IS INCREASED HCV CASE-FINDING COMBINED WITH 8-12 WEEK INTERFERON-FREE DIRECT-ACTING ANTIVIRAL TREATMENT COST-EFFECTIVE IN UK PRISONS? A DYNAMIC COST UTILITY ANALYSIS INCLUDING TREATMENT AS PREVENTION BENEFITS

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Background: Hepatitis C virus (HCV) prevalence is high among incarcerated populations. In 2014, England began introducing opt-out HCV testing in prisons. We assess the cost-effectiveness of increased HCV testing and treatment in English prisons using existing treatments or short-course interferon-free direct-acting antivirals (IFN-free DAAs) including prevention benefits.

Methods: We use a dynamic model of incarceration and HCV transmission to assess the cost-effectiveness of doubling HCV case-finding in English prisons (achieved in opt-out Phase 1) when combined with current therapies (8-24 week) or IFN-free DAAs (8-12 weeks) in prison, compared to current testing/treatment. We explore the impact of increasing prison PWID treatment rates. Costs (GBP£) and health utilities (quality-adjusted life-years, QALYs) were used to calculate mean incremental cost-effectiveness ratios(ICERs). Based on UK data, we assume 6% prison entrants/year tested, 15% of tests HCV Ab+, 56% referral rate, and 25%/2.5% referred exPWID/PWID treated at baseline. We assume 95% SVR at £3300/wk with IFN-free DAAs. PWID and ex/nonPWID are in prison an average 4/8 months, respectively. We assume no continuity of treatment between prison/community. Multivariate probabilistic sensitivity analyses were performed.

Results: Doubling prison testing with existing treatments is borderline cost-effective under a £20k willingness-to-pay (mean ICER £19,544/QALY gained; 44% likely to be cost-effective). Doubling testing with 8-12 week IFN-free DAAs in prisons could increase cost-effectiveness (mean ICER £15,090/QALY gained, 84% likely to be cost-effective at a £20,000 willingness-to-pay). Enhancing PWID prison treatment increases cost-effectiveness; if >10% referred PWID are treated, testing with either treatment is highly cost-effective (mean ICER <£13,000/QALY).

Conclusions Increased HCV testing in UK prisons is borderline cost-effective with current treatments, but could be highly cost-effective if the cascade of care is improved through increasing PWID treatment rates and providing highly effective short-course IFN-free DAA therapy in prison.