



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

University of Wollongong  
**Research Online**

---

Centre for Health Service Development - CHSD

Sydney Business School

---

2003

# A Priority Rating System for the NSW Home Care Service: Data Driven Solutions

T. Stevermuer

*University of Wollongong, hurst@uow.edu.au*

A. Owen

*University of Wollongong, aowen@uow.edu.au*

K. Eagar

*University of Wollongong, keagar@uow.edu.au*

---

## Publication Details

This report was originally published as Stevermuer, T, Owen, A and Eagar, K, A Priority Rating System for the NSW Home Care Service: Data Driven Solutions, Centre for Health Service Development, University of Wollongong, December 2003, 52p.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library:  
[research-pubs@uow.edu.au](mailto:research-pubs@uow.edu.au)



*Tara Stevermuer*

*Alan Owen*

*Kathy Eagar*

**Suggested citation**

Stevermuer TL, Owen A and Eagar K (2003) ***A priority rating system for the NSW Home Care Service: Data Driven Solutions***. Centre for Health Service Development (CHSD), University of Wollongong.

## Table of Contents

<b>EXECUTIVE SUMMARY</b> .....	<b>I</b>
<b>1 BACKGROUND</b> .....	<b>1</b>
<b>2 PURPOSE OF THE RESEARCH PROJECT</b> .....	<b>3</b>
<b>3 DEVELOPMENT OF A PRIORITY SYSTEM – THE PROCESS</b> .....	<b>3</b>
3.1 The starting point .....	3
3.2 A series of data collections.....	4
<b>4 FIRST DATA COLLECTION (AUGUST 2002 – JANUARY 2003)</b> .....	<b>5</b>
4.1 Evaluation of the data — the findings at week four.....	5
4.2 Findings from the first data collection (July 2002 -January 2003) .....	6
4.3 Matching the first data collection to assessment and service utilisation data .....	7
4.4 Revising the thresholds for functional assessments .....	7
4.5 Key findings from the first data collection on indicators of risk and the revised thresholds for assessment .....	8
<b>5 SECOND DATA COLLECTION (JUNE 2003 – AUGUST 2003)</b> .....	<b>9</b>
5.1 Summary of findings from the second data collection.....	9
5.2 Testing the consistency of the results based on the recommended thresholds.....	10
5.3 Key findings from the second data collection.....	12
<b>6 THE PRIORITY SYSTEM EVOLVES</b> .....	<b>12</b>
6.1 The agreed threshold table and decision tree .....	12
6.2 The ongoing database – “Home Care Screening and Prioritisation Tool” .....	14
<b>7 VARIOUS USES OF THE HACCC MDS-BASED TOOLS</b> .....	<b>17</b>
7.1 Collecting uniform data on a routine basis.....	17
7.2 The priority system and beyond.....	17
7.3 Managing supply and demand.....	18
<b>8 CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>19</b>
8.1 Recommendations to the NSW Home Care Service .....	19
8.2 Recommendations to the Department of Ageing, Disability and Home Care (DADHC) .....	20
8.3 Policy recommendations .....	20
<b>REFERENCES</b> .....	<b>22</b>

<b>APPENDIX 1 – ANALYSIS DECISIONS AND CALCULATIONS</b> .....	<b>23</b>
<b>APPENDIX 2 – EXPLAINING PRIORITY RATING CONCEPTS</b> .....	<b>25</b>
<b>APPENDIX 3 – REVISING THRESHOLDS FOR TRIGGERING AN ASSESSMENT</b> .....	<b>32</b>
<b>APPENDIX 4 – APPLICATIONS AND PUTTING IT ALL TOGETHER</b> .....	<b>39</b>
<b>APPENDIX 5 – THE ONGOING DATA COLLECTION</b> .....	<b>44</b>

## List of Tables

Table 1	Threshold levels using level of function, risk and housework.....	10
Table 2	Threshold table based on level of function, risk and carer status with consideration of request type (domestic only or personal/respite care).....	13
Table 3	Options for triggering a domestic functioning assessment.....	33
Table 4	Options for triggering a self care assessment.....	33
Table 5	Options for triggering a cognitive assessment .....	34
Table 6	Options for triggering a behavioural assessment.....	34
Table 7	Trigger combinations considered .....	35
Table 8	Thresholds based on item hierarchy only.....	37
Table 9	Thresholds based on assessment hierarchy only .....	37
Table 10	Thresholds based on smallest percentage added and item hierarchy .....	37
Table 11	Thresholds based on smallest percentage added and assessment hierarchy.....	38
Table 12	Consistency of the results in the ongoing database .....	44

## List of Figures

Figure 1	Final model using function, risk and carer status as a decision tree .....	ii
Figure 2	Data collections – time periods covered and data items included.....	5
Figure 3	Decision Tree with four threshold levels – function, risk, housework, carer .....	11
Figure 4	The recommended model – a decision tree with three threshold levels – function, risk, carer....	13
Figure 5	Data entry screen for revised database implemented in November 2003 .....	15
Figure 6	Priority categories: the look-up table used in the revised database .....	16
Figure 7	Need for community care – nine levels of priority .....	27
Figure 8	Definition of a carer .....	28
Figure 9	Change in percentage assessed based on change in domestic function trigger.....	36
Figure 10	Flow Chart 1.....	39
Figure 11	Flow Chart 2.....	39
Figure 12	Flow Chart 3.....	40
Figure 13	Defining the “Need and risk” matrix for community care using the ONI .....	40
Figure 14	Five different ways a consumer can be rated as High Priority .....	41
Figure 15	Five different ways a consumer can be rated as Medium Priority .....	41
Figure 16	Two different ways a consumer can be rated as Low Priority .....	42

## Executive Summary

The NSW Home Care Service (HCS) resolved to implement the nationally mandated HACC dependency data items in a way that improved their existing systems. Implementation occurred in the HCS Referral and Assessment Centres (RACs). Taking a data driven approach, the Centre for Health Service Development (CHSD) was commissioned to develop a priority rating system appropriate to HCS clients.

The first data collection for this project used existing HCS data plus the HACC functional screen items to develop a working model. The second data collection then tested the working model developed using the first data set, further supplementing it with two data items from the Ongoing Needs Identification (ONI) carer profile (carer availability and status). The analysis of the ongoing data collection is being used to strengthen the working model.

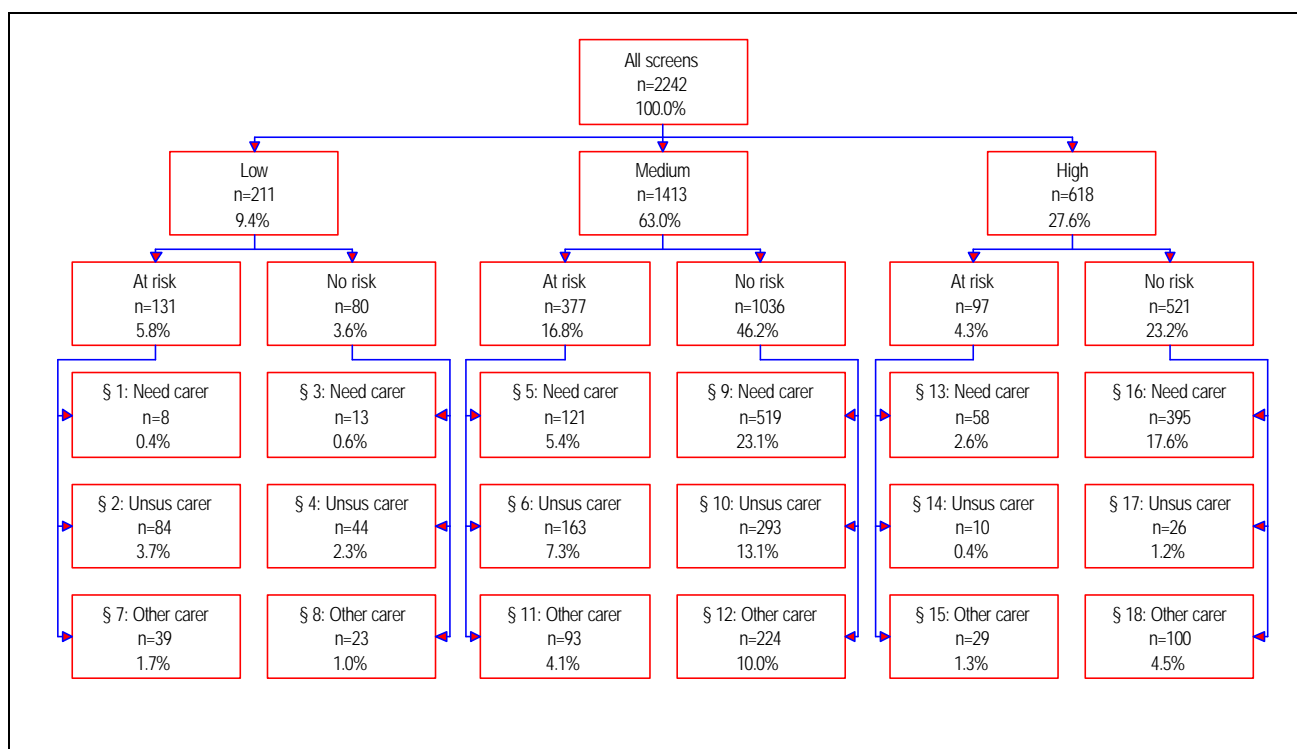
To improve the timeliness and quality of the data collected, a basic database was built in MS Access for use in the second data collection. This database has since been modified for use in the ongoing data collection by HCS, as a further outcome of this project, and enables automatic calculation of priority category and functional assessments required for each screen in real time.

Alternative models of priority rating systems, each with differing numbers of priority categories, were considered in line with the policy and objectives of the HCS. The model developed in the project reported here has 18 priority categories. It is based on three factors. The first is the functional status of the client (as measured by the 9 items in the HACC functional screen). The second is whether or not the client is at risk due to either cognitive or behavioural impairment (the 2 relevant items in the HACC functional screen are used as a proxy for a full psychosocial profile as captured in the ONI). The third factor is carer status (as captured by 2 items from the ONI carer profile – carer status and carer availability). The model is shown as a decision tree in Figure 1 on the next page.

The research establishing this system is complete but that is only the first stage. Now that the system is implemented and working to help manage demand, a mechanism of audit and quality assurance is needed to keep it running. The information can also be used to inform an evidence-based policy framework for the program and therefore contribute to strategic investment and policy debates.

This project is part of a broader research agenda across several programs and state jurisdictions that have been characterised as a jigsaw. This is an important piece of the puzzle because it shows that routinely collected HACC data can be used in real time to create a workable decision-making tool that is able to be implemented and used to improve efficiency. It does this by giving each caller a service priority rating, and also demonstrates how the new HACC functional dependency items can be implemented in routine practice with attention to training and without creating additional burdens. This is more likely to be the case if they replace less useful tools.

The report finishes with a set of recommendations for the NSW Home Care Service as the agency commissioning the research, as well as administrative and policy recommendations. The future for this work depends upon how broadly it develops across programs. Ideally this should take place within the Better Service Delivery Program (BSDP) in collaboration with DADHC and NSW Health, where the two departments are working on the logical next step - the electronic referral of the ONI items from the community health information system (CHIME) into Home Care's main database.

**Figure 1 Final model using function, risk and carer status as a decision tree****Key:**

- Function:** Low function (total screen score < 6 or self care score < 2)  
Medium function (self care item < 2 or domestic item = 0)  
High function (Not low or medium function)
- Risk:** No cognitive or behavioural risk ('no risk') (Items 8 & 9 > 0)  
At risk due to either cognition or behaviour ('at risk') (Either items 8 or 9 = 0)
- Carer:** Needs a carer ('need') (Item 10 = 2)  
Current carer arrangements are unsustainable ('unsus') (Item 10 = 1 and Item 11 < 3)  
Either no carer required or sustainable carer arrangements ('other') (Item 10 = 3 OR Item 10 = 1 and Item 11 > 2)
- §:** The service priority rating assigned to each group of consumers. §1 is the highest priority group. §18 is the lowest priority group.

**Recommendations to the NSW Home Care Service****Recommendation 1**

That the NSW Home Care Service clarify the way that the screen will be applied on a statewide basis, particularly in relation to branch service mix targets. The HCS will then have to consider the training and support roles needed in order to ensure the quality of the data in the system can be maintained by a steady stream of training and development investments.

**Recommendation 2**

That, as part of the development of a new client information system for DADHC, the HCS specify the information system requirements necessary to facilitate full automation of the functional screening tool and prioritisation of referrals and its integration with the CHIME/BDSP systems. Achievement of this outcome will require resolution of the implementation questions in Recommendation 1.

**Recommendation 3**

That, as the new system has been implemented to replace the previous NRI system, it now requires a data quality auditing and improvement system to ensure the ongoing integrity of the

screening and prioritisation system. This should be part of an ongoing research and development agenda (see Recommendations 4 and 6), and for the HCS the regular review of data will be necessary to bed the new system down within the overall policy, structure and direction of the service.

#### **Recommendation 4**

The screening tool arising from this project is a first generation tool. An ongoing program of research and development should be implemented to support the development of second and future generations of the tool with improved understanding of the support needs of those seeking service from Home Care.

### ***Recommendations to the Department of Ageing, Disability and Home Care (DADHC)***

#### **Recommendation 5**

That the Departmental (DADHC) clarify its policy with respect to any potential rollout of screening and assessment tools, and how the different programs can share common approaches to the use of screening tools, quality improvement, periodic audits, IT support and training. Otherwise the implementation problems will be compounded.

#### **Recommendation 6**

Matching the service mix to the mix of needs and risks is now possible and it is recommended that efforts to improve the new system in its next stages be supported. The information collected through the revised system with its new categories and thresholds is robust enough to start using the existing client base for classification and costing studies and for care packaging. This will allow the HCS to test its service mix by modelling (costed) care packages based on what the clients need. It is recommended that this form the basis of a research and development program with DADHC.

#### **Recommendation 7**

That DADHC use the HCS findings reported here to inform the Australian Department of Health and Ageing and the Australian Institute of Health and Welfare of the specific implications for the introduction in July 2004 of the revised HACC Minimum Data Set. The current findings provide evidence for changes to carer data items as well as a rationale for the introduction of the dependency data items, and include the adoption of new thresholds for assessment for the National HACC Program as outlined in Appendix 3. In practical terms the findings provide some answers as to how to avoid swamping the second tier with too many assessments within the screening and assessment model in the draft national 'Strategy for Community Care'.

### ***Policy recommendations***

This research combined with that conducted in other jurisdictions to developing screening and prioritisation tools provides insights into the research and development program that is required for the Home and Community Care Program both within NSW and nationally. The following recommendations identify necessary research and development questions and issues:

#### **Recommendation 8**

It is recommended that DADHC and NSW Health re-visit current assumptions about how best to meet a continuum of need and how resources are best distributed across different service types. As part of any broader implementation agenda, the NSW HCS and DADHC closely monitor the ONI implementation in Queensland, and the INI in Victoria and South Australia, with a view to



incorporating the lessons from implementing the INI/ONI suite of tools including the Service Priority Profile.

### **Recommendation 9**

Introducing the data items into systems will require training and support functions. It is recommended that policy reflect what is now possible in the field, based on collecting the screening items and using them for costing and classification and for care packaging. Current HACC and disability program administration issues should be re-visited with the regions and with the Commonwealth, and the experience in different jurisdictions compared with a view to improvements being made and maintained.

### **Recommendation 10**

Clarify the national and inter-departmental (NSW Human Services) policy and where the approach taken in this research fits within a larger research and development agenda. A national approach should include a measure of consistency at all levels, but currently policy is inconsistent. Policy can be better informed by data-driven models.

### **Recommendation 11**

It is recommended that the national framework in relation to screening and assessment be informed by this research. The implications are that a coherent research and development agenda is possible with routinely collected data items measuring need as a core component. It makes little sense to duplicate the effort needed in researching and developing, planning and implementing the same tools in each State and Territory, when it is possible to avoid duplicating the effort required across programs. There are valuable lessons about implementation that can be compared.

### **Recommendation 12**

With the introduction of standard data items on client dependency it is possible to move towards a more evidence-based policy for community care. There are previously unanswerable questions about whether access should be based on relative need or restricted to the highest need that can be addressed, and they should. There are now a number of working examples to learn from, and this research for the Home Care Service of NSW is one of them.

# 1 Background

In March 1998 the Home and Community Care (HACC) Program released a National Framework for Comprehensive Assessment for the HACC Program, produced by the Lincoln Gerontology Centre<sup>1</sup>. As part of the national reform of assessment in the HACC program, NSW released its own response to these issues, jointly approved by the then Ageing and Disability Department and NSW Health, called Community Care Assessment in NSW (1998)<sup>2</sup>.

This reform was based on the following principles:

- assessment and service provision systems need to be separated for people with complex care needs;
- not all people who require a HACC service require a comprehensive assessment, nor is it desirable to do so;
- a screening tool should be developed to direct people towards the appropriate level of assessment or service provision; and
- relative need of service users can be objectively measured.

In parallel with a range of central and local NSW HACC service development initiatives, a national functional screening tool and assessment tools were developed<sup>3</sup> and, in February 2002, these were adopted as the national standard to be implemented in the reporting requirements of the HACC MDS from July 2004.

The purpose of collecting items that represent client need routinely within the HACC MDS is to encourage multiple uses of that information – to understand relative need, and to manage the distribution of resources and plan service provision. The use of the items in screening is not to substitute for more detailed assessment where that is appropriate, but rather to reliably prompt further assessment for those that need it in a standardised way.

In the domains covered by the functional screen, each domain has associated assessment tools. The use of the HACC MDS items across the broader community care system embeds them in a wider set of domains covering primary care and that is a big advantage<sup>4</sup>. In that context the functional screening questions are part of the ongoing needs identification tools (ONI), developed to assist the evolution of a comprehensive assessment system.

