

Impact case study (REF3)

Institution: Liverpool John Moores University (LJMU)		
Unit of Assessment: UOA 3		
Title of case study: Anabolic androgenic steroid and associated image and performance enhancing drug (IPED) misuse: an emerging public health issue		
Period when the underpinning research was undertaken: 2003 - 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
James McVeigh	Director Public Health Institute	1998 – 2020
Viv Hope	Professor of Public Health	2016 – present
Marie-Claire Van Hout	Professor of Public Health Policy and Practice	2017 – present
M. Evans-Brown	Researcher in Emerging Drug Issues	2006 – 2012
G. Bates	Researcher	2008 - 2016
Lisa Jones	Reader in Public Health	2005 - present
Period when the claimed impact occurred: 2014-2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>The self-directed misuse of anabolic androgenic steroids (AAS) and other image and performance enhancing drugs (collectively referred to as (IPEDs)) within the general population is now recognised within public policy as a cause for concern. Our research over the last 20 years has, identified and quantified the significant health and social harms associated with this form of drug use; identified the barriers to health service provision; and informed legislative change and health service guidance. Policy changes have made a tangible impact on health-related provision at a community level.</p>		
2. Underpinning research		
<p>The Public Health Institute (PHI) at Liverpool John Moores University (LJMU) is at the forefront of research relating to the anabolic androgenic steroid and associated drug misuse amongst the general population. The topic has historically been under-researched and largely unaddressed within health policy. Academic staff at PHI, together with a range of stakeholders and academic collaborators have undertaken a programme of research investigating the extent, characteristics, and responses to this form of drug misuse.</p> <p>An innovative longitudinal surveillance system of needle and syringe programme (NSP) provision for injectors of illicit drugs, developed and implemented at PHI (2000- present), provided the first indications of the extent of this drug misuse phenomenon. This new population of injectors was identified as having different health risk profiles and health service requirements to other injecting populations such as users of heroin [1]. Until the publication of research, conducted in partnership with Public Health England and Public Health Wales, this population were not recognised as being at significant risk of contracting blood borne viruses (BBVs) such as human immunodeficiency virus (HIV) and hepatitis C. Our research (2011-present) identified HIV prevalence was at similar levels (between 1% and 2%) to those previously identified in injectors of heroin and other psychoactive drugs [2]. Compared to the general population, elevated prevalence of other BBVs were also found. Risk behaviours such as high levels of cocaine use, previous imprisonment and self-reported injecting injuries were identified, combined with low levels of primary healthcare engagement [3].</p>		

Accompanying qualitative work with anabolic–androgenic steroids (AAS) users gave an insight into the feelings of stigma and the mistrust of health practitioners amongst users of AAS. Furthermore, a high variability in both the scope and quality of available services was identified [4].

A complimentary programme of research sought to identify the extent of adulterated and potentially harmful products being used by this population. In addition to identifying the extent of over the counter nutritional supplements contaminated by AAS, collaborating with colleagues at Aalborg University in Denmark, samples of illicitly manufactured melanotan II (a peptide hormone commonly used in conjunction with AAS for tanning the skin) were purchased and analysed. Our findings showed discrepancies in the content and purity of active ingredients between products with similar or identical packaging (between 4.32mg and 8.84mg), with levels of impurities up to 5.9%. This work highlighted the poor quality of illicitly produced and purchased IPEDs.

The extent of polypharmacy within this population was confirmed in a metasynthesis conducted with colleagues at the University of Oslo [6]. This work provided further evidence of the complex array of risk behaviours within this population of drug misusers.

Findings from the research at PHI have provided an insight into a range of clandestine risk behaviours together with associated drug-related harms. Research is ongoing, in the form of a unique Integrated Monitoring System (IMS) in the Liverpool City Region, continuing evaluation of service provision in Wales and collaborative surveillance with Public Health England.

3. References to the research

All research outputs have been through a rigorous peer review process prior to submission.

