

Institutionalising Data Quality in the New Zealand Health Sector

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The logo for 'simpl' is written vertically in a bold, green, sans-serif font. The letters are stacked from bottom to top: 's', 'i', 'm', 'p', 'l'.

Presentation Outline

Data Quality – what is it?

Why Worry?

Current State Analysis of Data Quality
work in the New Zealand Health Sector

Principles of Data Quality

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Data Quality – What is it?

No *single* definition of data quality accepted by researchers working in the discipline

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

(Redman, 2001)

May not need to be 100%

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Why Worry?

Errors in a reference database calculation of Down's Syndrome screening, giving false negatives

An age cohort of women omitted from call up for cervical screening

Duplicate NHI leading to clinical data being sent to the wrong patient

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Why Worry?

Increase in information complexity, parallel increase in the complex nature of organisations and organisational relationships within the health sector

(Gendron & D'Onofrio, 2001)

More and better quality information required to manage health care effectively

(To Err is Human, 2000)

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Current State Analysis – DQ Strategy

Reactive nature to data quality management contributing to a lack of trust in data - users made aware of data quality problems for the first time when they try to use data.

Strategic management of data quality is a relatively new phenomenon

Vary considerably in size and data quality maturity, the level of awareness of data quality issues was reasonably consistent

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Current State Analysis - Roles

No formal accountability for data quality at management level

Many roles within organisations undertake data quality initiatives leading to some disparate silos of work

Lack of accountability and role definition

By default, IS staff/CIOs usually undertake DQ work

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Current State Analysis - Defining DQ

Defining data quality requirements takes place informally when reports are found not to meet the needs of the users

Data quality programmes limited to minimal formal assessment of completeness and formatting of data through automated audits


Lack of formal assessments of data quality means that managers can chose to deny, or may not be aware of, data quality problems in their departments

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Current State Analysis Quality Management Maturity Grid

- Management understanding and attitude
- Data quality organisational status
- Data quality problem handling
- Cost of data quality as percent of revenue
- Data quality improvement actions
- Summation of organisation data quality posture



Measurement Category	Stage – Mature New Zealand Health care Organisations	Stage – Mature International Organisations Outside Health Care
Management understanding and attitude	Stage three – while going through data quality improvement programme learn more about quality management; becoming supportive and helpful	Stage three
Data quality organisation status	Stage two – data quality role is appointed but main emphasis still on correcting bad data	Stage two
Data quality problem handling	Stage two – teams are set up to attack major problems. Long range solutions are not solicited	Stage three – Corrective action communication established. Problems are faced openly and resolved in an orderly way
Cost of data quality as a percent of operating costs	Stage one – no organisation has measured the actual cost of data quality and there is no methodology developed	Stage three – Reported 10% Actual 15%
Data quality improvement actions	Stage three – data quality programme in place	Stage three
Summation of data quality posture	Stage three – “through management commitment and data quality improvement we are identifying and resolving our problems”	Stage three



Complex Adaptive System (CAS)

Interactions within the CAS are often more important than the discrete actions of the individual parts (Plsek & Wilson, 2001)

In a CAS successful strategies do not result from fixing an organisational intention and mobilising around it, they emerge from complex and continuing interactions between people (Rosenhead, 1998)