The ONI suite of tools is used to prompt appropriate referral for further investigations. In some cases, there are prompts where they are needed without recommending what tools should be used for the more detailed assessment. For example in the Psychosocial Profile the K10 tool is used to screen for the severity of self-reported psychological symptoms and recommends the level of intervention, either self help, primary or secondary that follows. In the case of the functional screen, it can stand alone as part of an entry point system or be part of the ONI profiles. For the domain of function there are a set of assessment tools recommended for each of the domains: self-care (Barthel Index), domestic (Lawton's IADL), behaviour (modified RCS items) and cognition (mini-mental). The implementation pilots in various states have included

---

1 Lincoln Gerontology Centre (1988). National Framework for Comprehensive Assessment - Aged and Community Care Service Development and Evaluation Report No. 34, March, 1998.

2 NSW Ageing and Disability Department (1998) Community Care Assessment in NSW: A Framework for the Future - A Discussion Paper, November 1998.

3 Eagar K, Owen A, Green J, Cromwell D, Poulos R, Gordon R, Quinsey K, Adamson L and Fildes D (2001) A National Measure of Functional Dependency for Home and Community Care Services in Australia: Stage 2 report of the HACC dependency data items project. Centre for Health Service Development, University of Wollongong [www.uow.edu.au/commerce/chsd](http://www.uow.edu.au/commerce/chsd)

4 Era background documentation shows the South Australian model and can be found at [www.eraproject.sa.gov.au](http://www.eraproject.sa.gov.au)

tests of whether it is possible for the information collected to be used for establishing a rating of priority for receiving a service<sup>5</sup>.

The NSW Home Care Service (HCS) commissioned this current research to determine the best way to introduce standardised screening and assessment procedures into the operation of the Referral and Assessment Centres (RACs) operating in the metropolitan Sydney and Hunter regions. In selecting the tools for inclusion in the research and development process documented here, the HCS was guided by the decisions made at a national level by the Home and Community Care Program.

In particular the HCS was concerned to make good use of the opportunities created by the introduction of dependency data items into the HACC minimum data set from July 2004. These included using screening data to reliably select those requiring a detailed assessment and replace an existing priority rating tool with a more efficient system based on the level of need and to allow branches to better manage supply and demand.

The HACC dependency data items are described in this report as functional screen scores. The development of these standardised items and their associated screening and assessment tools are described in a summarised and more accessible form in the report published by the Commonwealth Department of Health and Ageing in 2002<sup>6</sup>.

Another important element in the context of this research project was the contemporary experience of implementing standardised screening and assessment tools in Victoria, which has been using the tools as a way of connecting their Primary Care Partnerships. In South Australia the focus has been on the entry point functions, and in Queensland the 'ongoing' focus was strengthened and also associated with the development of a system that combined indicators of need and risk to determine a Service Priority Rating<sup>7</sup>. This experience was useful in determining a practical development pathway for this project and the linkages with the Queensland experience, encouraged during the NSW HCS work program, meant that practical issues could be discussed between jurisdictions with resulting benefits to both.

In those other jurisdictions the implementation of initial and ongoing needs identification was supported by State level policies: in SA through a primary care policy and a series of related pilots; and in Queensland a joint HACC and Home Care (ie services funded by Queensland Health) Reform framework. The focus in South Australia was on reforming entry point activities as part of a primary care strategy.

The solution sought by the HCS was a system that could identify clients requiring a more refined assessment based on their level of need. New procedures could then be based on evidence. A set of threshold levels, based on the HACC screen score and a minimum number of other items representing risks to the client, could be used to build up a more fine-grained distribution of resources.

Ideally the solution would not be static, but would enable the HCS to make changes according to their policies and procedures. The categories selected can be described as mutually exclusive, distributed as a hierarchy, and represented in the form of a decision tree. This is a classification

---

5 Eagar K and Owen A (2002). Ongoing Needs Identification in NSW Primary Health and Community Care: How and Why. Also see Appendix 3 adapted from Eagar K and Owen A (2003). Supplementary Guide on Establishing Priority for Service. Centre for Health Service Development, University of Wollongong. [www.uow.edu.au/commerce/chsd](http://www.uow.edu.au/commerce/chsd)

6 Eagar K, Owen A, Green J, Cromwell D, Poulos R, Gordon R, Quinsey K, Adamson L and Fildes D (2002) A National Measure of Functional Dependency for Home and Community Care Services in Australia. Aged and Community Care Service Development and Evaluation Report, Number 41, July 2002. Commonwealth Department of Health and Ageing, Canberra. ISBN 0 642 82092 9

7 Owen A and Eagar K (2003). Ongoing Needs Identification in Queensland Community Care: How and Why. Centre for Health Service Development, University of Wollongong. Queensland Health, Brisbane. See also Supplementary Guide to Determining Priority for Service. <http://www.uow.edu.au/commerce/chsd/screeningandassessmenttools>

that creates sub-categories of the client group based on need and risk indicators that can then be used to recommend further assessments. Within that set of recommendations, HCS branches could decide whether the assessment should be by a field visit to the client's home or by phone contact, based on their current client mix and level of resources.

## 2 Purpose of the Research Project

The brief given to the researchers was:

- To implement the functional screening tool developed as part of the HACC Functional Dependency Trial to improve the quality of Home Care's intake and assessment process.
- To develop a scoring system for the functional screening tool which would enable Home Care intake staff to determine the relative priority of referrals and whether they should proceed through to assessment and to receive services.
- To implement the Barthel and Lawton's assessment tools to improve the quality of Home Care's assessment process.

In practical terms, the research task was to improve an existing priority rating system based on the new HACC data items and produce a set of cut-off points or thresholds, represented by combinations of scores on items selected on the basis of evidence from Home Care data, to enable each client to be given a priority rating.

In commissioning a research and evidence-based project, the HCS was concerned to ensure that the potential for a more rigorous approach to the use of data in planning interventions and assigning priority for service could be realised in a practical way. The practical purpose was to guide the introduction and implementation of the new reporting requirements so they improved the procedures of screening and assessment within the organisation. The longer-term purpose was to better manage supply and demand.

## 3 Development of a Priority System – the process

### 3.1 The starting point

Prior to this project the HCS used an in-house Needs Risk Index (NRI) to assign priority for service. The index was made up of two components, need and risk (each estimated on a 5 point scale) with in-house definitions.

The need component of the NRI compounded the client need and the service response, being based on the amount of service expected, from more than 3 times per day (score 5) to one time only required in a week or fortnight (score 1).

The risk component of the in-house NRI was composed of a mix of carer elements that were not clearly defined, being based in part on the then current HACC MDS items of carer availability and carer residency status. The range was from no supports/no other options/no capable carer (score 5) to constant coping support/has many options/capable carer lives in (score 1). The risk/carer component did not capture any of the other more relevant carer characteristics such as carer supports, threats to carer arrangements and sustainability.

The NRI risk scores based on the definitions of service need and carer availability, substitutability and capability were then given weightings to account for the service type requested. The purpose of the weighting was to meet the policy directives on the target levels for the HCS mix of service types. This weighting then achieved the desired proportions of the initial contacts that were given either a phone or field assessment. This system was based on a number of unexamined HACC policy assumptions, and the way it operated had two unintended effects. It

tended to compound service supply and consumer demand variables, and it left the risk component inadequately described. The introduction of standardised measures of need would offer the opportunity to address these difficulties and at the same time move to a more reliable system that could then be used to resolve any further difficulties as they arose.

As it was uncertain at the start whether the NRI was a good measure of need and risk among service users, the first stage of the research assessed the performance of the NRI, compared to the functional screen scores, as a means of determining priority for service.

The project began by writing a procedure manual and associated training materials to guide the collection of the data within the Referral and Assessment Centres. The purpose was to support the service to gather sufficient data of adequate quality under the new arrangements to allow for the analysis of how well the particular data items performed. The quality of the data used for the purpose of identifying needs and risks and assigning a priority rating was considered crucial to the outcomes of the research.

Data analyses and changes to the data items collected were then used to arrive at a solution that represented the best fit between the HACC and Home Care Service policies and procedures, and a sound method of assigning each client a priority rating for receiving a service. For the HCS a sound method meant one that could improve demand management, and provide consistency in how it managed access to its services on a Statewide basis.

The aim of the research side, rather than the operational concerns, was to achieve a number of homogeneous classes of clients, such that the total number of these classes was large enough to be able to create a relatively smooth spread over the full spectrum of callers' needs. The desired solution also had to represent client need in a set of meaningful steps in a hierarchy of priority for service. This involved testing how well the classes performed in allocating the desired numbers of clients to categories that met particular threshold levels of need and risk. Adjusting the way the items were used in the resulting decision tree led to a range of alternative 'splits' that were examined in the series of data collections until the most useful threshold levels were determined.

These thresholds were not determined by the evidence from the data alone. They were also guided by the existing policy assumptions and operational framework of the HCS. The purpose of combining both the evidence-based and the common practice approaches was to achieve the smoothest introduction of new procedures by avoiding solutions that would require collecting too much information, or creating too much initial change from existing practices, thereby producing workload and organisational problems for the HCS.

### **3.2 A series of data collections**

The research involved determining which additional data items would help to construct a priority rating system, determining whether these items were already being collected within the HCS information system, collecting the recommended items and then testing how the complete set of revised items performed. This was an iterative process that was designed fit the solution to the organisational setting.

Based on current practices, it was expected that approximately 3,200 referrals and 1,000 new clients would be screened at the Referral and Assessment Centres in any two month period. It was therefore expected that there would be about 300 screens performed each week. It was anticipated that the study would comprise one data collection of approximately two months, with a review to be done at the four week point.

The completed project comprised two data collections: the first data collection which lasted five months (due to fewer screens being performed than planned), and the second data collection which lasted three months. The ongoing data collection (starting November 2003) is briefly discussed in Appendix 5 of this report. Due to changes made to the data items collected, the

first data collection is further divided into three time periods. The data items collected and the time period covered for each data collection in this project can be seen in Figure 2.

**Figure 2 Data collections – time periods covered and data items included**

<b>First data collection</b>	<b>Period 1</b>	07/08/2002—13/08/2002	Date, Identifier, 9 item HACC screening scores, NRI total score, request type (domestic, personal care, respite) and assessment type recommended (phone or field). Excel spreadsheets used.
	<b>Period 2</b>	14/08/2002—22/09/2002	Replace NRI total score with NRI need, risk and weight scores
	<b>Period 3</b>	23/09/2002—15/01/2003	Referrer (self, family, service provider), listed for assessment and reason for field assessment were added
<b>Second data collection</b>		June 2003—August 2003	Two carer items from the ONI carer screen were added. Access database provided to minimise data errors.
<b>Ongoing data collection</b>		from November 2003	Definition of "Needing" a carer further refined. All items changed such that they must be used. Access database updated to reflect these changes with automatic calculation of priority category assigned and comprehensive assessments required.

## 4 First data collection (August 2002 – January 2003)

The decisions made at the beginning of the project were that the HCS would continue to assess their clients using their existing criteria during the 1st half (four weeks) of the data collection. In week 4 the CHSD were to evaluate the data to see who was getting what and who was missing out on assessment. Based on these findings, the CHSD was to recommend steps to be taken over the remainder of the data collection (originally anticipated to be four more weeks). Findings from the four week review of the data collection were fed back to the HCS and decisions about the remainder of the study were made on the basis of the service and researchers' consideration of the evidence.

### 4.1 Evaluation of the data — the findings at week four

After four weeks the data set had 431 screens covering the period 7/8/02–29/8/02. Screening rates were about half of those expected. Not all clients who contacted the service were being screened, which was a difficulty for the analysis because the full range of contacts needed to be included in order to establish the full range of need of those contacting the service.

The in-house priority rating tool was tested at this stage. The total NRI score only was recorded for the first few days of the first data collection (period 1), after which it was decided that the NRI need, NRI risk and NRI weight needed to be recorded separately in order to analyse how it worked. This was commenced in period 2.

After this review it was decided that information on who was the referrer, whether the referral was listed for assessment and, when appropriate, the reason for recommending a field assessment should also be collected (this was commenced in period 3).

The length of the study was increased to enable collection of sufficient screens for analysis, while also ensuring that all referrals and new clients were being screened.

### Key points from the four week review

- The actual screening rate was significantly lower than anticipated, resulting in a decision by the HCS to extend the period of the study until 2,500 screens were collected.
- The data indicated that the scores for the in-house tool (NRI) did not influence the type of assessment (field or phone).
- The type of assessment was most influenced by the type of service requested (domestic assistance, personal care or respite care).

- The current thresholds for triggering an assessment based on the HACC functional screening tool resulted in too many referrals being recommended for a functional assessment.

## **4.2 Findings from the first data collection (July 2002 -January 2003)**

A number of important decisions were made about the data collection in order to facilitate the analysis. These were decisions that involved determining what were valid responses for each data item and how to 'clean up' missing or invalid responses found in the data set. This was to ensure the validity of the analysis. These decisions, as well as the calculations performed on the data, are included at Appendix 1.

Between 7/08/2002–15/01/2003 the data collection built up to 3,290 screens. The average number of screens per day was 29.4 (95% CI 27.6–31.1), increasing from 24.5 in August 2002 to 33.2 in January 2003.

Period 1 of the first data collection accounted for 134 screens (4.1%), period 2 had 711 screens (21.6%) and period 3 had 2,445 screens (74.4%). Due to changes made to the data items collected the most complete data was that from period 3, therefore most analysis was based on data from period 3 only. In period 3 26 (1.1%) of the 2,445 screens had an invalid HACC screen score (see analysis decisions in Appendix 1). This suggests that the training, support and data quality checking inside the service was having a positive impact.

There were 131 clients (4.2%) with more than one screen during the first data collection. Among those screens, most (59.4%) were repeated within one week, 29.0% had more than one screen on the same day with only 16.6% of screens repeated after more than two months.

Request type is a good predictor of assessment type received. In period 3, 2,168 of the 3,290 screens (65.9%) requested domestic assistance only, of which 1,940 (89.5%) received a phone assessment. Personal or respite care was requested by 1,902 screens (33.2%) in period 3, and 805 (73.7%) of these received a field assessment. If more than one service was requested the likelihood of a field assessment increased from 24.7% (one service requested) to 74.2% (more than one).

Service providers accounted for 57.2% of all callers. Screens were most likely to be listed for field assessment if the referrer was a service provider (38.9%) and least likely if a self referral (6.5%).

Three-quarters of all screens had a NRI risk score of 5 (high risk), resulting in the conclusion that the NRI risk score had no relationship with the assessment type received or the request type. It was concluded that the NRI scores and weighting system did not discriminate well between clients in the sense of determining the decision of whether they got a detailed assessment or whether it was to be a phone or field follow up.

Nearly one-third of all screens had a NRI need score of 5, with an increase in NRI need score associated with a greater proportion receiving a field assessment. Three-quarters of all requests for personal or respite care had a NRI need score of 5. Once again the NRI score did not discriminate between clients with different levels of need.

As the total HACC screen score decreased (representing higher need), the proportion receiving a field assessment increased. As the number of HACC functional assessments recommended from the screen increased, the proportion receiving a field assessment also increased.

Screens recommending a cognitive or behavioural assessment were more likely to get a field assessment than those screens recommending a domestic assessment only.

In examining the data it was clear that most of the variation between HCS clients was adequately described by the functional screening scores built into the new HACC minimum data set.

However, to adequately achieve a priority rating system that allowed for finer discrimination between clients based on their needs and risks, a small number of additional data items were judged to be necessary.

After reviewing the option of adding the psychosocial profile (in whole or in part) it was decided that items 8 and 9 from the functional profile (cognition and behaviour) could act as a proxy for psychosocial problems. Similarly, two items from the carer profile (carer arrangements and sustainability) were selected to act as a proxy for the whole of the ONI carer profile.

### **4.3 Matching the first data collection to assessment and service utilisation data**

Demographic data available in the HCS system were examined to determine if this additional information was useful in assigning priority. Additional demographic data could be matched to approximately 20% of the screens from period 3. Most demographic data items available were judged not to be useful for the task of assigning priority as they were not relevant to questions of need or risk.

When the matched functional screening and demographic data were examined, the matched sample was not significantly different to the larger unmatched data set with respect to functional scores. The relationships that were interesting were generally as would be expected.

What was significant about the data matching exercise was that the additional data did not capture enough information that was sufficiently useful to warrant a more systematic and sustained retrieval effort.

### **4.4 Revising the thresholds for functional assessments**

The HCS wanted to introduce valid assessment tools (Barthel Index and Lawton's IADL) but was concerned about the impact on the resources required to undertake the resulting field assessments. The HACC screening tool could show what assessments were recommended but the thresholds from the initial field testing in 2000 gave too many referrals for assessment. The recommended cut-off points for the National HACC functional screening instrument needed to be reviewed so that the number of clients proceeding to assessment could be reduced and controlled within the HCS operational model.

#### **4.4.1 Reviewing the triggers**

The standard HACC thresholds (ie, from the original field test) that trigger assessments resulted in 84.4% of screens requiring at least one functional assessment. Thresholds for each type of functional assessment (domestic, self-care, cognitive and behavioural) were reviewed and the likely changes were evaluated using the data collection. The description of the process for this review is included in Appendix 3: Revising the thresholds for triggering assessments.

Nineteen domestic, nine self care, four cognitive and four behavioural assessment thresholds were considered (including the recommended thresholds currently in use) and for each the percent triggering an assessment was considered. Where thresholds resulted in too many assessments, or too few, they were excluded from further comparisons. Nine domestic, six self care, four cognitive and one behavioural function thresholds were combined for further review.

All possible combinations of these thresholds were considered (216 combinations). These combinations of thresholds were reviewed for their fit with the HCS expected or required patterns in the number of assessments triggered. After reviewing the thresholds for self-care, cognition and behaviour, they remained unchanged from what was currently being used to trigger an assessment.



No clear pattern for domestic function was found. Therefore, the domestic function score could be used as a sliding scale, enabling the proportion going on to functional assessment to vary. Self-referrals and requests for “domestic assistance only” were the least likely to receive a service. Self-referrals have much higher domestic scores than other referral types. Requests for “domestic assistance only” accounted for 94% of all self referrals, compared with 59% of all other referrals.

