


DRUG & ALCOHOL FINDINGS *Research analysis*

This entry is our analysis of a study added to the Effectiveness Bank. The original study was not published by Findings; click [Title](#) to order a copy. Free reprints may be available from the authors – click [prepared e-mail](#). [Links](#) to other documents. [Hover over](#) for notes. [Click to](#) highlight passage referred to. [Unfold extra text](#)  The Summary conveys the findings and views expressed in the study. Below is a commentary from Drug and Alcohol Findings.

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▶ **Acceptability of low dead space syringes and implications for their introduction: A qualitative study in the West of England.**

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Lower-risk needle and syringe combinations seem acceptable to people who inject drugs in England, but given that a sudden change in equipment can be difficult to adjust to, their gradual introduction seems best, alongside an intervention to educate and support.

SUMMARY Syringes carry varying levels of risk of transmitting blood-borne viruses such as HIV and hepatitis C. Standard injecting equipment with detachable needles, for example, contain ten times more 'dead space' (the volume of fluid that is drawn up but not injected), and transfer more blood if re-used (even if rinsed) than equipment with fixed needles. Viruses can also survive for longer in high dead space syringes.

The development of low dead space syringes, and the increase in the proportion of those syringes in circulation, has the potential to reduce blood-borne virus transmission risk.

This study explored the acceptability of **detachable low dead space needles** among people who inject drugs and among staff who work to support them, whether an intervention is required to promote their use, and whether the findings could help develop evidence-based recommendations for their introduction. Through semi-structured interviews, the researchers and participants explored experiences of different types of injecting equipment, what helps or hinders changing this equipment, and attitudes towards low dead space syringes. Participants were also asked to complete a sorting task, which involved them ordering ten features of detachable low dead space needles according to perceived importance, and then describing the reasons for their decisions. If the equipment features were disliked or not viewed as important, this indicated a potential limit to their acceptability.



Key points

From summary and commentary

Interviews with 23 people who inject drugs and 13 needle and syringe programme staff members examine the acceptability of lower-risk, low dead space syringes.

Participants saw benefits to using low dead space needles, but felt that changing injecting equipment (which becomes part of a regular routine) would be a challenge.

A gradual change from high dead space needle and syringe combinations to low dead space needles and syringes seems best, supported by training, education, persuasion, and eventual restriction.

In total, 23 people who inject drugs (15 men and 8 women) took part, as well as 13 needle and syringe programme staff members (6 men and 7 women). All were based in Bath or Bristol, cities in the West of England.

Main findings

Factors informing injecting practice decision-making

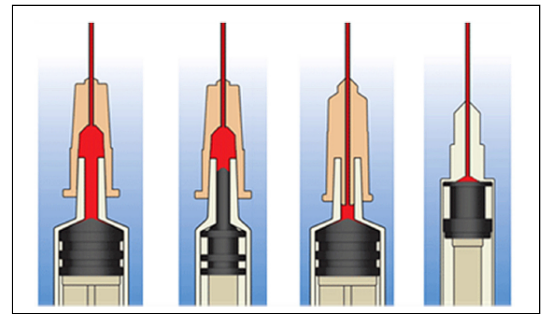
Decisions about equipment type, injection site, and syringe-rinsing were informed by several factors: early experiences and peer initiation; awareness and availability of alternatives; and the ability to inject successfully.

A lot of people might be initiated into injecting by another person and will do what that person has shown them and we have to ... give advice differently sometimes from what their friends have given them and that can be quite difficult. ... You trust what your friends say, don't you? (Staff member, female)

Some participants were unaware of alternative more suitable injecting equipment. This was more common in people who inject drugs using pharmacy needle and syringe programmes where the range of equipment and specialist advice is limited. For instance, a minority of people who inject drugs were unaware that detachable needles were available for 1 ml barrel sizes or that barrel sizes smaller than 1 ml were available.

Injecting practices were also influenced by the advice given by needle and syringe programme staff. Historically reuse of injecting equipment was strongly discouraged, and this advice was still somewhat problematic for staff. However, there was acknowledgement of the need to be pragmatic.

The best we can achieve for someone ... [is] that they use a clean pin every time they pierce their skin. That's not always gonna be realistic for a whole variety of reasons. Some of those reasons we can change, but intransigence means that sometimes isn't gonna be, and so at three o'clock in the morning, when we're shut, and someone's living in a hostel, they're gonna re-use a dirty pin. ... Now we talk more about safer re-using almost, so cleaning and talking to people about how to do that has become part of our intervention. (Staff member, male)



'Dead space' in different syringes indicated in red. From left to right: standard detachable needle on standard syringe; standard detachable needle on low dead space syringe; low dead space detachable needle on standard syringe; low dead space syringe with fixed needle.

