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GLOSSARY

The terminology varies substantially across the field of older person assessment. For this reason, a glossary has been included to clarify the terms used in this report.

Assessment Tool

An ‘assessment tool’ has been defined by the UK Department of Health as: a collection of scales, questions and other information, to provide a rounded picture of an individual’s needs and related circumstances.¹

Assessor

The term ‘assessor’ has been used throughout this report to describe the person who performs the assessment. ‘Rater’ is another term for ‘assessor’ used in the literature and by some tools.

Caregiver

See ‘Carer’.

Carer

The term ‘carer’ has been used to describe a person who provides care for an older person. The carer may be formal (paid staff, home care services etc) or informal (partner, relative, friend etc).

Client

The term ‘client’ has been used throughout this report to describe the person who is being assessed. Other terms for ‘client’ used in the literature and by some tools, include: ‘patient’ and ‘user’.

Comprehensive (Geriatric) Assessment

‘Comprehensive Geriatric Assessment’ (CGA), or ‘comprehensive assessment’, is the thorough assessment of all the ‘domains’ affecting an older person.

Comprehensive Tool

A ‘comprehensive tool’ is a tool used to perform a ‘comprehensive assessment’.

Contact Assessment

A ‘contact assessment’ involves the initial collection of information from an older person. It is the first step in the ‘Single Assessment Process’, usually collecting personal information, and helps determine whether or not a subsequent ‘overview assessment’ will be performed.

Cultural Sensitivity

See Section 4.3.

Dimension

The term ‘dimension’ signifies a distinct element in the life of the older person that requires assessment. Some examples of dimension are: depression/mood, hearing, ability to perform housekeeping, loneliness.

Domain

The broadest categories of elements considered essential in the comprehensive assessment of older people are the ‘domains’. This report has used four domains termed: ‘Mental & Psychological’, ‘Medical & Health’, ‘Functional’ and ‘Social & Environmental’.

Elder / Elderly person

See 'Older person'.

Geriatric

See 'Older person'. The term geriatric has been avoided in this report.

Instrument

See 'Assessment Tool'

Item

An item is a distinct question or series of questions aimed at obtaining a particular piece of information about the client e.g. sleep problems, weight loss/gain, eyesight etc.

Outcome Measures

An 'outcome measure' is a quantifiable measurement of the status of a particular dimension and can be used to help assess changes in status over time and amongst a population.

Overview Assessment

An overview assessment is an assessment that precedes a comprehensive or specialist assessment. According to the United Kingdom (UK) Department of Health, an overview assessment should cover all the domains and sub-domains of the single assessment process.²

Patient

See 'Client'.

Questionnaire

A questionnaire is an 'assessment tool'. The term is most appropriately applied to a relatively simple tool that uses scripted questions.

Rater

See 'Assessor'.

Reliability

See Section 4.1.

Risk Factor

A 'risk factor' is an item contained within a tool that is believed to be indicative of future risk. The 'Domain Coverage' analysis (Section 5.1) highlights items identified by the Guidelines Group as being 'risk factors'.

Scale

A scale is a measure of a particular dimension that uses a number of questions with scored responses. The score from each question is tallied to provide a quantitative estimate of need, disability or other factor.

 Screener

The term 'screener' has been used to indicate a 'screening assessment' tool (see 'Screening Assessment'). North American terminology sometimes uses 'screener' to refer to an 'overview assessment'.

Screening Assessment

The term ‘screening assessment’ can be used to refer to an overview assessment. However, in this report the term has been used exclusively to indicate an assessment process that screens the broader population.

Single Assessment Process (SAP)

The Single Assessment Process, or SAP, is an initiative of the UK Department of Health. It provides guidelines for health and social services as to the process requirements for the assessment of older people.

Specialist Assessment

For the purposes of this report, a specialist assessment is seen as either a full comprehensive assessment or a part of a comprehensive assessment.

Staff

The Camberwell Assessment of Need for the Elderly (CANE) uses the word ‘staff’ as defined: a formal carer or key worker who is familiar with the individual’s clinical condition.³⁸ It often refers to the client’s general practitioner.

Subdomain

A ‘subdomain’ is a collection of related ‘dimensions’. A number of subdomains comprise a ‘domain’, for instance, the ‘Functional’ domain consists of ‘ADL’, ‘IADL’, and ‘Physical Functioning’ subdomains.

Tool

‘Tool’ is an abbreviated term for an ‘Assessment Tool’.

User

See ‘Client’.

Validity

See Section 4.2.

EXECUTIVE SUMMARY

There is a need for consistency across the country in the assessment and assignment of care for older persons. The use of a standardised assessment tool may support professional judgement and increase the quality and consistency of the assessment.

This report contains an analysis of the leading assessment tools currently available. Four comprehensive, six overview, and two screening tools were reviewed with a focus on applicability for a New Zealand implementation. The tools were compared on the basis of reliability, validity, cultural sensitivity, usability, assessment information sources, professional support outputs, domain coverage, modifiability, and training and software support. Issues regarding costs and implementation were also discussed.

Each tool reviewed in this report has unique advantages and limitations. It must be decided which tool (or tool combination) possesses the most essential traits and does not hold unredeemable shortcomings. The relative advantages and disadvantages of each tool must be weighed with consideration of the New Zealand context and requirements.

It is recommended that at least two tools/tool combinations are trialed in New Zealand pilot studies with accompanying investigation into modifications suitable for the New Zealand population.

PREFACE

A lot of the information needed for this report was not available in the form of peer-reviewed literature. Therefore much information was drawn from an analysis of the tools themselves; the questions contained, the format, the layout, the language etc. In addition, information was sourced from the tool developers themselves; computer specifications, current and future developments, training and support etc. As a result of this, the report is not strictly a scientific-literature review. Rather, the report draws on many sources of information, where the most reliable sources of information available have been included as analytically and objectively as possible. If the analyses of certain tools have been supported by less, or less scientifically based, evidence, it is because less information and evidence was available.

This report will endeavour to identify and evaluate the relative strengths and weaknesses of each tool, however it will not endeavour to endorse a particular tool for use in New Zealand. It should be used to aid in a decision making process. Attempts at decision-making are not included.

