could vape my drugs ... if I could vape heroin, I'm happy". Another participant reported adding crack to tobacco vaping liquid, with apparent success, but this was an isolated case.

### Constrained pipe options, transmission risk

The means by which people smoke crack impact not only respiratory vulnerability but also viral transmission risk. Crack smoking is associated with high rates of sharing pipes, likely due to limited pipe availability and the sociability of crack smoking for some (Cheng et al., 2015; Ivsins et al., 2013). Use of makeshift pipes can exacerbate risk of lip trauma with blood particles on shared pipes associated with transmission risk for HIV, hepatitis C (Macias et al., 2008; Shannon et al., 2006; Ward et al., 2000) and tuberculosis (Prangnell et al., 2017). Any sharing of pipes poses an acute COVID-19 transmission risk, given the infectivity of the virus. COVID-19 should, however, not be the only impetus for legislative change. Health harms associated with use of makeshift pipes are myriad, as illustrated below.

Pipes used in the UK for crack smoking include glass or metal pipes, often marketed for sale as ornaments, and makeshift or repurposed implements such as metal soft drink cans, glass bottles, plastic water bottles, lightbulbs and empty asthma inhalers (see figure 1). Most C&P participants, if specifying smoking equipment, referred to repurposing small glass bottles, as Ben describes:

A Martell bottle. So a glass alcohol bottle, a small one. You have to get, you know the spiky fences - you just hit it on the bottom bit so then the glass pops through and they've changed the Martell bottles



**Figure 1.** Makeshift pipes from bottles.  
(All photos provided to the author by people who use crack in the UK)

now so you can't do it because they realised why people were doing what they do, so create a hole in the bottom and then you get the mesh or the metal and you just burn it and then put it into the top and then you've got a pipe.

Of note here, is the reference to the design of Martell bottles being changed to prohibit conversion. This is a concern, exacerbating risk of health harms such as cuts, burns and fume inhalation from use of less suitable materials such as tin cans and plastic bottles.

Crack pipe choice is primarily determined by availability (Shehab, 2014; Ti et al., 2011). When safe supply is limited or absent, health harms are exacerbated. Pipes made from fragile and/or non-heat resistant glass can break or explode on use, risking cuts and burns; tin cans or metal pipes can overheat, causing burns to lips, hands and mouth; broken pipes or materials with sharp edges can cause damage to the lips and hands; pipes with very short stems can cause respiratory damage through hot smoke inhalation and nose burns when lit too close to the face (Leonard et al., 2008; Fischer et al., 2010; Malchy et al., 2008; Porter et al., 1997; Prangnell, 2017). Use of plastic implements, such as old asthma inhalers or plastic bottles can partially melt and cause respiratory damage through fume inhalation (Shehab, 2014; Ti et al., 2011). Fumes may also be emitted from repurposed tin cans, with the use of ash as a suspension device exacerbating toxin inhalation (Carty, 2002; Shehab, 2014). Other materials used as filters or suspension devices include metal screens supplied for cannabis pipes and pieces cut from stainless steel scouring pads. Scouring pad pieces can shed loose fibres and/or break apart during use, with particles inhaled associated with mouth bleeding and respiratory damage (Malchy et al., 2008; Porter et al., 1997; Prangnell et al., 2017). Metal screens can come loose on repeated use and be inhaled, as documented in case reports (Ludwig et al., 1999; Moettus et al., 1998).

### Safe inhalation interventions

Safe inhalation kits typically include heat-resistant Pyrex and/or borosilicate glass pipes, metal filters, rubber mouthpieces and push sticks for cleaning pipes and collecting crack residue (Haydon & Fischer, 2005; Malchy et al., 2011; Shehab, 2014; Ti et al., 2011). The majority of intervention evaluation data stem from Canada where crack smoking harm reduction and equipment provision is widespread (Strike and Watson, 2017). Evidenced outcomes include reported reductions in the sharing and/or use of risky crack paraphernalia; increased health risk awareness; improved access to services offering crack paraphernalia and transitions from injecting to smoking (Frankeberger et al., 2019; Ivsins et al., 2011; Leonard et al., 2008; Malchy et al., 2008; O'Byrne & Holmes, 2008; Prangnell et al., 2017). Reported decreases in pipe sharing appear incremental but sustained (Haydon & Fischer, 2005), with pipe acquisition through health services significantly and negatively associated with reporting crack-related

health problems (Prangnell et al., 2017).

Despite evidence of positive impact on service engagement and health harms, many of the Canadian interventions report the need for intensive advocacy efforts before and during implementation, with widespread resistance, including from law enforcement, limiting capacity (Fischer et al., 2007; Ivsins et al., 2013). These impacts were differentially experienced and enacted across localities. Toronto services, for example, report targeted law enforcement, with crack pipe confiscations and charges laid against service providers and clients under the Controlled Drugs and Substances Act. In Vancouver, however, police issued a statement assuring of the legality of pipe possession and supply, providing needed reassurance to providers, suppliers and consumers of safe inhalation interventions (Haydon & Fischer, 2005). In the UK context, where supply is prohibited, such a reassurance could be provided through a 'letter of comfort' or 'memorandum of understanding' between police and service providers. This would amount to an informally agreed non enforcement approach operating on a local basis - a form of de facto decriminalisation, similar to tolerance approaches, such as refraining from policing near drug services, that have often preceded formally legislated harm reduction innovations.