- 1) **McVeigh, J.**, Beynon, C., & Bellis, M. A. (2003). New challenges for agency based syringe exchange schemes: analysis of 11 years of data (1991 to 2001) in Merseyside and Cheshire, UK. *Int. J. Drug Pol.*, 399-405. (Scopus citations: 29).
- 2) **Hope, V. D., McVeigh, J.**, Marongiu, A., **Evans-Brown, M.**, Smith, J., Kimergard, A., . . . Bellis, M. A. (2013). Prevalence of, and risk factors for, HIV, hepatitis B and C infections among men who inject image and performance enhancing drugs: a cross-sectional study. *BMJ OPEN*, 3(9), 11 pages. doi:10.1136/bmjopen-2013-00320 (Scopus citations: 43)
- 3) **Hope, V. D., McVeigh, J.**, Marongiu, A., **Evans-Brown, M.**, Smith, J., Kimergard, A., . . . Ncube, F. (2015). Injection site infections and injuries in men who inject image- and performance-enhancing drugs: prevalence, risks factors, and healthcare seeking. *EPIDEMIOLOGY AND INFECTION*, 143(1), 132-140. doi:10.1017/S0950268814000727 (Scopus citations: 13)
- 4) Kimergard, A., & **McVeigh, J.** (2014). Variability and dilemmas in harm reduction for anabolic steroid users in the UK: a multi-area interview study. *HARM REDUCTION JOURNAL*, 11, 13 pages. doi:10.1186/1477-7517-11-19 (Crossref citation: 19)
- 5) Breindahl, T., **Evans-Brown, M.**, Hindersson, P., **McVeigh, J.**, Bellis, M., Stensballe, A., & Kimergard, A. (2015). Identification and characterization by LC-UV-MS/MS of melanotan II skin-tanning products sold illegally on the Internet. *DRUG TESTING AND ANALYSIS*, 7(2), 164-172. doi:10.1002/dta.1655 (Scopus citations: 18)
- 6) Sagoe, D., **McVeigh, J.**, Bjornebekk, A., Essilfie, M. -S., Andreassen, C. S., & Pallesen, S. (2015). Polypharmacy among anabolic-androgenic steroid users: a descriptive metasynthesis. *SUBSTANCE ABUSE TREATMENT PREVENTION AND POLICY*, 10, 19 pages. doi:10.1186/s13011-015-0006-5 (Scopus citations: 37)

Relevant funding

- a) Jones, L. Jan 2013 to Dec 2013. Needle Syringe Programme review of effectiveness and survey analysis (PH52) Funding Body: NICE £60,117
- b) McVeigh, J. (Jan 2013 to Dec 2018) Public Health Impact of IPEDs in Wales. Funding Body: Welsh Assembly Government. £25,000 (per annum).
- c) McVeigh, J (Jan 18 to Dec 19) DELTS Funding Body: ERASMUS+ 111,542 euro
- d) McVeigh, J (April 2000 – March 2019) Drugs Integrated Monitoring System. Funding Body: Local Authorities of Liverpool City Region. £97,000 (per annum)

4. Details of the impact

Based on our research and expertise in the field of injecting drug use, including AAS and associated IPEDs, we were commissioned to support the development of NICE guidance relating to NSP provision. Systematic review and survey analysis, to update the previous evidence review conducted by PHI (NG18), together with an evidence review relating to IPED use highlighted the evidence gaps regarding service engagement and behaviour change amongst IPED users. Guidance for service development and future research is solely based on research undertaken and published by PHI (SOURCE 1 page 22).

McVeigh presented research findings on IPED use to the NICE Public Health Advisory Committee on Drug Misuse Prevention in January 2016 (SOURCE 2). Together with the subsequent written testimony, this was the sole evidence used to inform the NICE guidance (NG64) to make the recommendation for drug prevention information to be provided in gyms (NG64; Recommendation 1.5.1) and for effectiveness and cost effectiveness research to be undertaken (NG 64; Research recommendation 6).

