

A 10 year overview of an HIV outbreak amongst People Who Inject Drugs: Outcomes, public health responses, lessons learned and current status

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Introduction

An HIV outbreak amongst people who inject drugs in Glasgow city centre was declared in 2015 after an increase in cases was noted at the end of 2014. The outbreak was associated with homelessness, cocaine injecting and injecting in public places, and occurred in a setting of high harm reduction service coverage and free to access clinical care, medication, testing and injecting equipment. Nearly 10 years on, the IMT (Incident management team) led by NHS Greater Glasgow and Clyde (NHS GGC) continues to regularly review the status of the outbreak with a wide variety of partners. We present a brief overview of the outbreak and highlight some of the key research outputs with selected graphics taken from published research papers as listed below.

Case definition

Outbreak cases are ascertained according to the current case definition for the outbreak, which is as follows:
Any individual who has a laboratory confirmed diagnosis of HIV from June 2014 that is attributed to injecting drug use and/or sexual intercourse with PWID, in the Greater Glasgow and Clyde region.

Epidemiology

190 cases have been diagnosed with only 2 cases identified since 2021 Fig 1 HIV prevalence in people accessing harm reduction services and in Glasgow City Centre has fallen from 11.3%(2019) to 4.7% (2023) Fig 2

Interventions

- Educational initiatives and public health awareness
- Increased HIV testing fig 3
- Enhanced harm reduction including extended IEP provision, Low Dead Space Syringes and contingency management for harm reduction and testing. (Wound care)/Assessment of injecting risk/Naloxone/Dry blood spot test)
- Treatment as prevention (TasP) – innovative service model delivery adaptation to take the hospital service and ART to the patients in community via Glasgow Enhanced Care and HIV Outreach Model (GECHO) resulting in high levels of viral suppression (figure 4)
- HIV PrEP – adapting traditional PrEP provision model to provide to this target group
- Contact tracing and partner notification

Evaluation overview (see below for detailed publications)

- Regular review of BBV testing with quarterly linkage of data with addiction services, prisons, primary and secondary care
- Serial bio-behavioural (NESI) data analysed to assess associated risk factors analysed and prevalence trends within and across GGC. Fig 2 and 5
- Phylogenetic analysis to identify transmission networks.
- Review of novel healthcare delivery pathway (GECHO) using HIV VL to assess efficacy.
- Mathematical modelling of enhanced testing and GECHO to assess effectiveness
- Qualitative analysis and efficacy of PrEP awareness and delivery

Research publications

Ragonnet-Cronin, M et al. **Recent and Rapid Transmission of HIV among People Who Inject Drugs in Scotland Revealed Through Phylogenetic Analysis.** Journal of Infectious Diseases, 2018.
 McAuley, Andrew et al. **Re-emergence of HIV related to injecting drug use despite a comprehensive harm reduction environment: a cross-sectional analysis.** The Lancet HIV, 2019
 Trayner KM et al. **Increased risk of HIV and other drug-related harms associated with injecting in public places: national bio-behavioural survey of people who inject drugs.** International Journal of Drug Policy, 2020.
 Metcalfe et al. **From Hospital to the Community: Redesigning the Human Immunodeficiency Virus (HIV) Clinical Service Model to Respond to an Outbreak of HIV Among People Who Inject Drugs.** Journal of Infectious Diseases, 2020.
 Trayner KMA et al. **Evaluation of the scale-up of HIV testing among people who inject drugs in Scotland in the context of an ongoing HIV outbreak.** International Journal of Drug Policy, 2021
 Grimshaw C et al. **Evaluation of an inner city HIV pre-exposure prophylaxis service tailored to the needs of people who inject drugs.** HIV Medicine 2021.
 Smith M et al. **Perspectives on pre-exposure prophylaxis for people who inject drugs in the context of an hiv outbreak: A qualitative study.** International Journal of Drug Policy, 2021
 Allen LI et al. **Testing and treatment interventions in community settings key to controlling a recent human immunodeficiency virus outbreak among people who inject drugs in Glasgow: a modeling study.** Journal of Infectious Diseases, 2024.
 Kirsten M.A et al. **Examining trends in the incidence of HIV infection among people with a history of drug use to inform an outbreak investigation and response: a retrospective cohort study.** HIV Medicine 2024
 Trayner KMA, Yeung A, Palmateer NE, et al. **Impact of the COVID-19 Pandemic on HIV Test Uptake Among People Who Inject Drugs in the Context of an HIV Outbreak.** AIDS Behav 2024; doi:10.1007/s10461-024-04311-4.
 Public Health Scotland, Glasgow Caledonian University and the West of Scotland Specialist Virology Centre. **The Needle Exchange Surveillance Initiative (NESI): Monitoring blood-borne viruses and injecting risk behaviours among people who inject drugs in Scotland, 2008-09 to 2022-23.** Glasgow: Public Health Scotland, August 2024

Partnership working

NHS
 NHS GGC Public Health Directorate
 West of Scotland Specialist Virology Centre
 Sandyford Sexual Health Services
 Brownlee Centre for Infectious Diseases
 Prison and Police Custody Health Care
 Alcohol and Drug Recovery Services
 Public Health Scotland

Academic

School of Health & Life Sciences, Glasgow Caledonian University
 MRC-Centre for Virus Research, University of Glasgow
 School of Biological Science, University of Edinburgh
 Imperial College, London
 Population Health Sciences, University of Bristol

