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How to include anonymised routine data in emergency care research – more examples and future research

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Gaps in/determinants of pain management

- 3654 patients with suspected AMI (33%) or fracture (67%)

- Pain scores in 77%, two pain scores in 64%

- Pain assessment more likely in suspected AMI vs. fracture (OR 2.05, 95% CI 1.70-2.47)

- Entonox less likely to be administered for suspected AMI (0.11) by paramedic crews (0.56) but more likely when pain assessed (3.54)

- Opiates more likely to be prescribed for suspected AMI (1.30) alert patients (1.35) those assessed for pain (2.20).

Siriwardena AN, Shaw D, Bouliotis G. Exploratory cross sectional study of factors associated with prehospital management of pain. Journal of Evaluation in Clinical Practice 2010; 16: 1269–1275).

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Adverse clinical features in overdose

- **22,729 calls over 3 months**

- **585 (2.6%) overdose or self-poisoning**

- **Predictors of adverse clinical features (reduced consciousness, obstructed airway, hypotension, bradycardia, hypoglycaemia): male, opiates, illegal drugs**

- **Predictors of treatment: oxygen (older patients, reduced LOC), saline (reduced LOC)**

Gwini SM, Shaw D, Iqbal M, Spaight A, Siriwardena AN. Exploratory study of factors associated with adverse clinical features in patients presenting with non-fatal drug overdose/self-poisoning to the ambulance service. *Emerg Med J* 2011; **28**:892-894.

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Management of hypoglycaemia

- **523/90,435 (0.6%) emergency calls for severe hypoglycaemia in 3 months: 2.76 per 100 patient years**

- **74% insulin-treated, 28% events nocturnal (00:00–07:59), 32% transported to hospital.**

- **Higher respiratory rate a positive predictor ($p = 0.03$), cf. higher post treatment blood glucose ($p = 0.05$) and insulin treatment ($p < 0.01$) were negative predictors of transport to hospital.**

Khunti K, Fisher H, Paul S, Iqbal M, Davies MJ, Siriwardena AN. Severe hypoglycaemia requiring emergency medical assistance by ambulance services in the East Midlands Primary Care Diabetes 2012 omline first

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Reducing inappropriate cannulation

Reduction in cannulation rates in intervention site

Cannulation rates before and after the educational intervention
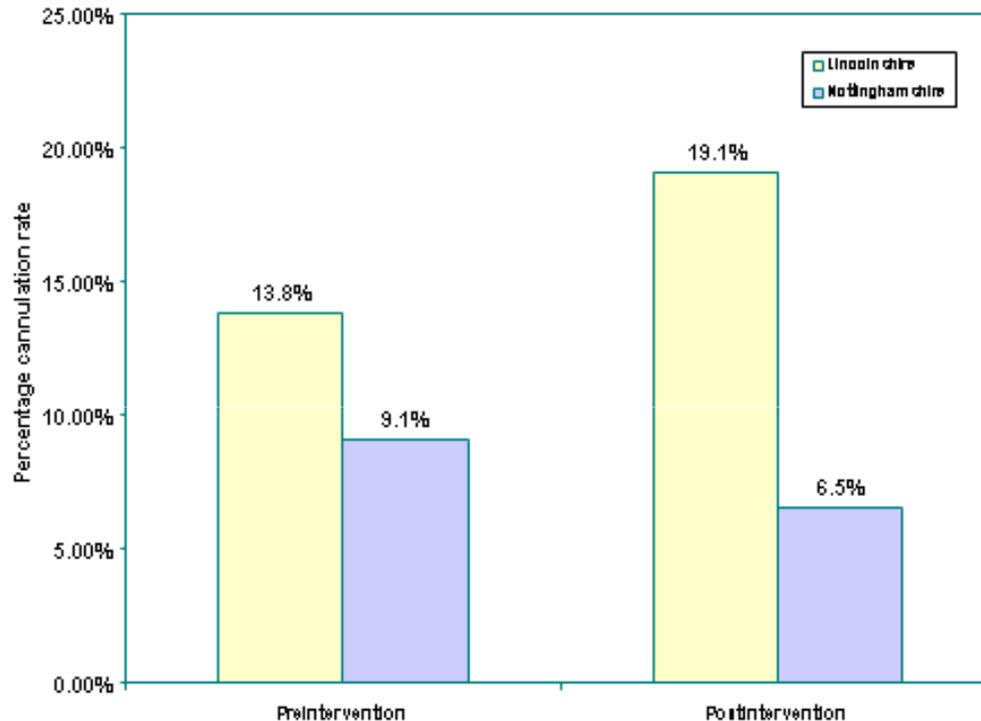
Significant reduction in cannulation rates intervention vs control area (p<0.001)