At this point in the process there was some solid evidence of how the items worked, and it was necessary for the HCS to consider what should constitute an appropriate set of thresholds for triggering different types of assessments, based on the current funding and staffing mix and their understanding of their operating environment. In considering the best mix of possible thresholds, there were a number of policy and operational considerations to take into account in order to avoid perverse effects. For example, what effect, if any, should the source of referral have on the client’s receipt of a service? Or what effect, if any, should the type of request made by the client have on their likelihood of receiving a service?

#### **4.4.2 Threshold tables and decision trees to establish a priority rating – the first solution**

The proportion of clients to be assessed was reviewed in line with the hierarchy of individual screening items. Consideration was also given to the number of activities that the client could do independently within each domain while keeping within the context of the functional hierarchy built into the set of screening items. This two-stage process was repeated, first considering the hierarchy of the screen items/assessments only, and then considering the hierarchy whilst also trying to minimise the percentage added at each step.

Reviews of the data were undertaken and the HCS considered the best ways the HACC definitions of function could be used in combination with the item hierarchy. After consideration by the Home Care Service on how well the proposed system matched their service types and represented the clients’ levels of function and risk, the ability to do housework (item 1) was added to create a three-tier decision tree.

After reviewing various permutations of threshold tables it was decided to use items 8 and 9 from the HACC functional screen (cognition and behaviour) as a proxy for psychosocial problems (risk status), and items 1 to 9 as an estimate of need (functional status).

The agreed threshold levels were defined as:

**FUNCTIONAL STATUS:** Low (total screen score < 6 or self care score < 2), Medium (self care item < 2 or domestic item = 0), High (not low or medium function)

**RISK STATUS:** No risk (items 8 & 9 > 0), At risk (either items 8 or 9 = 0)

**HOUSEWORK STATUS:** Does housework (item 1 > 0), No housework (item 1 = 0)

#### **4.5 Key findings from the first data collection on indicators of risk and the revised thresholds for assessment**

- Request type was a good predictor of assessment type received.
- The NRI need and NRI risk scores were not useful predictors of assessment type received.
- The HACC functional screen was a good measure of assessment type required, but the number of functional assessments triggered was too high.

- Thresholds that trigger a functional assessment for self care, cognition and behaviour were appropriate. Domestic function was the cause of too many assessments being triggered, although the domestic function score could be used as a sliding scale to control this.
- Current demographic data items collected by Home Care were not useful for assigning priority for further assessment.
- Carer availability, carer burden, sustainability of caring arrangements and the presence of other psychosocial problems were expected to be additional items that would help assign priority for receiving a service, but were not routinely collected.
- Information on carer status in combination with the HACC screen scores were expected to perform better to assign priority (tested in the second data collection).

## 5 Second data collection (June 2003 – August 2003)

### 5.1 Summary of findings from the second data collection

Based on the analyses performed in the first data collection and the subsequent decisions taken by the Home Care Service on what the results meant in their service environment, it was agreed that a second data set would be collected in order to test how the proposed system would perform in practice.

The data set included: date, Identifiers, 9 item HACC screening scores, 2 items from the ONI carer screen, referrer (self, family, service provider), request type (domestic, personal care, respite) and assessment type recommended (nil, phone or field). Analysis decisions and calculations remained the same as those used in the first data collection (See Appendix 1).

To simplify the collection of the data and to minimise data errors CHSD provided a basic database built in MS Access 97 to collect the agreed data set. A copy of this database was installed in each Home Care Referral and Assessment Centre. After three months of data collection, each database was sent to CHSD.

Seventeen databases were received by CHSD, containing 2,359 referrals covering the period June to August 2003. Typically there were 36 screens per day. These screens provided the basis for the second set of analyses to gather together the evidence necessary to produce a sound solution (ie it made statistical, organisational and clinical sense) to the problem of reliably establishing a client's priority rating for receiving a phone or field assessment and, through that step, to receive a subsequent set of services commensurate with their level of need.

Among the 2,359 screens collected during the three months, 5% could not be used for analysis (2.8% due to a problem in the database and a further 2.2% due to invalid HACC screen scores). Hence all analyses from the second data collection are based on the 2,242 valid screens.

After reviewing the raw data, the HCS raised questions regarding the number of screens where there were one or more HACC items (1–9) unanswered. A valid HACC score (refer to Appendix 1) requires only items 1, 2 and 3 to be answered. More than 95% of screens answered items 1–3 and items 6–9, however approximately 14% of screens did not have an answer to items 4 (medicine) or 5 (money). This issue appeared to occur predominantly among a few screeners and is an issue being addressed by further training.

In reviewing the data it became apparent that there was a need to clearly define who “needed” a carer. This was also being experienced as an issue in other jurisdictions, and the common difficulty was a mismatch with the way carer items are treated in the HACC MDS. A better definition was needed to discriminate more clearly between options for needing a carer in order to avoid bunching of the screens into only a few threshold levels.

## 5.2 Testing the consistency of the results based on the recommended thresholds

Table 1 gives the number and percent in each threshold level for both data collections. The total number of valid screens in each data collection was similar. Variation between the two data collections within each threshold level was minimal, ranging from a 4.1% decrease through to a 3.4% increase.

**Table 1** Threshold levels using level of function, risk and housework

Threshold levels			First data collection (Aug2002–Jan2003)		Second data collection (Jun2003–Aug-2003)	
Function	Risk	Housework	Number	Percent	Number	Percent
Low	At risk	Can not do	149	6.2	128	5.7
Low	At risk	Can do	14	0.6	3	0.1
Low	No risk	Can not do	184	7.6	78	3.5
Low	No risk	Can do	25	1.0	2	0.1
Medium	At risk	Can not do	146	6.0	211	9.4
Medium	At risk	Can do	96	4.0	166	7.4
Medium	No risk	Can not do	604	25.0	506	22.6
Medium	No risk	Can do	509	21.1	530	23.6
High	At risk	Can do	49	2.0	97	4.3
High	No risk	Can do	641	26.5	521	23.2

All threshold levels experienced some minor change between the first and second collections. The minimum change was 0.5% and the average change was 2.3%. This consistency in the results suggested that the agreed thresholds were robust.

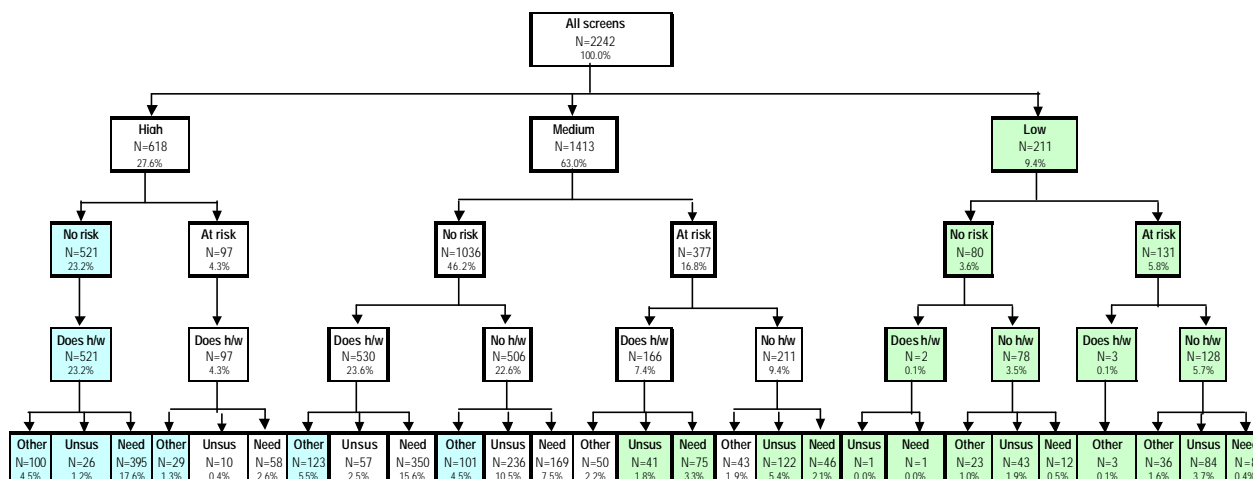
The purpose of the second data collection was twofold: to test the reliability of the findings from the first data collection; and to test whether the new information collected on carer status, in combination with the HACC screen scores, was able to assist in assigning priority.

Figure 3 shows the updated decision tree with carer status added as the fourth threshold level, giving 27 priority categories. Carer status is defined as: ‘Need’ (has no carer); ‘Unsus’ (has or is a carer but the arrangement is unsustainable); ‘Other’ (does not need carer or has a carer that is sustainable). A carer was considered unsustainable if item 11 (carer sustainability) equalled ‘already broken down’ or ‘sustainable only for weeks’.

In determining which screens would most likely go through to assessment (non-blue) and which screens would most likely get a field assessment (green), the data showed that housework status had no effect on this decision. It was suggested that the order of housework and carer status in the decision tree be swapped, however HCS decided that housework should be removed from the decision tree, resulting in 18 rather than 27 priority categories.

Among the 18 priority categories, 3 categories contained just over half of all valid screens. These three categories were “Medium function–No risk–Need carer” (23.1%), “High function–No risk–Need carer” (17.6%) and “Medium function–No risk–Unsustainable carer” (13.1%). The decision to split these categories by ability to do housework (item 1) was reviewed. This would have resulted in 20 priority categories with the three largest accounting for 44% of all screens.

**Figure 3 Decision Tree with four threshold levels – function, risk, housework, carer**



**Threshold status levels**

- Function:** Low (total screen score < 6 or self care score < 2)  
Medium (self care item < 2 or domestic item = 0)  
High (not low or medium function)
- Risk:** No risk (items 8 & 9 > 0)  
At risk (either items 8 or 9 = 0)
- Housework:** Can do (item 1 = 2)  
Cannot do (item 1 < 2)
- Carer:** Need (item 10 = 2)  
Unsus (item 10 = 1 and item 11 < 3)  
Other (item 10 = 3 OR item 10 = 1 and item 11 > 2)

The decision to move in the next phase to 18 priority categories was based on evidence that the size of the larger priority category groups for the Home Care Service population were mostly being determined by how carer status was defined, in particular how it was determined if a carer was “needed”. The ‘housework’ factor was thus removed from further consideration.

Discussion with the Home Care Service suggested that there were still difficulties with the definition of a carer, since persons not requiring a carer appeared to be answering item 10 (carer status) in similar ways to those that do need a carer. This led to too many screens resulting in a carer status of “Need” or “Unsustainable”. Additional definitions were supplied, but the confusion in part was created by the inadequacy of the carer items in the current version of the HACC MDS.

The definitional issue was addressed for the ongoing database by reference to work originally done in South Australia and subsequently used in Western Australian HACC services<sup>8</sup>. This is further discussed in Appendix 2 – Explaining Priority Rating Concepts (“need a carer”) – and the effect on the new definitions in the most recent data collection is shown and discussed briefly in Appendix 5 – the ongoing data collection.

Once the categories were agreed upon, the order of these ‘priority rating categories’ was reviewed to enable the priority for service to be determined for the clients calling for the HCS mix of service types. This categorisation has to be clearly thought through for the implications for different service types and for different goals of care. Highest priority was given to those with low function. Lowest priority was given to those with high function and no risk. Those with medium function and at risk were rated higher if they needed a carer, or their carer was unsustainable, than those with medium function and no risk who did not need a carer, or had a carer that was sustainable.

8 Maddock A, Kilner D, Isam C (1998). Who are the carers and what are their needs? Report on the Carer Needs Assessment Trial. South Australia: RDNS and CASA.

### 5.3 Key findings from the second data collection

- The priority categories agreed upon in the first data collection were proven to be robust in the second data collection.
- The addition of carer status, along with the removal of housework, resulted in 18 priority categories that were ordered such that category one has the highest priority for service and category 18 the lowest.
- Request type is still a good predictor of assessment type received.
- “Needing” a carer was not defined clearly enough in this data collection, resulting in bunching of the data in three priority categories. This was addressed as follows:
  - The definition derived in South Australia and built into the WA Community Care Classification<sup>9</sup> was used to reduce the confusion. The study by Maddock et al (1998) was used to more clearly define if a carer is needed, and this was included in the rules for the ongoing HCS data collection. This study used the amount of time a person can be left alone without a carer as the key dimension.
  - Further training of staff in the agreed definitions to assist in the determination of whether the client has, or needs, a carer.
- A problem with incomplete screens emerged from the second collection. There was a pattern among screeners of not answering the money and medicine items from the HACC screen. This was addressed in two ways:
  - Implementation of an updated database that forces all HACC screen items to be answered.
  - Further training of staff in completing the HACC screen items, in particular, the money and medicine items.

## 6 The priority system evolves

### 6.1 The agreed threshold table and decision tree

In the agreed threshold table (Table 2) category 1 (Low function, At risk, Need carer) has the highest priority for service, while category 18 (High function, No risk, Other carer) has the lowest rating in priority for service.

Typically those screens assigned to categories 1–6 are likely to receive a field assessment, accounting for 19% of all screens.

About 1 in 3 screens request personal care or respite (with or without domestic assistance). The proportion requesting personal care and respite increased to between 70% and 90% of screens among those with a high priority for service (categories 1–6). Screens with the lowest priorities for service were unlikely to request personal care or respite (5%).

---

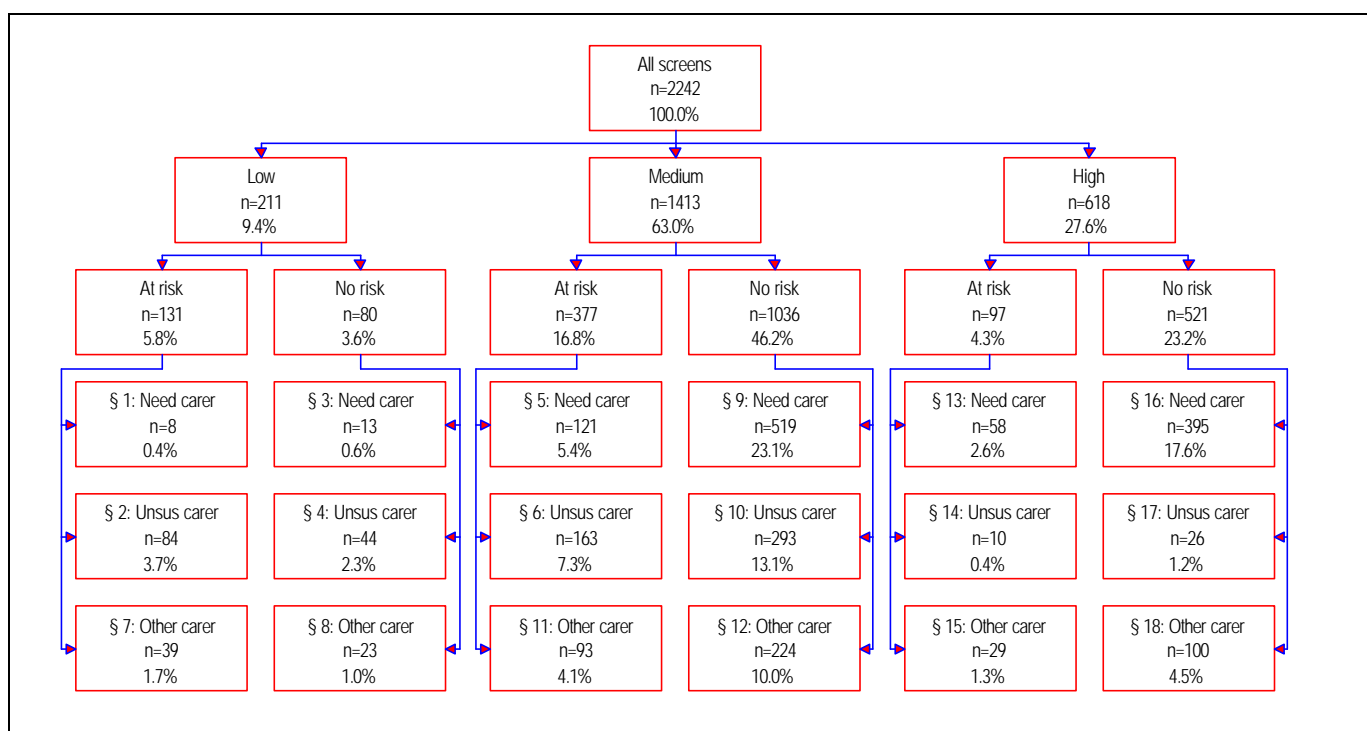
9 Health Department of Western Australia (2003). Western Australia Community Care Classification Project: Client & Carer Primary Assessment form. Website materials: [http://www.health.wa.gov.au/hacc/App06\\_WACCC\\_PAF.pdf](http://www.health.wa.gov.au/hacc/App06_WACCC_PAF.pdf)

**Table 2** *Threshold table based on level of function, risk and carer status with consideration of request type (domestic only or personal/respite care)*

Category	Level of Function	At Risk	Carer status	Percentage assessed		Request type (%added)		Request type (%cum)		Request type (%row)	
				%cum.	%add	Dom. only	Personal care or Respite	Dom. only	Personal care or Respite	Dom. only	Personal care or Respite
1	Low	Yes	Need	0.4%	0.4%	0.0%	0.3%	0.0%	0.3%	12.5%	87.5%
2	Low	Yes	Unsus	4.1%	3.7%	0.4%	3.3%	0.4%	3.7%	10.7%	89.3%
3	Low	No	Need	4.7%	0.6%	0.1%	0.5%	0.5%	4.1%	15.4%	84.6%
4	Low	No	Unsus	6.6%	2.0%	0.3%	1.7%	0.8%	5.8%	13.6%	86.4%
5	Medium	Yes	Need	12.0%	5.4%	2.8%	2.6%	3.6%	8.4%	52.1%	47.9%
6	Medium	Yes	Unsus	19.3%	7.3%	2.2%	5.1%	5.8%	13.5%	30.1%	69.9%
7	Low	Yes	Other	21.1%	1.7%	0.3%	1.4%	6.1%	14.9%	17.9%	82.1%
8	Low	No	Other	22.1%	1.0%	0.3%	0.7%	6.4%	15.7%	30.4%	69.6%
9	Medium	No	Need	45.2%	23.1%	18.2%	5.0%	24.6%	20.6%	78.6%	21.4%
10	Medium	No	Unsus	58.3%	13.1%	6.2%	6.9%	30.8%	27.5%	47.1%	52.9%
11	Medium	Yes	Other	62.4%	4.1%	1.9%	2.2%	32.7%	29.8%	46.2%	53.8%
12	Medium	No	Other	72.4%	10.0%	5.9%	4.1%	38.6%	33.8%	59.4%	40.6%
13	High	Yes	Need	75.0%	2.6%	2.6%	0.0%	41.2%	33.8%	100.0%	0.0%
14	High	Yes	Unsus	75.5%	0.4%	0.4%	0.1%	41.6%	33.9%	80.0%	20.0%
15	High	Yes	Other	76.8%	1.3%	1.2%	0.0%	42.8%	33.9%	96.6%	3.4%
16	High	No	Need	94.4%	17.6%	17.4%	0.3%	60.2%	34.2%	98.5%	1.5%
17	High	No	Unsus	95.5%	1.2%	1.1%	0.0%	61.3%	34.3%	96.2%	3.8%
18	High	No	Other	100.0%	4.5%	4.2%	0.2%	65.5%	34.5%	95.0%	5.0%

The threshold table is shown graphically in Figure 4 as a decision tree, giving the number and percentage of clients in each category.

