

# HOME MAINTENANCE AND MODIFICATION INFORMATION NEEDS AND EVIDENCE BASED PRACTICE SOLUTIONS IN NSW

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## ***Abstract***

A Home Modification and Maintenance Information Clearinghouse Project was funded by the Department of Ageing, Disability and Home Care (DADHC) of NSW in May of 2002. The foundation for this innovative project arose out of governmental recognition that significant issues existed regarding current home modification and adaptable housing practice in NSW. The Home Modification and Maintenance (HMM) scheme delivers an important service to aged and/or disabled persons and their carers to enable them to remain at home.

This paper reports on the service provider's needs analysis, the mission, and the research undertaken. Mark Flynn, senior policy officer DADHC, will introduce the paper and outline how a review of the Higher Level Home Modification Program in NSW created an opportunity to address the perceived housing retrofit information vacuum whilst simultaneously addressing the ninety plus Home Modification and Maintenance service providers in NSW's information needs. Catherine Bridge, a project director and principle researcher will then provide a brief overview of findings, and the resultant web based information delivery strategy. Lastly, some useful principles to guide evidence based practice development in the area of housing retrofit for older persons and people with disabilities will be proposed.

## ***Introduction***

Housing is a basic human right. It is widely recognised that building design, the physical environment and location have significant effects on individuals and communities. The cost, location, form, security of tenure, and the appropriateness of housing will have a critical impact on a person's opportunities and ability to participate in the community. Housing can support independence or promote dependence. It can play a major role in determining the number of activities that a person can complete independently. It can directly assist social inclusion and participation in the community or isolate people away from

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relationships, social experiences and community involvement. Housing can increase stress and contribute to confusion, frustration and challenging behaviour or it can orient, calm, and enable.

Furthermore, there is a growing body of evidence that home modification are cost effective (Cumming et al., 1999; Mann, Ottenbacher, Fraas, Tomita, & Granger, 1999; Trickey, Maltais, Gosselin, & Robitaille, 1990). In addition, prior research suggests that appropriate consideration of accommodation can be a critical factor in reduction of institutionalisation and in promoting integration and inclusion (Iwarsson & Isacsson, 1998; Public Health Association of Australia, 1993; Steinfeld & Danford, 1997).

### ***The department of Ageing, Disability & Home Care***

DADHC was established in April 2001 and reflects the NSW Government's commitment to improving services and promoting opportunities for older people, people with a disability and their carers to participate in the wider community and to have a better quality of life.

DADHC manages Disability, Aging and Home Care services in addition to the Home and Community Care (HACC) Program (a joint Commonwealth/State program). A key objective of the HACC program being to avoid inappropriate or premature admission to long term residential care.

The NSW Department of Ageing and Disability Department and Home Care (DADHC) is striving to improve housing opportunities for older people, people with disabilities and their carers. For DADHC, housing support is a resource applied to achieve a particular outcome. In this context housing is a resource that is critical to health, wellbeing and participation in the community.

a range of housing-related business on behalf of older people, and persons with a disability including:

- ▶ Funding, building, purchasing, leasing, maintaining, refurbishing, and disposal of Departmental housing;
- ▶ Maintenance and modifications of private housing not owned by the Department;
- ▶ Licensing boarding houses;
- ▶ Assessing, allocating, placing, co-locating and relocating people with a disability in housing;
- ▶ Collecting client fees or contributions, some of which is used on housing related expenses;
- ▶ Influencing access to social housing (public and community housing); and
- ▶ Negotiating improved access to residential aged care.

Historically, a significant proportion of housing and support to people with a disability has been provided as a single package through the specialist service

system. Some 2000 people with a disability live in large residential settings in NSW.

Demand for more supportive housing continues to increase because of the growing numbers of persons with disability requiring home modification and maintenance services in NSW due to:

- ▶ Ageing in place;
- ▶ Brain injuries and dementia; and
- ▶ Deinstitutionalisation and loss of boarding house (licensed and un-licensed) beds.

Anecdotal evidence suggests a significant proportion of social housing tenancies fail due to lack of support. Thus demand for appropriately designed, affordable housing will continue and increase as a result of property prices, shortage of metropolitan land and the current lack of appropriately designed and accessible housing stock. Under the HACC program, the Department provides funding through the Home Maintenance and Modification Sub Program to modify residences to ensure homes are suitably adapted to the needs of people with a disability or are adapted as they age.

