

Theory versus practice: bacteriological efficiency versus personal habits. A bacteriological and user acceptability evaluation of filtering tools for people who inject drugs

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Background

- People who inject drugs (PWID) are exposed to associated viral, **bacterial and fungal risks** during the pre-injection and preparation phases of the drug.
- While the international literature mainly focuses on the risk of viral contamination (HIV, HBV and HCV), few have studied risks associated with bacteria and fungi.
- Large **disparities in the quality of filtration** exist between the various available filters. Our research compares both performance and user acceptability of three filters for drug injection (**cotton filters, Sterifilt® and wheel filters**) by combining epidemiological, sociological and bacteriological analyses.

Methods

- A cross-sectional epidemiological study (ANRS-Coquelicot) using Time Location Sampling combined with the Generalized Weight Sampling Method, was conducted among 985 PWID in France.
- A sociological study with qualitative interviews was carried out with 38 PWID.
- Two filtration-based bacteriological studies of 0.20 μm and 0.45 μm wheel filters, Sterifilt® filters, and cotton filters were also conducted by a Paris Saclay University's team.
- Our multidisciplinary approach enabled us **to compare theoretical data on the effectiveness of three types of filters** under similar conditions and examine **user experience in everyday real-life practice**.

Results

- The bacteriological study highlighted the value of using wheel filters with a porosity of less than 0.5 μm , as they limit the risk of bacterial and fungal infection. The results of this study clearly highlight a **distinction between the efficiency of Sterifilt® and wheel filters, the latter being more effective.**
- Our epidemiological study highlighted that the use of **cotton filters** is widespread and routine, but is the subject of much criticism among PWID. The main criticisms concerned its **size** (too small to handle) and **density** (too thick and compact).
- **Sterifilt®** is not widely used and its adoption is **still slow**. The single use nature of the filter and the fear of slow and difficult filtration were seen as unacceptable and restrictive elements to using Sterifilt.
- The **wheel filter** still remains a largely **untested tool, despite its high acceptance among PWID who tested it.**

Results

- Our analysis of epidemiological data combined with the qualitative sociological information collected during our study showed that the criteria for a **"good filter"**, as defined by PWID, were primarily that **product loss be prevented and that rapid filtration speed be guaranteed.**
- Particle retention was not considered a priority by PWID.
- The issue of the protecting membrane was not spontaneously mentioned.
- In our epidemiological and sociological study, the Sterifilt® and wheel filters each received similar evaluations, in terms of PWID perceptions about the difficulties in adopting them into regular practice.
- Conversely, **the results from the bacteriological study clearly showed the greater efficiency wheel filters over Sterifilt®.**

Conclusion

- Low product retention and ease of use are the two most important factors for filters for PWID.
- Bacterial and fungal risk filtration is considered as less important.
- It is essential to **sensitize PWID about the use of wheel filters, which are of major importance in terms of reducing harms during injection practices.**
- This must be complemented by increased information about all the associated health benefits, and **practical recommendations** – for example wetting the filter – with the aim of making its use more widespread.

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