**Figure 4** *The recommended model – a decision tree with three threshold levels – function, risk, carer*



**Key:**

**Function:** Low function (total screen score < 6 or self care score < 2)  
 Medium function (self care item < 2 or domestic item = 0)  
 High function (Not low or medium function)

<b>Risk:</b>	No cognitive or behavioural risk ('no risk') (Items 8 & 9 > 0) At risk due to either cognition or behaviour ('at risk') (Either items 8 or 9 = 0)
<b>Carer:</b>	Needs a carer ('need') (Item 10 = 2) Current carer arrangements are unsustainable ('unsus') (Item 10 = 1 and Item 11 < 3) Either no carer required or sustainable carer arrangements ('other') (Item 10 = 3 OR Item 10 = 1 and Item 11 > 2)
<b>§:</b>	The service priority rating assigned to each group of consumers. §1 is the highest priority group. §18 is the lowest priority group.

The resulting threshold levels and decision tree suggest a good fit for a workable system for Home Care and its service types (personal care, domestic assistance and respite services). Time will tell whether 18 priority categories are sufficient to give the break down of clients' needs and risks as required by HCS. Further refinement over time may see this number increase to a level such that it will not be possible to "game" the system, and that the number of clients in each category is evenly spread and the levels of need and risk in each category are similar.

## 6.2 The ongoing database – "Home Care Screening and Prioritisation Tool"

The NSW Home Care Service solution is unique in some ways, but the issues it faces are common across service types - how to assign priority relative to need – and the methods used here are familiar to others using and testing the same standard HACC tools. There is a long list of related projects in many jurisdictions, all contending with the same issues, and characterised as a jigsaw<sup>10</sup>. The functional screening tools are also being used in South Australia<sup>11</sup> and are consistent with the directions recommended by their Generational Health Review<sup>12</sup>. The screen is being used in disability programs and the education system in NSW<sup>13</sup>, in Victorian Primary Care Partnerships<sup>14</sup>, and in various pilot sites in NSW<sup>15</sup> and Queensland<sup>16</sup>.

The purpose of the NSW Home Care Service project was pragmatic at one level, with the aim of introducing routine data items. The opportunities to manage organisational change by paying attention to the evidence collected along the way is where the research helped considerably - hence the concept of 'data-driven solutions' as described in this report's subtitle. One opportunity the Home Care Service took was to use the tool developed to automate the process of collecting the data in their routine system. An adaptation of the database used in the second data collection of the research study became a tool for routine data collection. This revised database is being used as the entry point screen, and was implemented in November 2003. Data from this version indicate the new definitions are helping and are included in Appendix 5 – the ongoing data collection

However, the point is not to routinely collect good quality data for its own sake. The goal is to use the data collected in a standardised way so that it can be shared, in the first instance between Home Care Services branches, but also between other members of a 'virtual system' of community care. Home Care has the beginning of a system that is a step in that direction because there is at a minimum a set of data items consistent with the architecture of the community health system (CHIME). The research in Home Care and elsewhere shows that there

10 Eagar K and Owen A (2003) Community Care Assessment Jigsaw Puzzle; Progress Towards a Federated Solution. *Agendas*, Issue 28, (Summer 2003), Aged and Community Services Australia, pp. 6-7.

11 South Australian Department of Human Services (2003) *Equity, Responsiveness, and Access (Era) Project. Final Evaluation Report*, October 2003.

12 South Australia (2003) *Generational Health Review*, see in particular recommendations 3.8 and 3.11. <http://www.health.sa.gov.au/sahealthreform/>

13 HSNNet opens post school pathway for kids with disabilities. *BSDP e-bulletin* – edition 8, August 2003 <http://www.hsn.net.nsw.gov.au/bsd/p/>

14 Department of Human Services Victoria. Primary Health Care Knowledge Base: Primary Care Partnerships, Service Coordination Tool Templates <http://hnb.dhs.vic.gov.au/rrhacs/phkb/phkb.nsf/>

15 Owen A, Green J, Senior K and Eagar K (2003) *Evaluation of the NSW Comprehensive Assessment System Pilots*. Centre for Health Service Development, University of Wollongong.

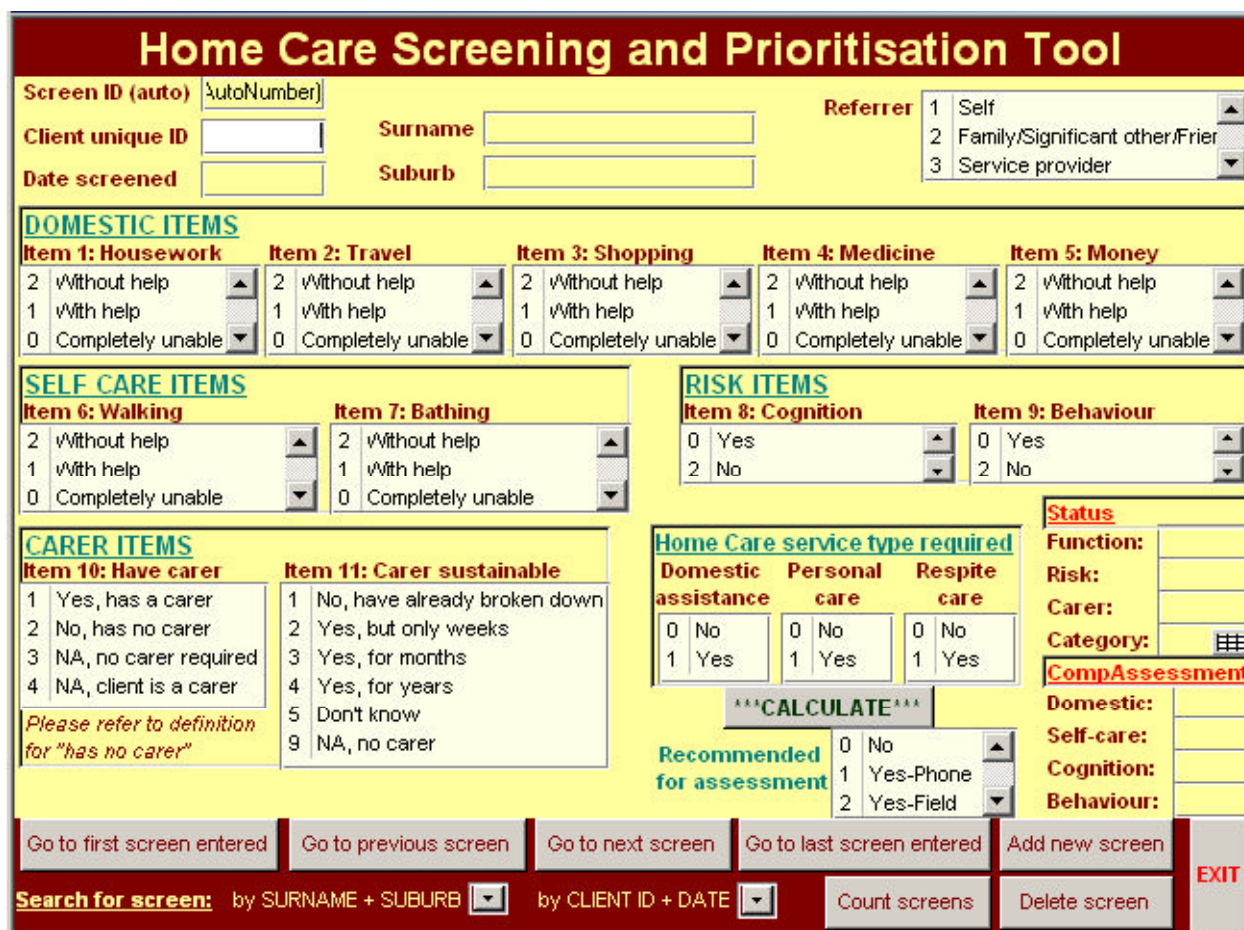
16 Queensland Department of Health (2003) *Evaluation of the Implementation of the Ongoing Needs Identification (ONI) Tool for Tier 1 Assessment in the HACC Program (Draft Report)*, November 2003.

is an open channel for sharing data on the basis of a common language. It may even be that there is also something worthwhile to say<sup>17</sup>.

In Figure 5 the screen being implemented Statewide in the NSW Home Care Service is shown. This revised database has incorporated a revised definition of a carer, and requires all HACC screen items to be completed. Appendix 5 contains the first month of data (November 2003). The database has been incorporated into the Home Care Service computing system, replacing a paper based method in many of the screening centres. The data entry page is completed for each screen received, automatically assigning a priority for service category and prompting the required functional assessments.

The client unique ID entered in this database is the same as the one used in the Home Care Services main database (to enable the future linkage of data). Screen date, surname and suburb of the person being screened are recorded for reference purposes and to further assist in any data linkage.

**Figure 5 Data entry screen for revised database implemented in November 2003**



**Home Care Screening and Prioritisation Tool**

Screen ID (auto) [AutoNumber] Referrer: 1 Self, 2 Family/Significant other/Frier, 3 Service provider

Client unique ID [ ] Surname [ ] Date screened [ ] Suburb [ ]

**DOMESTIC ITEMS**

Item 1: Housework	Item 2: Travel	Item 3: Shopping	Item 4: Medicine	Item 5: Money
2 Without help	2 Without help	2 Without help	2 Without help	2 Without help
1 With help	1 With help	1 With help	1 With help	1 With help
0 Completely unable	0 Completely unable	0 Completely unable	0 Completely unable	0 Completely unable

**SELF CARE ITEMS**

Item 6: Walking	Item 7: Bathing
2 Without help	2 Without help
1 With help	1 With help
0 Completely unable	0 Completely unable

**RISK ITEMS**

Item 8: Cognition	Item 9: Behaviour
0 Yes	0 Yes
2 No	2 No

**CARER ITEMS**

Item 10: Have carer	Item 11: Carer sustainable
1 Yes, has a carer	1 No, have already broken down
2 No, has no carer	2 Yes, but only weeks
3 NA, no carer required	3 Yes, for months
4 NA, client is a carer	4 Yes, for years
	5 Don't know
	9 NA, no carer

Please refer to definition for "has no carer"

**Home Care service type required**

Domestic assistance	Personal care	Respite care
0 No	0 No	0 No
1 Yes	1 Yes	1 Yes

\*\*\*CALCULATE\*\*\*

Recommended for assessment: 0 No, 1 Yes-Phone, 2 Yes-Field

Status: Function: Risk: Carer: Category: CompAssessment: Domestic: Self-care: Cognition: Behaviour:

Go to first screen entered | Go to previous screen | Go to next screen | Go to last screen entered | Add new screen | EXIT

Search for screen: by SURNAME + SUBURB | by CLIENT ID + DATE | Count screens | Delete screen

Screeners indicate who the referrer is (self, family or service provider) and then complete the eleven screen items by clicking on the most appropriate answer. The Home Care service type required is then completed.

Before determining if the person screened will be recommended for assessment, and where appropriate the type of assessment, the screener clicks on the CALCULATE button. This automatically calculates functional status, risk status, carer status and priority category for this

17 Eagar K. The HSNATLAS initiative – bridging the gap between Disability, Home and Community Care, Health and School Education. [www.hsnatlas.nsw.gov.au/bsdp](http://www.hsnatlas.nsw.gov.au/bsdp)



screen based on the screen scores entered. It also indicates which functional assessments are required as prompted by the answers to the items on the screen.

The conclusion from implementing this database in the HCS environment is that the content and concepts are familiar enough for a wide variety of community care, education and disability workers to understand. A set of further and more generic explanations for those with an interest is included in Appendix 2 – Explaining Priority Rating Concepts. The next steps, really a series of stages, are ones that directly relate to promoting continuity of care across a wider system, and these are discussed in section 7 below, on the Various uses of the HACCC MDS-based tools

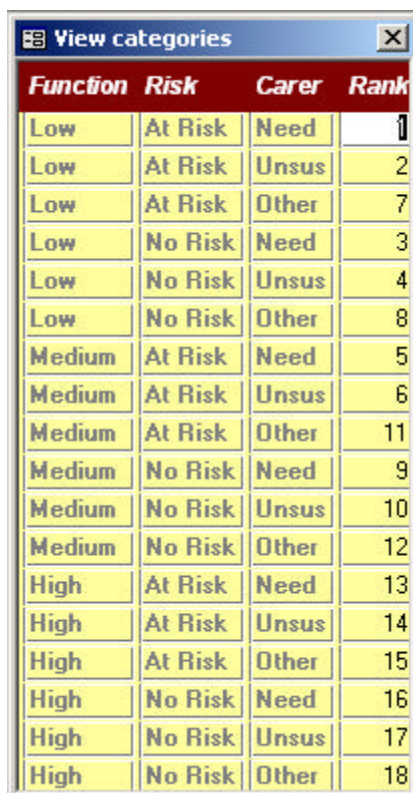
### 6.2.1 The order of the priority categories

The order of the priority categories need not always remain the same, but needs to be reviewed in the light of the demand for the different service types and any other factors that emerge from the data collection.

To emphasise that the process of assigning priority is not only a technical exercise, but also requires some level of judgement in deciding what the resulting categories mean, an extra feature was built into the database. This feature enables a level of control over the ranking of different priority categories. This is to make this aspect more transparent and to show it is a process that can evolve, is related to the HCS overall priorities, and could be different for other service types.

A priority category look-up table was built into the database, and the contents of the look-up table are viewed by clicking on the grid button located in the bottom right-hand corner of the status section. The “View categories” screen (Figure 6) will enable the Home Care Service to easily determine which rankings are being used while preventing accidental changes being made. To update the categories it is necessary to go to the database window and open the look-up table LU-Rank. To avoid a problem of competing versions of the thresholds and categories being used, it cannot be edited from here.

**Figure 6 Priority categories: the look-up table used in the revised database**



Function	Risk	Carer	Rank
Low	At Risk	Need	1
Low	At Risk	Unsus	2
Low	At Risk	Other	7
Low	No Risk	Need	3
Low	No Risk	Unsus	4
Low	No Risk	Other	8
Medium	At Risk	Need	5
Medium	At Risk	Unsus	6
Medium	At Risk	Other	11
Medium	No Risk	Need	9
Medium	No Risk	Unsus	10
Medium	No Risk	Other	12
High	At Risk	Need	13
High	At Risk	Unsus	14
High	At Risk	Other	15
High	No Risk	Need	16
High	No Risk	Unsus	17
High	No Risk	Other	18

Viewing the categories gives a window into the assumptions built into the decision points in the model. The ranks are selected to represent the order based on specific client characteristics for the service population. These are decision points in the tree (eg function, risk and carer), where the answers to questions cause the client to arrive at a particular category. The decision points can be differently defined depending on the service type and goal of care.

In the NSW Home Care Service data, using items 8 and 9 of the screen (cognition and behaviour) works well as a proxy for risk, and the revised carer definitions have helped to even out the numbers in the categories (see Appendix 5 for the November 2003 data).

The different ways an agency chooses to use the data items and categories depends on what they are used for – intake and entry point management, ongoing needs identification, managing waiting lists, priority rating, regular reporting, managing supply and demand.

## **7 Various uses of the HACC MDS-based tools**

There are many other logical next steps for the NSW Home Care Service to take, as well as decisions at policy levels concerning these and other service types and related programs. Once the standardised data are being collected, its uses are many, but it makes sense to have an integrated approach. When the electronic data transfer environment evolves, including using the full range of the need and risk items from the ONI entry point data set inside a wider system, then a range of opportunities emerge, including for the HCS the option of putting costing data in the model.

### **7.1 Collecting uniform data on a routine basis**

The research showed that recommended data items can be collected in a more standardised and reliable way and can be used as a uniform measure of need. This finding should be generalisable across branches, across call centres, and across the State for the HCS. As the system beds down it should be able to be used for planning and to determine areas of relative over-supply and under-supply of different service types.

The research shows that the set of dependency items created for the new version of the HACC MDS, along with some revisiting of the definition of a carer, gave a good measure of understanding of need and risk. These can be used in conjunction with the service type requested to reliably determine priority ratings.

The approach used in this research should be promoted as a common one across service types, in the sense of being standardised, and also in the sense of being promoted in a way that can be commonly understood. This common understanding promotes continuity in the sense of information being “the common thread linking care from one provider to another and from one (service) event to another”<sup>18</sup>.

