

# Using an Educational Intervention, Involving the Feedback of Routinely Collected Computer Data to Improve the Quality of Chronic Disease Management in UK Primary Care

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## Introduction

UK general practice is computerised, and quality targets based on computer data provide incentives to improve data quality. Despite this, routinely collected data is an under-used resource with; and there remains scope to further improve computer data quality [1-4].

Our approach to quality improvement is to use an educational intervention based on feedback of routinely collected data and what it says about the quality of care. It incorporates the use of: the theory of diffusion of innovations [5,6], academic detailing [7] adult learning theory [8], and what are known to be effective method of feedback [9]. This paper reports the lessons from over five years of working with general practice data and feeding it back in an educational context to improve the quality of care.

## Methods

The method used in the Primary Care Data Quality (PCDQ) programme involves the design of an educational intervention which provides clinically relevant feedback to clinicians; and overview statistics to localities and researchers. We design separate interventions for each clinical area we work in; looking to provide an innovative way that evidence care might be improved. We look to work with opinion leaders within a locality; to influence those likely to be early adopters of change; and where appropriate support the implementation of evidence based national targets [5,6]. Carefully designed academic detailing supports each clinical programme. A different visual appearance is adopted for each variable; and a gentle sense of competition is created by comparing the performance of each practice [7]. The programmes are run in a non-judgemental learning environment which seeks to follow a learner centred, shared problem solving orientation. Wherever possible this takes place in protected learning time at locally led, half-day, data quality workshops (DQW) [8]. The feedback process has been designed to increase its chances of success, table 1.

The design steps for an individual clinical programme are: data entry issues, extraction, migration, integration of data from different sources, cleaning and analysis. Our methodological approach takes account of data entry issues as they can have a profound effect on

**TABLE 1** Features of feedback known to more or less effective compared with the features of a PCDQ programme.

Features of feedback	Features of a PCDQ programme
1. Brevity	Effective feature Designed as a brief intervention, with small datasets fed back at one time.
2. Educational focus	An educational intervention - with learning objectives. Based on an adult learning model
3. Protected learning time	Learning takes place in DQW (Data Quality Workshops)
4. Clinical relevance	Designed to be implemented in areas where there is clinical need, and effective interventions
5. Supporting EBM (evidence base)	There is strong evidence for interventions available to implement in primary care
6. Peer led	Wherever possible the programme supports a local lead
	<b>Less / not effective</b>
1. Unsolicited mail	Not a feature of the PCDQ programme
2. Certain disease areas	We have not yet worked in areas where other studies report difficulties

the way that patients with the same clinical conditions are represented within the computer system. Our standard data extraction tool is MIQUEST (Morbidity Information Query and Export Syntax) though more recently we have started to experiment with more generic data extraction tools.

## Results

Results are presented from a range of clinical areas to demonstrate the generaliseability of our method;

these include: preventing stroke in atrial fibrillation, the management of cholesterol in heart disease, identifying patients with undetected renal disease.

Defining the dataset to be extracted, developing robust audit criteria, and an analysis plan or is a critical parts of planning. For example, the dataset used in an atrial fibrillation study; designed to investigate whether there was scope to further improve the quality of care of patients with atrial fibrillation [10].

Problems can arise with data entry because of confusion about the classification system. Bronchitis provides examples of this. In patients with bronchitis it is not obvious from the coding screen that the H06 code should be used for acute disease; and that any of the codes that belong to the H3 hierarchy imply the patient has chronic obstructive pulmonary disease (COPD). It provides a useful example of how one system can bias coding differently from another [3].

### *Example output from routinely collected GP data*

The largest aggregation of data we have carried out was from a population base of 2.4 million patients. We demonstrated, based on routinely collected general practice data collected in 2002, that half of patients with coronary heart disease had their cholesterol raised above the target level of 5 mmol/l and of these only half were prescribed a statin [1]; from

the same sample we also demonstrated marked end-digit preference in blood pressure recording [2]. However, osteoporosis provides an example of where there are still many problems with data [4].

## Discussion

Improvements in data quality and the capacity and capability of information and communications technologies mean that progressively more use can be made of routinely collected general practice computer data. However for health services to derive more benefit from this data there needs to be greater standardisation of recording between practices. This can be achieved by taking part in data quality programmes, and understanding which components make them effective should be a part of the core theory of health informatics.

General practice data has limitations. There are problems with the denominator which is known to be inflated. Data are inevitably incomplete, for a variety of reasons and missing data requires careful interpretation. Other factors can also improve data quality, for example: financial incentive, reducing the number of different computer systems that practitioners use; and, looking to achieve more standardisation in the approach to managing conditions.

Feedback of routinely collected data, in an educational context, has a place in the tools available to raise data quality and the quality of clinical care. The PCDQ audit-based educational approach provides a working model of such an intervention.

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