Chapter 2.13
The Development of a Health Data Quality Programme

Karolyn Kerr
Simpl, New Zealand

Tony Norris
Massey University, New Zealand

ABSTRACT

Data quality requirements are increasing as a wider range of data becomes available and the technology to mine data shows the value of data that is "fit for use." This chapter describes a data quality programme for the New Zealand Ministry of Health that first isolates the criteria that define "fitness" and then develops a framework as the basis of a health sector-wide data quality strategy that aligns with the sector's existing strategies and policies for the use of health information. The framework development builds on existing work by the Canadian Institute for Health Information, and takes into account current data quality literature and recognised total data quality management (TDQM) principles. Strategy development builds upon existing policy and strategy within the New Zealand health sector, a review of customer requirements, current sector maturity and adaptability, and current literature to provide a practical strategy that offers clear guidelines for action. The chapter ends with a summary of key issues that can be employed by health care organisations to develop their own successful data quality improvement programmes.

INTRODUCTION

The New Zealand health sector data quality improvement programme attempts to provide a structure for managing data to prevent data quality errors at the source of collection and to maintain the meaning of the data as they move throughout the health sector. This approach requires viewing data quality from a holistic perspective — going beyond a one-dimensional assessment of quality based only on accuracy — and assessing other dimensions (Ballou & Tayi, 1999) such as relevance, timeliness, comparability, usability, security, and privacy of data.

As data quality affects everyone in the health sector, the whole sector is responsible for maintain-

ing and improving data quality. The role of the New Zealand Ministry of Health is one of leadership and support, whilst data collectors need to employ all possible processes to ensure only high quality data are collected, using agreed national and international standards, where available. Data quality needs to be the responsibility for high-level managers in an organisation to ensure the entire organisation makes the required changes for improvement. "All too often data quality is seen as something that is the responsibility of informatics staff alone and is often seen with disinterest by clinicians and managers, despite being so critical to the quality of the decisions they make" (Data Remember, UK National Health Service, 2001; UK Audit Commission, 2002).

This chapter describes the development of a data quality evaluation framework (DQEF) and underpinning strategy for the Ministry of Health in New Zealand and outlines the process to "institutionalise" total data quality management throughout the whole of the health sector.

THE IMPORTANCE AND ELEMENTS OF DATA QUALITY PROGRAMMES

Bill Gates (1999) states:

The most meaningful way to differentiate your company from your competition, the best way to put distance between you and the crowd, is to do an outstanding job with information. How you gather, manage and use information will determine whether you win or lose.

Organisations are becoming more and more dependent on information. Virtually everything the modern organisation does both creates and depends upon enormous quantities of data. A comprehensive data management programme is therefore essential to meet the needs of the organisation (Pautke & Redman, 2001). Many authors, for example, Levitin and Redman (1993),

also draw attention to the importance of data quality in managing information as a resource of the organisation.

The first step in setting up a data quality (improvement) programme is therefore to decide the determinants that define quality. A framework is then required to apply these determinants and their associated metrics that can assess the level of data quality and establish processes such as collection, storage, access, and maintenance that lead to quality improvements where they are necessary. Finally, whilst a data quality framework models the data environment, it must be underpinned and supported by a strategy that is broader in scope. This strategy establishes the business purpose and context of data and aims to make the framework a routine tool and part of day-to-day operations.

These three elements, quality determinants, assessment framework, and implementation strategy are the core components of a data quality programme and we now look at these stages in more detail.

Data Quality Determinants

Strong, Lee, and Wang (1997) take a consumer (people or groups who have experience in using organisational data to make business decisions) focused view that quality data are "data that are fit for use," and this view is widely adopted in the literature (Wang, Strong, & Guarascio, 1996). Redman (2001) comes to the following definition based on Juran and Godfrey (1999):

Data are of high quality if they are fit for their intended uses in operations, decision-making, and planning. Data are fit for use if they are free of defects and possess desired features.

Clearly, however, fitness for purpose depends upon the purpose and so the set of data quality determinants will vary according to the application. In addition, modern views of data quality

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