Reduction in cannulation- intervention area from 9.1% to 6.5% (OR 0.7, 95% CI 1.15 to 1.90, p<0.01)

Increase in cannulation - control area from 13.8 to 19.1% (OR 1.47, 95% CI 1.15 to 1.90, p<0.01)

Siriwardena AN, Banerjee S, Iqbal M, Spaight M, Stephenson J. An evaluation of an educational intervention to reduce inappropriate cannulation and improve cannulation technique by paramedics. *Emerg Med J* 2009;**26**;831-836

Improving management of falls

- **Paramedic assessment of falls and referral into a community pathway**

- **Primary outcome : rate of further emergency contacts (or death), for any cause and for falls**

- **Anonymised linked data from central NHS databanks for all patients matched to NHS administrative records**

- **Identifiable data from NHS providers for consenting patients**

Snooks H, Anthony R, Chatters R et al. Support and assessment for fall emergency referrals (SAFER 2) research protocol: cluster randomised trial. BMJ Open 2012;2: e002169.

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PhOEBE

- **NIHR Programme Grant**
- **Five years – June 2011 – May 2016**
- **£2million**
- **4 work streams**
- **A boost for pre-hospital care research**

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The team

- **Sheffield**
  - **Janette Turner, Jon Nicholl, Steve Goodacre, Andrew Booth, John Brazier, Mike Campbell, Alicia O'Cathain, Jo Coster, Richard Wilson**
- **EMAS/Lincoln**
  - **Niro Siriwardena, James Gray, Viet-Hai Phung**
- **YAS**
  - **Alison Walker, Jane Shewan**
- **Swansea**
  - **Helen Snooks, Ronan Lyons**
- **East Midlands Public Health Observatory**
  - **David Meechan. Heather Heard**

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Aims

- **To develop new ways of measuring the impact of pre-hospital care provided by ambulance services.**

- **Provide better information about the effectiveness and quality of the different types of care delivered to a large group of patients.**

- **Support quality improvement, audit and evaluation of future service changes.**

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Objectives

- Review, assess and synthesise literature on pre-hospital outcome measures

- Qualitative study with service users to explore their views on what reflects a good service

- Consensus methods to identify measures relevant to the NHS and patients that have the potential for further development

- Create an information dataset for measuring ambulance service care by linking pre-hospital, primary care, hospital episode and mortality data

- Build risk adjustment models that predict mortality and non-mortality outcomes using the linked routine data.

- Test if risk adjustment models can measure effectiveness and quality of ambulance service care

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Workstream 1

- 3 evidence reviews – policy, tools and measures, operationalisation

- Consensus workshops – public and wider stakeholders to identify measures for further development

- Interviews with service users

- Delphi study to finalise and agree measures

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Workstream 2

- **Development of linked data set**

- **Sources – ePRF, CAD, HES A&E, HES, Mortality, (Primary Care)**

- **Link using NHS number and probabilsistic linkage**

- **3rd party facilitator – Information Centre**

- **Data protection and information regulation**

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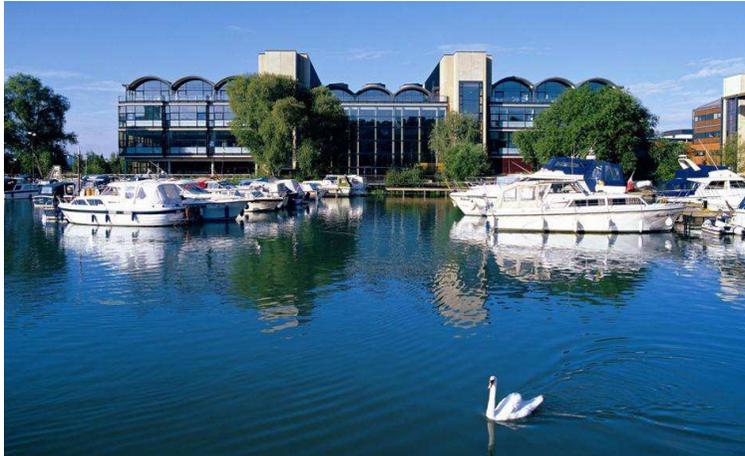
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Workstream 3

- **Develop risk adjustment models for indicators identified in WS1**

- **'Model' predicts the outcome from characteristics of the incident, patient and pre-treatment condition of the patient.**

- **These prognostic models used to adjust for any casemix differences when making comparisons.**

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Workstream 4

- **Testing in the real world**

- **Analyses for different scenarios, e.g direct specialist care, left at home, new service**

- **Test for safety – case review of unexpected deaths**

- **Dissemination workshops and roll out**

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Thanks

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- **Swansea: Helen Snooks**

- **Leicester University: Kamlesh Khunti**

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Thank you for listening!

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