

Impact case study (REF3b)

Institution: King's College London
Unit of Assessment: UoA4 - Psychology, Psychiatry & Neuroscience
Title of case study: 2: New supervised dosing prevents methadone overdose deaths
<p>1. Summary of the impact</p> <p>King's College London researchers identified that the failure to supervise daily dosing of methadone for heroin addicts was associated with a high annual number of methadone-related deaths. Their research on newly-introduced supervised dosing showed major benefit from this policy initiative with greatly reduced levels of methadone overdose deaths per daily dispensed dose in the UK. Based on this research, guidelines from the National Treatment Agency and Department of Health now include clear direction for initial supervised consumption to prevent or greatly reduce methadone overdose deaths. Recent estimates suggest that the introduction of supervised methadone dosing has saved more than 2,600 lives in the UK.</p>
<p>2. Underpinning research</p> <p>Heroin addiction affects an estimated 262,000 people in the UK, of whom approximately 160,000 are in treatment, mostly with methadone. Methadone maintenance treatment for heroin addiction stunts craving and makes it possible for chronic heroin addicts to break the cycle of heroin use and associated harmful and anti-social behaviours. Until recently, methadone was dispensed from pharmacies for home consumption and the UK had high rates of methadone-related overdose deaths. Researchers at the Institute of Psychiatry, King's College London (KCL), led by Prof John Strang (1995-present, Professor of Addictions) with Prof Michael Farrell (1993-2011, Professor of Addictions Psychiatry), Dr Janie Sheridan (1995-2003, Lecturer Researcher) and Dr Victoria Manning (1997-2009, Research Worker), were the first in the UK to study the national patterns of prescribing and supervision of methadone and identify that the widespread failure in Britain to supervise daily dosing was contributing to these excess methadone deaths.</p> <p>KCL work revealed that between 1974 and 1992 overdose deaths involving heroin alone and methadone with or without heroin rose from 7 to 90 and from 26 to 240, respectively. When analysed, it was found that for each 3 year period the proportion of overdose rose by around 80% for either form of drug taking (1). Additional KCL research investigated reasons for methadone overdoses in a random sample of 3,585 methadone prescriptions. They identified that only 36.6% required pick up on a near daily basis, with 37.2% being for at least a week's supply (2). A growing proportion of community pharmacists were dispensing controlled drugs (mainly methadone), with rates doubling from 23% in 1988 to 50% in 1995 (992 of 1,980). KCL researchers in a study of attitudes identified these pharmacists as an untapped resource to take on a methadone dosing supervisory role (3).</p> <p>KCL researchers then examined the change in professional practice to assess the impact of new national guidelines for methadone prescribing introduced between 1996 and 1999. These included greater use of arrangements for daily dispensing and supervised consumption. They identified that NHS prescriptions for methadone dispensed in England tripled between 1990 and 2001 (425,400 to 1,318,100 annual prescriptions) (4) and that the proportion of community pharmacists providing methadone therapy dispensing services increased from 51% in 1995 to 63% in 2005 (5). Initial change in practice was slow (5, 6), but KCL research revealed a steady increase of daily dosing with methadone dispensing (38% in 1995 to 60% in 2005), and of use of supervision arrangements (less than 1% in 1995 to 36% in 2005) (7).</p> <p>Researchers at KCL then evaluated the impact of such changes on deaths related to methadone overdose in Scotland and England between 1993 and 2008. In Scotland, overdose deaths per million defined daily doses of methadone reduced from 19.3 to 4.1 (2001) and finally to 3.0 (2008) for methadone-only deaths; in England respective figures were 27.1 to 24.8 to 5.8. The decreases were closely related to the introduction of supervised dosing of methadone in both countries (8). This important improvement had not previously been detected by Government data managers because of the failure to analyse across different national datasets. Taking into account the substantial increases in methadone prescribing over this period (18-fold increase in defined daily</p>

doses per million population annually in Scotland and 7-fold increase in England), KCL work found that there was more than a four-fold reduction in the number of methadone-related deaths per million daily dispensed dose (8).

