

ACMD

Advisory Council on the Misuse of Drugs

Chair: Professor Les Iversen
Secretary: Will Reynolds
3rd Floor Seacole Building
2 Marsham Street
London
SW1P 4DF
020 7035 0454

Email: ACMD@homeoffice.gsi.gov.uk

Dr Mark Prunty
Wellington House,
133-155 Waterloo Road,
London
SE1 8UG

21st December 2011

Dear Dr Prunty,

Re: Consideration of the use of foil as an intervention, to reduce the harms of heroin and cocaine.

Thank you for your letter of 12th August 2011. The ACMD are pleased to enclose further advice, as requested, about the risks of physical harms from smoking heroin and cocaine.

The three questions that you raise are:

- 1) The effects of heroin and crack cocaine on the lungs (following inhalation)
- 2) The thermal effects of smoking from foil on lung health
- 3) The risks of infections from smoking heroin (e.g. non-injecting routes of Hepatitis C transmission).

The ACMD is mindful that in consideration of whether foil should be provided as legal paraphernalia a key issue is weighing the risk of physical harm from smoking against the risk of injecting.

In objectively considering the questions you raise, the ACMD has obtained evidence from peer review journals, reports and further discussion with experts.

The findings of the attached report are supportive of those in the ACMD report *Consideration of the use of foil as an intervention, to reduce the harms of injecting heroin* (available at: <http://www.homeoffice.gov.uk/publications/agencies-public-bodies/acmd1/foil-report>). The ACMD believe that foil, as an intervention, can support an individual's treatment journey towards recovery. In addressing these further questions, the ACMD consider that there is a strong case that foil is exempted under Section 9A of the Misuse of Drugs Act 1971.

The ACMD would wish to make clear that, in its consideration, the physical harms of smoking are *significantly* less than those associated with injecting. These were summarised recently by the Department of Health publication “A summary of the health harms of drugs”¹ which highlighted that smoking, compared with injecting, presents significantly reduced risks associated with:

- blood borne viruses,
- systemic infections;
- soft tissue and venous damage; and,
- overdose.

The questions you pose are pertinent since, should foil be provided, it is important to be aware of, and put in place measures to mitigate against, the different risk factors with smoking.

Therefore, the ACMD suggest that, if services provide foil they should:

- encourage people who inject drugs to switch to less harmful methods of drug use e.g. smoking;
- discuss treatment options and signpost to other providers if service users want to address their drug use;
- provide health promotion advice, for example, blood borne virus screening, vaccination and sexual health advice;
- ensure staff are aware of the respiratory complications of smoking from foil, can provide advice on this and signpost to services for further screening if required; and,
- ensure staff have the appropriate training to deliver these interventions and support service users in making changes that supports their recovery.

The ACMD advice on foil is consistent with public health guidance 18 issued by the National Institute for Health and Clinical Evidence (NICE), ‘Needle and syringe programmes: providing people who inject drugs with injecting equipment’ (February 2009). The ACMD considers that recommendation 4 (‘equipment and advice’) is particularly relevant as it recommends that people who inject drugs should be encouraged to “switch to other methods of drug use” - the provision of foil will support this recommendation.

The ACMD has drafted ‘best practice guidance around mitigating the health risks of smoking heroin/crack cocaine’ that may assist in delivering foil as an intervention – see Annex 1. Should Ministers consider accepting the ACMD’s advice it would welcome discussion in developing this document.

Yours sincerely,



Professor Les Iversen FRS

Cc: Anne Milton
Lord Henley

¹ Department of Health. A summary of the health harms of drugs. August 2011.

Report into the physical effects of smoking heroin/crack cocaine and the risks of infections.

The ACMD provides the following short report in response to questions (in bold as headers) concerned with the risks of physical harms from smoking heroin/crack cocaine.

- 1. The effects of heroin and crack on the lungs (following inhalation)**
- 2. The thermal effects of smoking from foil on lung health**

Tashkin^[1] has summarised the pulmonary harms caused by smoking heroin and other illicit drugs.

Toxic leukoencephalopathy (structural alterations of neuronal white matter in cerebellum and/or cerebral cortex) is a rare and potentially lethal adverse effect associated with heroin vapour inhalation^[2], although it has also been seen after administration through other routes^[3]. It is estimated that 25% of cases result in fatality. It is uncertain whether leukoencephalopathy results from use of 'adulterated' or 'contaminated' street heroin, or is a toxicological risk of pure heroin.