Given prohibitions on crack pipe supply, there is a dearth of evidence on associated interventions in the UK context. There are indications of 'underground' distribution in some UK locations, including through secondary supply. It is crucial that these are supported and evidenced, particularly given the current COVID-19 context. Early initiatives include the peer-based 'Crack Squad', who offered innovative harm reduction advice and worked to destigmatise crack use through dispelling myths regarding inevitable compulsivity and dysfunction (Carty, 2002). The Crack Squad advocated for the safe and legal supply of crack pipes and mouthpieces, while also informing on the relative risks and benefits of alternative options, including homemade pipes. The PIPES (Promoting Inhaled Pleasure Easily and Safely) intervention also aimed to empower users by informing of the harms and benefits of different crack smoking devices. Qualitative interviews demonstrated intervention need, with limited knowledge evident about harms associated with different pipes and cutting agents. Reflecting on PIPES, Shehab (2014) comments on the frustrations and limitations of providing information on the health risks of makeshift equipment while legally unable to supply safe pipes to enable risk reduction.

Irish law differs from that in the UK, in that there is no criminal provision relating to the supply of equipment for the administration of a controlled drug. Pipes are distributed through NSP and associated services, with a street outreach initiative highlighting the relationship between pipe acceptability and service engagement. Over a year, seven pipes were trailed with outreach engagement ebbing and surging according to pipe provided. Crack use was not reported to increase during the intervention, with the following acceptability criteria deemed



Figure 2. Glass pipes using stainless steel suspension devices, with crack and residue.

essential to maximise service engagement: pipe size and durability (small, strong and easy to conceal); provision of purpose fit gauze; good retention of crack residue (enabling reuse, see figure 2); familiarity and ease of use (does not require a change in smoking technique); and pleasure (does not diminish drug effect) (O’Heaire, 2013).

## Discussion

As with other illegal drugs, crack use crosses social strata, but is particularly associated with poverty, homelessness, incarceration, and limited access to or uptake of health and social services (Butler et al., 2017; Fischer et al., 2015; Ivsins et al., 2013). A dearth of crack-specific treatment and harm reduction services exacerbates social marginalisation. Despite the evidenced potential for safe inhalation interventions to reduce harms, including through promoting transitions from injecting, resistance to implementation has been widespread. In the UK this takes the form of legal prohibition, stymieing service provision and needed context-specific intervention development and evaluation research. The evidence for respiratory and viral transmission harms from unsafe crack pipe use is, however, irrefutable. The COVID-19 pandemic puts these risks in sharp relief and offers a window of opportunity for needed change.

The British Medical Journal hosts a dedicated blog to COVID-19 and smoking related harms. Here Barnsley & Singh Sohal (2020) call for research attention and funding to be given to the role of smoking in the contraction, transmission and mortality rate of Covid-19, with budget allocation to health stimulus packages, scientific research, and actions to further reduce smoking rates. They refer to tobacco smoking, an easily measured and relatively widespread practice, of epidemiological significance in mapping COVID-19 transmission and fatality risk. While publication on the interplay between COVID-19 risk and tobacco smoking abound (eg. Cai, 2020; Vardavas & Nikitara, 2020), commensurate attention to marginalised populations who smoke illegal drugs (most of whom also smoke tobacco) is limited. Kalan et al. (2020) stress the potential of waterpipe (hookah) tobacco smoking to facilitate COVID-19 transmission, given the common practice of sharing waterpipes (albeit with disposable mouthpieces). Sharing of crack pipes, often homemade and offering limited respiratory and transmission protection, is arguably of greater concern.

Provision of OST and sterile injecting equipment is evidenced to have saved countless lives – not only through directly averting hepatitis and HIV transmission but indirectly, though providing links to ancillary health and social care services. While OST offers protection against heroin withdrawal, there is no commensurate pharmaceutical treatment available for crack use. While people with COPD are recognised as a COVID-19 vulnerable population, entitled to receive assistance such as medication delivery to self-isolate, respiratory conditions are likely underdiagnosed among people who smoke illegal drugs. This has implications for the ability and will to enact protective practices, particularly in the absence of well-established pharmacological supports for stimulant dependency. NSP in the UK offers few options for people who

smoke illegal drugs, apart from the recent provision of foil to capacitate heroin inhalation. The limited reach and relevance of extant treatment services for people who use crack is recognised at a governmental level, with an associated call for research on how to best engage those ‘hidden’ from service access (Public Health England & Home Office, 2019).