Third Sector

Simon Community
 Waverly Care
 Scottish Drug Forum

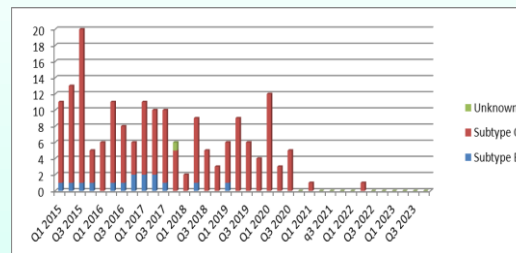


Figure 1 New diagnoses per quarter 2015-present. Unpublished from J Craik NHS GGC

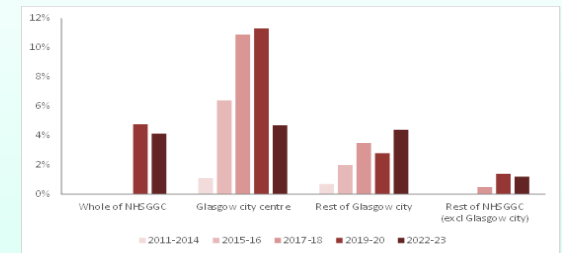


Figure 2 HIV prevalence from the Needle Exchange Surveillance Initiative (NESI) survey

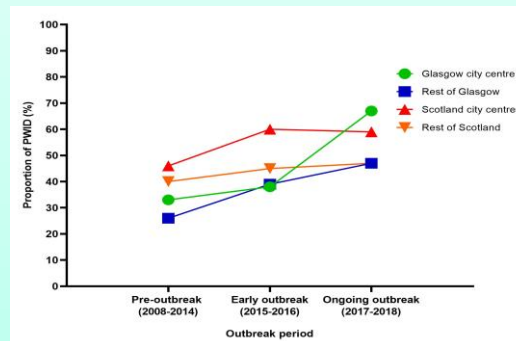


Figure 3a. Proportion of PWID reporting an HIV test in the last year by region in Scotland

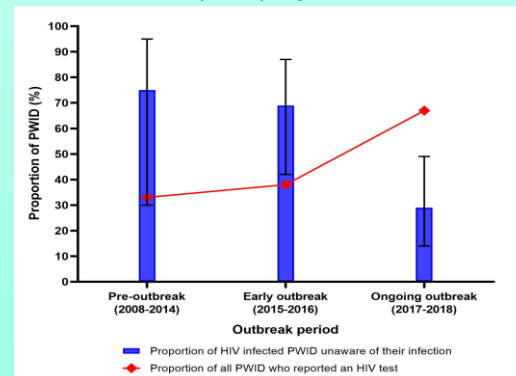


Fig 3b. Proportion of PWID with HIV unaware of the infection, and proportion of all PWID reporting an HIV test in the last year in Glasgow city centre only

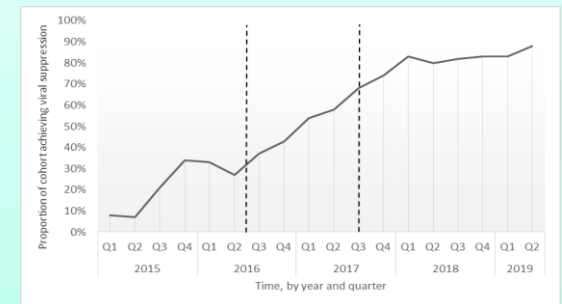


Figure 4: Increase in mean proportion of patients achieving viral suppression

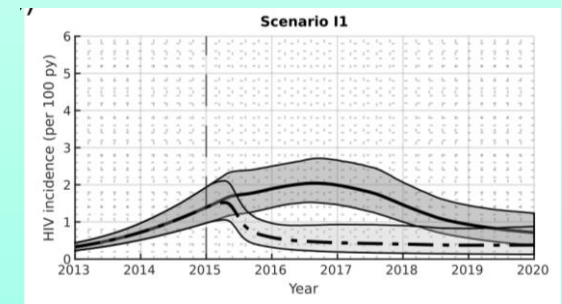


Figure 5: HIV incidence among PWID. The GECHO plus enhanced testing scenario is illustrated using dark gray shading and a solid black line to indicate the median; the predicted incidence if the testing & treatment interventions had been immediately implemented are illustrated using light gray shading and a dashed black line to indicate the median. -sample of data from Allen et al(see publications)

Lessons Learned

- Homelessness, cocaine injecting and injecting in public places are key risk factors
- Testing levels need to be continuously evaluated in high-risk populations and must be rapidly scaled up in an outbreak setting.
- TasP delivered using the GECHO model was highly effective and must be rapidly implemented in an outbreak setting.
- Bio-behavioural surveillance is essential to monitoring and understanding HIV among high risk populations
- HIV awareness and prevention education levels among PWID and care providers may be sub-optimal
- Harm reduction provision requires constant monitoring and innovation
- PWID can achieve equally high levels of viral suppression as other PLWHIV
- Phylogenetic techniques can be used to track the outbreak and estimate the prevalence of undiagnosed infection but can also inform the effectiveness of interventions
- Partnership working between multiple agencies is key, including academic evaluation of interventions and direct engagement with affected populations.

What's next?

- **As the outbreak comes under control, the focus and resource required to manage HIV among PWID must not be relaxed.**
- **A safer drug consumption room will open shortly in Glasgow and evaluation of this service in relation to BBV is planned**
- **Wider health issues including drug deaths continue to be assessed through partnerships that have evolved during working on this outbreak**