### **7.2 The priority system and beyond**

The priority category system developed for the NSW Home Care Service is also a generic approach that is able to change over time and in relation to different service types and goals of care without changing the underlying data items. Modifications in other settings have to be carefully thought through. Care has to be exercised in understanding the way that items are treated in the system – what weight is given to them, and understanding what the rankings that are chosen say about the policy and operating environment of the organisation. The system has

---

18 Haggerty J L et al (2003). Continuity of care: a multidisciplinary review. *British Medical Journal* 327, 12191221, 22 November, 2003.

to be flexible to some extent, as well as standardised, in order to fit different levels of demand, and different goals of care. It should always be possible to arrange priorities differently on the basis of new evidence.

When the routine use of information systems produces better data about need and risk, then in an organisation with sophisticated systems like the NSW Home Care Service, it is likely that utilisation data can be linked to client characteristics. When combined with a service unit costing system, it should also be theoretically possible for the organisation to do sophisticated costing studies in a relatively efficient way.

When client characteristics and service costs are able to be brought together, there is the potential to develop a classification system more akin to what can be achieved in acute care casemix, but not using the concept of diagnosis as the central point of view. These matters are discussed further in Appendix 2 – Explaining Priority Rating Concepts. This level of research and development has already been advanced in WA in their Community Care Classification project<sup>19</sup>, where the aim was to use cost data as the dependent variable in a classification and costing study. The objective of the study was to arrive at the best predictors of costs and then use those predictors to determine the best mix of classes (categories) of clients.

In the NSW Home Care Service context, the organisation should be part of a program of ongoing research and development activity, guided by looking for classes that are not overlapping and are homogeneous in terms of their associated service and other costs. These classes would be like the priority rating system's final groups.

The guiding principle in the development pathway should be to get the number of classes 'about right', while making sure they are mutually exclusive. Rather than only getting the breakdown of categories to be statistically the best fit, the categories also have to make sense to the people using them. There are "natural" limits to the number of categories in the sense that the tree can have more branches, ending in more classes, but they have to make sense for the people who use them and for the type of services being requested.

### **7.3 Managing supply and demand**

As the new system has time to settle in and accumulate more data, the organisation has to work out ways to routinely review the data collected. The HCS has to work out how to make the best use of the new information to improve their system – in practical terms to use the priority rating system to ensure consistent approaches to access problems, but also to explore the potential for the use of the screening data in planning resources allocation and further down the line, in measuring outcomes.

Over time the longer-term evolutionary aim is to use the routine data to develop more evidence-based and data-driven policies and procedures. This project shows that these data items if collected routinely can be examined and used in real time, not just reported. Over longer time periods and with larger data sets, it will be possible for the system to evolve more quickly and promote continuity through intelligent design<sup>20</sup>.

As resource levels in the system change, as new programs and targeted interventions are funded, then service types change and the goals of care get defined differently. Models of care also evolve as better ways are found to help the clients, so there will be continual pressure for the composition of the categories to change. Developing the system can now be done relatively easily using the HCS database by reviewing and re-ordering the priority categories at regular (but not too frequent) points of time, and by fine tuning the definitions and categories used in the

---

19 WA Community Care Classification project [http://www.health.wa.gov.au/hacc/App06\\_WACCC\\_PAF.pdf](http://www.health.wa.gov.au/hacc/App06_WACCC_PAF.pdf)

20 Haggerty J L et al (2003). Continuity of care: a multidisciplinary review. *British Medical Journal* 327, 12191221, 22 November, 2003.

system. This will be most helpful if it is guided by a larger and coherent program of research and development.

## 8 Conclusions and Recommendations

The research achieved the ambitious aims set out for it by the agency and the information system developed in the course of this research project has performed well and used routinely collected data as indicators of need and risk. In the NSW Home Care Service this project has shown how solutions to problems of managing demand can be found by using this small number of routinely collected data items. The design of the system is now well enough described for it to be used to meet the challenges of responding to changing demand because it is essentially an ongoing solution that is data-driven.

The decision to adopt 18 priority categories was based on the evidence on the best fit for the NSW Home Care Service at the time. This research examined the evidence from collecting the data items and proposed a workable system for one large service. The resulting system for assigning a priority category and its associated information tools, shows how it is possible to improve the system by using the combination of routinely collected items. The resulting information is used to better manage demand and organise services commensurate with client need.

Several issues require resolution for the NSW Home Care Services in the near future. These issues are described below in terms of the levels of policy, administration and field issues. This implies there are a range of important implications for policy and practice from the organisational through departmental and State to the national level. Real progress will only occur when these levels sensibly line up.

### 8.1 Recommendations to the NSW Home Care Service

#### Recommendation 1

That the NSW Home Care Service clarify the way that the screen will be applied on a statewide basis, particularly in relation to branch service mix targets. The HCS will then have to consider the training and support roles needed in order to ensure the quality of the data in the system can be maintained by a steady stream of training and development investments.

#### Recommendation 2

That, as part of the development of a new client information system for DADHC, the HCS specify the information system requirements necessary to facilitate full automation of the functional screening tool and prioritisation of referrals and its integration with the CHIME/BDSP systems. Achievement of this outcome will require resolution of the implementation questions in Recommendation 1.

#### Recommendation 3

That, as the new system has been implemented to replace the previous NRI system, it now requires a data quality auditing and improvement system to ensure the ongoing integrity of the screening and prioritisation system. This should be part of an ongoing research and development agenda (see Recommendations 4 and 6), and for the HCS the regular review of data will be necessary to bed the new system down within the overall policy, structure and direction of the service.

#### **Recommendation 4**

The screening tool arising from this project is a first generation tool. An ongoing program of research and development should be implemented to support the development of second and future generations of the tool with improved understanding of the support needs of those seeking service from Home Care.

### **8.2 Recommendations to the Department of Ageing, Disability and Home Care (DADHC)**

#### **Recommendation 5**

That the Departmental (DADHC) clarify its policy with respect to any potential rollout of screening and assessment tools, and how the different programs can share common approaches to the use of screening tools, quality improvement, periodic audits, IT support and training. Otherwise the implementation problems will be compounded.

#### **Recommendation 6**

Matching the service mix to the mix of needs and risks is now possible and it is recommended that efforts to improve the new system in its next stages be supported. The information collected through the revised system with its new categories and thresholds is robust enough to start using the existing client base for classification and costing studies and for care packaging. This will allow the HCS to test its service mix by modelling (costed) care packages based on what the clients need. It is recommended that this form the basis of a research and development program with DADHC.

#### **Recommendation 7**

That DADHC use the HCS findings reported here to inform the Australian Department of Health and Ageing and the Australian Institute of Health and Welfare of the specific implications for the introduction in July 2004 of the revised HACC Minimum Data Set. The current findings provide evidence for changes to carer data items as well as a rationale for the introduction of the dependency data items, and include the adoption of new thresholds for assessment for the National HACC Program as outlined in Appendix 3. In practical terms the findings provide some answers as to how to avoid swamping the second tier with too many assessments within the screening and assessment model in the draft national 'Strategy for Community Care'.

### **8.3 Policy recommendations**

This research combined with that conducted in other jurisdictions to developing screening and prioritisation tools provides insights into the research and development program that is required for the Home and Community Care Program both within NSW and nationally. The following recommendations identify necessary research and development questions and issues:

#### **Recommendation 8**

It is recommended that DADHC and NSW Health re-visit current assumptions about how best to meet a continuum of need and how resources are best distributed across different service types. As part of any broader implementation agenda, the NSW HCS and DADHC closely monitor the ONI implementation in Queensland, and the INI in Victoria and South Australia, with a view to incorporating the lessons from implementing the INI/ONI suite of tools including the Service Priority Profile.

**Recommendation 9**

Introducing the data items into systems will require training and support functions. It is recommended that policy reflect what is now possible in the field, based on collecting the screening items and using them for costing and classification and for care packaging. Current HACC and disability program administration issues should be re-visited with the regions and with the Commonwealth, and the experience in different jurisdictions compared with a view to improvements being made and maintained.

**Recommendation 10**

Clarify the national and inter-departmental (NSW Human Services) policy and where the approach taken in this research fits within a larger research and development agenda. A national approach should include a measure of consistency at all levels, but currently policy is inconsistent. Policy can be better informed by data-driven models.

**Recommendation 11**

It is recommended that the national framework in relation to screening and assessment be informed by this research. The implications are that a coherent research and development agenda is possible with routinely collected data items measuring need as a core component. It makes little sense to duplicate the effort needed in researching and developing, planning and implementing the same tools in each State and Territory, when it is possible to avoid duplicating the effort required across programs. There are valuable lessons about implementation that can be compared.

**Recommendation 12**

With the introduction of standard data items on client dependency it is possible to move towards a more evidence-based policy for community care. There are previously unanswerable questions about whether access should be based on relative need or restricted to the highest need that can be addressed, and they should. There are now a number of working examples to learn from, and this research for the Home Care Service of NSW is one of them.

## References

NSW Department of Ageing and Disability and NSW Health (1998) *Community Care Assessment in NSW: A Framework for the Future - A Discussion Paper*,. November, 1998.

Department of Human Services Victoria. *Primary Health Care Knowledge Base: Primary Care Partnerships, Service Coordination Tool Templates*. At <http://hnb.dhs.vic.gov.au/rrhacs/phkb/phkb.nsf/>

Eagar K. *The HSNet ATLAS initiative – bridging the gap between Disability, Home and Community Care, Health and School Education*. See also HSNet opens post school pathway for kids with disabilities. *BSDP e-bulletin* – edition 8, August, 2003 at <http://www.hsnet.nsw.gov.au/bsdpl/>

Eagar K and Owen A (2003) Community Care Assessment Jigsaw Puzzle; Progress Towards a Federated Solution. *Agendas*, Issue 28, (Summer 2003), Aged and Community Services Australia, pp. 6-7.

Eagar K, Owen A, Green J, Cromwell D, Poulos R, Gordon R, Quinsey K, Adamson L and Fildes D (2002). A National Measure of Functional Dependency for Home and Community Care Services in Australia. *Aged and Community Care Service Development and Evaluation Report*, Number 41, July 2002. Commonwealth Department of Health and Ageing, Canberra. ISBN 0 642 82092 9 <http://www.health.gov.au/acc/hacc/download/funcdep4hacc.htm>

Eagar K, Owen A, Green J, Cromwell D, Poulos R, Gordon R, Quinsey K, Adamson L and Fildes D (2001) *A National Measure of Functional Dependency for Home and Community Care Services in Australia: Stage 2 report of the HACC dependency data items project*. Centre for Health Service Development, University of Wollongong [www.uow.edu.au/commerce/chsd](http://www.uow.edu.au/commerce/chsd)

Eagar K and Owen A (2002). *Ongoing Needs Identification in NSW Primary Health and Community Care: How and Why*. Centre for Health Service Development, University of Wollongong. [http://www.uow.edu.au/commerce/chsd/Publications/NSW\\_ONI\\_guidelines\\_Final.pdf](http://www.uow.edu.au/commerce/chsd/Publications/NSW_ONI_guidelines_Final.pdf)

Eagar K and Owen A (2003). *Supplementary Guide on Establishing Priority for Service*. Centre for Health Service Development, University of Wollongong. [www.uow.edu.au/commerce/chsd](http://www.uow.edu.au/commerce/chsd)

Haggerty J L et al (2003). Continuity of care: a multidisciplinary review. *British Medical Journal* 327, 1219-1221, 22 November 2003.

Health Department of Western Australia (2003). *Western Australia Community Care Classification Project: Client and Carer Primary Assessment form*. [http://www.health.wa.gov.au/hacc/App06\\_WACCC\\_PAF.pdf](http://www.health.wa.gov.au/hacc/App06_WACCC_PAF.pdf)

Lincoln Gerontology Centre (1988). National Framework for Comprehensive Assessment - Aged and Community Care *Service Development and Evaluation Report* No. 34, March 1998.

Maddock A, Kilner D, Isam C (1998). *Who are the carers and what are their needs? Report on the Carer Needs Assessment Trial*. South Australia: RDNS and CASA.

McDowell I and Newell C (1996). *Measuring health – A guide to rating scales and questionnaires* (2<sup>nd</sup> edition). Oxford University Press.

Owen A and Eagar K (2003). *Ongoing Needs Identification in Queensland Community Care: How and Why*. Centre for Health Service Development, University of Wollongong. Queensland Health, Brisbane. See also Supplementary Guide to Determining Priority for Service. <http://www.uow.edu.au/commerce/chsd/screeningandassessmenttools>

South Australian Department of Human Services (2003) *Equity, Responsiveness, and Access (ERA) Project*. Final Evaluation Report, October 2003. Health Outcomes International Pty Ltd

South Australian Generational Health Review. <http://www.health.sa.gov.au/sahealthreform/>

## Appendix 1 – Analysis decisions and calculations

### Referrer

- Values outside the range 1–3 were excluded

### HACC screen items (1-9)

- Item 1-3: must be answered to be a valid score
- Item 4-9: Blanks and X's converted to 2 (Without help)
- Item 6-9: 9's converted to 2 (Without help)
- Other values (3, \*, 5) were excluded

### NRI

- Values outside the range 1–5 excluded for NEED and RISK

### Assessment

- Values other than P (phone) and F (field) were excluded

### Reason for field assessment

- If Assessment = Phone, any values were ignored
- Values outside the range 1–4, and not a combination of 1–4, were excluded

### Listed for assessment

- Values other than Y and N were excluded

### REQ 01, 04, 06

- Blank values or N's to be coded as NO
- Y's and any other value code as YES

### First data collection – time periods

- Period 1: Data collected from 07/08/2002 to 13/08/2002
- Period 2: Data collected from 14/08/2002 to 20/09/2002
- Period 3: Data collected from 23/09/2002 to 15/01/2003

### HACC functional score

- Calculated for valid scores only (valid answer for questions 1–3)
- Total HACC screen score: Sum of questions 1–9
- Domestic screen score: Sum of questions 1–5
- Self care screen score: Sum of questions 6–7

### NRI score

- Total NRI score: Sum of NEED and RISK
- The NRI weighting format was not applied because it appeared to be an administrative convenience and had no inherent validity within the data set.

### Threshold status levels

- **Function:** Low (total screen score < 6 or self care score < 2)  
Medium (self care item < 2 or domestic item = 0)  
High (not low or medium function)
- **Risk:** No risk (items 8 & 9 > 0)  
At risk (either items 8 or 9 = 0)



- **Carer:** Need (item 10 = 2)  
Unsus (item 10 = 1 and item 11 < 3)  
Other (item 10 = 3 OR item 10 = 1 and item 11 > 2)
- **Housework:** Can do (item 1 = 2)  
Cannot do (item 1 < 2)

### Functional assessment prompts

- **Domestic:** Look solely at items 1 to 5. Count the number of these items that scored 2 (ie, count the number of activities that the person can do without help). Refer for a domestic functional assessment if the person can do less than 3 activities without assistance – ie, the count is 2 or less ( a count of 0, 1, or 2).
- **Self-care:** Refer for a self-care functional assessment if the client SCORED LESS THAN 2 on either Item 6 (mobility) or Item 7 (bathing).
- **Cognition:** Refer for a cognitive assessment if:
  - The client scored LESS THAN 2 on either Item 4 (Medicine) or Item 5 (financial management) AND you have determined that the client has no physical disabilities or problems with English literacy that may account for the client not being independent on these items OR
  - The client scored 0 on item 8.
- **Behaviour:** Refer for a behavioural assessment if:
  - The client scored LESS THAN 2 on either Item 4 (Medicine) or Item 5 (financial management) AND you have determined that the client has no physical disabilities or problems with English literacy that may account for the client not being independent on these items OR
  - The client scored 0 on item 9.

### Priority categories

- 1: Low function + At risk + Need carer
- 2: Low function + At risk + Unsus carer
- 3: Low function + No risk + Need carer
- 4: Low function + No risk + Unsus carer
- 5: Medium function + At risk + Need carer
- 6: Medium function + At risk + Unsus carer
- 7: Low function + At risk + Other carer
- 8: Low function + No risk + Other carer
- 9: Medium function + No risk + Need carer
- 10: Medium function + No risk + Unsus carer
- 11: Medium function + At risk + Other carer
- 12: Medium function + No risk + Other carer
- 13: High function + At risk + Need carer
- 14: High function + At risk + Unsus carer
- 15: High function + At risk + Other carer
- 16: High function + No risk + Need carer
- 17: High function + No risk + Unsus carer
- 18: High function + No risk + Other carer

## Appendix 2 – Explaining Priority Rating Concepts

### ***The concepts of need, risk and priority – how the HCS research fits into the big picture (the ONI implementation in different jurisdictions)***

There are various ways of defining need, risk and priority for community care. ‘Need’ and ‘risk’ are both multidimensional concepts and can be measured in multiple ways and with various levels of sophistication. There is no best way, only ways that are better suited to different tasks like rating urgency, raising alerts, managing risk, assigning priority for receiving services and managing waiting lists.

The approach taken in the NSW Home Care Service research project was similar to that adopted in parallel work that was proceeding in Queensland during the same period. Both projects assumed that, at least at this stage, the community care sector (as a whole but with exceptions) is not positioned to collect anything more sophisticated than the information built into the Ongoing Needs Identification (ONI) tool. Therefore, only information already incorporated into the ONI was considered, along with consistent and valuable work in other jurisdictions. The parallel work going on in Queensland was particularly relevant because Queensland Home Care and other community care agencies were testing a similar priority rating system. In the case of Queensland, the priority rating is determined from information collected in the Queensland ONI tool. The NSW HCS used selective items from this tool, but not the full ONI. However, given the overlap between the two, the remainder of this appendix discusses concepts surrounding priority for service by reference to the ONI tool.

The idea of the ONI is simple. Its primary purpose is to screen the consumer as the first step in developing an action plan to meet their identified and documented needs. However, as a by-product, the ONI can be used to identify the information necessary to manage risks and service priorities. The idea is not to use the ONI and then, in a separate process, rate the person’s priority for service by use of another tool or measure. This way lies the tangle we are already in by virtue of too many inconsistent tools and resulting reporting burdens.