In terms of the HACC funded Home Modification and Maintenance services within NSW, there have been a number of reviews since their inception in the late 70's (Department of Housing, 1992; Phibbs & Higham, 1999). Whilst all the reviews conducted to date have clearly acknowledged the importance of the services being provided and the high degree of general satisfaction by consumers, they also acknowledge that regional differences, including auspicing and funding differences may have contributed to a situation where services that may seem quite similar demographically may well experience differing information needs. The last review in 1999 and restructure of the Higher level Home Modification Program in NSW created an opportunity to develop a partnership between Government and a research University to address the perceived information vacuum.

### **The Home Maintenance and Modification (HMM) Program**

The objective of the Home Modification and Maintenance Program is to provide a range of one-off services including;

- ▶ Minor dwelling repairs ie. replacing gutters, fixing floors & decks etc.
- ▶ Home upkeep ie. painting and yard maintenance
- ▶ Minor modifications ie. grabrails, handrails, non slip coatings and widening doorways
- ▶ Major modifications ie. ramps, redesign of bathrooms and kitchens and converting gardens to low maintenance.

The Home Modification and Maintenance Program also plays a pivotal role for other HACC services by providing a safe environment for care workers and

assisting with modifications that enable the person greater independence, decreasing their care needs..

## **Home Maintenance and Modification Service Issues**

The HACC Program funds 116 Services in New South Wales to deliver Home Modification and Maintenance Services at a cost of \$19 million funding in 2002/2003. However, there are significant issues surrounding current home modification and adaptable housing practice in NSW that are likely to be compounded unless preventative and developmental strategies such as the HMMInfo project succeed.

These issues include:

1. A lack of benchmark practice standards by which HMM services can be guided.
  - There is a lack of research on best practice and standards of intervention by which services can be guided.
  - There is low or poor specialist skill base amongst professional personnel including occupational therapists, builders and architects, leading to poor work standards and inefficiency in the use of existing resources.
  - Decisions about home modification services depend on individual assessment and outcomes vary depending on service guidelines and individual practitioner's knowledge and skills. Consequently, recommendations are sometimes inappropriate especially where multiple disabilities, general frailty, and mental impairments are present.
  - Although numerous design guidelines exist, they are typically contradictory, internally inconsistent and incomplete, this in turn limits the ability of the sector to ensure consistency and the best outcomes are achieved through interventions. This lack of standards often leads to work having to be demolished and redone.
  - When outcomes are unsatisfactory, DADHC, service agencies and practitioners are all open to litigation. For example, failure to ensure that modifications adequately consider occupational health and safety issues means that injury sustained while using these facilities may lead to a mal-practice suit. A HMM service lost a case put against them for injuries caused due to poor workmanship. Very little is known about the effect the total investment in HMM is having in the sector and in the community at large.
  - No research has been undertaken into post occupancy evaluations in Australia.
  - Little is known on the effect that HMM may have in reducing the cost of care in related community support services.

- Studies indicate that there is an increasing trend in injuries related to undertaking the caring role. There is some evidence to suggest that a HMM investment has the potential to decrease injuries of this kind.
2. There are limited investments in preventative strategies to address the housing needs of older people and people with disabilities.
- Little work has been undertaken to ensure people can make informed decisions in regards to their future housing requirements.
  - Little work has been undertaken with the building industry to ensure appropriate housing options are provided for older people and people with disabilities.
  - Although Standards Australia has produced the Adaptable housing (AS4229) and Access and Mobility suite of standards (AS1428) neither have any regulatory standing within class 1 and 2 buildings (i.e. typical Australian homes).
  - There needs to be a consolidated approach to persuading the housing and insurance industries to implement adaptable and universal design practices in the longer term.
  - An opportunity exists to undertake a NSW wide capacity building approach that focuses on improving residential housing outcomes for older people, people with disabilities and their carers.

