Preventing deaths from heroin overdose: better science, fuller understanding, greater impact

(Keynote address, LxAddictions 2019, Lisbon, Portugal)

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Declarations (personal & institutional)

- NHS provider (community & in-patient); and NGOs and third sector.
- Dept of Health, NTA, Home Office, NACD, EMCDDA, WHO, UNODC, NIDA.
- Dialogue and work with pharmaceutical companies re actual or potential development of new medicines for use in the addiction treatment field (incl re naloxone products), including (past 3 years) Indivior, Mundipharma, Camurus, Molteni/Titan and trial product supply from iGen and Braeburn/Camurus.
- Talk includes findings from work with Pharma.
- SSA (Society for the Study of Addiction); UKDPC (UK Drug Policy Commission), and two Masters degrees (taught MSc and IPAS) and an Addictions MOOC.
- Work also with several charities (and received support) including Action on Addiction, and also with J Paul Getty Charitable Trust (JPGT) and Pilgrim Trust.
- The university (King’s College London) has registered intellectual property on a buccal naloxone formulation, and JS has been named in a patent registration by a Pharma company as inventor of a novel concentrated naloxone nasal spray.

Structure of talk

1. Better science
2. Fuller understanding
3. Greater impact
4. Challenges still to be addressed
Conclusion number 1:

- HEROIN
- Heroin and sedative mixtures

London PAI Study #2

- Personal overdose? - 117 (38%)
- Witnessed overdose? - 157 (50%)
- Witnessed fatal O/D? - 46 (15%)

Conclusion number 2

- Overdose is common hazard
- Overdose frequently witnessed

An intervention perhaps?

- opiates involved?
- home context?
- peers present?
Survival and cessation in injecting drug users: prospective observational study of outcomes and effect of opiate substitution treatment

Jo Kinber, AHRIRC postdoctoral fellow,1,2 Lorraine Copekand, researcher,1,2 Matthew Hickinson, professor in public health and epidemiology,1,2 John Macdowd, professor in clinical epidemiology and primary care,1,2 James McKenzies, research community psychiatry nurse,1,2 Daniela De Angelis, senior statistician,1,2 James Roy Robertson, reader and general practice principal.3

ABSTRACT

Objectives: To investigate survival and long-term cessation of injecting in a cohort of drug users and to assess the influence of opiate substitution treatment on these outcomes.


Participants: 794 patients with a history of injecting drug use, screening between 1998 and 2001, 651 (89%) were followed up by interview or linkage to primary care records and mortality registers, of which, and contributed 30 390 person-years at risk. 575 (83%) had received opiate substitution treatment.

Main outcome measure: Duration of injecting years from populations. Deaths in those who inject opioids are rarely a consequence of overdose and bloodstream infection.1 The principal treatment for dependent users is opiate substitution therapy, commonly oral methadone,2 which is used widely in primary care settings. Opiate substitution treatment can reduce opioid use, mortality, and transmission of bloodstream infection, though evidence comes from relatively short-term studies.3

Short periods of cessation from injecting are relatively common,12 but few studies have long enough follow-up to observe long-term cessation, and the impact of opiate substitution treatment on the overall duration of injecting is unclear.1,2

BMJ

Risk of death during and after opiate substitution treatment in primary care: prospective observational study in UK General Practice Research Database

Roxie Cornish, statistician,1 John Macdowd, professor in clinical epidemiology and primary care,1 John Strang, professor in the psychiatry of the addictions,2 Peter Vickerman, senior lecturer in mathematical modelling,3 Matt Hickinson, professor in public health and epidemiology1

ABSTRACT

Objectives: To investigate the effect of opiate substitution treatment at the beginning and end of treatment and according to duration of treatment.

Methods: Prospective cohort study. Setting: UK General Practice Research Database.

Main outcome measure: Mortality rate ratio compared to not on treatment. Further research is needed to investigate the effect of average duration of opiate substitution treatment on drug-related mortality.