1.0 INTRODUCTION

The New Zealand population is growing and ageing. The proportion of the population over 65 years of age will increase over the next few decades³, increasing the importance of an appropriate care system. New Zealand public hospital admissions for older people have been increasing over the last 10 years³, which, if continued at the current rate, will put an increased strain on hospital services. There is strong evidence that comprehensive assessment of older people, when followed by the implementation of individual care plans, reduces the risk of older people being re-admitted to hospitals or placed in care homes.⁴ To ensure that in the future assessment practices are appropriate, effective, timely and equitable, the Ministry of Health initiated the development of Guidelines for Best Practice for Assessment Processes.³

With increased age comes greater likelihood of having a disability and of needing assistance.³ However, care needs cannot be defined on the sole basis of age but depend also on the individual's general health and well-being, risk status, social support and socio-economic status.⁵ For this reason, an assessment should address a broad range of factors impacting on the needs of the older person.

According to the New Zealand Guidelines Group, the assessment process must be client-centred in terms of the involvement of the older person in both the process and the outcome. Also, it must be clinically safe, enable national consistency in assessment practices and outcomes, reduce bureaucracy and boundaries within and between funders and governmental agencies, and reduce the number of times older people have to repeat their story.³

An integral part of the assessment process is the assessment tool. An 'assessment tool' has been defined by the United Kingdom (UK) Department of Health as: a collection of scales, questions and other information, to provide a rounded picture of an individual's needs and related circumstances.¹ There is currently no New Zealand-wide systematic screening or assessment of the unmet needs of people 65 years of age and over.³ As such, the administration of a suitable assessment tool is part of reducing the gap between current and best practice.

The decision as to which assessment tool, or combination of tools, to implement, will be important for the future of New Zealand health care. It is imperative that the selected tool that has been developed on the basis of evidence, functions well, and is well supported now and in the future – able to evolve with future developments and discoveries in the field. The appropriate assessment tool will allow for integrated, standardised assessment processes, giving comparability across the country and internationally. It should include clear definitions of the training competencies required by assessors. The use of an appropriate assessment tool may help to reduce preventable hospital admissions, discharges from hospital without support services in place and preventable placements in residential care.

This report contains an analysis of the leading assessment tools currently available. An introduction to the elements comprising an assessment tool is given in Section 3.0, and an overview of the concepts of tool reliability, validity and cultural sensitivity can be found in Section 4.0. Comprehensive (Section 5.2), overview (Section 5.3), and screening tools (Section 5.4) are reviewed, with a focus on applicability for a New Zealand implementation. The tools are compared on the basis of these concepts (Section 6.0), and issues regarding costs and implementation are discussed (Section 7.0).

2.0 METHODS

2.1 LITERATURE SEARCH

The following searches were performed to identify existing research and potentially relevant evidence for this report. A thorough search of Medline and CINAHL was performed using keyword searches based on variations of “comprehensive geriatric assessment”, “geriatric assessment tools”, “older people assessment” and the names of the individual tools/tool makers. Due to the limited number of publications retrieved on comprehensive geriatric assessment, an additional search was performed on the Internet using the ‘Google’ search engine using similar keywords. Additionally, the tool developers were approached to provide references directly related to their respective tools. The tool developers were very helpful in this regard, providing references and reference lists where appropriate. This greatly reduces the likelihood that an important article has not been considered in this report.

2.2 ASSESSMENT TOOLS REVIEWED

The following pre-existing, off-the-shelf tools were found that were appropriately designed for the purpose of assessing community-dwelling older persons (Table 2.1). These were categorised as comprehensive, overview or screening tools and have been thoroughly analysed for this report.

Table 2.1: Assessment tools reviewed.

| COMPREHENSIVE | OVERVIEW | SCREENING |
|---|---|---|
| Contexio – Geriatric Assessment Wizard | EASY-Care | STEP – Standardised Assessment of Elderly People in Primary Care |
| CANE – Camberwell Assessment of Need for the Elderly | 75+ Health Assessment CANE – Short | VES-13 – Vulnerable Elders Survey |
| FACE – Core Assessment and Outcomes Package for Older People | FACE-Triage | |
| MDS-HC – Minimum Data Set for Home Care | MDS-HC Overview MDS-HC Overview+ | |

Additionally, the following tools were identified that are relevant to, but beyond the scope of, this report. These tools are briefly addressed in Section 5.5.

- Health Risk Appraisal (HRA)
- Rand ACOVE project: Assessing Care of Vulnerable Elders
- CAPE: Clifton Assessment Procedures for the Elderly
- MDS-RAI: Minimum Data Set – Resident Assessment Instrument
- RCN Assessment Tool: Royal College of Nursing
- Caregiver Assessment Tool
- CAT: The Common Assessment Tool
- PRA: Probability of Repeated Hospital Admission Questionnaire

2.3 ANALYSIS OF EVIDENCE

Due to the relative recency of the assessment tools, the evidence was too sparse to allow a quantitative analysis. As a result, the report is based on a qualitative review of all relevant information available from the literature, Internet and tool makers. To reduce the possibility of misinformation, the relevant sections of the draft report were distributed to the tool developers for their inspection and comment. The developers of the EASY-Care tool and software, the MDS-HC tool and software, the CANE, the contextio Geriatric Assessment Wizard, and FACE, all responded with feedback. Where appropriate, necessary modifications and clarifications have been included in the final report.

2.4 BASES OF COMPARISONS

Due to the complexity of the task, a large element of subjectivity was an inevitable part of the comparisons of the tools. However, where possible the objective elements that the opinions are based upon, are clearly presented with the justifications of the presented conclusions. The ‘Domain Coverage’ analysis (see Section 5.1) was included to add an element of objectivity to the comparison of the thoroughness of each tool in addressing the complicated territory of comprehensive assessment.

3.0 DOMAINS, ITEMS & SCALES OF ASSESSMENT TOOLS

Overview

A tool for comprehensive assessment of older people must support the acquisition of a wide range of information covering the many facets of the life of an older person. This section will give an overview of the assessment factors usually included in a comprehensive assessment of an older person, how the factors are categorised, and give a brief analysis of some of the individual items and scales used to assess these factors. It is to serve as preamble for the subsequent discussions, which evaluate and compare each tool.

The multitude of factors is often divided into three or four broad categories, termed *domains*. Many variations in the exact terminology exist, but for the purposes of this report the domains are termed as follows: ‘Mental & Psychological’; ‘Medical & Health’; ‘Functional’ and ‘Social Environment’. Often the ‘Medical & Health’ and ‘Functional’ are included as one domain termed ‘Physical’. For the analysis of the coverage of these domains, this report further divides an assessment into *subdomains* and finally *dimensions*. For example, the ‘Functional’ domain includes Activities of Daily Living (ADLs), Instrumental Activities of Daily Living (IADLs) and physical functioning information, each of which are comprised of dimensions such as the assessment of the ability to dress or problems with falling.