The ONI is designed for use in identifying consumer needs, which are then related to other service-based demand characteristics. The purpose is to first separate out evidence of consumer need and risk from the other factors affecting service delivery. Agencies have different resource levels and there is variable demand within the target group(s) for different service types (nursing, personal care, respite, domestic assistance, transport, meals etc).

If we keep the two sets of variables clearly separated, indicators of need and risk on the one hand, and the supply of services on the other, then this suggests a way that need, risk and priority can be combined in a standardised and sensible way.

The assumption of the ONI is that a judgement about a consumer’s priority category is driven by:

- The consumer’s functional needs (NEED)
- Whether or not the consumer has psychosocial or other problems (NEED)
- The availability, and sustainability of, carer arrangements (RISK)

In summary:

**PRIORITY FOR SERVICES = NEED + RISK**

Priority of service is then determined by the combination of need and risk as picked up in the ONI. Service or agency-specific targets are then determined by the combination of resource availability and various policy decisions. A consumer’s service priority category cannot be determined until the end of the ONI process.

Using the ONI, information on a client's needs and risks are gained from several profiles. The HCS opted only to use the HACC functional profile with two questions from the carer profile (carer status and sustainability). Therefore, within the HCS, judgement about a consumer's priority for service is based on:

- The consumer's functional needs (need = FUNCTIONAL STATUS)
- Whether or not the consumer is at risk because of psychosocial or other problems – two items from the functional screen (cognition and behaviour) were used as proxies (need and risk = RISK STATUS)
- The availability, and sustainability of, carer arrangements - two items from the carer screen (availability and sustainability) were used as proxies (risk = CARER STATUS)

### ***Using the ONI to determine priority***

In general, priority is thought of as similar to need in being one of three levels – high, medium or low. Another approach is to add two extra levels – very high and very low. The reason for considering the extra levels is that in situations where demand is high (for whatever service-specific or consumer-specific reasons), three levels are not enough to discriminate clearly between consumers, and thus determine their logical priority for service.

In order to cover the whole of the target population, from the low-needs, well-aged to say, very high need younger people with multiple disabilities, the number of levels needs to be increased, but that depends in part on the service type. In the worked examples here, the priority categories are increased to nine, and in the Home Care Services case, it resolved into 18 priority categories, and a solution with 27 categories was also considered.

Consumers in Level 1 are considered to have greater priority for service than those in Level 2 (and so on). While both the broad domains of need and risk can be objectively measured (see below) it is inevitable that the determination of priority for services (ie, combining need and risk) also involves the management of demand for specific types of services and within limited available resources.

There are value judgements involved in this process and it is important to be clear about what they are from the start, based on the policy context for each service type. For example, Figure 7 assumes that consumers with good physical function but with health, psychosocial or other problems and without a carer are a higher priority for services than those consumers who have low function but who have sustainable carer arrangements. No doubt there are many people (including some groups of carers) who would disagree with this ranking.

The reason for using the ONI in this context is to capture relevant information about a consumer's needs that helps a service provider to make these discriminating judgements with more confidence and based on good evidence.

**Figure 7 Need for community care – nine levels of priority**

	Low function or Mid function with significant psychosocial or other problems	Medium function with no significant psychosocial or other problems	Good function but health, psychosocial or other problems
No carer able to provide necessary care	1	2	5
Carer arrangements exist but are unsustainable without additional resources	3	4	7
Carer arrangements suitable and sustainable or Carer not required	6	8	9

At this point it is important to note that the factors that drive a consumer's need for community care are different from the factors that drive the need for medical care. Whereas medical care is mainly related to diagnosis, consumer need in community care is less driven by diagnosis and more related to functional abilities and psychosocial problems. Risk in community care consumers are thought to be best represented by threats to living and carer arrangements.

### **Measuring need using information in the ONI**

#### **Function**

Function is measured in the ONI Functional Profile. This screen contains thresholds to determine whether a more thorough functional assessment is required. The HCS priority system is primarily based on this screen.

- **Good function:** The person does not need a functional assessment (as indicated by the rules in the functional profile)
- **Medium function:** All who require an assessment and who do not meet the criteria for 'low'
- **Low function:** A total score of less than 6 or a total for items 6 & 7 of less than 2

#### **Psychosocial problems**

Psychosocial problems are captured in the psychosocial profile. Significant psychosocial problems are defined as:

- K10 score of 30 or more AND/OR
- No personal and social support AND/OR
- Significant family and personal relationships problems (score of 4 on both items)

All others are assigned to 'no significant psychosocial problems. For the purpose of the HCS data collection, items 8 and 9 from the functional screen (cognition and behaviour) were used as proxies in place of the psychosocial profile.

#### **Other problems**

Other problems are captured in the Psychosocial Profile, the Health Conditions profile, the Functional Profile and the Living Arrangements Profile. Significant other problems are defined as:

- Consumer mistrusts health and community service providers (Psychosocial Profile) AND
- Does not cooperate with health services (Health Conditions Profile) OR

- Significant behavioural problems (Functional Profile) OR
- Significant cognitive problems (diagnosis of dementia in Health Conditions Profile OR decision-making problems in Living Arrangements Profile)

All others are assigned to 'no significant other problems'.

### Measuring risk using information in the ONI

#### Carer availability

Risk is captured in the Carer profile of the ONI. The Carer Availability item is one of two carer items collected by the HCS to assess risk to clients. Unlike in the HACC MDS, there are 4 possible responses in recording whether a person has a carer:

- Has a Carer
- Has no Carer
- Not Applicable – no carer required
- Not Applicable – the consumer is the Carer.

#### Definition of “needs a carer” for the HCS

The items from the WA Community Care Classification tools have useful definitions on the way to capture the need for carer, and these elements are shown in the following two boxes. These are reproduced from the WACCC website:

[http://www.health.wa.gov.au/hacc/App06\\_WACCC\\_PAF.pdf](http://www.health.wa.gov.au/hacc/App06_WACCC_PAF.pdf)

**Figure 8 Definition of a carer**

<p><b>8 Supervising the person for whom you care</b></p> <p><b>a</b> How often can you leave this person alone during the day time?</p> <p>Not at any time SA 1 <input type="checkbox"/></p> <p>Sometimes (for less than 1 hour) SA 2 <input type="checkbox"/></p> <p>Usually (1–3 hours) SA 3 <input type="checkbox"/></p> <p>At any time (always) SA 4 <input type="checkbox"/></p> <p><b>b</b> How often can you leave this person alone at night time?</p> <p>Not at any time SA 1 <input type="checkbox"/></p> <p>Sometimes (for less than 1 hour) SA 2 <input type="checkbox"/></p> <p>Usually (1–3 hours) SA 3 <input type="checkbox"/></p> <p>At any time (always) SA 4 <input type="checkbox"/></p> <p><small>(Questions 8a and 8b from Maddock, A., Kline, D., &amp; C. C. (1998). Who are the carers and what are their needs? Report on the Care Needs Assessment Trial. South Australia: RONS and CASAI, 1998)</small></p>	<p><b>Please note</b></p> <p>A HACC eligible Client is defined as ONE of the following:</p> <ul style="list-style-type: none"> <li>■ <b>Care Recipient:</b> A person who receives assistance from an Agency due to his or her own frailty/disability of condition. This would be the person that was assessed using the <b>Green Section</b> of the WACCC Primary Assessment Form.</li> <li>■ <b>Carer*:</b> A person who receives assistance from an Agency to support him or her in the caring role. This would be the person that was assessed using the <b>Yellow Section</b> of the WACCC Primary Assessment Form.</li> </ul> <p>This form is to be completed for all Clients that are receiving a HACC service from your Agency.</p> <p><b>If your Agency is providing services to both a Carer and Care Recipient, then a separate HACC MDS form must be completed for each person.</b></p> <p>* A Carer means 'a person such as a family member, friend or neighbour, who provides <i>regular and sustained</i> care and assistance to another person <i>without payment</i> other than a pension or benefit'.</p>
---	--

#### Voluntary or informal

- The question of whether a client has a carer is mainly (but not only) about people who may be family, friends or neighbours who help the client informally with managing their lives. This help may be occasional only, or regular.
- A client may in fact have several carers who share the job, but the number of carers is less important than simply whether the client has a carer or not. If an elderly client has care provided by both their spouse and their son, the response to this item will be - “Has a carer”.
- Similarly, for a young disabled client, if care is shared between both parents, the response will be “Has a carer”.

- In many situations several clients (typically a married couple) look after each other. Both may be receiving HACC-funded assistance, but are each other's carer. In this case, for each client the following would most likely apply:
  - Each client is recorded as a care recipient, receiving assistance due to their own frailty, condition or disability.
  - Each client would be recorded as having a carer.

### **Paid or formal**

- If a client has a paid carer or a formally arranged volunteer carer, the answer is still "Has a carer". This arrangement would be noted in several points in a full ONI profile – under Health Conditions, Living Arrangements and the Carer Profiles. When the functional profile alone is being used, then these other matters may not be directly captured but have to be taken into account, hence the need for extended definitions.
- The assumption in the way that the carer role is captured is that we are interested if the person is independent with the level of supports in place, so a paid carer role is taken into account – as an additional service. The WACCC model uses a time dimension by enquiring whether a person can be left alone in the day or night and for how long. This is a good indicator of the need for a carer.
- The key decision is to avoid placing clients with an unpaid carer in place in the same category as someone with no informal arrangements but with paid and formal arrangements. The existing service levels may have an impact on eligibility. It is not a usual policy assumption to expect the carer to substitute for a paid service, which is why the carer usually is seen as an additional client with needs of their own.
- We are interested in the person's resulting level of dependency and independence, and also whether their arrangements are sustainable. Needing a carer is complex in much the same way as other judgements made at the assessment level are complex – for example a person in a wheelchair may be scored as mobile if they are young and disabled and have a motorised chair or car that gets them where they want to go. Being in a wheelchair doesn't automatically make you not mobile and having a carer does not mean your needs are being met.

### **Different to the HACC MDS**

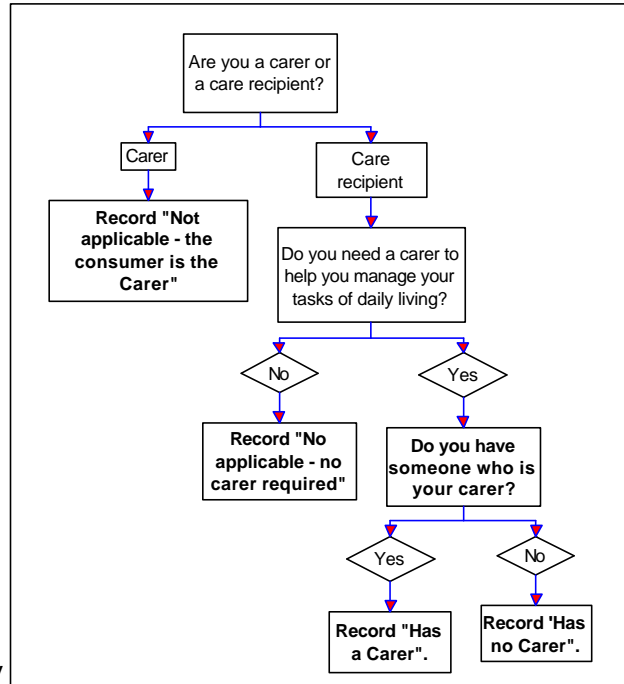
Note that the approach to defining a client's need for a carer in this current work is different to the way these items are defined in the HACC Minimum Data Set (HACC Data Dictionary Version 1, May 1998, pages 29-30 and 66-74). The HACC MDS items are not useful in determining priority categories and the lack of correspondence caused some initial confusion.

In the HACC MDS 'If a Client has a paid carer or a formally arranged volunteer carer, the response is recorded as "2 - Has no carer". This is because the focus of the item is on the existence of informal arrangements with family members, friends and neighbours' (p.29).

Because we are interested here in using carer characteristics in determining risk and then using that in assigning a priority rating, then assessing the sustainability of the care arrangements is important. The answer for a client who has a paid carer or a formally arranged volunteer carer, is "Has a Carer". In these cases, the sustainability of the care arrangements will also need to be determined by inquiring whether or not the paid or formal care arrangements are likely to be sustainable and, if so, for how long.

### Decision steps for completing item 10 “Have carer”

- First, ascertain if the person is a carer or a care recipient.
- If the person is a carer, record “Not applicable – the consumer is the Carer”
- If the person is not the carer, ask if they need a carer to help them manage their tasks of daily living.
- If no carer is required, record “Not applicable – no carer required”
- If a carer is required, ask the person if they have someone they regard as their carer.
- If they identify a carer, record “Has a Carer”.
- If they cannot identify a carer, record ‘Has no Carer’ – refer to section on “needing a carer” below.
- If the person is unsure about whether they have someone who helps look after you?” or “the last time you got sick, who looked after you?”
- If the person identifies someone who looks after them, record “Has a Carer”.
- If not, record “Has no Carer”.
- If a care recipient, ask “How long can you (the person) be left alone?” consider overnight/ 24 hrs, and more or less than 3 hours to assist in determining if a carer is really needed.



### Carer Support

Knowing more about carer support helps to work out whether arrangements are going to be able to be sustainable without additional assistance. There are four dimensions to carer support captured on the ONI carer Profile, each measured as Yes, No, Not sure or No carer.

- Does Carer have someone to help them?
- Does Carer receive a Carer Payment or Allowance?
- Has Carer been given information about available support services?
- Does Carer need practical training in lifting, managing medicine or other tasks?

### Current threats to carer arrangements

Current threats to carer arrangements can be described by a series of six self-explanatory items. Any threats are then taken into account in assessing sustainability. The coding options are:

- Carer – emotional stress and strain
- Carer – acute physical exhaustion/illness
- Carer – slow physical health deterioration
- Carer – factors unrelated to care situation (eg, carer moving away or taking on a new job)
- Consumer – increasing needs (including physical health deterioration)
- Consumer – other factors (eg, is unhappy with current arrangements)

**Sustainability of carer arrangements**

Taking into account available carer support and any current threats to carer arrangements, the sustainability of current carer arrangements without additional services or support can be determined and one of the following 5 codes is recorded:

- No, have already broken down (the situation is an immediate crisis)
- Yes, but only weeks (without additional services or support the arrangements will break down within a matter of weeks)
- Yes, months (without additional services or support the arrangements will break down within a year)
- Yes, years (without additional services or support the arrangements could eventually break down, but not likely within the next year or two)
- Don't know (in which case, consider the need for referral and assessment).

Carer sustainability is the second carer item used in the HCS data collection for assigning priority for service.



## Appendix 3 – Revising thresholds for triggering an assessment

### ***Issues surrounding current HACC assessment thresholds***

The initial thresholds used to determine assessments for the National HACC functional screening instrument resulted in too many assessments being required among NSW Home Care Service clients. There are various reasons for this, but perhaps the most important is the change in the mix of consumers seeking services since the original study in 2000<sup>21</sup>. Accordingly, the threshold levels need to be reviewed so that the number of clients proceeding to assessment can be reduced and controlled.

One aim of the review of the thresholds was to allow specific NSW Home Care Service branches and the Referral and Assessment Centre to have their own screen thresholds for triggering assessments based in part on client need and in part on their resources that gave them a capacity to respond. This desired level of control involved a capacity to “set the bar” (determine priority for access) at different heights according to the capacity of the branch to respond.

The key issue was how to use the functional screen and achieve the recommended mix of assessments (none, phone or field). Given the mix of policy and resource constraints, only 70% of calls received were expected to trigger an assessment. A review of the thresholds to trigger functional assessments based on NSW Home Care Service clients (who are calling for domestic assistance, personal care or respite) was necessary to construct a working model.

The following sections review each of the functional domains.

### ***Options for triggering assessments***

Any potential combination of screen items might be used to trigger an assessment. Finding the right combination involves finding a solution that:

- Is within the acceptable range given resources available for assessment
- Is organisationally sensible (makes sense for this service or for prompting this type of assessment)
- Is easily and logically scored
- Uses the minimum number of items to get a reliable result.

The options for using the different triggers for domestic, self-care, cognitive and behavioural assessments are described in the tables below. There is no ‘correct’ proportion of clients who should be assessed. Rather, the proportion to be assessed is a policy decision that needs to take account of factors such as the goal of the service, resource availability and so on.

### **Domestic function**

Most persons calling Home Care NSW are likely to require a domestic function assessment based on current thresholds. This is not surprising considering the Home Care NSW target group. Using the current thresholds to trigger a domestic function assessment 78.7% of clients

---

21 Eagar K, Owen A, Green J, Cromwell D, Poulos R, Gordon R, Quinsey K, Adamson L and Fildes D (2001) *A National Measure of Functional Dependency for Home and Community Care Services in Australia: Stage 2 report of the HACC dependency data items project*. Centre for Health Service Development, University of Wollongong [www.uow.edu.au/commerce/chsd](http://www.uow.edu.au/commerce/chsd)

calling Home Care NSW would require an assessment for domestic function. The threshold for domestic function needs to be adjusted for this population.

**Table 3** *Options for triggering a domestic functioning assessment*

CODE	DESCRIPTION OF TRIGGER	% ASSESSMENTS TRIGGERED
DF1	Items 1–5: All 0's (Completely unable) on any of the items	3.8
DF2	Items 2–5: All 0's (Completely unable) on any of the items	3.9
DF3	Items 1–5: At least four 0's (Completely unable) on any of the items	8.9
DF4	Items 2–5: At least three 0's (Completely unable) on any of the items	9.3
DF5	Items 2–5: Score less than 3 out of 8	15.7
DF6	Items 1–5: At least three 0's (Completely unable) on any of the items	17.1
DF7	Items 2–5: At least two 0's (Completely unable) on any of the items	19.3
DF8	Items 1–5: Score less than 4 out of 10	22.4
DF9	Items 2–5: Score less than 4 out of 8	24.9
DF10	Items 1–3: At least two 0's (Completely unable) on any of the items	29.4
DF11	Items 1–5: Score less than 5 out of 10	31.6
DF12	Items 1–5: At least two 0's (Completely unable) on any of the items	33.2
DF13	Items 2–5: Score less than 5 out of 8	40.5
DF14	Items 2–5: At least two 2's (Without help) on any of the items	47.4
DF15	Items 1–5: Score less than 6 out of 10	48.1
DF16	Items 1–3: At least one 0 (Completely unable) on any of the items	51.4
DF17	Items 1–5: At least three 2's (Without help) on any of the items	78.7
DF18	Items 2–5: At least three 2's (Without help) on any of the items	79.0
DF19	Items 1–5: At least four 2's (Without help) on any of the items	88.1

## Self care

Using the existing thresholds to trigger a self-care assessment, 61.3% of clients calling the NSW Home Care would require an assessment for self care.

