Improving Health Outcomes
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Alastair McColl, Paul Roderick, John Gabbay
Peptic ulcer deaths in Coventry

Geographical Area covered: Coventry
Focus: Case studies focusing on the use of national indicators

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Editorial comments on how case study is linked to improving health outcomes: (also published in Volume 1)
Padki, Barker and Williams investigated why Coventry had a high standardised mortality rate from peptic ulceration. Using their own mortality database they were able to identify eight deaths in 1995. They conducted an audit of these notes to determine whether there were avoidable factors associated with the deaths. No factors were identified although four of those who died were taking non steroidal anti-inflammatory drugs.

Abstract (also published in Volume 1)
Coventry has a statistically significantly high Standardised Mortality Ratio (SMR) for peptic ulcer in persons aged 25 - 74 years of 137 (105 - 176) for the period 1988 - 92.

Objective: To identify any ‘avoidable factors’ in the clinical care of patients dying from peptic ulcer in Coventry residents.

Methods: Death certificate data held in the Department of Public Health Medicine were examined for the calendar year 1995. All deaths caused by gastric, duodenal or peptic ulcer (ICD9 531-533) between the ages of 25 and 74 years were identified. An audit of case notes for each patient (where peptic ulcer was identified as the cause of death) was carried out.

Results: Eight male deaths were identified using the above parameters. No categorically ‘avoidable factors’ were identified. 50% of the deaths were associated with the ‘clinically appropriate’ use of non steroidal anti inflammatory drugs (NSAID).

Outcomes: Repeat prescribing protocols submitted by general practitioners to the Primary Care Medical and Pharmaceutical Advisers will receive particular attention regarding time limits for NSAID scripts and frequency of medical review.

The quality of medical hospital note-keeping will be audited in 1996/97.

Introduction:

Why this clinical area was choosen:
Two routinely published outcome indicators highlighted a specific problem with deaths caused by peptic ulcers in Coventry.

- Population Health Outcome Indicators for the National Health Service B3. Coventry has a statistically significantly high Standardised Mortality Ratio (SMR) for peptic ulcer in persons aged 25 - 74 years of 137 (95% confidence interval 105 - 176) for the period 1988 - 92. The male SMR
was 136 (96 - 189) with 36 deaths recorded. The female SMR was 138 (88 - 205) with 24 deaths recorded (DoH 1993). The increased SMR was first mentioned in a chapter on 'Health Outcomes' in the 1994 Annual Report of the Director of Public Health (Health in Coventry 1994);

- Public Health Common Data Set Indicator C6, C7.

Both the years of life lost (YLL) and the death rate per 10,000 population from peptic ulcer disease in Coventry residents were significantly higher for the period 1991 - 1995 than for England and the West Midlands region as a whole (DOH 1995).

Further information that was required:

Death certificate data is kept on an electronic database in the Department of Public Health Medicine in Coventry. This is simply a database of all death notifications from registry offices and includes transferable deaths for Coventry residents dying outside Coventry and coroners' verdicts. The database is run by a Clinical Audit Manager and is used by local clinicians for audit.

Deaths recording gastric, duodenal and/or peptic ulcer in sections 1a - 1c of the death certificates for one complete calendar year (1995) were identified from the database for inclusion in the study.

The ideal service and interventions for the management of peptic ulcer patients are well described in the literature and avoidable factors associated with deaths can be clearly defined (McColl and Gulliford 1993).

A proforma was designed by the Consultant in Public Health Medicine (CPHM) after a literature search and informal discussion with GPs and clinicians. The proforma was used to collect administrative data and details of unavoidable and avoidable factors associated with the deaths.

The proforma is shown below; the shaded areas denote aspects of clinical care defined as avoidable factors for deaths from peptic ulcer disease for the purposes of the study.
The primary care notes and copies of post mortem reports were obtained for each patient and also secondary care medical notes where appropriate. A proforma was completed for each patient by the CPHM after assessment of the case notes. Where there was lack of clarity in the medical notes the patient's general practitioner or hospital consultant were asked for further information. The CPHM decided whether a death was avoidable or non avoidable. Since this was an audit ethical approval was not required.