Heroin-induced bronchoconstriction can be particularly severe in patients with already recognized asthma^[4]. Possible mechanisms leading to heroin-induced bronchospasm include local airway irritation from the heroin fumes, including impurities in the inhaled mixture, and opiate stimulated histamine release^[4]. In a cross sectional study of 100 community methadone patients, a significant association between heroin-smoking, FEV1 (exhaled volume) and prevalence of dyspnoea (shortness of breath) was found^[5]. Twenty per cent of subjects experienced dyspnoea while 'walking at a normal pace with someone of their own age'. Tobacco smoking is considered to worsen pulmonary outcomes, and is an important confound in this type of research. Smoking prevalence is greater in heroin users than in the general population^[6] and furthermore, some research has suggested that cigarette smoking is greater in heroin smokers than injectors^[6].

Smoking cocaine also causes bronchoconstriction and long term use can lead to significant damage to the lungs, resulting in a range of chronic diseases. A US study reported that up to half of cocaine users presenting to hospital with respiratory complaints were found to have abnormal chest radiographs^[7]. Acute use of smoked crack cocaine can also cause intense vasoconstriction, causing symptoms of severe chest pain, difficulty breathing and fever, a syndrome known as "crack lung" which may also become a chronic condition with prolonged drug use^[8].

Thermal airway injury may be secondary to drug use, leading to tracheal stenosis; it may result from either (a) inhalation injury from chemical by products transported in the smoke, or (b) intratracheal combustion of highly inflammable solvents used in the production process^[9]. Inhalation of hot drug vapour *may* in itself be associated with thermal damage to the lungs, but no studies were identified which had examined this in detail.

It should be noted that IV use of heroin is also a risk factor associated with pulmonary infections, including^[10]:

- More cases of community-acquired pneumonia;

- Lung abscess formation;
- Septic emboli with or without endocarditis;
- M. tuberculosis and bronchitis;
- Bronchiectasis
- Pleural and mediastinal infection

3. The risks of infections from smoking heroin or cocaine (e.g. non-injecting routes of Hepatitis C transmission).

The ACMD Report on Hepatitis C^[11] reported that 80% of Hepatitis C infections were associated with intravenous drug use, and HPA's *Shooting Up* series of reports (last published in November 2011)^[12] presents data from a sample of IDUs drawn from needle exchange services. In 2010, around one-half of injecting drug users were infected with Hepatitis C, one-sixth with Hepatitis B, and about one-third reported a symptom of a bacterial infection (such as a sore or abscess) at an injecting site in the past year. Transmission of HIV through drug use is low in the UK (approximately 1.1% of IDUs in England, Wales and Northern Ireland in 2010), but this has increased from 0.7% in the last decade.

Scheinmann and colleagues^[13] conducted a systematic review of the evidence on the prevalence of Hepatitis C Virus (HCV) in non-injecting drug users who reported use of heroin, cocaine, crack or methylamphetamine (although there was some (small) concern raised by the authors that the studies (inadvertently) included IDUs) for which they concluded that HCV prevalence was higher than in non-drug using populations. Risk factors of HCV included sharing a crack pipe (material not mentioned) or a rolled bank note for heroin use. One of the studies reviewed reported that 'ever sharing' 'non-injected heroin implements' was a significant risk factor for HCV. However, no specific data on risks from smoking heroin on foil was presented.

A nationally representative study conducted in Luxembourg found that seroprevalence of a range of blood borne virus in treatment service clients and prisoners was less in non-injecting drugs users than injectors^[14]. For example, HIV prevalence was 19.1% (non-IDU) vs 81.3% (IDU); and HCV 8.9% vs 29.1%. A similar study of Italian heroin users estimated that HCV seroprevalence was 11 times less in non-IDU than IDU^[15]. In such surveys it is always possible that the "non-IDU" group contains some mixed non-IDU/IDU subjects.