Previous infections motivated people who inject drugs to not rinse or re-use.

Researcher: Can you tell me a bit about your reasons for why you were cleaning them and why you're not cleaning them now?

Participant: 'Cause I got hepatitis now and I don't wanna catch that again, 'cause it was hard enough going through it the first time. (Person who injects drugs, male, 47 years)

Factors affecting willingness to change

Most people who inject drugs were reluctant to change injecting equipment. Several barriers to change were identified by staff and people who inject drugs: length of time injecting; familiarity and routine; absence of problems injecting; prioritisation of getting a hit quickly over the prevention of future problems; mental state/withdrawing, and wariness about being able to successfully inject with different equipment.

Most people who inject drugs were reluctant to consider changing injecting equipment if they experienced no problems – their injecting equipment had become an important component of a “comfortable” and “familiar” routine. For those with little control over their lives, equipment was depicted as part of an injecting routine which provided continuity. Staff described people as being wary of changing equipment because it might not be as easy to use and could result in the loss of drugs.

That's what I am used to, if it ain't broke, don't fix it and ... the truth is there is a lot of habit involved in this whole thing you know, so I don't really wanna change it. (Person who injects drugs, male, 43 years)

We don't like change ... we think a lot of us are our events that have happened in our life, so we don't like good or bad change, we are not controlling the event and as addicts, it is all about control. (Person who injects drugs, female, 38 years)

A small number of staff and people who inject drugs reported that in their experience people who inject drugs see problems with injecting and associated health problems as an inevitable part of intravenous drug use. In staff members' view, focusing on the benefits of equipment change in relation to drug use, rather than on the prevention of potential health risks was more likely to be effective.

To support behaviour change, staff sought to raise awareness of alternative, more suitable equipment by explaining the benefits of change, referring to positive experiences of others, offering some needles/syringes to try alongside usual equipment.

I always say to them 'you are the expert on you, however, have you thought about?' ... I say 'here are your options because I think it's always good for you to know what is available, then for you to make that choice', because I think it gives them a sense of self-empowerment and they are more in control. (Staff member, female)

Factors influencing the acceptability of detachable low dead space needles

Despite the anticipated initial irritation about the removal of familiar equipment, most people who inject drugs were expected to be willing to try detachable low dead space needles and to continue using them if they worked as well as the original equipment. The lower risk of blood-borne virus transmission and reduced drug wastage were particularly valued features.

Staff expected 'getting a hit' to be prioritised over harm reduction practices and were sceptical about the value people who inject drugs would place on harm reduction. However, the majority of people who inject drugs valued the reduced risk of blood-borne virus because they did not want to acquire or transfer infections.

Managing the introduction of detachable low dead space syringes

There was a preference for a gradual introduction of detachable low dead space needles with information and opportunity to try them alongside usual equipment. This was expected to allow people who inject drugs to experience the benefits of detachable low dead space needles and for needle and syringe programmes to respond to problems if they arose. Replacing old equipment with detachable low dead space needles completely was only suggested by a minority.

Conversations about the benefits of detachable low dead space needles, educational events, posters, leaflets, videos and presentations were suggested as useful tools to raise awareness.

Talking to people about what the equipment ... why it was different and how it was beneficial, ... talking about high dead space and sort of the theory behind that, of carrying infection, and also what low dead space means so the fact that it means that more of the hit's coming out. I don't think people are gonna struggle with the idea that it's a good thing but the real work ... is after people have gone away and used the equipment, is if there were any issues around it – that's when we would then have to sort of have a conversation about tackling that. (Staff member, female)

The authors' conclusions

This study was the first of its type to assess the acceptability of detachable low dead space needles to people who inject drugs. It found that while changing equipment can be difficult for people who inject drugs, key features of detachable low dead space syringes were viewed favourably, and any gradual change in equipment, supported by verbal and written information, would likely enhance their acceptability.

Detachable low dead space needles should be offered to those using detachable high dead space syringes and/or fixed 1 ml low dead space syringes for injection into deeper femoral veins. An intervention to support their introduction should involve **training, education, persuasion and eventual restriction** components.

FINDINGS COMMENTARY

The featured research was designed to gain an understanding of the acceptability of lower-risk, detachable low dead space needles, and what it might take to implement their distribution through needle and syringe programmes. The findings suggested that though the needles would likely be acceptable amongst people who inject drugs in the local population, it would be advantageous to run a targeted intervention within needle and syringe programmes to boost acceptability, and aid the roll-out and eventual replacement of high dead space needle and syringe combinations.