**Table 4** *Options for triggering a self care assessment*

CODE	DESCRIPTION OF TRIGGER	% ASSESSMENTS TRIGGERED
SC1	Items 6–7: Score is 0 out of 4 – ie, both 0's (Completely unable)	5.0
SC2	Items 6–7: Score less than 4 out of 4 AND Items 4: Is 0	8.7
SC3	Items 6–7: Score less than 2 out of 4	12.7
SC4	Items 6–7: At least one 0 (Completely unable) on either of the items	16.0
SC5	Items 6–7: Score less than 4 out of 4 AND Items 5: Is 0	16.0
SC6	Items 6–7: Score less than 4 out of 4 AND Items 4–5: At least one 0	16.8
SC7	Items 6–7: Score less than 3 out of 4	34.7
SC8	Items 6–7: Score less than 4 out of 4	61.3
SC9	Items 6–7: At least one 2 (Without help) on either of the items	68.7

## Cognitive and/or behavioural problems

Using the existing thresholds to trigger an assessment, 17.6% of clients calling the NSW Home Care Service would require a cognitive assessment and 5.7% a behavioural assessment.

**Table 5** *Options for triggering a cognitive assessment*

CODE	DESCRIPTION OF TRIGGER	% ASSESSMENTS TRIGGERED
C1	Items 4–5 & 8: Item 8 is 0 (Yes) and item 4 is 0 (Completely unable)	5.9
C2	Items 4–5 & 8: Item 8 is 0 (Yes) and item 5 is 0 (Completely unable)	9.1
C3	Items 4–5 & 8: Item 8 is 0 (Yes) and either item 4 or 5 is 0 (Unable)	9.5
C4	Item 8: Score is 0 (Yes)	17.7

**Table 6** *Options for triggering a behavioural assessment*

CODE	DESCRIPTION OF TRIGGER	% ASSESSMENTS TRIGGERED
B1	Items 4–5 & 9: Item 9 is 0 (Yes) and item 4 is 0 (Completely unable)	2.5
B2	Items 4–5 & 9: Item 9 is 0 (Yes) and item 5 is 0 (Completely unable)	3.4
B3	Items 4–5 & 9: Item 9 is 0 (Yes) and either item 4 or 5 is 0 (Unable)	3.6
B4	Item 9: Score is 0 (Yes)	5.7

## Applicability beyond the NSW Home Care Service

The purpose of this analysis was to select new thresholds for assessment for the HCS. However, the results have more general application. For example, suppose that NSW HCS decided that less than 20% of referrals should proceed to a domestic assessment. Using the cumulative percentage shown in Table 3, the new threshold for assessment would be any client having at least two 0's (Completely unable) on items 1 to 5. No other referral would be assessed. As another example, suppose it was decided that 40% of referrals should proceed to assessment. Based on the profile of NSW HCS clients, any referral with a total score of less than 5 on items 2–5 would be assessed. The proportion of HCS clients meeting this criterion was 40.5%. As a final example, suppose it was decided that 50% of referrals should be assessed for domestic function. People scoring at least one 0 (completely unable) on items 1, 2 or 3 would be assessed.

Note that the results above are based on the profile of referrals to the NSW HCS. The proportion of referrals proceeding to assessment would differ for agencies with a different client profile.

## Selection of triggers for the NSW Home Care Service

Where the above list of triggers resulted in too many assessments, or too few, they were excluded from further consideration as possible triggers for a NSW HCS assessment. This decision was based on the policy that the NSW HCS already had in place (ie, about 30% of referrals receive a field assessment and a further 40% receive a telephone assessment). Nine domestic function triggers, six self care triggers, four cognition triggers and one behavioural trigger were combined to examine the total number of assessments that would be triggered. The options considered are summarised in Table 7.

**Table 7** Trigger combinations considered

CODE	DESCRIPTION OF TRIGGER	ASSESSMENT	
		REQUIRED <sup>1</sup>	% TRIGGERED
DF1	Items 1–3: At least one 0 (Completely unable) on any of the items	Y	51.4
DF2	Items 1–3: At least two 0's (Completely unable) on any of the items	Y	29.4
DF8	Items 1–5: At least two 0's (Completely unable) on any of the items	Y	33.2
DF9	Items 1–5: Score less than 6 out of 10	Y	48.1
DF10	Items 1–5: Score less than 5 out of 10	Y	31.6
DF15	Items 2–5: At least two 2's (Without help) on any of the items	N	47.4
DF17	Items 2–5: Score less than 5 out of 8	Y	40.5
DF18	Items 2–5: Score less than 4 out of 8	Y	24.9
DF19	Items 2–5: Score less than 3 out of 8	Y	15.7
SC2	Items 6–7: Score less than 2 out of 4	Y	12.7
SC3	Items 6–7: Score less than 3 out of 4	Y	34.7
SC4	Items 6–7: Score less than 4 out of 4	Y	61.3
SC5	Items 6–7: At least one 0 (Completely unable) on either of the items	Y	16.0
SC7	Items 6–7: Score less than 4 out of 4 AND Items 4–5: At least one 0	Y	16.8
SC9	Items 6–7: Score less than 4 out of 4 AND Items 5: Is 0	Y	16.0
C1	Item 8: Score is 0 (Yes)	Y	17.7
C2	Items 4–5 & 8: Item 8 is 0 (Yes) and either item 4 or 5 is 0 (Unable)	Y	9.5
C3	Items 4–5 & 8: Item 8 is 0 (Yes) and item 4 is 0 (Completely unable)	Y	5.9
C4	Items 4–5 & 8: Item 8 is 0 (Yes) and item 5 is 0 (Completely unable)	Y	9.1
B1	Item 9: Score is 0 (Yes)	Y	5.7

Note 1 'Assessment required' is based on current NSW HCS policy

Using these triggers, all possible combinations were tried (216 combinations). Among these, only combinations resulting in at least 50% of referrals proceeding to assessment were further considered (90 combinations). These combinations of triggers were reviewed for patterns in the number of assessments triggered.

There was no clearly preferable pattern for domestic function, however given that item 1 has such a clear ceiling effect, one option might be to use the combination of items 2-5 represented by DF15 which is used to exclude (rather than prompt) a domestic assessment. This potentially has design and practical disadvantages, so DF9 was better.

It was very clear that as long as at least 65% of assessments were required that only SC4 was required for self care. The patterns clearly showed that there was no difference between C2, C3 and C4. Therefore only C1 and C2 were considered for cognition.

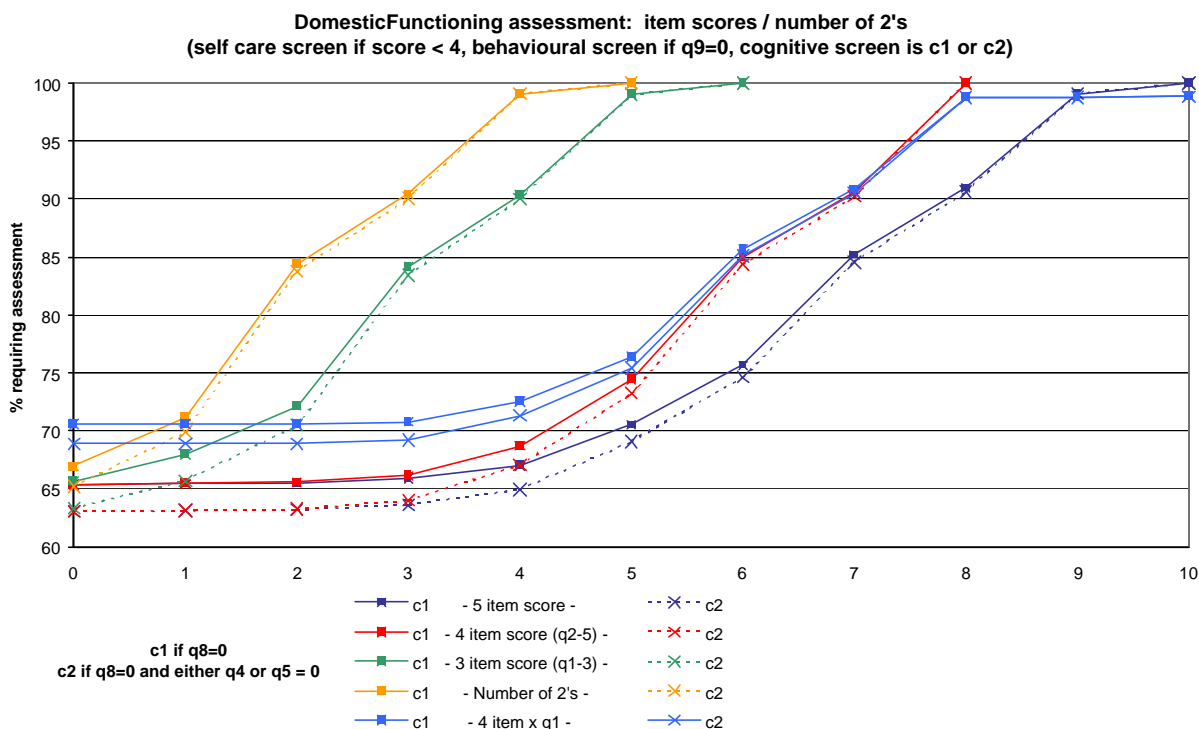
The triggers for self care, cognition and behaviour are consistent with what was currently used to trigger an assessment. The domestic function trigger needs be set such that it results in a sliding scale, enabling total assessment to vary from 65% to 70% to 75%.

The five item screen score for domestic function in combination with C2 for cognition appear to give the best spread of percentages of those requiring assessment (Figure 9).

### Domestic screen score effect on percentage of assessments triggered

Assessments were triggered by using a five item screen score for domestic function (adding each of items one to five to get a score between zero and ten), in combination with SC4, C2 and B1. Where a domestic screen score of 4 or less triggered an assessment the overall assessment rate was 65%. To increase this rate to 70% a domestic screen score of 5 or less was required. Similarly, to increase this rate to 75% a domestic screen score of 6 or less was required.

**Figure 9** Change in percentage assessed based on change in domestic function trigger



### Variation on percentage of assessments triggered

Setting the percentage of assessments triggered to 65%, 70% and 75%, the amount of variation around this level on a monthly, weekly, daily and day of the week was reviewed. Although changing what triggers a domestic function assessment clearly has an effect on the overall number of assessments required, the variation on a daily and weekly basis may be too high. There also appeared to be an effect for the day of the week, with Tuesday’s resulting in too many assessments and Friday too few.

The proportion of clients to be assessed was reviewed in line with the hierarchy of individual screening items (Table 8 and Table 10) as well as considering the number of 2’s within each type of assessment while bearing in mind the assessment’s hierarchy (Table 9 and Table 11). This process was repeated twice, once considering on the hierarchy of the screen items/assessments only (Table 8 and Table 9), and again bearing in mind the hierarchy whilst also trying to minimise the percentage added to be assessed (Table 10 and Table 11).

**SCENARIO:** A field assessment will be given to the most ‘needy’ 30% of screens while a further 40% will receive a phone assessment. Looking at the “cumulative percentage added” column in Table 8, a field assessment will be given to those clients whose screen score for any of the items 6–9 is zero (29.6% of all screens). A phone assessment will be given to clients whose screen score for any of the items 4–9 are not equal to 2 (72.8% of all screens).

**Table 8** *Thresholds based on item hierarchy only*

Threshold level	National HACC functional screening items										Percentage assessed	
	Housework	Shopping	Travel	Money	Medicine	Walking	Bathing	Cognition	Behaviour	Added	Cumulative	
0	-	-	-	-	-	-	-	-	-	0.0%	<b>0.0%</b>	
1	-	-	-	-	-	-	-	-	=0	5.7%	<b>5.7%</b>	
2	-	-	-	-	-	-	-	=0	=0	13.1%	<b>18.8%</b>	
3	-	-	-	-	-	-	=0	=0	=0	9.0%	<b>27.8%</b>	
4	-	-	-	-	-	=0	=0	=0	=0	1.8%	<b>29.6%</b>	
5	-	-	-	-	-	=0	<2	=0	=0	21.0%	<b>50.6%</b>	
6	-	-	-	-	-	<2	<2	=0	=0	14.8%	<b>65.4%</b>	
7	-	-	-	-	<2	<2	<2	=0	=0	2.6%	<b>68.0%</b>	
8	-	-	-	<2	<2	<2	<2	=0	=0	4.8%	<b>72.8%</b>	
9	-	=0	=0	<2	<2	<2	<2	=0	=0	3.6%	<b>76.4%</b>	
10	=0	=0	=0	<2	<2	<2	<2	=0	=0	1.7%	<b>78.1%</b>	
11	=0	=0	<2	<2	<2	<2	<2	=0	=0	9.1%	<b>87.2%</b>	
12	=0	<2	<2	<2	<2	<2	<2	=0	=0	3.9%	<b>91.1%</b>	
13	<2	<2	<2	<2	<2	<2	<2	=0	=0	7.9%	<b>99.0%</b>	
14	<=2	<=2	<=2	<=2	<=2	<=2	<=2	<=2	<=2	1.0%	<b>100.0%</b>	

**Table 9** *Thresholds based on assessment hierarchy only*

Threshold level	Assessments resulting from the National HACC functional screen											Percentage assessed	
	Domestic assessment (number of 2's)						Self care assessment (number of 2's)			Cognitive	Behaviour		
	5	4	3	2	1	0	2	1	0	0	0	Added	Cumulative
0	-	-	-	-	-	-	-	-	-	-	-	0.0%	<b>0.0%</b>
1	-	-	-	-	-	-	-	-	-	-	✓	5.7%	<b>5.7%</b>
2	-	-	-	-	-	-	-	-	-	✓	✓	13.1%	<b>18.8%</b>
3	-	-	-	-	-	-	-	-	✓	✓	✓	22.8%	<b>41.6%</b>
4	-	-	-	-	-	-	-	✓	✓	✓	✓	23.8%	<b>65.4%</b>
5	-	-	-	-	-	✓	-	✓	✓	✓	✓	1.6%	<b>67.0%</b>
6	-	-	-	-	✓	✓	-	✓	✓	✓	✓	4.2%	<b>71.2%</b>
7	-	-	-	✓	✓	✓	-	✓	✓	✓	✓	13.2%	<b>84.4%</b>
8	-	-	✓	✓	✓	✓	-	✓	✓	✓	✓	6.0%	<b>90.4%</b>
9	-	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	8.6%	<b>99.0%</b>
10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1.0%	<b>100.0%</b>

**Table 10** *Thresholds based on smallest percentage added and item hierarchy*

Threshold level	National HACC functional screening items										Percentage assessed	
	Housework	Shopping	Travel	Money	Medicine	Walking	Bathing	Cognition	Behaviour	Added	Cumulative	
0	-	-	-	-	-	-	-	-	-	0.0%	<b>0.0%</b>	
1	-	-	-	-	-	-	-	-	=0	5.7%	<b>5.7%</b>	
2	-	-	-	-	-	-	-	=0	=0	13.1%	<b>18.8%</b>	

Threshold level	National HACC functional screening items										Percentage assessed	
	Housework	Shopping	Travel	Money	Medicine	Walking	Bathing	Cognition	Behaviour	Added	Cumulative	
3	-	-	-	-	-	-	=0	=0	=0	9.0%	<b>27.8%</b>	
4	-	-	-	-	-	=0	=0	=0	=0	1.8%	<b>29.6%</b>	
5	-	-	-	=0	-	=0	=0	=0	=0	4.1%	<b>33.7%</b>	
6	-	-	-	=0	=0	=0	=0	=0	=0	0.4%	<b>34.1%</b>	
7	-	-	-	=0	<2	=0	=0	=0	=0	11.4%	<b>45.5%</b>	
8	-	-	=0	=0	<2	=0	=0	=0	=0	1.6%	<b>47.1%</b>	
9	-	-	=0	=0	<2	=0	<2	=0	=0	10.0%	<b>57.1%</b>	
10	-	-	=0	<2	<2	=0	<2	=0	=0	6.7%	<b>63.8%</b>	
11	-	=0	=0	<2	<2	=0	<2	=0	=0	5.0%	<b>68.8%</b>	
12	=0	=0	=0	<2	<2	=0	<2	=0	=0	2.7%	<b>71.5%</b>	
13	=0	=0	=0	<2	<2	<2	<2	=0	=0	6.6%	<b>78.1%</b>	
14	=0	=0	<2	<2	<2	<2	<2	=0	=0	9.1%	<b>87.2%</b>	
15	=0	<2	<2	<2	<2	<2	<2	=0	=0	3.9%	<b>91.1%</b>	
16	<2	<2	<2	<2	<2	<2	<2	=0	=0	7.9%	<b>99.0%</b>	
17	<=2	<=2	<=2	<=2	<=2	<=2	<=2	<=2	<=2	1.0%	<b>100.0%</b>	

**Table 11** *Thresholds based on smallest percentage added and assessment hierarchy*

Threshold level	Assessments resulting from the National HACC functional screen												Percentage assessed			
	Domestic assessment (number of 2's)						Self care assessment (number of 2's)						Cognitive	Behaviour	Added	Cumulative
	5	4	3	2	1	0	2	1	0	0	0					
0	-	-	-	-	-	-	-	-	-	-	-	-	0.0%	<b>0.0%</b>		
1	-	-	-	-	-	-	-	-	-	-	-	✓	5.7%	<b>5.7%</b>		
2	-	-	-	-	-	-	-	-	-	-	✓	✓	13.1%	<b>18.8%</b>		
3	-	-	-	-	-	✓	-	-	-	✓	✓	✓	17.4%	<b>36.2%</b>		
4	-	-	-	-	-	✓	-	-	✓	✓	✓	✓	10.8%	<b>47.0%</b>		
5	-	-	-	-	✓	✓	-	-	✓	✓	✓	✓	9.5%	<b>56.5%</b>		
6	-	-	-	-	✓	✓	-	✓	✓	✓	✓	✓	4.2%	<b>71.2%</b>		
7	-	-	-	✓	✓	✓	-	✓	✓	✓	✓	✓	13.2%	<b>84.4%</b>		
8	-	-	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	6.0%	<b>90.4%</b>		
9	-	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	8.6%	<b>99.0%</b>		
10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	1.0%	<b>100.0%</b>		

## Appendix 4 – Applications and putting it all together

### A flow chart for determining priority for community care using the ONI

By following the 3 flow charts below, it is possible to allocate a consumer to a priority group. In these flow charts, consumers can be assigned to one of five categories of priority. The five levels are indicated in capitals - VERY HIGH, HIGH, MEDIUM, LOW and VERY LOW. These can be reduced to three levels by combining Very High and High and combining Low and Very Low. Alternately, the consumer can be classified to one of nine levels (see Figure 10). The nine levels are indicated in numbers, with 1 representing the highest priority. The starting point presumes that the person has already met the service eligibility criteria.