The HMMInfo project enhances DADHC's capacity to achieve this goal by:

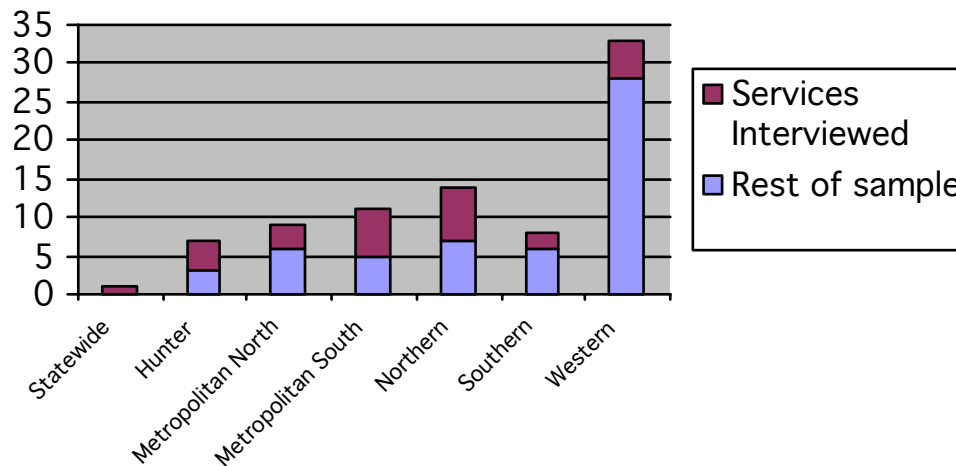
- implementing strategies to build the capacity of the Home Modification and Maintenance industry to achieve better efficiencies and improve the quality of outcomes;
- developing strategies that benefit the whole community not only existing consumers;
- investing in capacity building strategies that seek to improve the investment of the industry beyond the existing funded sector including:
  - promoting adaptable housing,
  - promoting informed choice in selecting housing design particularly in retirement
  - assisting self funded modification projects and,
  - thinking broadly and strategically in the development of partnerships across the industry.

### ***Ascertaining information need by talking to providers***

Qualitative methods were used to explore information need as expressed by Home Modification and Maintenance service providers using a semi-structured interview format. The interviews conducted aimed to:

1. understand current Home Modification and Maintenance service practice from an insider perspective
2. understand current Home Modification and Maintenance service practice re information sharing strategies already evident
3. systematically identify strengths, gaps or weakness with a view to building on strengths and minimising weaknesses
4. use findings to set priorities for web-based information clearing activities

The interviewees were self-selecting with candidates from all three levels of home modifications and maintenance service providers being invited to participate. The final sample obtained represents insider perspectives gained from the 28 Home Modification and Maintenance Service Coordinators across NSW. However to ensure that our sample was adequately representative of the total a coding frame was employed to guide us in ensuring adequate coverage of all the salient variables. Figure 1 below, illustrates the coverage of the sample as finally achieved across all six regional areas used to geographically categorise the services.



**Figure 1: Geographic coverage as a proportion of total number of services.**

The aims of qualitative research was to identify if a web-based information was appropriate and to determine the sort of information considered of most relevance by the actual Home Modification and Maintenance service providers.:

Interviews were exploratory and semi-structured, meaning that they were structured loosely but so that they addressed predefined topic areas, No specific questions were used, rather representatives from the Home Modification and Maintenance services were invited to give their perspectives on their information needs across the following topic areas:

1. *Spatial requirements*

2. *Carer requirements*
3. *Product requirements*
4. *Requirements for community inclusion*
5. *Requirements for meeting standards of care*
6. *Disability access components*
7. *Funding policy*
8. *Building and Land Regulation*
9. *Natural environment*
10. *Built environment*
11. *Other*

### ***Home Modification and Maintenance Service Interview results***

As a result of the interviews, some clear information gaps became apparent of those considered most critical a short summary follows.

Firstly, the lack of comprehensive and unilateral assessment, design and consumer information guidelines was noted by almost all of the interviewees. Whilst many of the service coordinators that participated in the interviews were managing with the various resources available to them. Having clearer guidelines would permit more efficient operating practices, leaving more time to devote to the operation of the organisation and the like.

