

Conjoint Value Hierarchy and the measurement of value in the National Continence Management Strategy

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Background

Incontinence is a significant health issue affecting children, women and men of all ages. It can have physical, social, quality of life, and economic implications for the individuals, their carers and the community. Almost four million Australians are estimated to have some level of incontinence with the prevalence of incontinence increasing with age in both men and women. The estimated cost of urinary and faecal incontinence in the health and residential aged care system totalled \$1.5 billion in 2003. Total expenditure for incontinence is expected to increase by 201% by 2031.ⁱ

The National Continence Management Strategy (NCMS) was established in 1998 by the Australian Government Department of Health and Ageing to provide funding to research and service development initiatives aimed at prevention and treatment of incontinence.

NCMS Independent Evaluation

An independent evaluation of the NCMS has been funded since 1999 to identify the policy, service development and practice implications of outcomes and contribute to future planning and development. The 'realistic evaluation' approach developed by Pawson and Tilleyⁱⁱ was initially used to structure the evaluation. In 2006 it was decided to utilise Conjoint Value Hierarchy (CVH) research to provide an understanding of the value of the program. This allowed measurement of factors which are intangible and valued differently according to the observers' perspectives; issues which confront the NCMS program. The CVH methodology has proven and widespread applicability in assessing value in intangible entities, where the notion of value is more complex, and has been used with success in the assessment of value in commercial and government applications both within Australia and internationally.

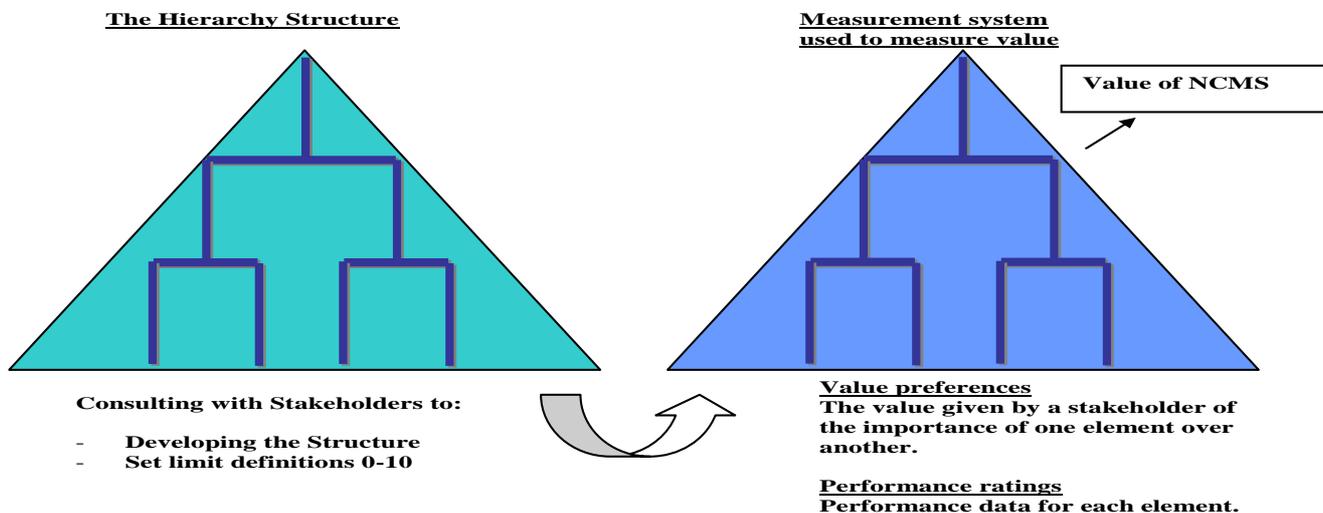
The Conjoint Value Hierarchy process

Conjoint Value Hierarchy (CVH) research was used to provide a baseline measurement of:

- the value attributed to the NCMS;
- the relative importance of the elements of value; and
- stakeholders' perception of performance to date.

The CVH methodology is based upon a hierarchical measurement structure which includes all elements of value that are identified as important by stakeholders (Figure 1).ⁱⁱⁱ This allows a value-based assessment to be undertaken of entities such as the NCMS in which elements of value are intangible.

Figure 1: The CVH process



The Hierarchy Structure represents the object to be valued and the value hierarchy, a 'top down' iterative approach undertaken until it is felt that the resulting value elements can be measured in practice. The top of the diagram is the value of the NCMS in its entirety and the bottom of the triangle represents all of the constituent elements of overall value. The Measurement system represents the conduct of the stakeholder survey to measure value and performance for each of the elements identified, with a resultant indication of the value of the NCMS.