Eight male deaths were identified (median age 60 years, standard deviation 14 years). There would be an expected number of 9 deaths per annum from peptic ulcer in Coventry residents in the age range 25-74 years (3 year moving average (1993-1995)).

Avoidable factors were not identified in any of the deaths. The major factor common to all of the deaths was serious co-morbidity rather than problems with clinical care. There were no areas of uncertainty in deciding whether a death was avoidable or non avoidable from the case notes audited.

50% of the patients were receiving regular NSAID prescriptions but these were all classified by the CPHM as clinically appropriate due to the severity of the underlying arthritic condition being treated and the fact that alternative analgesics had been used in the past. There was no clear evidence of problems with repeat prescribing of NSAIDs in the patients studied.

Timings of medical interventions and details of the medical personnel present at interventions were often difficult to determine accurately from the secondary care medical notes.

**Data validity studies:**
The death certificate database is validated against the total official OPCS figures and there is no evidence of under reporting.

Though the overall number of peptic ulcer deaths was within the expected range for Coventry there were discrepancies between the ages of the patients in the case note audit and the frequency of deaths reported by OPCS in the age bands specified in the mortality statistics for 1995. In addition one female death reported by OPCS was not included in the database of death notifications and therefore not included in the case note audit.

**Summary findings from initial work:**

**Changes which were made:**

There was no categorical evidence of problems with repeat prescribing of NSAIDs in the patients studied. However given that 50% of the eight deaths were associated with the use of NSAIDs it was decided that repeat prescribing protocols submitted by general practitioners should be examined by the Pharmaceutical and Medical Adviser. Particular consideration will be given to time limits for NSAID scripts and frequency of medical review. It may become appropriate to set a city wide standard for these parameters.

The standard of medical note keeping in secondary care has been raised at a committee with a quality remit in the Acute Provider Unit in Coventry. An audit of medical note keeping is planned for 1997.

The electronic database of death certificate data is a very useful resource. The data discrepancies revealed by this audit will become the subject of further study.

This case note audit of eight peptic ulcer deaths in Coventry revealed no obvious delays in diagnosis or investigation in primary care and no delay or problems with treatment in secondary care.

**How changes will be monitored:**

Hospital admissions for peptic ulcer and city wide trends in NSAID prescribing will be used in addition to mortality data as markers for peptic ulcer disease.

**Resource Implication:**

The death certificate database has been funded from within the Departmental budget and the resource implications represent the opportunity costs of the time of the Clinical Audit Manager.

**Practical lessons learnt:**

This type of study was facilitated in Coventry by the good working relationships that exist between local clinicians and the Department of Public Health. Coventry is also fortunate in that there is only one acute provider to negotiate with.

Inappropriate medical care is often difficult to define. For example in this study there was difficulty in defining inappropriate use of NSAIDs. The decision to investigate further the repeat prescribing of NSAIDs in the absence of any clear evidence of inappropriate prescribing represents a pragmatic solution given the known association between NSAIDs and peptic ulcer disease.

Local information is helpful in achieving changes at a district level.

**Conclusion:**

A case note audit of deaths for medical conditions where avoidable factors have been defined in the medical literature is a useful method to highlight possible local problems with medical care.

Though it is accepted that small samples may not be representative, this must be considered in the context of time restraints versus the need for academic rigour.
References:

B) Peptic ulcer deaths in Coventry


McColl AJ, and Gulliford MC. (1993). Population Health Outcome Indicators for the NHS. Faculty of Public Health Medicine and Department of Public Health Medicine, United Medical Dental Schools of Guy’s and St Thomas’ Hospitals.

Organisational Context:

Population health outcome measures for stroke and peptic ulcer deaths were first highlighted in the annual report of the Director of Public Health for Coventry in 1994. Recommendations for organised stroke care and an audit of peptic ulcer deaths were made to the Coventry Health Authority.

The audit of peptic ulcer deaths was led by a Consultant in Public Health Medicine (Peter Barker). Discussions with Consultants and GPs were helpful in designing the proforma to identify potentially avoidable factors. Much of the work was done within the Department of Public Health. Lessons resulting from the study have wider impact on prescribing NSAID and medical note keeping in Coventry.