3. References to the research

1. Neeleman J, Farrell M. Fatal methadone and heroin overdoses: time trends in England and Wales. *J Epidemiol Community Health* 1997;51(4):435-7. Doi:10.1136/jech.51.4.435 (61 Scopus citations)
2. Strang J, Sheridan J, Barber N. Prescribing injectable and oral methadone to opiate addicts: results from the 1995 national postal survey of community pharmacies in England and Wales. *BMJ* 1996;313(7052):270-2. Doi: <http://dx.doi.org/10.1136/bmj.313.7052.270> (99 Scopus citations)
3. s)
4. Sheridan J, Strang J, Barber N, Glanz A. Role of community pharmacies in relation to HIV prevention and drug misuse: findings from the 1995 national survey in England and Wales. *BMJ* 1996;313(7052):272-4. Doi: <http://dx.doi.org/10.1136/bmj.313.7052.272> (Scopus citations: 79)
5. Strang J, Sheridan Effect of national guidelines on prescription of methadone: analysis of NHS prescription data, England 1990-2001. *BMJ* 2003;327(7410):321-2. Doi: <http://dx.doi.org/10.1136/bmj.327.7410.321> (15 Scopus citations)
6. Sheridan J, Manning V, Ridge G, Mayet S, Strang J. Community pharmacies and the provision of opioid substitution services for drug misusers: changes in activity and attitudes of community pharmacists across England 1995-2005. *Addiction* 2007;102(11):1824-30. DOI: 10.1111/j.1360-0443.2007.02016.x (8 Scopus citations)
7. Strang J, Sheridan J. Effect of government recommendations on methadone prescribing in South East England: comparison of 1995 and 1997 surveys. *BMJ* 1998;317(7171):1489-90. Doi: <http://dx.doi.org/10.1136/bmj.317.7171.1489> (23 Scopus citations)
8. Strang J, Manning V, Mayet S, Ridge G, Best D, Sheridan J. Does prescribing for opiate addiction change after national guidelines? Methadone and buprenorphine prescribing to opiate addicts by general practitioners and hospital doctors in England, 1995-2005. *Addiction*. 2007;102(5):761-70. Doi: 10.1111/j.1360-0443.2007.01762.x (26 Scopus citations)
9. Strang J, Hall W, Hickman M, Bird SM. Impact of supervision of methadone consumption on deaths related to methadone overdose (1993-2008): analyses using OD4 index in England and Scotland. *BMJ* 2010;341:c4851. Doi: 10.1136/bmj.c4851 (25 Scopus citations)

Grants

- 1995. Department of Health funding to survey community pharmacists on provision of opioid substitution services. PI: John Strang. £80,000
- 2002. Department of Health funding for national GP survey. PI: John Strang. £80,000
- 2006. Department of Health funding to investigate change in practice from 1995-2005. PI: John Strang. £120,000.

4. Details of the impact

King's College London (KCL) research demonstrated that during the 1990s methadone was routinely prescribed and dispensed without supervision in Scotland and England and that it was implicated in as many drug related deaths as heroin. This research triggered policy change and improved clinical practice leading to a reduction in methadone overdose deaths to less than a quarter of their previous levels.

Direct impact on government health policy: The KCL research discussed above contributed to the political and professional debate about methadone maintenance treatment. KCL researchers have contributed centrally to change in national policy, chairing and otherwise contributing to relevant committees.

Chaired by Prof Strang, the 2007 'Orange Guidelines' (1a) on drug misuse jointly produced by

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Department of Health (England), the Scottish Government, Welsh Assembly Government and Northern Ireland Executive, stated that “supervised consumption (of methadone) should be available for all patients for a length of time appropriate to their needs and risks” and recognised that the decrease in methadone-related deaths partly reflected the implementation of supervised methadone prescriptions in the initial stages of drug treatment. The guidelines cite KCL research on national patterns of methadone supervision (Strang et al. 2007; Strang et al. 1996). As a result, in 2008, the National Treatment Agency (NTA) provided a range of documents and activities to support the dissemination and implementation of Orange Guidelines, including an explanatory note from Prof Strang on dosing in drug misuse treatment (1b). Since their release, the Orange Guidelines have informed local policies and practice, for example in Lothian NHS (2009) (1c) and Devon County Council (2013) (1d) guidance for community pharmacists.

The NTA’s 2012 report on ‘Medications in Recovery’ chaired by Prof John Strang states that “our work has involved a re-examination of treatment methods and objectives that can help the recovery of those with addiction problems. This is an important step in meeting the ambitions of the people who use our services and of the Government’s Drug Strategy 2010. We have embarked on this work with the advantage of the considerable expertise of the group’s members and a substantial international scientific literature.” It concludes that “we strongly support continued reference and adherence to the existing NICE drug misuse guidance (reviewed and unchanged in 2010-11) and to the more practitioner-orientated 2007 Clinical Guidelines” (2). This report on supervised consumption, along with KCL research demonstrating the reduction in methadone-associated deaths has influenced the protection of this budget expenditure despite prevailing austerity.