The CVH Methodology

Six steps were followed to apply the CVH methodology:

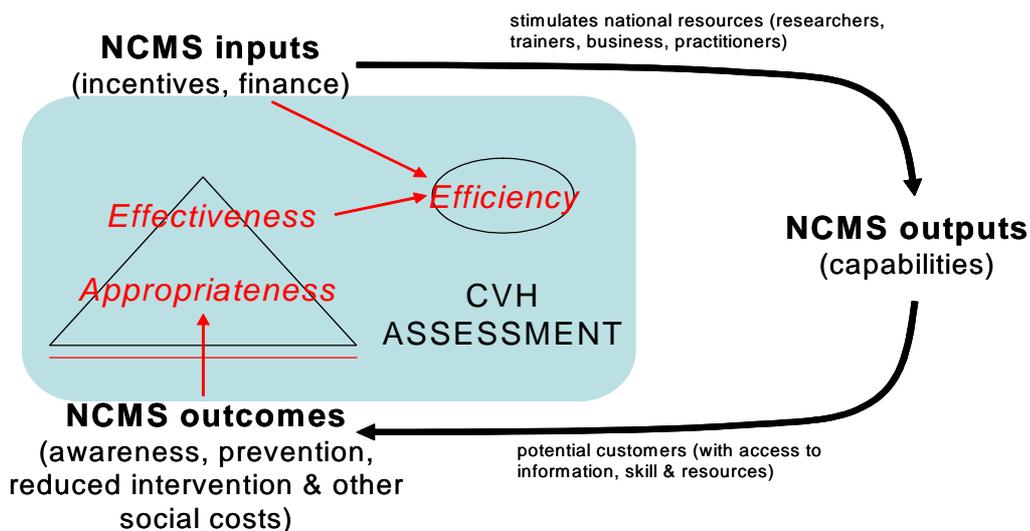
1. Definition of the nature of the problem and the level of analysis
2. Determination of the stakeholders to be involved
3. Development of the CVH Hierarchy structure
4. Measurement of stakeholder preferences
5. Processing of data
6. Analysis and reporting

Step 1 Definition of the nature of the problem and the level of analysis

The nature of the problem

The nature of the problem applicable to the NCMS is represented by a value chain (Figure 2). The value chain highlights how inputs such as incentives and finance stimulate national resources such as researchers, clinicians, and education to generate outputs or capabilities. This capability provides the means to give the community access to information, a skilled clinical workforce and other resources. This leads to the desired outcomes associated with raising awareness of bladder and bowel health, prevention of incontinence, a long term reduction in the need for intervention and other social costs.

Figure 2: The NCMS Value Chain

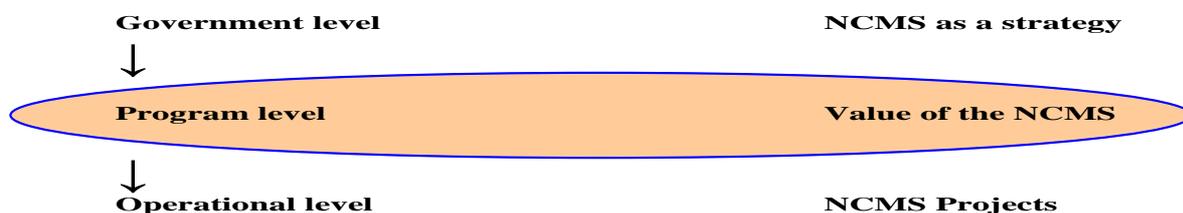


As there is no one-to-one relationship between the creation of capability and use by intended customers sufficient to deliver outcomes, the CVH process incorporated value measurement of both output measures and outcome measures. The CVH assessment also provided a measurement of appropriateness (defined here as using up-to-date techniques to do the right thing for the right patient or the nation as a whole, at the right time, avoiding over and under utilisation) and effectiveness or the extent to which activities lead to the desired outcomes. The output of the CVH processing in conjunction with measurement of the allocation of resources allowed a measurement of efficiency; that is achieving desired results using the most cost effective use of resources.

The level of analysis

Measurement of the NCMS was possible at a number of levels and the required level of analysis needed to be determined prior to commencement (Figure 3).

