EVALUATING THE IMPACT OF INCREASED PROVISION OF LOW DEAD SPACE SYRINGES ON HIV AND HCV TRANSMISSION AMONG PEOPLE WHO INJECT DRUGS: A MODELLING ANALYSIS FOR 19 COUNTRIES

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Background:
Low dead space syringes (LDSS) may reduce HIV and HCV transmission risk among people who inject drugs (PWID) compared to high dead space syringes (HDSS). We evaluated the potential impact of introducing detachable LDSS into needle and syringe programs (NSPs) across 19 countries.

Methods:
We adapted an existing dynamic mathematical model of HIV and HCV transmission among PWID to include different types of syringe use. We parameterized use of LDSS and HDSS based on surveys of service providers in each of the 19 countries. Based on laboratory experiments, we assumed that use of fixed and detachable LDSS reduced risk of HCV transmission by 80% and 44%, respectively, compared to HDSS. For each country, the model was calibrated within a Bayesian framework to country-specific data from global systematic reviews. We estimated the proportion of new HIV and HCV infections that could be averted over 2024-2030 if HDSS distributed by NSPs were replaced with detachable LDSS over 2024-2027, with and without a concurrent scale-up of NSP coverage to 75%.

Results:
Replacing HDSS with detachable LDSS could avert 1.7% (95% credibility interval: 1.1-2.6) and 1.4% (1.1-1.8) of new HIV and HCV infections, respectively, over 2024-2030. Greater impact would be achieved across countries with higher (>40) NSP coverages: 11.9% (8.0-16.0) and 14.3% (12.7-16.2) of HIV and HCV infections averted. Across all 19 countries, scaling up NSPs to 75% coverage could avert 39.4% (29.4-47.5) and 29.6% (24.4-35.0) of HIV and HCV infections. However, this scale-up could avert 46.1% (36.7-53.4) and 36.1% (30.8-41.2) of new HIV and HCV infections if NSPs switched from providing HDSS to detachable LDSS.

Conclusion:
Switching from providing HDSS to effective detachable LDSS can substantially increase the impact of NSPs and may provide an important tool for the elimination of HIV and HCV among PWID.

Disclosure of Interest Statement:
No conflicts to declare