THE IMPACT OF OPIOID AGONIST TREATMENT ON MORTALITY AMONG PEOPLE WHO INJECT DRUGS: A 3 SITE MODELLING ANALYSIS

Stone J[1], Degenhardt L[2], Grebely J[3], Larney S[2], Altice FL[4], Smyrnov P[5], Rahimi-Movaghar A[6], Alavi M[3], Young AM[7,8], Havens JR[7], Miller WC[9], Hickman M[1], Vickerman P[1]

1. Population Health Sciences, Bristol Medical School, University of Bristol, Bristol, UK
2. National Drug and Alcohol Research Centre, University of New South Wales, Sydney, New South Wales, Australia
3. The Kirby Institute, University of New South Wales, Sydney, New South Wales, Australia
4. Section of Infectious Diseases, AIDS program, Yale University School of Medicine, New Haven, Connecticut, USA
5. Alliance of Public Health, Kyiv, Ukraine
6. Iranian National Center for Addiction Studies, Tehran university of Medical Sciences, Tehran, Iran
7. Center on Drug and Alcohol Research, Department of Behavioral Science, University of Kentucky College of Medicine, Kentucky, USA
8. Department of Epidemiology, University of Kentucky College of Public Health, Kentucky, USA
9. Division of Epidemiology, College of Public Health, The Ohio State University, Columbus, Ohio, USA

Background: Opioid agonist treatment (OAT) can reduce many of the harms associated with opioid misuse. We utilise mathematical modelling to comprehensively evaluate the overall health benefits of scaling-up OAT among people who inject drugs (PWID) in 3 varied global settings; Kyiv (Ukraine), Tehran (Iran), and Kentucky (USA).

Methods: We developed a dynamic model of HIV and HCV transmission, incarceration, disease-related mortality and mortality from overdose, suicide and injury. The model was calibrated to site-specific epidemiological data using approximate Bayesian computation. Model analyses evaluated deaths averted over 2020-2040 compared to a scenario with no OAT, of: existing OAT coverage (5-11%); scaling-up OAT coverage to 40% in the community (WHO/UNAIDS recommendations); additionally increasing the average duration of OAT to 2 years (from 4-7 months)**;** additionally scaling-up OAT in prison.

Results: Model projections show that varied harms associated with drug use contribute differentially to mortality across settings; with overdose contributing 22.3-58.8% of preventable deaths over the next 20 years, suicide 4.0-17.2%, injury 2.0-17.2%, HIV 0.0-63.0% and HCV 2.4-18.4%. Existing OAT coverages are projected to have low impact on mortality, preventing 1.9-78.7 deaths per 1,000 PWID (<4% of all deaths but 9.8-19.3% of overdose deaths). Scaling-up OAT in the community could prevent 13.7-165.7 deaths per 1,000 PWID, including 13.4-15.1% of overdose deaths and 21.8-34.9% of HIV deaths. Improving OAT retention would have significant additional impact, particularly on reducing overdose mortality, averting 28.6-247.8 deaths per 1,000 PWID (21.7-30.9 of overdose deaths). If OAT is also provided in prisons, an additional 22.2-171.1 deaths per 1,000 PWID could be prevented with HIV and overdose deaths being halved in Tehran and Kentucky, respectively.

Conclusion: OAT can significantly reduce drug-related harms, although poor retention and interruptions due to incarceration may limit potential impacts. It is not only imperative to expand OAT but to improve retention and access in prisons.

Disclosure of Interest: No pharmaceutical grants were received in the development of this study