The assessment of these domains relies on the gathering of information through individual *items* (questions, tests or observations) that address specific factors that are indicative of the broader situation. These items may be comprised of established *scales* that have been previously validated and tested. However, according to the UK Department of Health’s ‘Single Assessment Process’ (SAP), it is neither obligatory nor necessary to use such scales in all cases.¹ In fact most of the available tools rely little on established scales, instead using a more holistic approach that uses tailor-made questions and items (see Section 5.0). This report does not give a critique on the choice of every item chosen by every tool (however they are all identified in the ‘Domain Coverage’ Spreadsheet analysis; see Section 5.1), but does discuss the overall appropriateness of the choices for each tool and highlight items of particular weakness or interest.

For further consideration of the relative strengths and weakness of the available scales, Applegate *et al.* provides an extremely comprehensive, if a little dated, review of many of the established scales in these domains.⁶

Risk and Risk Factors

A good assessment tool can be thought of as providing adequate assessment of two time domains: the present (current needs and care situation) and the future (risk assessment). Firstly, it should help to identify and clarify the current care situation i.e. is the level of care adequate/appropriate for the current needs of the older person and are the carers’ needs being sufficiently met? This can be viewed as a ‘picture in time’, assessment of the overall care/need situation. The second area that should be covered is the assessment of future risk. Future risk is estimated through the extrapolation into the future of past and present risk factors. This can be thought of as probabilistic, or actuarial, risk assessment and is included in most tools in the form of questions addressing factors indicative of future risk (or *Risk factors*). The essence of a good assessment tool is to support professional judgement and increase its effectiveness and efficiency. The screening and proactive tools are more heavily weighted towards a focus on future risk than the assessment of current needs and care. The

use of probabilistic risk factors in support of professional judgement has been shown in the field of violence risk appraisal to be more effective than solely clinical judgement.⁷

Most tools do not specifically identify particular items as being ‘risk factors’. Instead these are integrated into the appropriate domain of the tool. The New Zealand Guidelines Group have designated certain items as being particularly important as indicators of risk.⁸ These ‘risk factors’ can be identified in the ‘Domain Coverage’ analysis (see Section 5.1) as indicated by a ‘!!’ symbol.

3.1 MENTAL & PSYCHOLOGICAL DOMAIN

Overview

The mental and psychological well being of an older person affects many aspects of their life and needs to be assessed if appropriate care is to be given.

Cognitive Dysfunction & Memory

The assessment of cognitive dysfunction and memory is important as it can be associated with higher risks of adverse outcomes from surgery and hospitalisation, unsuccessful rehabilitation from acute or chronic disease, abuse and an increased need for supervision in the management of self-care.⁹ The most common cause of cognitive dysfunction is dementia which has been shown to be present in 10% of those 65 years and older, increasing to 50% of community-residing individuals 85 years and older.⁹ As dehydration can mimic dementia or psychosis, it is important that the nutritional assessment cross-refers with this.¹⁰

Questions testing short-term memory are often used as indicators of cognitive dysfunction. Additionally a number of validated, well-established scales have been developed to test for cognitive dysfunction. These include the Clock Drawing Test^{11,12}, used in the Geriatric Assessment Wizard of contextio (Section 5.2.1), and the Mini-Mental State Examination (MMSE)¹³, included in full form by contextio and in compressed format by EASY-Care (Section 5.3.1).

Mood & Mental Health

The aspect of mental health most frequently considered important for assessment is depression or mood. Depressive symptoms have been shown to be associated with physical decline in community-dwelling patients¹⁴ and significantly increased morbidity and mortality⁹. Despite being very treatable, depression is often under diagnosed and therefore under treated, making its assessment an important part of an assessment¹⁵. The most commonly used scale for the measurement of depression is the Geriatric Depression Scale (GDS)¹⁶. It has also been shown to be effective in a shortened, 15-item format¹⁷ as used by contextio, and has been used in a very brief 4-item format in EASY-Care.

Other aspects of mental health also considered worth inclusion include the presence of sleep disorders, physical brain damage, anxiety, and hallucinations among others. These factors are included in such tools as MDS-HC (Section 5.2.4), the CANE (Section 5.2.2) and FACE (Section 5.2.3), without the use of established scales.

Psychological Behaviour & Risk

It is important to identify symptoms of behaviour that could be potentially harmful to the client or disruptive to others. These combative, agitated or abnormal behaviours are usually included in the assessment tools without the use of established scales.

3.2 MEDICAL & HEALTH DOMAIN

Overview

The state of general physical health must be considered both in terms of the present and the future with regards to the risk and prevention of decline.

Medical Condition

The present medical condition of the patient is important in the determination of both present and future needs and the identification of patients with high risk of physical decline. The presence of problem conditions, disease and pain can be identified through interviewing, with reference to medical records, or by clinical testing. Visual and hearing impairments are included in the assessment of medical conditions as they can have tremendous impacts upon the functional ability and the quality of life of the patient. The tools usually rely on questioning to assess these impairments, although simple screening methods exist for both eyesight and hearing. In general if questioning can provide sufficiently accurate assessment of these medical conditions it will be used in place of clinical testing. This is due to the great advantages of brevity and logistical practicality regarding the assessment procedures. Furthermore, for screening assessments questioning is typically the only method implemented for gathering information.

Health & Nutrition

Closely related to the medical condition of the patient is their general health and nutrition. The presence of indicators such as poor diet, weight loss, dehydration, alcohol abuse, lack of exercise all increase the likelihood of future decline. A good assessment tool will investigate these areas as they are effective indicators of risk and potential symptoms of problems in other domains.

Community surveys have shown that older people are more likely to suffer from malnutrition than the general population due to their high rate of chronic disease, physical disability, difficulty chewing food, social isolation, limited income and polypharmacy.⁹ One standardised scale for measuring the adequacy of diet and the possibility of malnutrition is the mini-nutritional exam¹⁸ as used by contextio.

Geriatric assessment can also play a role in health promotion by identifying easily preventable neglect of health, and promoting subsequent remedies. This may include the encouragement for improved diet, increased exercise, reduced alcohol intake or smoking and flu vaccinations.