The impact of KCL research on the benefits of supervised methadone consumption to prevent methadone overdose deaths is explicitly stated in the attached letter from the NTA (now Public Health England), dated June 2012 (3):

“The NTA recognises the significant impact that research by Professor Strang has had on the area of substance misuse treatment and, more specifically in this instance, to the reduced risk of methadone-related deaths following the introduction of supervision of consumption of prescribed methadone. [...] Evidence from these papers by Professor Strang were key in the Department of Health recommending and resourcing the necessary changes in professional practice by dispensing pharmacists as well as by prescribing doctors, and this incorporation of necessary supervision, particularly during the early stages of treatment, is now a key component of recommendations from the DH/NTA ‘Orange Guidelines’.”

Dissemination of scientific understanding: KCL researchers collaborated with Sheila Bird from the Medical Research Council Biostatistics Unit for the group Straight Statistics, a campaign established by journalists and statisticians to improve the understanding and use of statistics by government, politicians, companies, advertisers and the mass media. They demonstrated that quality-prescribing of methadone has prevented over 2,600 methadone-only deaths in Scotland and England between 2001 and 2008 (4a).

KCL researchers were lead contributors to the important book ‘Drug Policy and the Public Good’ prepared for the general public on the scientific evidence for addictions policy and practice which cites several of the papers discussed above (Strang et al. 1996; Strang et al. 2007) and lists supervised dosing of methadone as one of the three service system changes to make a difference. The book won First Prize in the BMA Book Award in the Public Health category (4b). As of July 2013, the book had sold more than 1,900 copies. It has been translated into Spanish and is currently being updated and adapted for a scheduled publication from the World Health Organization. In addition, KCL researchers published an associated Lancet paper in 2012, reviewing the evidence surrounding international drug policies to outline the likely effect of fuller implementations and highlighting the importance of policies promoting public health, including the provision of opiate substitution therapy for addicted individuals which has strong evidence of effectiveness (4c).

5. Sources to corroborate the impact (indicative maximum of 10 references)

- 1) Impact on government policy
 - a. Departments of Health – Drug misuse and dependence: UK guidelines on clinical management ‘Orange Guidelines’ (2007):
http://www.nta.nhs.uk/uploads/clinical_guidelines_2007.pdf
 - b. Auditing drug misuse treatment - Statement on medication choice and dosing in drug misuse treatment, explanatory note by Prof Strang (Dec 2008):
http://www.nta.nhs.uk/uploads/auditing_drug_misusetreatment_1208.pdf
 - c. Lothian NHS guidance for supervised dispensing for community pharmacists (2009):
http://www.communitypharmacy.scot.nhs.uk/documents/nhs_boards/lothian/Lothian-Guidelines-Dispensing-Supervised-Self-Administration-Methadone-pdf.pdf
 - d. Devon County Council guidance for pharmacists (2013): http://new.psn.org.uk/devon-lpc/wp-content/uploads/sites/20/2013/07/Supervised-Consumption-Pharmacy-Service_Specification_2013-14.pdf
- 2) 2012 ‘Medications in Recovery’ report from NTA on behalf of Department of Health – see <http://www.nta.nhs.uk/uploads/medications-in-recovery-main-report3.pdf>
- 3) Letter of professional corroboration: Chief Executive, National Treatment Agency (now Public Health England), June 2012 (available on request)
- 4) Dissemination
 - a. Straight Statistics - How better methadone prescribing has saved more than 2,500 lives (Sheila Bird, John Strang, Wayne Hall and Matthew Hickman)
<http://straightstatistics.org/article/how-better-methadone-prescribing-has-saved-more-2500-lives>
 - b. Thomas F. Babor et al. Drug Policy and the Public Good. Oxford University Press (Dec 2009) <http://ukcatalogue.oup.com/product/9780199557127.do> (p.244) (Book available on request)
 - c. Strang J, Babor T, Caulkins J, Fischer B, Foxcroft D, Humphreys K. Drug policy and the public good: evidence for effective interventions. Lancet 2012;379(9810):71-83. Doi: 10.1016/S0140-6736(11)61674-7.