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Implementation of low dead space syringes in response to an outbreak of HIV among people who inject drugs: A response to Kesten et al.

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We read with interest the recent article by Kesten and colleagues (2017) which explored the acceptability of low dead space syringes (LDSS) among people who inject drugs (PWID) and Needle and Syringe Exchange programme staff, and the implications of their introduction. This research concluded that detachable LDSS are likely to be acceptable and that their introduction should be accompanied by an intervention which incorporates training, education, persuasion and restriction components.

Glasgow is currently in the midst of an outbreak of HIV infection amongst PWID. In 2015, 47 new HIV diagnoses among PWID were recorded in Glasgow compared to an annual average of around 10 in this population (Public Health England, Health Protection Scotland, Public Health Wales, and Public Health Agency Northern Ireland, 2016). For the first time since the mid 1980s, the number of new annual HIV diagnoses among PWID was higher than in other high-risk groups including men who have sex with men (MSM). Outbreak investigation has established that this increase is due to active transmission among PWID. Those affected are typically injecting heroin with or without cocaine in a city centre environment where equipment sharing has been identified, and many are homeless. The outbreak response is multi-agency and includes awareness raising and HIV education among PWID and service staff, increasing availability of Injecting Equipment Provision (IEP) services, increasing HIV testing, and promoting early treatment to reduce the risk of onward transmission. One additional component of the response relevant to the work of Kesten and colleagues is the introduction of detachable LDSS to PWID accessing IEP services in Glasgow. The supply of LDSS to PWID to reduce BBV transmission risk is recommended by both the World Health Organization (2012) and the National Institute for Health and Clinical Excellence (2014).

Outbreak investigation identified that, whilst fixed 1ml LDSS were available, the majority of cases had recently accessed 2ml syringes from IEP services. The standard design of the 2ml syringes available to PWID in Glasgow at that time was high risk for blood-borne viruses by nature, as they trap blood and fluid in the hub as well as holding enough drug solution to be shared when preparing a batch. The incident management team sought to address this urgently. Available low dead space needles were found to be incompatible with the standard 2ml syringes in the one-hit-kits® (1HK®). We therefore worked with our supplier¹ to design a new LDSS to fit all separate needles, regardless of manufacturer. A LDSS which incorporated an extended plunger was developed, lab tested and shown to reduce 'post injection' blood and fluid content by 70%. This is equivalent to separate low dead space needles. (Figure 1)

Eight samples of the new LDSS were reviewed by frontline professionals at the Scottish Needle Exchange Workers Forum for testing and feedback to inform implementation in Glasgow with no problems identified. In addition, the proposed switch to LDSS in Glasgow was presented to the National Blood-Borne Virus Prevention Leads meeting where it was also endorsed.

In the past, when new equipment has become available for PWID (e.g. 1HK®, filter syringes, water, foil) we have designed and implemented these changes with initial pilots, peer involvement and supported the introduction with information materials for clients and training for staff.

However, within an outbreak situation, we proceeded to introduce the LDSS into our 1HK® without promotion to, or training with, PWID for the following reasons:

1. The outbreak was ongoing with considerable risk of further transmission.
2. For PWID, there is no difference to the mechanics of injection or presentation of the new low dead space product. The only change has been the introduction of an improved plunger; the needle and the syringe were unchanged, it remains detachable and they were in the standard 1HK® packaging.
3. There were concerns that promoting low dead space products as a means of reducing the likelihood of BBV transmission may infer to PWID that they are 'safe to share'. Similarly, promoting low dead space products as 'full-dose' syringes may also encourage people to share when dividing a supply of drugs for use among a network of peers.

¹ Frontier medical supplies Ltd.

4. The safest needle for PWID to use remains the 1ml fixed syringe and continues to be promoted as such within IEP services. All needles, syringes and related paraphernalia remain single use, packaged and promoted as such i.e. 1HK®.

Staff were briefed to enable them to respond appropriately to any issues or questions that arose. The initial experience of implementing low-dead space syringes into the available 1HK® in Glasgow has been overwhelmingly positive. Almost 300,000 LDSS have been supplied as part of the IEP programme within the city in the first 6-months since they were introduced in April 2016. To date, there have been no issues identified by clients or staff in relation to their distribution or use. Moreover, by virtue of a national procurement contract in Scotland for IEP equipment, the 2ml LDSS pioneered in Glasgow are currently being rolled out across Scotland.

We accept the conclusions of Kesten et al (2017) regarding the difficulties in changing injecting equipment and the need for information to empower PWID to enhance their acceptability. However, faced with a rapidly transmitting outbreak of HIV among a large at-risk population, we adopted an alternative approach to implementation which effectively replaced existing stock with a new low dead space product quickly, with minimal disruption and without promotion. Our next steps involve formally evaluating the impact of LDSS circulation on BBV incidence and prevalence pre and post introduction in Scotland.

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Figure 1: comparison of old 2ml syringe (bottom) and new 2ml low dead space syringe (top) incorporating extended plunger

