

COST-EFFECTIVENESS ANALYSIS OF TESTING STRATEGIES FOR DIAGNOSING HEPATITIS C VIRUS INFECTION IN PWIDS IN RESOURCE-CONSTRAINED COUNTRIES

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Background:

Innovative technologies provide opportunities for scaling-up HCV testing of PWID in resource-constrained countries.

Approach:

Adopting a health sector perspective in Western Africa, a decision tree model was developed for estimating the expected number of true positive (TP) HCV cases and associated costs of 12 testing strategies with the following characteristics: a single-step or two-step testing sequence, HCV-RNA or HCV core antigen as confirmative biomarker, laboratory or point-of-care (POC) tests, and serum samples or dried blood spots (DBS). Reference case assumed a 38.9% seroprevalence as reported in PWID from Senegal, a 5% uptake for strategies starting with a serum sample-based test (versus 30% for others), and a 90% loss to follow-up rate among individuals tested HCV-Ab positive for strategies with second-step tests based on serum samples.

Outcomes:

Compared to the cheapest strategy, i.e., HCV-Ab followed by HCV-cAg both based on serum samples (strategy A), three strategies remained undominated: POC HCV-Ab followed by POC HCV-RNA (strategy B), single-step POC HCV-RNA (strategy C) and POC HCV-Ab followed by HCV-RNA on DBS (strategy D). The above-mentioned strategies identified 0.5%, 28.2%, 28.3 and 29.3% of HCV-infected PWID, respectively, with corresponding costs/individual screened of 0.95€, 4.22€, 4.46€, and 11.44€, and corresponding costs/TP case of 750€, 55€, 57€ and 143€, respectively. Incremental cost-effectiveness ratios (€/additional TP case) were the following: 43 (strategy B vs strategy A), 624 (C versus B) and 2748 (D versus C). Whenever HCV seroprevalence reached 45%, sensitivity analysis showed that when compared to strategy A, strategy C became more cost-effective than strategy B, but with a higher rate of false positives (2 and 0.4/1000 PWID in strategy C and B, respectively). Results were sensitive to screening uptake and loss to follow-up rates.

Conclusion:

Strategies B and C should be considered in priority for HCV screening of PWID living in resource-constrained countries.

Disclosure of Interest Statement:

The authors have no conflict of interest to declare.