Figure 10 Flow Chart 1

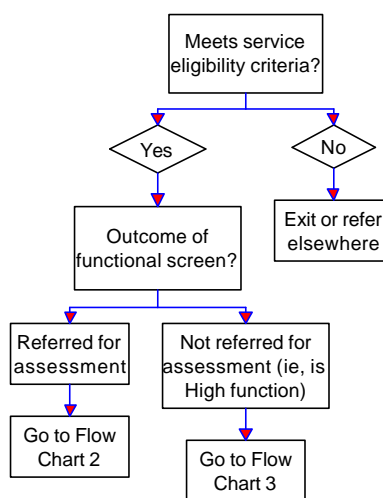
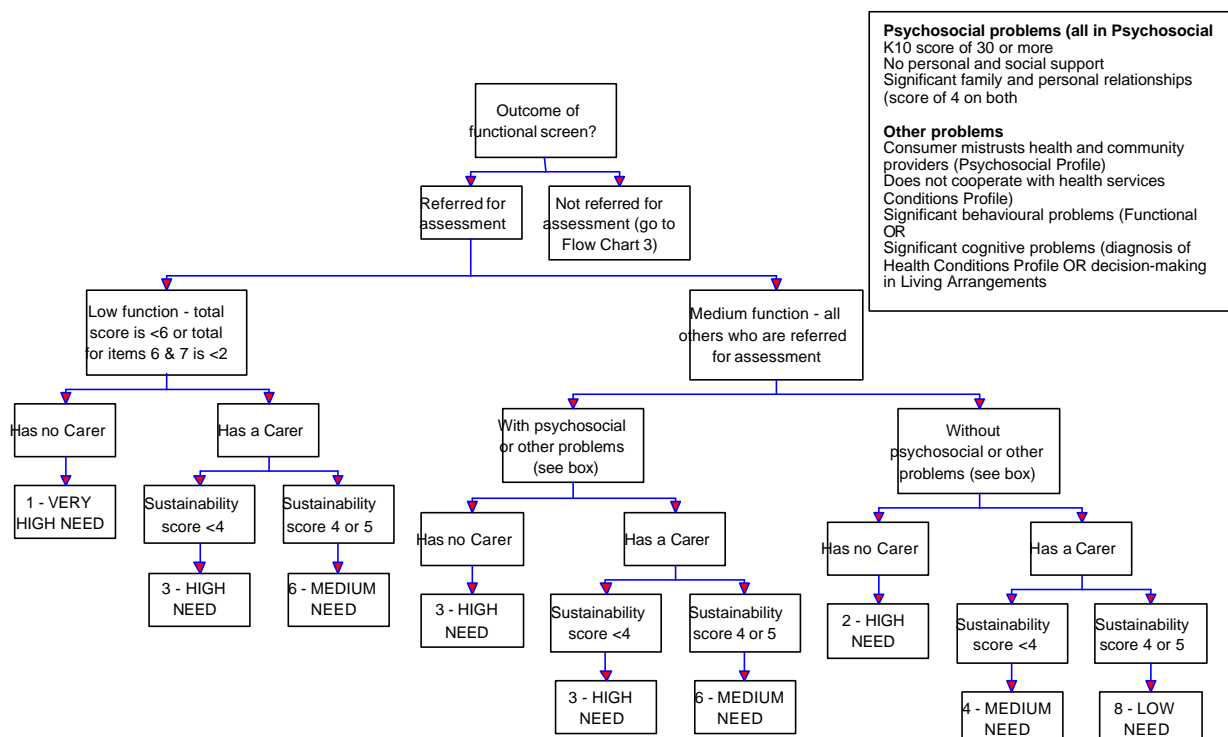
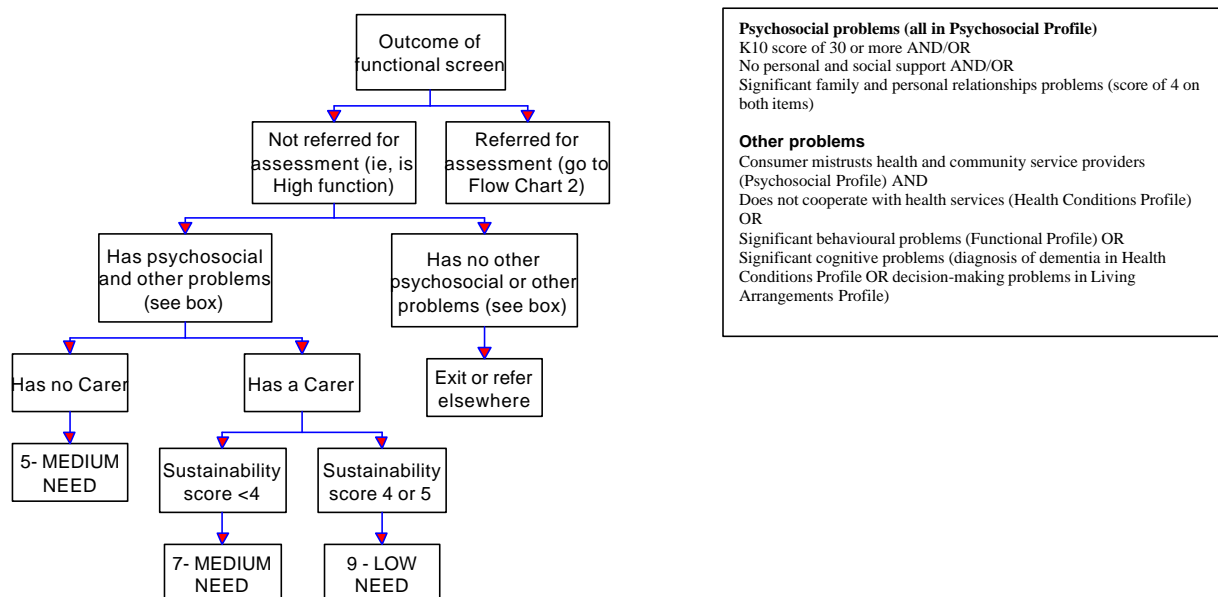


Figure 11 Flow Chart 2





**Figure 12 Flow Chart 3**



**The technical detail**

When the definitions of need and risk are applied to the previous matrix in Figure 8, the results for each of the 9 groups are shown in Figure 13. Note that, if the ONI is completed in an electronic information system, the consumer’s priority level can be computer generated using the information from this figure. This was done in the NSW Home Care project, instead with 18 levels, using only the functional profile and two carer profile questions.

**Figure 13 Defining the “Need and risk” matrix for community care using the ONI**

	<b>Low function or Mid function with significant psychosocial or other problems</b>	<b>Mid function with no significant psychosocial or other problems</b>	<b>Good function but health, psychosocial or other problems</b>
<b>No carer able to provide necessary care</b>	Low function - A total score of < 6 or a total for items 6 & 7 of < 2 <b>OR</b> Medium function <b>PLUS</b> psychosocial or other problems Has no Carer	Functional assessment, not low score Has no Carer	No functional assessment required Has no Carer
<b>Carer arrangements exist but are unsustainable without additional resources</b>	Low function - A total score of < 6 or a total for items 6 & 7 of < 2 <b>OR</b> Medium function <b>PLUS</b> psychosocial or other problems Has a Carer Sustainability score <4	Functional assessment, not low score Sustainability score <4	No functional assessment required Sustainability score <4
<b>Carer arrangements suitable and sustainable or Carer not required</b>	Low function - A total score of < 6 or a total for items 6 & 7 of < 2 <b>OR</b> Medium function <b>PLUS</b> psychosocial or other problems Carer availability score of 3 or 4 Sustainability score 4 or 5	Functional assessment, not low score Carer availability score of 3 or 4 Sustainability score 4 or 5	No functional assessment required Carer availability score of 3 or 4 Sustainability score 4 or 5

Figure 14 to Figure 16 introduce a related idea by using just 3 priority levels (high, medium and low). There are several reasons (including combinations) why a person might be rated high, medium or low priority. The implication of taking into account multiple reasons for assigning a

priority rating is important. It means that we are no longer confined to responses based on whether a person is high, medium or low, but can assign a person to class based on both their need and the goal of their care.

Two consumers may have the same priority level but require different types and levels of service. For example, a person may be classified as high priority because they have low physical function and unsustainable carer arrangements. Alternately, a person may be classified as high priority because they have medium physical function and no carer. While both being high priority, they will have different goals of care will need different packages of care.

Classifying consumer needs to identify the package of care they require involves measuring their needs and risks and rating their priority for service. The goal is to identify needs for different types and mixes of services.

**Figure 14 Five different ways a consumer can be rated as High Priority**

<p>Cell 1. of the matrix (low function) The person Low function - A total score of &lt; 6 or a total for items 6 &amp; 7 of &lt; 2 Has no carer <b>OR</b></p> <p><i>Note: This group is classified as Very High Priority in the 9 level model</i></p>	<p>Cell 1. of the matrix (mid function plus problems) The person Required functional assessment, but did not get a low score Has significant psychosocial or other problems Has no Carer <b>OR</b></p>	<p>Cell 3. of the matrix (mid function plus problems) The person Required a functional assessment, but did not get a low score Significant psychosocial or other problems A Carer A Carer Sustainability score &lt;4</p>
<p>Cell 2 of the matrix The person Required a functional assessment, but did not get a low score Has significant psychosocial or other problems and Has no Carer <b>OR</b></p>	<p>Cell 3. of the matrix (low function) The person Low function - A total score of &lt; 6 or a total for items 6 &amp; 7 of &lt; 2 A Carer A Carer Sustainability score &lt;4 <b>OR</b></p>	

**Figure 15 Five different ways a consumer can be rated as Medium Priority**

<p>Cell 6. of the matrix (low function) The person has Low function - A total score of &lt; 6 or a total for items 6 &amp; 7 of &lt; 4 Carer availability score of 3 or 4 A carer sustainability score 4 or 5 <b>OR</b></p>	<p>Cell 6. of the matrix (mid function plus problems) The person Required functional assessment, but did not get a low score Has significant psychosocial or other problems Carer availability score of 3 or 4 A carer sustainability score 4 or 5 <b>OR</b></p>	<p>Cell 7. of the matrix The person</p> <ul style="list-style-type: none"> <li>▪ Required functional assessment, but did not get a low score</li> <li>▪ Has a carer availability score of 3 or 4</li> </ul> <p>Has a carer sustainability score 4 or 5 <b>OR</b></p>
<p>Cell 4. of the matrix 4. The person Required functional assessment, but did not get a low score A carer sustainability score &lt;4<b>OR</b></p>	<p>Cell 5 of the matrix The person Did not require a functional assessment Has no Carer</p>	

**Figure 16 Two different ways a consumer can be rated as Low Priority**

<p>Cell 8. of the matrix</p> <p>The person</p> <p>Did not require a functional assessment</p> <p>Has a carer</p> <ul style="list-style-type: none"> <li>▪ <b>Has a carer sustainability score &lt;4 OR</b></li> </ul>	<p>Cell 9. of the matrix</p> <p>The person</p> <p>Did not require a functional assessment</p> <p>Has a carer availability score of 3 or 4</p> <p>Has a carer sustainability score 4 or 5</p> <p><b>Note: This group is classified as Very Low Priority in the 9 level model</b></p>
---	---

**The bigger picture**

The bigger picture starts with the premise that, wherever possible, clients should sit at the core of the information that is collected. This current NSW Home Care project is one piece in the jigsaw. A series of other pieces are required to answer the critical questions of whether a service is effective and (when we can compare across different models of care) cost effective:

QUESTION	INFORMATION REQUIRED
<u>Who</u> receives.....	Demographic and clinical characteristics of service consumers, including the 'Consumer Type'
... <u>what</u> services.....	Services provided, described by the 'Goal of Care'
... <u>from whom</u> .....	Service characteristics, including 'Service Type'
... <u>at what</u> cost .....	Health and community care resource data including 'Unit Costs'
... <u>with what</u> effect?.....	Consumer outcome data, starting with functional dependency

For the NSW HCS and others, the refinement of the current and planned activity definitions and building these systematically into routine data collections is the next step required before moving to the other pieces of the jigsaw.

When the definitions (and a supporting policy) are in place, the first 3 questions (pieces of the jigsaw) can be used in conjunction with the 4th, to cost community health and community care. Most of the other pieces are already in place. This current project begs additional work on a small number of cost studies to demonstrate how the outcomes level will work.

In the context of routinely collected data, the opportunities for a series of case studies of different service types need not be limited to HACC and disability programs. These comments apply equally to the level of effects and outcomes.

The first 3 levels of the questions are necessary for outcome measurement and the implementation of the HCS system will significantly improve their capacity to measure outcomes. Consumer Types are defined by their goal and these goals form the natural framework for outcome measurement (eg, what was the client's outcome relative to the goal we set out to achieve?).

The test will be how the data-driven approach helps design some products like care packages, case management services and care planning. The approach is additive, and the data can be used to add up and count costs relative to need.

The HCS now has a 'casemix' classification with need acting as a proxy for cost. It is a model trying to predict need from a combination of characteristics of the client - function, risk and carer status, and that is where the 'casemix' comes in. In this case need is the response variable (dependent variable), rather than cost. The DRGs are worked out using LOS as a proxy for cost.

This approach is directly comparable to, say the SNAP classification where it is predicting cost using clinical and demographic characteristics of the patient.

Other activities like health promotion and prevention need a different approach as the 'client mix' approach will not be good enough because it does not capture the work done outside the context of individual client contact. This process of sorting services and clients by their goal of care then forms part of the longer-term agenda.

## Appendix 5 – the ongoing data collection

### *November 2003 and beyond*

Table 12 gives the results of the ongoing data collection using the “Home Care Screening and Prioritisation Tool” database and the revised carer definitions. This collection commenced in November 2003, and in that month there were 1,839 screens collected. The numbers are in line with the number of screens originally anticipated to be collected at the beginning of this project. From Table 12, the clearer definition of “need a carer” has resulted in a different spread of the clients across the priority categories. More data will be able to be used to help understand whether some of the remaining ‘lumpiness’ of the spread of clients across categories is smoothing out.

The clients with medium levels of need (categories 9 and 10 – medium need, at risk and needs a carer) have been spread out more, but category 2 has tripled, from 4.1% to 12.3%. These figures should continue to be revisited as more data is collected.

A coherent research and development work program will help. The aim is to achieve a more fine-grained set of categories and ones that can feed into care packaging and costing work. Consideration will need to be given as to whether other useful elements of the data should come into the model when the full ONI is available. At some point soon the 18 priority categories are no longer going to be sufficient. They are important now as a proof of concept because they are useful for these service types, and by taking the caller’s initial service request into account (see the ‘Home Care service type required’ box on the data base) some rudimentary care packaging can begin. It is a more elaborate model that is evolving.

**Table 12 Consistency of the results in the ongoing database**

Priority Category	Level of Function	At Risk	Carer status	Second data collection		Ongoing data collection		% Change between data collections
				%cum.	%add	%cum.	%add	
1	Low	Yes	Need	0.4%	0.4%	1.4%	1.4%	-1.0%
2	Low	Yes	Unsus	4.1%	3.7%	13.6%	12.3%	-8.6%
3	Low	No	Need	4.7%	0.6%	15.5%	1.8%	-1.2%
4	Low	No	Unsus	6.6%	2.0%	20.4%	4.9%	-2.9%
5	Medium	Yes	Need	12.0%	5.4%	28.2%	7.8%	-2.4%
6	Medium	Yes	Unsus	19.3%	7.3%	34.7%	6.5%	0.8%
7	Low	Yes	Other	21.1%	1.7%	36.1%	1.3%	0.4%
8	Low	No	Other	22.1%	1.0%	36.9%	0.8%	0.2%
9	Medium	No	Need	45.2%	23.1%	50.5%	13.6%	9.5%
10	Medium	No	Unsus	58.3%	13.1%	60.5%	10.0%	3.1%
11	Medium	Yes	Other	62.4%	4.1%	63.7%	3.3%	0.8%
12	Medium	No	Other	72.4%	10.0%	76.7%	13.0%	-3.0%
13	High	Yes	Need	75.0%	2.6%	78.4%	1.6%	1.0%
14	High	Yes	Unsus	75.5%	0.4%	78.9%	0.5%	-0.1%
15	High	Yes	Other	76.8%	1.3%	80.9%	2.0%	-0.7%
16	High	No	Need	94.4%	17.6%	85.5%	4.7%	12.9%
17	High	No	Unsus	95.5%	1.2%	86.4%	0.8%	0.4%
18	High	No	Other	100.0%	4.5%	100.0%	13.6%	-9.1%