3.3 FUNCTIONAL DOMAIN

Overview

The purpose of the functional domain is to examine the areas of function that are most commonly associated with independent living.¹⁵ This is a well established domain in elderly

assessment, with longstanding validated tools such as the Barthel Index^{19,20} available. Generally most of the tools are quite consistent with regards to their handling of the functional domain assessment. Differences primarily lie in the number of (Basic) Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) chosen, how the assessment of ADL ability is made (whether standard question formats are used i.e. Barthel Index for ADLs) and importantly, what the results signify and how they are interpreted.

Activities of Daily Living

The basic ADLs measure the most elementary aspects of self-care including the ability to independently bathe, dress, move, toilet and feed. The original, and now standard measure of the activities of daily living is the Barthel Index, originally developed in 1965¹⁹ and revised in 1989²⁰. All of the tools include some evaluation of basic ADLs generally either derived from, or in the direct form, of the Barthel Index.

Instrumental Activities of Daily Living

The instrumental ADLs evaluate the ability of the client to perform more complex daily tasks such as taking medicine, shopping, preparing meals, using home appliances and looking after the home. Most of the assessment tools include to varying extents, and with varying methods, an evaluation of IADL performance.

Physical Functioning

The assessment of ADL and IADL abilities are primarily an evaluation of current needs and are not especially focused on future risk assessment. However the investigation into physical functioning can often be applied to future risk assessment in addition to addressing current needs. The early detection of such risk factors for functional decline, coupled with specific interventions, may help reduce dependency and functional disability.⁹ Aside from the usual inclusion of an investigation into falls, there is marked variation between the tools regarding the areas of physical functioning considered.

3.4 SOCIAL & ENVIRONMENT DOMAIN

Overview

The 'Social & Environmental' domain addresses the quality of the client's social activities and roles and living situation including the appropriateness and safety of the home.

Interpersonal Relationships

Social isolation can be common amongst older persons in the community. It can cause depression and lower level of self-care including undernutrition.⁹ Most tools include an evaluation of the presence and quality of the clients interpersonal relations and ability to interact socially. While the tools generally rely on self-developed questions in the assessment of interpersonal relationships, the UK Department of Health has put forward two scales for the assessment of relationships¹, the Significant Others Scale²¹ and the Practitioner Assessment of Neighbourhood Type²².

Living Environment & Safety

It is important that the living environment of the client is appropriate for the individual's needs, sustainable to manage, inhabitable and safe. The assessments of a client's living

environment typically includes such factors as accessibility to required services, risks to personal safety, specific aspects of housing (e.g. lighting, heating and cooling, access to rooms etc.) and home upkeep. Again these issues are generally explored within the tools through the use of tailor-made questions. The UK Department of Health¹ suggest the possible use of the Housing Options for Older People (HOOP) scale for the evaluation of housing.

Finances

The ability of the client to sustain themselves financially is crucial to their independence. Typically a number of brief questions are included in the tools to gauge the client's financial situation and the nature of money management. Additionally, the CANE and FACE verify that the client is receiving the maximal entitlement of benefits.

Care

To a great extent the purpose of an assessment is to determine the adequacy and appropriateness of the care situation in dealing with the client's needs. While the other sections of the assessment are required to identify and prioritise the specific needs of the client, the evaluation of the care situation in relation to these needs is pivotal. To varying extents the tools prompt consideration of the adequacy of care in an integrated fashion throughout the needs assessments of the previous domains. Additionally, the comprehensive, but not usually the overview or screening tools, include a separate question regarding the adequacy of care.

Within the judgement of the adequacy of care, is the evaluation of the extent, quality and nature of the care received by the client. This usually includes the identification of the type and frequency of services used and the informal and formal carers present.

In addition to the client's perspective of the care situation, consideration should be given to the assessment of the needs of the caregiver. Some of the comprehensive assessment tools presented here address this issue with varying degrees of thoroughness. However, tools exist specifically for the purpose of evaluating the situation of the caregivers. One such tool (The Caregiver Assessment Tool) is briefly reviewed in Section 5.5. Other tools are available to assess the needs of the caregiver, however these have not been reviewed in this report.

4.0 RELIABILITY, VALIDITY & CULTURAL SENSITIVITY OF TOOLS

This section provides an introduction to the concepts of reliability, validity and cultural sensitivity and how they relate to the assessment tools reviewed in Section 5.0.

4.1 RELIABILITY

If consistent assessment results are to be obtained, the tool use must have the property of reliability. The reliability of a tool is assessed based on test-retest and inter-rater reliability as described below.

Test-retest Reliability

Test-retest reliability is present if the same assessor achieves the same results over time for a particular individual when needs have not changed.¹

Test-retest reliability should be improved somewhat if objective measures are used, as subjective time-dependent differences in the assessor's ability to perform an assessment will be reduced (e.g. mood, attitude etc.).

Inter-rater Reliability

A tool has inter-rater reliability if, when different assessors use it, they arrive at similar answers for people with similar needs.¹

Inter-rater reliability should also be improved if objective measures are used. This is because the dependency on the rater should be less for an objective than for a subjective measure, thus reducing the chance of discrepancy between assessments performed by different raters.

4.2 VALIDITY

It is crucial that an assessment instrument provides an accurate evaluation of what it is intended to measure. The term 'validity' is applied to the broad concept of tool-accuracy, and is further categorised into external and internal validity, of which internal validity is comprised of face, content, construct and criterion validity. These categories of validity are all considered important to the overall usefulness of an instrument, and are introduced below.

Face Validity

The following excerpts have been taken from "Health Science Research", by Jennifer Peat, 2001.²³

Face validity, which is sometimes called 'measurement validity', is the extent to which a method measures what it is intended to measure. For subjective instruments such as questionnaires [tools], validity is usually assessed by the

judgement of an expert panel rather than by the use of formal statistical methods. (Peat, J. *et al.* p108)

For this reason, in addition to direct evidence of face validity from the literature, evidence for face validity can be provided by the manner in which a tool has been developed. For instance, some of the tools have been developed by large panels of people with considerable expertise across multiple, relevant areas of knowledge. In these cases, support for face validity is evidenced by the use of such panels in the development of the tools.

When designing a questionnaire [tool], relevant questions increase face validity because they increase acceptability whereas questions that are not answered because they appear irrelevant decrease face validity. The face validity of a questionnaire also decreases if replies to some questions are easily falsified by subjects who want to appear better or worse than they actually are. (Peat, J. *et al.* p108)

This suggests that face validity is also increased by the use of objective measurement, as this method should reduce the possibility of an assessment being manipulated. However, this is very difficult to achieve in these assessment tools, as much of the necessary information can only be efficiently obtained by subjective questioning. While not wanting to suggest dishonesty amongst the clients, to a large extent the accuracy of an assessment, and hence the face validity of the tools, relies on the willingness of the client to provide accurate information. This willingness seems dependent upon their faith in the integrity of the system and in its ability to appropriately provide for their needs. As the clients will be aware that the outcomes of an assessment may have great impact on their lives, it is of utmost importance that their concerns are listened to and that they feel they have some control over the outcomes without having to resort to manipulation of an assessment.