Figure 3: Levels of analysis

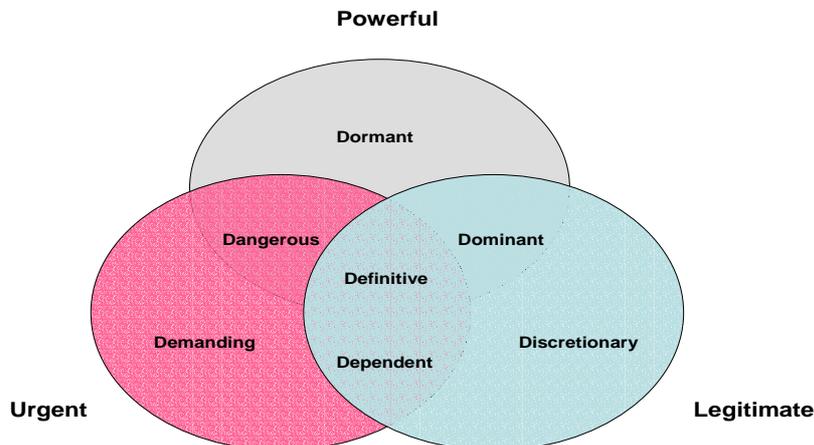


The first level of measurement is at the government level – this would translate to a review of the NCMS as a strategy and concerns valuing the program as a component of other programs within the government department. The second level of measurement is at the program level – measuring the value of the NCMS as a program. The third level of measurement is at the operational level – this refers to the value applicable to an individual project within a program context. The second level or “measuring the value of the NCMS as a program”, was the focus of this CVH analysis.

Step 2 Determination of the stakeholders to be involved

CVH research involves a participant-oriented approach ensuring that stakeholders' views and value based judgements are incorporated during the construction of the hierarchy and assignment of value elements. This ensures that anything of importance to any stakeholder is included and no other stakeholder has the right to object.

Figure 4: Stakeholder representation^{iv}

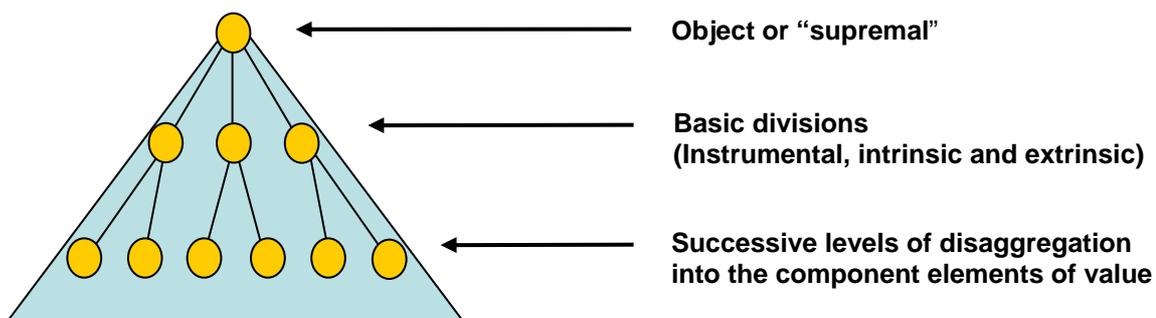


Stakeholder representatives with power, legitimacy and urgency assist decision makers to ensure involvement of all opinions (Figure 4). Stakeholders who have characteristics that place them closer to the centre are deemed more persuasive than those categorised to the outer descriptors. In general, stakeholders should have the knowledge and experience to be able to make judgements about the value and performance of the program being analysed.

Step 3 Development of the CVH Hierarchy structure

The CVH hierarchical representation of the value of an entity is constructed in a logical manner starting with the definition of the object itself and then breaking this down into more detailed descriptions guided by the three basic categories of value – instrumental, intrinsic and extrinsic (Figure 5). These basic divisions are then disaggregated further to reveal the individual elements of value particular to that object for those stakeholders.

Figure 5: The CVH Hierarchy



Instrumental value is the value of the 'means that satisfy the ends or goals' (e.g. what has to occur to produce the desired outcome). Intrinsic value, values an object for what it is (e.g. tangible resources). Extrinsic value, values an object seen from the perspective of its relationship to other objects or its environment (e.g. outputs).

NCMS Stakeholder input

A preliminary value structure was developed based on desk research and discussion with the ‘client’ in conjunction with consultation with key personnel. This then served as an opening discussion point at a workshop held with key stakeholders. The output from the workshop resulted in a discussion document containing a revised hierarchy and this was then circulated to stakeholders for comment. A final hierarchy was determined once the stakeholders were satisfied that the value hierarchy included all important elements of value.

The comprehensive structure for the NCMS was constructed to a point where it was felt that the resulting value elements could be measured in practice. All opinions from all stakeholders were combined and elements at all levels tested for uniqueness of meaning. This resulted in a hierarchy in which the meanings of all elements are distinct; eliminating gaps and double counting. At the same time, stakeholders also had input into composing limit definitions for each component element identified. The upper limit was defined as the highest level of performance that could reasonably be expected; and the lower limit was defined as the lowest level of performance that has any value (the threshold of uselessness). The limit definitions contain real-world statements to give stakeholders parameters for what can be considered good and poor performance for any given element.