A cross-sectional study of young adults in an impoverished neighbourhood in New York City investigated the relationships between drug use and prevalence of sexually transmissible infections^[18]. The research team concluded that HCV infection was concentrated among 'drug injectors' and the calculated odds ratios for men and women were 40.6 (95% CI 8.7-292) and 149 (95% CI 31.0-999+) respectively. There were also increased risks of contracting HIV, HSV-2 and hepatitis B for both groups. The researchers note wide CI due to the limited numbers of infected individuals but concluded that some infections, notably HIV, HCV and, for women, syphilis, were concentrated among IDUs.

Another study of New York heroin users (where heroin inhalation over foil has historically been high) found that 'never-injectors' infected with HIV and HBV were

mostly infected through sexual transmission, whereas injectors appear to have become infected with HIV and HCV mainly through injecting risk and with HBV through both injecting and sexual risk^[16].

A study conducted in 1990 in Amsterdam investigated the prevalence, incidence and risk factors of HCV infection among drug users^[17]. The researchers reported that IDU's had a seroprevalence of 74% versus 10% in non-IDU's. Risk factors reported as being independently associated with HCV antibody seropositivity were history and duration of intravenous drug use and frequency of injections. Daily smoking of heroin in the previous 6 months was independently associated with the absence of HCV antibodies.

There is evidence for an independent association of crack cocaine use and smear positive (active) tuberculosis (TB). In a case control study in London 86% of crack users tested smear positive for TB compared with 36% in non-drug users^[19]

Whilst the presence of potential confounds makes the assessment of risk of viral or bacterial infection in users of foil is difficult, several studies, such as those cited above, have shown markedly lower rates of infection in non-IDU heroin users. However, rates of hepatitis C infection are still higher in non-injecting drug users than in the general population^[20]. This could be due to a number of factors: – contamination of non-injecting drug groups with occasional injectors; sexual transmission^[16]; contamination of the drug sample; or contamination of the smoking equipment with hepatitis C virus^[21]. Hepatitis C infection is more common in older non-injecting users, those with tattoos, and crack cocaine users who share inhalation implements^[22].

An outbreak of severe soft tissue infection among heroin injecting drug users was reported in Glasgow, Scotland in 2002^[22]. The most frequently isolated pathogen was *Clostridium novyi* type A, and findings pointed to contaminated heroin that was injected as the source of infection^[23]. Other pathogenic clostridia such as *Clostridium histolyticum*, *Clostridium sordellii*, *Clostridium perfringens*, *Clostridium septicum* and *Clostridium bifermentans* have also been reported following intra muscular injecting practice^[24].

There are no reliable statistics comparing rates of viral or bacterial infection in crack cocaine users employing the traditional smoking equipment as opposed to foil. However, since the boiling point of cocaine base is 187-188°C, and heroin is 272-274°C, (Merck Index) and the temperature of foil when heated can rapidly rise to as high as 600°C^[25] it would seem very unlikely that viral infection could occur by this route, even if the sample of cocaine or heroin was contaminated.

A review of more than fifteen years of Dutch experience in switching IDUs to foil^[26] reported uniformly positive public health outcomes and an almost complete switch from injecting to use of foil. However, respiratory complaints are regularly seen and these can be severe, emphasising the need for public health warnings to foil users.

If foil were legally available, this would be in accordance with the recommendation in NICE (2009) public health guidance 18^[27]:

“Provide other injecting equipment associated with illicit drug use and encourage people who inject drugs to switch to other methods of drug use. (At the time of publication, legally permitted equipment included filters, mixing containers and sterile water.)”