Secondly, whilst most of the interviewees stated that they had difficulties locating new or unusual products, it was clear that they were limited in their approach to solving this due mainly to time constraints. As discussed above, most service providers expect that a majority of the product information that they require will be obtained through sales reps and at home mods meetings. Although a majority of the work executed was repetitive and therefore limited product knowledge would suffice, all interviewees indicated that their knowledge had been deficient on occasions. Whilst such occasions were infrequent, when they did occur they appeared to be a problem for less experienced coordinators, although this was alleviated on occasions by an skilled occupational therapist or Regional Technical Officer

Thirdly, whilst most of the service providers were reasonably content with their adaptations of either the Australian Standards or HACCC guidelines, or both, all acknowledged that these methods were flawed and the resulting policies usually required continuous adaptations.

Fourthly, it was noted that the key areas that service providers would appreciate policy advice on included client contribution and payments, operational procedures, contractors and occupational therapists. Regarding funding policies there were four areas which informants felt would benefit from greater standardisation. These included the proportional allocation of money for maintenance and modification; determining a client's ability and willingness to

contribute to the scheme; sourcing products and costing the job; and locating supporting funds from other sources. Unfortunately, leaving each service to create or amend their own policies creates huge differences in their basic operations and the manner in which a job is approached and executed. This is particularly evident in how services determine and recoup client contributions and whilst this can lead to creative problem resolution, the differences are generally not seen as beneficial to the services individually or as a larger organization.

Lastly, the most critically isolated group within the home modifications scheme is the rural services operating at level one. With the tightest budgets, most limited staff resources and long travelling times to client's homes, for which they cannot recover costs, this group exemplifies the difficulties faced and the lack of carry over to the solutions created by larger and wealthier services. Those service providers that formed part of larger HACC organisations or community association found great support in their position, not only in terms of administrative services, problem resolution, policy and funding advice but also for peer support.

### ***Implications for the Web-based Clearinghouse***

At the beginning of this project, it had been anticipated that web development would be viable and valuable to informants the information needs research confirmed this view. Furthermore, it was clear that there is a need for a central place from which information can be cleared and that informants, would value such a centralized one stop shop approach.

Based on the needs assessment, a Beta version of the web-based Home Modification and Maintenance Information clearinghouse was developed and piloted. The initial step was to circulate a web development discussion paper for comment, followed by a website mock-up. At this point legal advice was sought re liability and the use of disclaimers. Usability tests were then undertaken using the Beta version of the website across the sector to check that the text, technology and strategies chosen truly did enable and engage users.

Usability testing, allowed us to attempt to objectively measure user attitudes & website interactions whilst the users engaged in key tasks. It also allowed us to observe differences in personal & professional perspectives likely to impact on web usage. It involved a reiterative process of modification & refinement. In total we conducted usability tests with volunteers representing all our key stakeholders:

- ▶ NSW senior policy officers in Health, Housing, Planning, Veterans Affairs and consumer peak bodies.
- ▶ HMM service providers
- ▶ Planners and designers: reps from AAOT NSW, & RAIA (occupational therapist's and architects both at entry level and those experienced in design / redesign for older people and people with a disability).

### ***The final website product which resulted***

The HMMInfo clearinghouse project was publically launched by the Hon Carmel Tebbut on the 6<sup>th</sup> of November. It can be accessed on the internet at URL: <http://www.arch.usyd.edu.au/hmminfo.html>. The website features and benefits as understood by Home Modification and Maintenance stakeholders are as follows:

- ▶ Practice questions and innovations can be more easily raised and answered (threaded discussion list)
- ▶ A wide variety of material can be shared (intranet and internet services)
- ▶ Gaps can be more quickly identified & targeted
- ▶ Policy will be easier to access, evaluate & develop

Specialist resources developed by the clearinghouse include:

- ▶ Evidence based practice reviews (Systematic review methodology) which is translated into a consumer factsheet and a industry factsheet and checklist. A minimum of four a year is aimed for. All topics are selected and prioritised by the sector and all publications are reviewed by a peer review prior to publication.
- ▶ Occasional research papers (Other methodologies) ie. the HMMInfo needs assessment report.
- ▶ Annotated bibliographic materials, which are updated quarterly
- ▶ Annotated web links, which are updated quarterly
- ▶ Quarterly newsletter with top stories relevant to the sector

In addition, the HMMInfo clearinghouse also hosts a number of resources highly valued by the sector these include:

- ▶ A publicly accessible place to share relevant materials
- ▶ A secure place to collaborate and develop new materials
- ▶ A place to post messages and share product information, values and beliefs
- ▶ A place to locate sector relevant events & happenings
- ▶ A place to share interesting cases
- ▶ A place to locate Home Modification and Maintenance service information

### ***Principles to guide evidence based practice development in Home Modification.***

A key objective of the Home Maintenance and Modification clearinghouses evidence based practice process is to develop a strategy for systematic evaluation of published evidence to assist in determination of strategies most likely to achieve best practice outcomes. A special protocol has been developed to facilitate this systematic review process. This is based on but differs from the standard evidence based practice approach, as originally developed in the allied

health and medical domains. For instance, PEDro <[www.pedro.fhs.usyd.edu.au](http://www.pedro.fhs.usyd.edu.au)>, OTseeker <<http://www.otseeker.com/>>, Campbell <<http://www.campbellcollaboration.org/>> and Cochrane <<http://www.cochranelibrary.com/enter/>>.

These approaches use only published results from randomised or quasi-randomised controlled trials to determine intervention. Whereas the background to reviews currently being undertaken using the home modification proforma is that they occur in a context where there is a historical absence of targeted randomised research addressing the needs of persons with disabilities.

Undertaking a review of the published evidence regarding Home Modification and Maintenance service interventions and outcomes is a complex process. First, one has to account for a large number of potential disability types and intervention methods many of which differ according to their underlying characteristics. Second, there exist a large number of environment, activity and person factorial variation to be considered in making any recommendations concerning improved practice outcomes. Third, examining the causal or probable relationships between assessment, interventions and health, safety or functional improvement is complex because there exist many different pathways through which service provision can influence outcome. Finally, the review process is complex because in order to locate relevant materials, the search strategies must be maximally inclusive.

Despite the absence of applied research directed at intervention comparisons for specific populations, there is a large amount of published material of relevance. For instance, in the housing construction domain a large number of guidelines already exist as do pockets of research which touch on the issue of concern but only in a passing or glancing fashion and what is needed is a method for locating them and then relating existing knowledge to the new application focus. Because the starting place is different, the work that is needed must be of a more general nature and will not necessarily be comparative in the traditional sense. In addition, transparency of critique is needed because much of the existing published material has a limited research basis, is outdated or methodologically flawed. In documenting the review protocol to guide the systematic review of Home Modification and Maintenance evidence the Campbell Systematic Review (CSR) Protocol has been adopted and adapted to guide us in this process.

## **References**

- Cumming, R. G., Thomas, M. M., Szonyi, G., Salkeld, G., O'Neill, E., Westbury, C., et al. (1999). Home visits by an occupational therapist for assessment and modification of environmental hazards: A randomised trial of falls prevention. *Journal of American Geriatrics Society, December*(47), 1397-1402.
- Department of Housing. (1992). *Guidelines for the Home Modification Scheme* (draft): author.
- Iwarsson, S., & Isacson, A. (1998). ADL dependence in the elderly population living in the community: The influence of functional limitations and physical environmental demand. *Occupational Therapy International, 5*(3), 173-193.

- Mann, W. C., Ottenbacher, K. J., Fraas, L., Tomita, M., & Granger, C. V. (1999). Effectiveness of assistive technology and environmental interventions in maintaining independence and reducing home care costs for the frail elderly: a randomised control trial. *Archives of Family Medicine*, 8(3), 210-217.
- Phibbs, P., & Higham, A. (1999). *Review of the Home Modification Scheme of the Home and Community Care Program*. Sydney, NSW: Ageing and Disability Department.
- Public Health Association of Australia. (1993). *Health and housing*. Retrieved 30th November, 2000, from <http://www.pha.org.au/policy/housing.htm>
- Steinfeld, E. H., & Danford, G. S. (1997). Environment as a mediating factor in functional assessment. In S. Dittmar & G. Gresham (Eds.), *Functional assessment and outcome measures for the rehabilitation health professional*. Gaithersburg, Maryland: Aspen publishers Inc.
- Trickey, F., Maltais, D., Gosselin, C., & Robitaille, Y. (1990). Home Modifications for the Elderly: Which ones do they want?, Which ones will they use? Paper presented at the 19th Annual Scientific & Educational Meeting, Canadian Gerontological Association, Victoria.