UNDERSTANDING THE DIFFERENCE

A Drink and Drugs News article from 2013 explained the [difference](#) between high and low dead space syringes:

"Every syringe inevitably retains some fluid when its plunger is fully depressed, in what is known as the dead space. [...] 'High dead space' syringes with detachable needles will retain fluid in the tip of the syringe,

The data was collected from interviews with people who inject drugs (assured that they were the “experts” on this subject), and staff from needle and syringe programmes. Two features of low dead space syringes were evaluated differently by participants. While both were the **highest rated features in the sorting task**, the majority of people who inject drugs said they would value “lower risk of transferring infection if shared” over “less wasted drug” if it would reduce their risk of contracting blood-borne viruses, whereas staff were sceptical that people who inject drugs would place a greater value on harm reduction than ‘getting a hit’. This suggests that the principle of harm reduction is important (and is perceived to be important) to people who inject drugs, but perhaps from the point of view of staff may be difficult to prioritise in practice when people who inject drugs find themselves needing to take drugs, but without access to ideal/clean/safe injecting equipment.

Trying to help people who inject drugs avoid having to choose between ‘getting a hit’ and using ‘dirty’ or unsafe injecting equipment is one of the challenges for needle and syringe programmes. The UK’s health advisory body, NICE, **recommended** in 2014 that needle and syringe programmes should strive for *more than 100%* coverage, meaning more than one needle and syringe for every injection. It also advised that needle and syringe programmes should allow service users to take equipment for other injectors. As for low dead-space syringes, NICE **endorsed** the offer and encouragement of this type of injecting equipment, **as did** the World Health Organization in its consolidated guidelines on HIV prevention, diagnosis, treatment. The Public Health Interventions Advisory Committee, responsible for updating earlier guidance, **assessed** the cost of low dead space needles, and were “satisfied that the provision of low dead-space injecting equipment was justified if its price was the same as (or only marginally higher than) other equipment.” Incidentally, staff in the featured study thought that low dead space syringes may be more expensive than high dead space alternatives, while people who inject drugs assumed that new equipment tended to be introduced because it was cheaper or recycled. In Bristol (one of the areas in the study), approximately 35% of the detachable high dead space needles issued through needle and syringe programmes have low dead space equivalents. Replacing these would incur an estimated 19% cost increase at current prices.

Some participants in the featured study (particularly those who accessed pharmacy-based needle and syringe programmes) were unaware of suitable alternative injecting equipment. Pharmacies **have the potential** to play a critical role in promoting the widespread availability of low dead space syringes. According to a US paper, the degree to which pharmacy personnel are aware of the harms associated with syringe dead space has not been assessed. Initiatives would be needed to inform and educate pharmacy personnel regarding the benefits of low dead space syringes and to determine the feasibility and acceptability of such an intervention among pharmacy personnel.

The findings from a review of whether low dead-space syringes could really reduce HIV transmission to low levels **highlighted** the need for needle and syringe programmes to not only encourage the use of low dead space syringes, but also to emphasise the importance of multiple rinsing for injecting situations where either clean syringes are not available, there is uncertainty over whose syringe it is, or where bleaching is not possible. This is most likely to minimise the possible risk of HIV transmission while maximising the protective benefit of using low dead space syringes.

The Global Fund to Fight AIDS, Tuberculosis and Malaria (known as the Global Fund) and the Eurasian Harm Reduction Network have **acknowledged** “emerging evidence suggest[ing] that a switch to low dead-space ... syringes could have a major impact on HIV”, but also that such an intervention “can only succeed if it is fully informed by – and with the full backing of – local drug users, taking into account their needs, preferences and the local drug markets, and where reliable supplies of new products can be ensured at similar costs to existing syringes”. For people who inject drugs in Eastern European and Central Asian countries, represented in **this linked paper**, the acceptability and feasibility of using low dead space syringes was influenced by practical considerations, such as the availability of syringes with larger barrel capacities, ranging from 2ml to 10 ml, and detachable needles.

the hub of the needle and the needle shaft itself. In ‘low dead space’ designs with permanently attached needles – such as the 1ml insulin needles used by many people who inject drugs – fluid is only retained in the needle shaft.

The difference can be up to 40 times more fluid being retained in high dead space syringes compared to low dead space ones. In laboratory experiments that simulated common injection practices, low dead space syringes retained up to 1,000 times less blood than high dead space syringes, so if a person shares a low dead space syringe with someone living with HIV there will be less blood retained in the syringe and therefore less viral load and a lower risk of transmission.”

A simulation model for the UK and other countries [found that](#) hepatitis C had been resilient in the face of considerable investment in methadone and needle exchange services, and further measures would be required to substantially curtail the virus. Among these are distributing equipment that is less prone to transmitting blood borne viruses such as low dead space syringes, a vaccination if this becomes available, treating infections, and promoting ways to take drugs other than injecting.

Thanks for their comments on this entry in draft to Andrew Preston from [Exchange Supplies](#). Commentators bear no responsibility for the text including the interpretations and any remaining errors.

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