References

1. Tashkin (2001) Airway effects of marijuana, cocaine, and other inhaled illicit agents. *Current Opinion in Pulmonary Medicine* 7:43–61
2. Wolters (1982) Leucoencephalopathy after inhaling heroin pyrolysate. *Lancet* 320: 1233-37
3. Blasel et al (2010) Toxic leukoencephalopathy after heroin abuse without heroin vapor inhalation. *Clinical Neuroradiology* 20: 48-53
4. Buster et al (2002) Chasing the Dragon, related to the impaired lung function among heroin users. *Drug and Alcohol Dependence* 68:221-228
5. Kalman et al (2005) Co-morbidity of smoking in patients with psychiatric and substance use disorders. *American Journal of Addiction* 14: 106–123.
6. Liu et al (2011) Differences in Cigarette Smoking Behaviors Among Heroin Inhalers Versus Heroin Injectors. *Nicotine and Tobacco research* doi: 10.1093/ntr/ntr115
7. McCarroll and Roszler (1991) Lung disorders due to drug use. *Journal of Thoracic Imaging* 6:30-35
8. Kon et al (1996) “Crack lung” caused by an impure preparation. *Thorax*, 51: 962-3
9. Kools JP (1992) Chasing the Dragon. Available from <http://www.moravek.net/ovisnosti/dragon.htm> (accessed 17/11/11)
10. Rayner and Prigmore (2008) Illicit drug use and its effect on the lungs. *Nursing Times* 104: 40–44
11. ACMD (2008) Hepatitis C Report. London: Home Office
12. HPA (2011) Shooting Up – Infections among people who inject drugs in the United Kingdom. An update: November 2011.
13. Scheinmann et al (2007) Non-injection drug use and Hepatitis C Virus: A systematic review. *Drug and Alcohol Dependence* 89: 1-12
14. Removille et al (2011) A hepatitis A, B, C and HIV prevalence and risk factor study in ever injecting and non-injecting drug users in Luxembourg associated with HAV and HBV immunisations. *BMC Public Health* 11:351

15. Quaglio et al (2003) Factors Associated with Hepatitis C Virus Infection in injection and non-injection drug users in Italy. *Clinical Infectious Diseases* 37: 33-40
16. Gymarthy et al (2003) Risk correlates of prevalent HIV, hepatitis B virus, and Hepatitis C Virus infections among noninjecting heroin users. *Journal of AIDS* 30:448-456
17. Van den Hoek JA et al (1990) Prevalence, incidence, and risk factors of hepatitis C virus infection among drug users in Amsterdam. *Journal of Infectious Diseases* 162/4: 823-826.
18. Friedman et al (2003) Drug use patterns and infection with sexually transmissible agents among young adults in a high-risk neighbourhood in New York City. *Addiction* 98: 159-169
19. Story et al (2008) Crack cocaine and infectious tuberculosis. *Emerging Infect Diseases* 9:1466-69
20. Scheinmann et al (2007) Non-injection drug use and Hepatitis C virus: a systematic review. *Drug and Alcohol Dependence* 89: 1-12
21. Fischer et al (2008) Hepatitis C virus transmission among oral crackusers: viral detection on crack paraphernalia. *European Journal of Gastroenterology and Hepatology*, 20:29-32
22. McGuigan et al (2002) Lethal outbreak of infection with *Clostridium novyi* type A and other spore-forming organism in Scottish injecting drug users. *Journal of Medical Microbiology* 51:971-977
23. Karishma et al (2011) Shooting up: the interface of microbial infections and drug abuse. *Journal of Medical Microbiology* 60: 408-422
24. Brett et al (2005) Soft tissue infections caused by spore forming bacteria in injecting drug users in the United Kingdom. In *Epidemiology and Infection*. Cambridge: Cambridge University Press
25. Kools (2010) From Fix to Foil. The Dutch experience in transitioning away from injecting drug use, 1991-2010. Available from http://www.exchangesupplies.org/article_moving_from_fix_to_foil_dutch_experience_by_John_Peter_Kools.php Accessed 17/11/11
26. NICE (2009) NICE public health guidance 18 Needle and syringe programmes: providing people who inject drugs with injecting equipment. London: NICE

Annex 1. Best practice guidance around mitigating the health risks of smoking heroin/crack cocaine.

It is incumbent on any practitioner to offer alternatives to risk taking behaviour at any point on an individuals' treatment journey. Although this applies to all forms of drug use and routes of administration, there are significant harms associated with intravenous administration of drug, particularly heroin and crack cocaine, mean that proactive interventions should engage and support around *route transitions* away from injecting drug use.

Promotion of smoking and foil distribution should be used to address the following needs of three groups;

- a) encourage heroin and cocaine smokers into early and regular contact with services to prevent initiation into injecting;
- b) raise awareness of foil as an intervention amongst those individuals who may be 'foil naïve'; and,
- c) provision of foil as an engagement tool with people still actively injecting.

Promoting smoking and thereby reducing harm by providing foil

The promotion of smoking drugs as an alternative to injection by providing foil is considered to have the following objectives:

- To promote transition prevention - dissuading smokers/chasers moving to injecting as route of drug transmission;
- To promote reverse transition - supporting switch from injecting to smoking as a route of drug transmission; and,
- To promote lower levels of dependence, reduced blood borne virus and bacterial transmission and reduced overdose risk.