North America provides an example of where to start. While crack pipes are supplied in many European countries, Canada offers a comparative wealth of published evidence on safe inhalation intervention implementation and impact. Outcome measures generally pertain to pipe sharing practices, service engagement and health impacts such as BBV transmission. Reductions in risk practices and positive health impacts are evidenced (Pragnell et al., 2017), with increased pipe availability supporting service engagement, also transitions away from drug injecting (Leonard et al., 2008). The Irish outreach intervention report (O’Heaire, 2013) illustrates not only the importance of availability but pipe acceptability for enhancing engagement and uptake. This is one of the few studies to detail the pragmatics and pleasures important to people who smoke crack when considering a pipe. Residue collection potential, for example, is rarely mentioned in the published literature – yet crucial when considering economies of use (Porter et al., 1997). Some pipes will retain crack residue better than others, enabling reuse and potentially diminishing urgency of the next purchase. Makeshift smoking implements such as crushed tin cans are not only harmful to health, but do not enable residue collection and reuse (Shehab, 2014). Motivation to use safe inhalation devices is likely to be high among people who smoke crack in the UK, particularly if accompanied by peer-disseminated information on their pleasurable and pragmatic benefits. A high proportion of London PWID participants report both current crack injection and smoking. Provision of acceptable pipes may be instrumental in further facilitating transitions away from injecting.

Current UK law prohibits supply of crack pipes and related paraphernalia under section 9A of the Misuse of Drugs Act 1971. Prior to 1986, provision of any injecting equipment was prohibited, with early drug user networks and some service providers contravening the law in recognition of the serious risk posed to their communities by the HIV/AIDS epidemic. In 1986, the Thatcher Government acted to avert the spread of HIV by inserting section 9A into the Misuse of Drugs Act. This allowed for the legal provision of hypodermic syringes but explicitly prohibited supply of any other injecting or drug use equipment. Covert supply of paraphernalia was enacted by some providers to facilitate safe injecting and reduce health harms. Citric acid provision, for example, offers safe alternative to use of lemon juice (associated with serious candidal eye infections) in injection preparation. The first letter of comfort for injecting paraphernalia appears to have been negotiated with the Dorset Police Constabulary in the late 1990s to protect providers from prosecution under the Misuse of Drugs Act for citric acid supply. In 2003 provision of citric and other injecting paraphernalia items (filters, water, cookers) were legalised as exceptions to Section 9A. The most recent addition to these exceptions was in 2014, when after four years of campaigning and a prolonged legislative process,

provision of foil was permitted to encourage people to smoke heroin rather than inject (Exchange Supplies, 2018).

Amendments to Section A of the Misuse of Drugs Act 1971 can take years to enact. Pursuing this legislative process for provision of safe inhalation equipment will take too long to impact COVID-19 related risks. In March 2020, the author and others made a 'letter of comfort' for crack pipe provision request. If granted, this would give assurance to providers that they could supply crack pipes without prosecution. The case was made, as in this paper, that safe inhalation equipment provision could reduce COVID-19 transmission and fatality risk. While supported by members of the police force, this request was refused at the Home Office level. Given the urgency of the situation, and a raft of other measures taken to reduce harm among the most vulnerable – such as unprecedented flexibility in OST prescribing – this refusal is concerning. It is indicative, perhaps, of the particularly vilified status of crack cocaine and its use. Demonstrating the 'moral sidestep' in drug policy at play (Stevens, 2019), concerns about 'liberalisation of drug use' were called on to sidestep evidence for reductions in health harms.

The provision of injecting equipment is well evidenced to have prevented viral transmission and saved lives (Larney et al., 2017; Platt et al., 2018). Given the lacuna in care provisions for people who smoke crack, it is timely to turn to the early days of the HIV epidemic and learn from the actions that initiated legal reform of injecting equipment provision. North American users responded to the rise of HIV/AIDs among their community in the late '70s with the underground distribution of needles and syringes; Junkiebond, a Netherlands user collective, pioneered peer-led needle exchange in the early 80s (Friedman et al., 2007). Innovation requires courage – potentially acting outside the law to protect the health of marginalised communities while advocating for legal reform. Urgency, such as we are faced with in this current pandemic precludes negotiation of lengthy legal procedures. Harms averted by swift action, albeit risky, can strengthen advocacy claims for legislative change.

## Conclusion

*In the current COVID-19 context, people who use drugs face unique needs and risks ... the COVID-19 pandemic requires countries to take extraordinary measures to protect the health and well-being of the population. (Pūras, 2020)*

Dainius Pūras, the United Nations Expert on the Right to Health, calls for countries to take courage and enact extraordinary measures to protect the health of their citizens. Provision of safe inhalation devices for people who smoke crack cocaine is not, however, an extraordinary measure. This simple and cost-effective intervention is evidenced to reduce health harms and provide a link to services for a largely disenfranchised population. Refusal by the Home Office to countenance this action calls into question the presumed 'citizenship' of those whose health it would protect. Crack use remains uniquely demonised; enacted stigma and internalised shame can exacerbate harmful use and preclude service engagement. It is imperative that services are offered reassurance so that they can offer purpose-made pipes and mouthpieces to people who smoke crack. This is crucial to help reduce COVID-19 infection, adverse outcomes and other respiratory-based health harms for this marginalised population. More broadly, safe inhalation initiatives provide a point of connection for a high risk, largely disenfranchised population and, through this recognition, can act to diminish shame and foster wellbeing.

## Conflict of interests declaration

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Competing interests: None

Have you obtained ethical approval for the conduct of your study?

Yes

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