Face validity can be improved by making clear decisions about the nature and the purpose of the instrument, and by an expert panel reaching a consensus opinion about both the content and wording of the questions. It is important that questions make sense intuitively to both the researchers and to the subjects, and that they provide a reasonable approach in the face of current knowledge. (Peat, J. *et al.* p108)

Once again this suggests that a tool developed by an expert panel should inherently possess a fair degree of face validity. Additionally, the face validity of a tool can be estimated by reviewing the content and wording of the items. The estimations of face validity for the tools (see Section 5.0 and 'Tool Overview' spreadsheet) include evidence from the literature, a gauge of the expertise of the developers, the use of objective testing, and the overall appearance of the items included.

Content Validity

Content validity is the extent to which the items in a questionnaire [tool] adequately cover the domain under investigation. This term is also used to describe the extent to which a measurement quantifies what we want it to measure. (Peat, J. *et al.* p108)

This implies that the overall content validity of a tool can be gauged by how adequately the necessary domains are covered. To a certain extent this can be estimated by reviewing the 'Domain Coverage' analysis provided in this report (Section 5.1). However,

As with face validity, this is also a concept that is judged by experts rather than by being judged by using formal statistical analyses... Within any questionnaire, each question will usually have a different content validity... When developing a questionnaire that has many items, it can be difficult to decide which items to maintain or to eliminate. In doing this, it is often useful to perform a factor analysis to determine which questions give replies that cluster together to measure symptoms of the same illness or exposure, and which belong to an independent domain. (Peat, J. *et al.* p108-109)

This suggests that an evaluation of the content validity is too complex to rely simply on a review of the coverage of the broad domains and must rest on expert opinion. The determination of the content validity of a tool requires an analysis of the each item, not just the acknowledgement of the presence of each item. So the evaluation of the content validity of the tools relied predominantly on the evidence provided by expert opinion found in the literature. A small amount of additional support can be provided by evidence of thorough domain coverage as demonstrated in the 'Domain Coverage' analysis (Section 5.1).

Criterion Validity

Criterion validity is the extent to which a test agrees with a gold standard. It is essential that criterion validity is assessed when a less expensive, less time consuming, less invasive or more convenient test is being developed. If the new instrument or questionnaire provides a more accurate estimate of disease or of risk, or is more repeatable, more practical or more cost effective to administer than the current 'best' method, then it may replace this method. If the measurements from each instrument have a high level of agreement, they can be used interchangeably. (Peat, J. *et al.* p110)

Most of the evaluated tools use, to differing extents, adaptations of scales and items taken from 'gold standard' scales and tools. Therefore it is important that the criterion validity of the tools can be evidenced. Determination of criterion validity relies directly on quantitative studies designed for this purpose. For this reason, this report has relied exclusively on published studies to determine the amount of evidence favouring the criterion validity of each tool.

Construct Validity

Construct validity is the extent to which a test agrees with another test in a way that is expected, or to the extent to which a questionnaire predicts a disease that is classified using an objective measurement or diagnostic test, and is measured in a situation when a gold standard is not available. (Peat, J. *et al.* p111)

As all of the tools include some subjective questions in substitution of objective tests, it is important that construct validity has been established.

New instruments (or constructs) usually need to be developed when an appropriate instrument is not available or when the available instrument does not measure some key aspects. Thus, construct validity is usually measured during the development of a new instrument that is thought to be better in terms of the range it can measure of in its accurate in predicting a disease, an exposure or a behaviour... Poor construct validity may result from difficult wording in a questionnaire, a restricted scale of measurement or a faulty construct. If construct

validity is poor, the new instrument may be good but the theory about its relationship with the 'best available' method may be incorrect. Alternatively the theory may be sound but the instrument may be a poor tool for discriminating the disease condition in question. (Peat, J. *et al.* p112)

For this report, evidence for construct validity has been sourced solely from the literature, as significant evidence is not provided by a simple examination of the tool.

4.3 CULTURAL SENSITIVITY

Consistent assessment results must be achieved for people across all ethnic and cultural boundaries. For this to be accomplished, the tool used must have the property of cultural sensitivity. Cultural sensitivity has been defined by the UK Department of Health:

A tool is culturally sensitive if it does not unfairly discriminate against people either from minority ethnic communities or those whose preferred language is not English.¹

The cultural sensitivity of a tool is an essential property for use in a culturally diverse New Zealand population. The older population of New Zealand is ethnically diverse and will become increasingly so, with increasing proportions of Maori, Pacific and Asian peoples.³ As the Maori and Pacific populations are unique to New Zealand and the Pacific region, direct information on the cultural sensitivity of tools as applied to these populations is not available from studies performed in other countries. Direct measures of cultural sensitivity for use in New Zealand can only be gained through studies performed here. Currently these are lacking, therefore estimates on the cultural sensitivity of the tools rely on extrapolation from observed cultural sensitivity across other cultural groups.

Cultural sensitivity is a difficult quality to determine, particularly for an instrument as complex as a comprehensive assessment tool. In this report, two measures of cultural sensitivity are given. Firstly, the 'apparent cultural sensitivity' is an estimate, based solely on a superficial review of the tool and the questions included, and how appropriate they appear to be for a culturally heterogeneous population. This approximation is subjective and is not evidence-based. As such, care should be taken when using these estimates. The second measure of cultural sensitivity included in this report is the 'evidence of cultural sensitivity'. This measure is more rigorous, relying solely on evidence of cultural sensitivity provided by the literature. However, it may be of little use if no literature is available for a particular tool.

5.0 THE ASSESSMENT TOOLS

There are a number of off-the-shelf tools available for use and under continued development. This section reviews the most appropriate of these tools as identified in Section 2.2. The tools have been categorised as comprehensive, overview or screening tools following the definitions provided in the Glossary. The contact assessment is primarily used to collect basic personal information from the client and is usually included as a supplement to the overview assessment. In this report the contact assessments are reviewed where necessary in the appropriate screening tool discussion.