Educating the benefits of smoking over injecting should be central to transition and reverse transition interventions. Transition intervention require practitioners to highlight that the following risks are largely eliminated when drugs are smoked:

- Contracting Hep B, Hep C and HIV through injecting
- Abscesses, Cellulitis or Phlebitis
- Thrombosis (Vein Collapse)
- Deep Vein Thrombosis (DVT) and pulmonary Embolism (PE)
- Gangrene
- Fungal Infections
- Septicaemia
- Endocarditis
- Ulcers or Arterial Damage
- Seriously reduces the risk of overdose when compared to injecting.

Smoking may be unattractive to injectors who may have previous negative experiences of chasing and such experiences need to be acknowledged and understood while remaining positive about chasing as an option at times when injecting becomes less feasible or attractive to the individual.

It is important recognise that for many injectors a move away from injecting can be a cause for anxiety about reduced drug impact and effectiveness, onset of withdrawal

and the need for increased income to support what can be seen as a less effective route of administration.

However all people who inject drugs (PWID) can benefit from switching to smoking their drugs and there are particular situations and presentations where targeted transition interventions should be offered and where promotion of a move to smoking would be more attractive:

- Restricted venous access
- Consideration or recent move to femoral or similarly dangerous injecting site
- When experiencing significant harms associated with femoral or other deep vein injecting
- On release from prison or after recent detoxification
- New initiates to injecting where tolerance levels are typically low

Smoking as step toward other recovery oriented drug treatment interventions

Basic harm reduction is the first step on the hierarchy of goals which includes where relevant access to substitute prescribing, specialist psychosocial interventions and abstinence through detoxification

Hierarchy of Goals

- Reduce sharing of injecting equipment
- Reduce injecting
- Reduce use of street drugs
- Reduce use of prescribed drugs
- Increase abstinence.

(ACMD, AIDS and Drug Misuse 1998)

Interim report of the Recovery Oriented Drug Treatment Review Group, Strang 2011

Advice in promoting the transition from injecting to smoking

The following is a list of basic advice (that should be augmented with services) in promoting the transition from injecting to smoking:

- Encourage the use of crack pipes and lip balm/Vaseline to prevent cracked lips.
- Offer advice on what to look out for in terms of symptoms and signs of a chest infection so that early treatment can be sourced prior to the development of a serious infection/pneumonia.
- Offer specific advice to individuals with pre existing respiratory conditions such as Asthma and Chronic Obstructive Pulmonary Disease (COPD) - encouraging and supporting people to have regular asthma checks with their GP, to understand how to step up their inhalers, (relievers and preventers), in response to worsening symptoms such as shortness of breath and wheeze. Encourage such patients to be aware of how to check their lung function using their home peak flow meter and to know when their lung function is deteriorating and to use this as a means of placing some controls on their smoking.

- Substance misuse workers and well being nurses working in substance misuse services should be aware of those individuals with associated respiratory co morbidity through careful assessment and ensure that they have active respiratory self management plans in place and are regularly accessing COPD/asthma clinics in primary care.
- Be aware of the strong link between opiate and crack smokers and nicotine smoking. Encouraging individuals to consider stopping smoking nicotine through access stop smoking advisory services or their GP and introducing them to range of interventions on offer to assist people to quit including nicotine patches, gums etc and some pharmacological adjuncts proven to reduce cravings.

Summary

Services should provide a range of responses that support people away from injecting which can include OST.

We should be mindful / aware of the trigger points / red flags on a patient's journey where engaging with the service user to offer alternatives could instigate a change in behaviour.

Harm reduction providers should be supplying foil as part of an holistic range of harm reduction interventions which support a hierarchy of needs toward individualised recovery goals and general health and well being.

Services must provide an environment where service users have the opportunity to be able to speak confidentially and be supported by workers who are empathic non judgemental and be managed with privacy and dignity.

Services providing foil should ensure they are operated by individuals with the competencies to be able to effectively assess someone's risk taking behaviour including injecting risk. They should be able to articulate the risks vs. benefits of offering safer alternatives such as smoking and chasing.