

# Return on investment for a prison-based needle and syringe program in Australia

## Authors:

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**Background:** Needle and syringe programs (NSPs) are established interventions for blood-borne virus prevention among people who inject drugs. Yet Australia lacks such programs in prisons despite endorsement in national blood borne virus strategies and by peak medical and public health bodies. This study aimed to assess the impact and cost-effectiveness of implementing NSPs in Australian prisons.

**Methods:** A stochastic compartmental model estimated the impact of implementing NSPs on hepatitis C virus (HCV) and injection-related infections (IRIs) in Australian prisons. The model was informed by data from the Australian Bureau of Statistics, infectious diseases surveillance reports and published Australian cohort studies. Costs were estimated using an ingredients-based approach, with implementation, operational and overhead costs based on prison NSPs implemented in international settings (reported in 2023 Australian dollars, with future costs discounted at 5% per annum). The main outcome was the benefit-cost ratio calculated as total benefits (healthcare savings from averted HCV and IRI treatment costs) divided by total costs (NSP costs).

**Results:** Scaling-up NSPs in Australian prisons from 2025-2030 to reach 50% of incarcerated people who inject drugs was estimated to cost A\$8.9 [Uncertainty interval (UI): A\$5.5 – A\$15.9] million, avert 848 [UI: 742 – 933] HCV infections and 401 [UI: 308 – 472] IRIs, and save A\$29.2 [UI: A\$26.4 – A\$32.5] million over the period. The benefit-cost ratio was calculated at 3.3 [UI: 1.8 – 5.3]. Additionally, in the prison NSP scale-up, 71% of simulations achieved the World Health Organization's HCV incidence target of <2 per 100 people who inject drugs per year, whereas none of the simulations reached this target under the status-quo (no prison NSPs).

**Conclusion:** Every dollar invested in prison NSPs across Australia could save A\$3.3 in HCV and IRI treatment costs.

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