In addition to these off-the-shelf tools, numerous examples of assessment of older people in the literature involve ad hoc combinations of validated scales or outcome measures for areas such as ADL (e.g. Barthel Index), cognition (e.g. MMSE), quality of life etc.^{24,25,26} Usually these are used to aid in a study and have not been specifically designed for the purpose of creating a consistent, automated assessment process. Although the scales may be validated, the holistic combinations of the scales have not. An additional drawback of these informal combination tools is that no support, training, software or formal tool format are available. Despite the potential difficulties and risks associated with deviating from a tested, supported and validated tool, the possibility exists for the development of a new ad hoc tool for use in New Zealand. However, this report covers only the territory of existing, established tools and not the issues involved in the creation of an entirely fresh tool.

5.1 SPREADSHEET ANALYSIS

The spreadsheet analysis includes the ‘Tool Overview’ and the ‘Domain Coverage’ sections. The ‘Tool Overview’ is accompanied by an explanatory sheet, which aids in the interpretation of the presentation. Each tool uses slightly different terminology and headings to describe similar items or dimensions included in the assessments. However a standardised terminology was devised so that a comparison of the tools could be made.

The ‘Tool Overview’ provides a quick reference system for identifying and comparing many basic elements of an assessment tool. The relative strength of each tool in each category is indicated by a simple quantifying word and colour-coded to provide a visual basis of comparison. Each element (or category) is explained carefully in the accompanying ‘Overview Explanation’ sheet.

The ‘Domain Coverage’ sheet is a list of all the different items/dimensions that were present amongst the tools evaluated in this report. Each tool was analysed to check which of the dimensions are included in/addressed by the tool’s items. If an item used by a tool was taken from an established scale or test, the name is indicated. If the tool includes an item of its own making, this is indicated by a tick symbol. The analysis also includes the determination of whether or not each dimension is assessed using an objective test, multiple items, or a pre-validated question or item. The identification of each dimension assessed in a tool is important. Even if a tool does not rigidly preclude an informal, unprompted question addressing a dimension, if they are not specifically included in the structure of the tool it is unlikely they will be consistently assessed. Therefore, if a dimension is considered to be important, and consistency is paramount, it needs to be included within the assessment tool questions. The ‘Domain Coverage’ analysis does not put a value on the relative importance of each dimension, but identifies whether or not provision for its assessment is included in a particular tool.

There is always a danger with breaking something down into bits that you will lose sight of the whole. This spreadsheet has simply been used as an instrument to aid the comparison. It augments objectivity by removing subjective valuations of the ability of a tool to cover areas of assessment and replacing them with have/have not distinctions. Some subjectivity remains however, both in the somewhat arbitrary categorisation of the extensive and complex terrain covered in an assessment tool, and in the decision as to exactly what each question measures. The spreadsheet does however provide a good broad perspective of how well each tool covers the assessment domains. It also highlights gaps, or specific elements that are not touched upon directly by the assessment tool.

5.2 COMPREHENSIVE ASSESSMENT TOOLS

5.2.1 Geriatric Assessment Wizard (www.contextio.com)

Tool Overview

The Geriatric Assessment Wizard was developed and programmed by Dr Roman Kleindienst with the most recent version being released in January 2003. It was developed with the assistance of geriatricians working in German, Swiss and Austrian hospitals and improved by means of user-feedback.²⁷ It is a comprehensive assessment tool without provision for an overview assessment. It is currently the only tool available that combines pre-established scales in a computer-based format. It provides guidelines for the administration of a preselected group of scales and a software system for the collection of the assessment data. The Database-Version of the software is commercially available under license from contextio. A shareware-version for Microsoft Windows can be downloaded without cost from the Internet (www.contextio.com), and can be used to perform single tests.²⁸

Evidence & Validation

No literature was available on this tool, only on the scales included within it. All information was sourced from contextio through the Internet and electronic correspondence. The information included the tool manual, a shareware version of the software, general information and responses to specific questions from the tool developers. No evidence of holistic tool validation was found. The validity of the tool is supported only by the use of validated scales. While this ensures the validity of the questions contained within the tool, it cannot ensure that the tool performs well as an integrated whole. According to the tool developers²⁸, the compilation of the tests used in the tool was based on a book publication by the German Working Group for Geriatric Assessment.²⁹

No evidence of reliability was available from the literature. However, the use of objective tests provides some indication of the tool's reliability.

No evidence of the cultural sensitivity of the instrument is provided in the literature. While potentially very useful, tests such as the Mini-Mental State Examination, Timed Money Counting and Timed Up and Go may cause an element of awkwardness if not administered with consent and discretion. To avoid humiliation, some of the objective tests may require careful training of assessors and good communication with clients. Contextio advise that the assessor request permission from the client to ask potentially awkward questions.²⁸

Table 5.1: Summary of evidence for the reliability, validity and cultural sensitivity of the contextio Geriatric Assessment Wizard. Note a large number of the items come from pre-existing scales with established reliability and validity.

| TEST-RETEST RELIABILITY | |
|---|---|
| Evidence for | FAIR - use of validated, objective scales suggests some test-retest reliability |
| Evidence against | NIL |
| Conclusion: LIMITED evidence for TEST-RETEST RELIABILITY | |

| INTER-RATER RELIABILITY |
|---|
| Evidence for |
| FAIR - use of validated, objective scales suggests some inter-rater reliability |
| Evidence against |
| NIL |
| Conclusion: LIMITED evidence for INTER-RATER RELIABILITY |

| FACE VALIDITY |
|--|
| Evidence for |
| WEAK - development assisted by multiple clinicians; however extent of involvement is unclear |
| FAIR - use of validated scales suggests face-valid questions |
| WEAK - use of objective tests limits the possibility of manipulation bias by clients |
| Evidence against |
| NIL |
| Conclusion: LIMITED evidence for FACE VALIDITY |

| CONTENT VALIDITY |
|---|
| Evidence for |
| WEAK - ostensibly fair coverage of the domains |
| NIL - no literature available to support content validity |
| Evidence against |
| NIL |
| Conclusion: VERY LIMITED evidence for CONTENT VALIDITY |

| CRITERION VALIDITY |
|---|
| Evidence for |
| NIL - no literature available to support criterion validity |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for CRITERION VALIDITY |

| CONSTRUCT VALIDITY |
|---|
| Evidence for |
| NIL - no literature available to support construct validity |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for CONSTRUCT VALIDITY |

| APPARENT CULTURAL SENSITIVITY |
|--|
| Evidence for |
| FAIR - Uses some established tests and scales that have been tested for cultural sensitivity |
| Evidence against |
| FAIR - involves potentially awkward objective testing |
| Conclusion: QUESTIONABLE apparent CULTURAL SENSITIVITY |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|---|---|
| Evidence for | NIL - no literature available to support cultural sensitivity |
| Evidence against | NIL |
| Conclusion: NIL evidence of CULTURAL SENSITIVITY | |