Based on PHI's expertise and ongoing research into IPED use, we led a group of expert researchers and health practitioners in developing 'Turning Evidence into Practice' guidance for Public Health England (SOURCE 3). Nine of the fifteen sources of evidence had been produced by PHI (SOURCE 4). The briefing was initially distributed to support commissioning of drug services in Local Authorities and Clinical Commissioning Groups across England. Subsequently, it has been disseminated to the rest of the United Kingdom to both commissioners and service providers, helping shape service delivery (SOURCE 5).

Drug misuse and dependence: UK guidelines on clinical management is the definitive set of guidance for healthcare professionals; providers and commissioners of treatment for people who misuse or are dependent on drugs; professional and regulatory bodies; and service users and carers (SOURCE 6). The 2017 edition was the first to include guidance relating to the use of AAS and other IPEDs. McVeigh was commissioned to provide a review and synopsis, on which the included guidance was based (SOURCE 7). These guidelines, together with the specific research outputs produced by PHI, have influenced and guided drugs services and BBV prevention initiatives related to the use of AAS and other IPEDs in the United Kingdom (SOURCE 5).

The UK Drug Strategy published in 2017 (SOURCE 8) was the first drug strategy to explicitly highlight the use of IPEDs. The strategy raises concerns relating to the reluctance of drug users to engage with services, the transmission of BBVs, physiological and psychological harms and the threat of adulterated products within the illicit market. The Strategy only cites one source of

evidence for these findings, which is the 'Turning Evidence into Practice briefing (SOURCE 4) led by researchers at PHI.

The Advisory Council on the Misuse of Drugs (ACMD) have recently reviewed legislation related to AAS and associated IPEDs. McVeigh and Hope were co-opted to the group, which considered the evidence and made recommendations to the Home Office in 2019 relating to legal status, drug prevention, drug treatment and research priorities. Our research constituted the academic foundation of the review, including sections on prevalence of use, characteristics and typologies of users, motivations for use, socioeconomic factors, adulterated products and the illicit market. McVeigh also presented these findings at the public evidence-gathering day held on 26th September 2019 (SOURCE 9).

IPED use in the United Kingdom is an emerging public health issue that PHI have identified, quantified and publicised through research publications, policy briefings and through the media. The IPED research published by PHI and colleagues is both diverse and novel, incorporating different methodologies to address epidemiology, health policy and behavioural sciences. The impact of the research can be identified at the practice level with individual practitioners being influenced and guided by evidence briefings (SOURCE 5) and at a policy and strategy level where evidence from PHI research has directly influenced population health strategies (SOURCE 10) together with changes to legislation and development of social policy (SOURCE 9).

5. Sources to corroborate the impact

SOURCE 1: NICE (2014). Needle and syringe programmes NICE public health guidance. NICE: National Institute for Health and Care Excellence.

SOURCE 2: NICE Drug misuse prevention: targeted interventions (NG64).

SOURCE 3: Alcohol and Drug Treatment and Recovery Lead, Alcohol, Drug, and Tobacco Division Health and Wellbeing Directorate, Public Health England

SOURCE 4: Public Health England (2014). Services for image and performance enhancing drug (IPED) users: turning evidence into practice.

SOURCE 5: Medical Director, c/o Change Grow Live

SOURCE 6: Department of Health (2017). Drug misuse and dependence: UK guidelines on clinical management.

SOURCE 7: Chair of the independent expert working group updating the 2007 Clinical Guidelines, c/o National Addiction Centre, Institute of Psychiatry, Psychology & Neuroscience (IoPPN)

SOURCE 8: HM Government (2017). UK Drug Strategy 2017. London, HM Government.

SOURCE 9: Chair, Advisory Council on the Misuse of Drugs (ACMD),c/o Home Office

SOURCE 10: Head of Substance Misuse Programme, Health Protection, Public Health Wales