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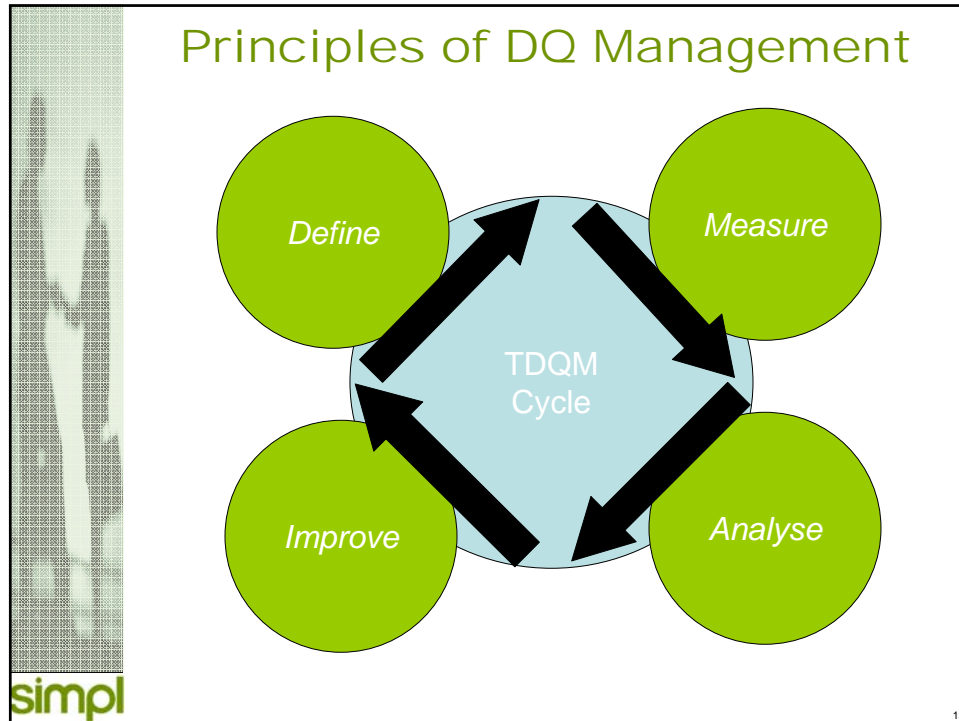
Org Wide DQ Team in a Complex Adaptive System

Organisations with an established data quality team were more mature in their management of data quality:

- Whole of system view
- Improved management support and knowledge
- Ability to create change
- Better defined roles and responsibilities
- Better organisational attitude to data quality work
- Clearer ownership and stewardship

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Principles Total Data Quality Management

Define - identifies important data quality dimensions and the corresponding data quality requirements

Measure - produces metrics

Analyse - identifies root causes for data quality problems and calculates the impacts of poor quality data

Improve - provides techniques for improving data quality

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Principles Total Data Quality Management

- Requirements specified by the consumer
- Strong commitment from top management; make management accountable
- Data is a product, a valuable asset that should be produced as part of a well defined production process
- Manage the entire data life cycle
- Paradigm or culture shift towards adding preventative measures and process management, encourage building on existing practices and knowledge

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Principles - Context Defines Quality

Data quality is 'contextual'; the user defines what is good data quality for each proposed use of the data, within its context of use

(Strong, Lee, & Wang, 1997)

E.g.

A data collection that does not include financial information may be of use to the clinician but is not 'fit for use' for the funding and planning team

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Principles - Data Quality Dimensions

Break down data quality into practical constructs that can be defined and measured – gives structure to a DQ programme

Accuracy, Timeliness, Relevancy, Timeliness, Comparability, Usability, Privacy and Security

Trade offs – e.g. timeliness versus accuracy – suicide data

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Principles Stewardship and Ownership

Stewardship - representation of stakeholder interests only

Distributed, national environment - many suppliers to one collection

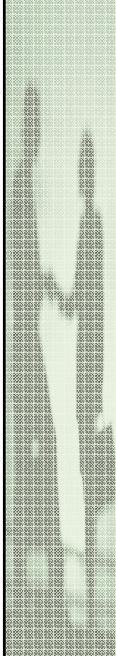
Varying uses of the data - researchers to policy development

Considerable cost to suppliers to collect and submit data to the national collections

'Creator as owner' (Loshin)

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Principles

Data Collectors are Important People

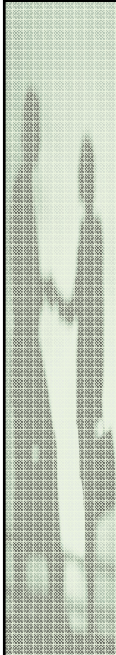
Data collectors with knowledge about why data are collected throughout the data production process contribute to producing better data

Education of the data collector is therefore one of the most effective measures to improving data quality

You need their department manager onside and educated

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Principles

Data Quality Programmes

Understand that data quality is not just an IT problem; IT enables the movement of information but is reliant on the data inputted to be of high quality. The cause of poor quality data is often found to be human or process error.

people, process and technology

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In Summary...

We are not doing too badly by comparison

Effective means of managing data quality are:

- Organisation wide data quality teams
- Undertaking TQDM
- Buy in from Executive Team with clearly defined roles and responsibilities
- Involvement of department managers
- Prevention is better than cure – data quality plans for new collections/systems

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