Inputs & Usability

Information for this assessment comes directly from questioning, observing and testing the client. Although not precluding the attainment of information from the carer it does not directly provide for, or suggest the need for, an interview with the carer. With the exceptions of the Barthel Index^{19,20} and Hachinski test³⁰, all of the information is extracted either with scripted questions or direct client testing. The use of scripted questions may increase inter-rater consistency but may inhibit professional judgement and be restrictive to the adaptation of an interview to the specific requirements of each client. Generally the language used in the scripted questions is clear and simple and the questions are clearly defined. This is congruent with the documented validity of the scales used.

No time estimates are available from the literature, however the tool developers suggest that a routine assessment process would require 30-45 minutes.²⁸ Also, in addition to the computer, the assessor would require a number of props to administer the tests, including a purse of money, handgrip dynamometer and clock completion and trail-making sheets. A stopwatch is not required as the software includes a timer. As the assessment does not provide any overall 'score' or holistic evaluation, it is not compulsory to administer every test. However no guidelines are given for when a scale should or should not be administered.

Outputs & Domain coverage

This tool primarily provides a system for collecting theoretically consistent data to be used to help identify needs. It also allows the accumulation and analysis of data using a database. To a certain extent triggers are included for further assessment, however generally the tool is supposed to be adequately comprehensive so as to not require much additional specialised assessment. The tool does not specifically support need prioritisation or assistance with the determination of future actions to address the identified needs.

The tool extensively covers the assessment of cognitive deficiencies with a series of scales and tests (MMSE¹³, Hachinski³⁰, Clock completion^{11,12} and Trail making³¹). It also comprehensively addresses mood (15-item Geriatric Depression Scale¹⁷). However, it does not touch upon psychological behaviour or mental indicators of risk. These areas are usually assessed by interviewing the carer, which is not included in the shareware version of the tool. The commercial version allows for the some collection of information obtained by the caregiver in the 'Social Worker Report' layout.²⁸ It contains items from the 'Social Situation Test' and a text field for any information.²⁸

The coverage of the 'Medical & Health' and 'Functional' domains is generally quite strong. The assessment relies largely on pre-scripted questions (including Barthel Index^{19,20}, IADLs and Mini Nutritional Assessment¹⁸) supplemented with a number of tests (Whisper test³², Handgrip strength³³, Timed "Up & Go"³⁴ and Tinetti assessment³⁵).

The 'Social & Environment' domain is addressed somewhat weakly relative to other comprehensive tools, with comparatively little focus given to addressing the level and

adequacy of the currently received care. Limited consideration of the caregiver’s situation is included in the tool.

Overall, it appears that the tool has broad coverage of the domains but is perhaps a little imbalanced. The noticeable gaps are in the assessment of psychological behaviour and the care situation. Contexio is able to extend the software to fill these gaps upon request.²⁸

A complete list of the tests included in the Geriatric Assessment Wizard are list below as provided by contexio.²⁸

| | |
|---|------------------------------|
| Barthel Index | Mini Nutritional Assessment |
| Clock Completion Test | Norton Ulcer Risk Scale |
| Digit Span Test | Social Situation Test |
| Geriatric Depression Scale | Timed Test of Money Counting |
| Hachinski Test | Timed "Up & Go" Test |
| Handgrip Strength | Tinetti Assessment Tool |
| Incontinence Screening | Transfer Scale |
| Instrumental Activities of Daily Living | Trail Making Tests |
| Mini Mental State Examination | |

Logistics & Implementation

The Geriatric Assessment Wizard supports only computer-based data collection and is not available in paper format. This means that each user must have access to a computer that can either be reached by or taken to the client for the assessment. The minimum computer requirements as outlaid in the contexio manual³⁶ are summarised in Table 5.2 below.

Table 5.2: Required computer specifications for the use of the contexio Geriatric Assessment Wizard

| MICROSOFT WINDOWS | APPLE-MACINTOSH (MacOS) |
|--|---|
| Pentium-PC or 100% compatible | Power MacIntosh or MacOS with PPC 601 processor or higher |
| At least 16 MB of RAM | At least 16 MB of RAM |
| Hard disk with at least 20 MB free space | Hard disk with at least 24 MB free space |
| CD-ROM drive | CD-ROM drive |
| Windows 95 or later or Windows NT 4.0 (with Service Pack 3 or later) | System 8.1 – 9.2 |
| Internet Explorer 4.0 or later | |

Two versions of the software are available, the commercially licensed Database-Version, and the shareware version. The database version supports printing of a cumulative assessment result.²⁸ The software, when coupled with the FileMaker database software (refer to www.filemaker.com), allows full management of patients and data processing. All results are archived automatically and made available for follow-up examinations. If laptops were used, data would also be accessible during home visits.²⁷ Additionally, contexio have explained that,

“The database version of the software can be licensed as a single user version that contains the runtime-module which eliminates the need to install FileMaker Pro software on your computer. If you want to use the program on the network, you will first have to install FileMakerPro on your workstations. For more than 10 computers also FileMaker-Server software will be needed.”

The commercial database-version 2.0 contains following features²⁷ in addition to those of the shareware-version 1.3 that was reviewed in the spreadsheet analysis (see Section 5.1):

- Relational database structure separating patient-data management from test-data management
- ‘Norton Pressure Ulcer Risk Scale’ layout
- ‘Transfer Scale’ layout
- ‘Clinical Course’ layout
- ‘Listing of Assessment Results’ layout
- ‘Dietician Report’ layout
- ‘Physiotherapist Report’ layout
- ‘Social Worker Report’ layout
- ‘Ergo-therapist Report’ layout
- ‘Logotherapist Report’ layout
- ‘Note Pad’ layout
- User programmable ODBC interface (network version only)
- User specified date on each test layout and many further improvements

It is possible to print paper test sheets of the tool from the shareware-version.²⁸ This would allow paper-based data collection during the assessment with subsequent data entry. This would result in a ‘double-handling’ of the data but would reduce the computer requirements.

