**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**

Natasha K Martin1,2, Peter Vickerman2, Iain F Brew3, Joan Williamson3, Alec Miners4 ,William J Irving5, Sushma Saksena6, Sharon J Hutchinson7, Mary Ramsay8, and Matthew Hickman2

1Division of Global Public Health, University of California San Diego, USA

2School of Social and Community Medicine, University of Bristol, UK

3Leeds Community Healthcare NHS Trust, UK

4London School of Hygiene and Tropical Medicine, UK

5University of Nottingham, UK

6County Durham and Darlington NHS Trust, UK

7Glasgow Caledonian University, UK

8Public Health England, UK

**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.