RETURN ON INVESTMENT 3: EVALUATING THE COST-EFFECTIVENESS OF NEEDLE AND SYRINGE PROGRAMS IN AUSTRALIA

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Background: Needle and syringe programs (NSPs) provide sterile injecting equipment, safe disposal options, and harm-reduction education to people who inject drugs. NSPs are critical in preventing HIV and hepatitis C (HCV) transmission in Australia. Previous ROI 2 study (2012) found Australian NSPs to be highly cost-effective. However, it is unclear whether current service delivery, service costing, and population-level impact remain the same. An updated economic assessment is therefore essential to incorporate the most recent data and provide contemporary estimates of NSP impact and value for money.

Methods: National NSP program costs (2024) were estimated from a healthcare provider perspective. Costs were collated across primary and secondary NSP services, pharmacies, and dispensing machines, and included staffing, operational expenditure, equipment distribution and disposal, consumables, transport and postal services. Economic benefits were defined as lifetime HIV and HCV healthcare costs avoided from a single year of NSP delivery at current national coverage. Infections averted were estimated by applying current HIV and HCV incidence rates, national NSP coverage (best estimate 85%), and pooled effectiveness estimates from systematic reviews, which quantify the reduced risk of HIV and HCV acquisition under high NSP coverage [HIV relative risk (RR) 0.42; HCV RR 0.44].

Results: For every $1.00 invested in NSPs, $2.02 [95% uncertainty interval (UI): $0.56 – $5.66] was returned in averted healthcare costs. Uncertainty analysis showed that the benefit-to-cost ratio exceeded 1 in 83.68% of 10,000 calculations, demonstrating a very high level of confidence that the economic benefits of NSPs outweigh their total costs.

Conclusion: NSPs remain a cost-effective and impactful public health intervention in Australia. Their sustained role in reducing HIV and HCV transmission among people who inject drugs has helped prevent future infections and associated healthcare costs while supporting Australia's progress towards national HIV and HCV elimination targets. Without

continued investment, these gains may not be sustained, increasing the risk of a resurgence in HIV and HCV transmission.

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