Risk of death during and after OST treatment
Acute risk of drug-related death among newly released prisoners in England and Wales

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Aims: To investigate drug-related deaths among newly released prisoners in England and Wales. Design: Database linkage study. Participants: National sample of 48,771 male and female sentenced prisoners released during 1998-2000 with all recorded deaths included to November 2001. Findings: There were 442 recorded deaths, of which 261 (59%) were drug-related. In the year following index release, the drug-related mortality rate was 3.4 per 1000 among men and 5.9 per 1000 among women. All-cause mortality in the first and second weeks following release for men was 37 and 26 deaths per 1000 per annum, respectively (95% of which were drug-related). There were 47 and 38 deaths per 1000 per annum, respectively, among women, all of which were drug-related. In the first year after prison release, there were 342 male deaths (4.5 expected in the general population) and there were 108 female deaths (8.3 expected in the general population). Drug-related deaths were attributed mainly to substance use disorders and drug overdose. Coronial records cited the involvement of opioids in 95% of deaths, benzodiazepines in 20%, cocaine

When? Clustering in time and space

Singleton, Farrell, Marsden et al, 2002

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Oxygen saturation: IV versus IM

Figure 1 Oxygen saturation after intravenous (IV) and intramuscular (IM) injection of heroin
Oxygen saturation: case study

A. Subject 21

B. Subject 31

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Heroin overdose: the case for take-home naloxone

Non-fatal overdose is an occupational risk of heroin misuse, and fatal overdose is a common cause of premature death in heroin users. One of the major contributors to a fatal outcome is the inadequacy of heroin users’ responses to the overdoses of their peers. They may delay calling an ambulance for fear of the police arriving, and their efforts to revive conscious users are often ineffective. The distribution of naloxone to opioid users was first mooted in 1992 as an intervention that would be life saving in such situations. With a rising toll of deaths from heroin overdose it is time to take the suggestion seriously.

Interviews with 120 heroin users in Sydney found that two thirds had had a drug overdose, a third within the past year, and that 80% had been present at the overdose of another user. In Australia the incidence of deaths from heroin overdose has increased over the past decade while deaths from other drug related causes have fallen. In the United Kingdom a sharp increase in the numbers of deaths among opiate users has recently been reported from Glasgow.

Naloxone has a long established use in emergency resuscitation of patients with opiate overdose. Such a tried and tested even greater risk if further opiates have been used in the interval. A black market in naloxone might develop if opiate users wanted to protect themselves from overdoses; in such a case, however, the drug would be used for its intended purpose, and the black market would simply circumscribe inequalities in access to the drug.

If naloxone were to be provided to opiate users for emergency resuscitation it would need some modification. The onset of many overdoses is too sudden to allow time for the victim to open an ampoule, draw up the contents, and inject himself or herself. The drug might be better provided in a disposable prefilled syringe, though such a form of delivery would increase its shelf life of emergencies—though still be life saving.

Further issues are administration by family members, or its use prescribed the dry administration of a

17 18 19 20
Naloxone kits issued across Scotland
31/07/2012
The Scottish Government today welcomed figures that show naloxone is being distributed the length and breadth of Scotland and is being made available to those at risk of opioid overdose.

Scotland was the first country in the world to announce a national naloxone programme, in November 2010. The programme is centrally coordinated and funded by the Scottish Government, empowering individuals, families, friends and communities to reverse an opioid overdose. Naloxone provides more time for an ambulance to arrive and further treatment to be given to those in opioid overdose situations.

Figures published today show that 3,445 naloxone kits were issued in Scotland in 2011/12 through this national programme. Scottish Government investment in the programme funds a national coordinator based at the Scottish Drugs Forum and support to Alcohol and Drugs Partnerships and Health Boards to enable them to deliver naloxone training and supply naloxone kits to people at risk.

Community management of opioid overdose
(2014)

Recommendation
People likely to witness an opioid overdose should have access to naloxone and be instructed in its administration to enable them to use it for the emergency management of suspected opioid overdose.
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First serious consideration:


*** important achievements, but so slow, so very slow ***
Clinical guidelines across the EU should be adapted to establish take-home naloxone provision as a care standard (e.g. on an opt-out basis), where (former) opioid users are routinely offered a take-home naloxone kit.

In the UK, hepatitis-B vaccination already exists on an opt-out basis in prisons (NICE, 2012), and this could serve as model for future prison-based take-home naloxone-on-release schemes.

Challenges:

1) Can it be non-injectable?
Key findings: Naloxone mean PK profile

Challenges:

1) Can it be non-injectable?
2) Does dose matter?
3) Could we detect and intervene remotely?
Conclusions

• Understand the harms and their mechanisms better

• Conceive of, and test, interventions to reduce the harms

• Implement

• Constantly scrutinise and revise

Overall take-home message

• Proud of what we have achieved

• Humble about how much more we need to do

Thank you