Step 4 Measurement of stakeholder preferences

Conjoint Value Hierarchy (CVH) analyses provide a tool to measure expected value with support from performance measurements. It is therefore important to measure both value and performance. Value is determined through ranking or weighting the relative importance of one element over another. Performance is a numerical measure devoid of any understanding of whether that performance means anything or is worth having.^{v, vi}

CVH analysis determines whether performance is worth having and should be determined under the following conditions:

- The object to be measured or valued is precisely defined;
- The definition is inclusive of all opinions and requirements from all stakeholders;
- All participants (stakeholders) have equal dignity or importance;
- Every participant is accountable for the integrity of his/her position.^{vii}

Step 5 Processing of data

Data processes involved the input and processing of data along with the production of meaningful information in preparation for the final analysis and reporting. Each component of the stakeholder response leads to an understanding of:

- the relative importance of each of the elements of value with respect to each other (weight);
- the nature of the value combination of the elements - how performance is viewed when multiple elements work in tandem, for instance ‘is good performance required in both elements to achieve good value’;
- the relationship between performance and the value of that performance - the ‘philosophy’ of the stakeholder - for instance, is it necessary to have high performance to deliver value or is average performance in an element acceptable.

Step 6 Analysis and reporting

Data analysis provided an interpretation of the output for individual stakeholder perception of value and performance for each element and of data sets generated for stakeholders as a group or in sub-groupings. Formal reporting on the data output and results provided a feedback tool to stakeholders on the broad results and provided program managers with results to assist with

making informed policy and planning decisions. A defined series of output also allowed further CVH survey comparisons to be made. CVH outputs included:

- a list of the average value creating potential of the value elements;
- stakeholder subgroup patterns and their characteristic features;
- factors of principal agreement within stakeholder groups;
- elements with the greatest potential for gain and loss of value; and
- priority areas for action.

Conclusion

The NCMS CVH survey process provided additional information for use within the NCMS and its evaluation. Areas of added value included:

- the 24 value elements identified were incorporated into the key performance indicators in the Phase 3 evaluation;
- composition of a baseline for ongoing work – this will allow longitudinal changes to be measured on value preferences and performance over time as well as changes in KPI results; and
- establishing criteria for success – adoption of the value elements within the key performance indicators allowed a determination of what constitutes good or poor performance.

A repeat survey is scheduled for late 2008. The further capture of data according to the same NCMS value elements will provide a continuing measure of the value of the NCMS. This will provide an understanding of whether the activities implemented over the interim period have had any impact from the perspective of stakeholders. It will enable comparisons to be made on changes to value preferences and performance results through a review of changes to the individual elements and to the graphical results originally reported. A repeat survey will also further inform the evaluation process by allowing for comparisons to be made between the objective performance data and subjective performance – the objective data obtained from the key performance indicator data collected as part of the NCMS evaluation.

Resources and Enquiries

National Continence Management Strategy Evaluation Framework and Guidelines (<http://www.bladderbowel.gov.au>)

Phase Three Action: 2006 -2010 plan (<http://www.bladderbowel.gov.au/ncms/ncms3.htm>)

Enquiries to be forwarded to: **NCMSevaluation@health.gov.au**

ⁱ Australian Institute of Health and Welfare (AIHW) (2006). *Australian incontinence data analysis and development*. AIHW cat. No. DIS 44. Canberra: AIHW

ⁱⁱ Pawson, R., Tilley, N. (1997). *Realistic Evaluation*, SAGE Publications

ⁱⁱⁱ Pike S., Fernström L., Roos, G. Intellectual capital: Management approach in ICS Ltd. *Journal of Intellectual Capital*. 2005:6(4):489-509

^{iv} Agle, B., Mitchell, R., and Sonnenfeld, J., "What Matters to CEOs? An Investigation into Stakeholder Attributes and Salience, Corporate Performance and CEO Values", *Academy of Management Journal*, Vol. 42, No. 5, 1999, pp. 507-525

^v Rescher N. *An Introduction to Value Theory*. 1969. Prentice Hall. Englewood Cliffs, New Jersey

^{vi} Frondizi R. *What is value?* 1971. Open Court Publishing, La Salle, Illinois

^{vii} Lyons J. *Beginnings in Axiology*, The Ecumenical Institute for Jewish-Christian Studies". Cited in Garnett H., Pike S. & Roos G. *The application of conjoint measurement to reveal the real value of research: a case study of an Australian university*. 2006. Charles Darwin University, Australia