No training is provided by contextio, either in the use of the software or in the administration of the tests. Support is limited to the manual and email contact with the developer.²⁷

Summary

The primary advantage of this tool lies in its use of established scales. The objective nature of these scales reduces dependency on the consistency and quality of the assessors. The ability of an older person to perform the timed ‘Up & Go’ test should be independent of the assessor and therefore, if correctly designed (as demonstrated by validation), should provide an accurate measure of mobility. This is in contrast to other tools that determine mobility by asking, sometimes unscripted, questions.

While the primary strength of this tool is that it uses only validated and established scales some drawbacks may arise because of this. Some of the scales used may present problems during the administration of the tests, particularly regarding potentially awkward situations for the clients. Additionally, the outputs of the tool are rather limited and the provided support is minimal.

Table 5.3 Strengths and weaknesses of the contextio Geriatric Assessment Wizard

| STRENGTHS | WEAKNESSES |
|---|--|
| Computer based | Does not support needs solutions or prioritisation |
| Uses established, validated scales | Potentially awkward to administer |
| Supports data collection and database functionality | Limited evidence of validity |
| Uses objective testing | Gap in the assessment of psychological behaviour |
| | Gap in the assessment of the care situation |
| | No training and little software support provided |

5.2.2 CANE – The Camberwell Assessment of Need for the Elderly

Tool Overview

The CANE is a simple, cheap and seemingly effective tool for identifying the needs of older persons. It was developed from the Camberwell Assessment of Need (CAN)³⁷, an instrument designed to assess the needs of people with severe mental illness. Twenty-six areas of need are covered in both an overview (the Short-CANE; Section 5.3.3) and a comprehensive assessment (this Section). The tool does not use established scales or scripted questions, but rather provides guidelines for which specific items and general areas need to be included. It also provides instructions for how an interview should be administered. The assessment draws upon the views of client, carers and rater. It is currently only available in paper format, however an electronic version is under development.³⁸

Evidence & Validation

The majority of the information on the CANE assessment tool was obtained from the CANE instruction manual. Additionally, a number of journal articles were found that specifically addressed the validation³⁹ and use^{40,41} of the CANE. A number of new articles are in press or have been recently submitted and will soon be available, including a CANE book publication.⁴²

As the tool does not use established scales or scripted questions, the validation of the tool had to be performed directly, not relying on pre-validated individual items. The sole literature-based evidence for the validity and reliability of the tool is provided by the work of Reynolds *et al.*, 2000.³⁹ Their tests for validity and reliability yielded positive results, concluding that the tool was generally popular, easy to use and overall had good validity. The intraclass correlations demonstrated very strong reliability, however a natural bias in the administration of the inter-rater reliability test somewhat undermined the definiteness of these results. Generally the evidence for validity and reliability of the CANE is somewhat limited due to the availability of only one source of validation. Weighing in the favour of the CANE is the fact that the tool was developed based on a well-established and validated tool, the CAN.³⁷

As no scripted questions are associated with this tool, the cultural sensitivity of an assessment performed using the CANE would appear to depend on the cultural sensitivity of the assessor and the scales or questions chosen. However, the tool has been validated in Spain⁴³, and Germany (evidence will be provided in the upcoming book publication⁴²), and has been used successfully in a number of countries.⁴²

Table 5.4 Summary of evidence for the reliability, validity and cultural sensitivity of the CANE.

| TEST-RETEST RELIABILITY | |
|---|--|
| Evidence for | |
| STRONG - strong evidence provided by one study (Reynolds <i>et al.</i> , 2000). | |
| Evidence against | |
| NIL | |
| Conclusion: FAIR evidence for TEST-RETEST RELIABILITY | |

| INTER-RATER RELIABILITY |
|--|
| Evidence for |
| STRONG - strong evidence provided by one study (Reynolds <i>et al.</i> , 2000). |
| Evidence against |
| WEAK - Slight bias in inter-rater reliability study of Reynolds <i>et al.</i> , 2000 |
| Conclusion: LIMITED evidence for INTER-RATER RELIABILITY |

| FACE VALIDITY |
|---|
| Evidence for |
| FAIR - development under the scrutiny of many experts |
| FAIR - use of simple language suggests face-valid questions |
| FAIR - evaluated as possessing good face validity in one study (Reynolds <i>et al.</i> , 2000). |
| Evidence against |
| NIL |
| Conclusion: FAIR evidence for FACE VALIDITY |

| CONTENT VALIDITY |
|--|
| Evidence for |
| FAIR - evaluated as possessing good content validity in one study (Reynolds <i>et al.</i> , 2000). |
| Evidence against |
| NIL |
| Conclusion: LIMITED evidence for CONTENT VALIDITY |

| CRITERION VALIDITY |
|--|
| Evidence for |
| WEAK - evaluated as possessing reasonable criterion validity in one study (Reynolds <i>et al.</i> , 2000). |
| Evidence against |
| NIL |
| Conclusion: VERY LIMITED evidence for CRITERION VALIDITY |

| CONSTRUCT VALIDITY |
|--|
| Evidence for |
| WEAK - evaluated as possessing reasonable construct validity in one study (Reynolds <i>et al.</i> , 2000). |
| Evidence against |
| NIL |
| Conclusion: VERY LIMITED evidence for CONSTRUCTVALIDITY |

| APPARENT CULTURAL SENSITIVITY |
|--|
| Evidence for |
| FAIR BUT VARIABLE - does not use scripted questions relying on assessor for cultural sensitivity |
| Evidence against |
| NIL |
| Conclusion: FAIR BUT VARIABLE apparent CULTURAL SENSITIVITY |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|--|--|
| Evidence for | |
| | FAIR – used successfully in many different countries |
| | FAIR – translated version found to be valid in Spain (Mesa <i>et al.</i> , 2002) |
| | FAIR – validated in Germany |
| Evidence against | |
| | NIL |
| Conclusion: FAIR evidence of CULTURAL SENSITIVITY | |

Inputs & Usability

An assessment using the CANE consists of the rater conducting three separate interviews with the client, primary carer and staff (health professional), with each party deciding whether, in each of the 26 areas, a need exists, and if so if it is being met. From these four opinions a simple scoring system is used to assist professional judgement with the identification of problem areas. One small study (n=55) has shown a great deal of variation in the identification of unmet needs between patients and their lead health professionals, suggesting that health professionals generally do not have the same views as patients about their needs.⁴¹

The manual includes guidelines as to how the interviews should take place, and examples of how to draw conclusions about the need situation from these interviews. To a certain extent the inter-rater reliability may be dependent upon the ability of the manual, and the people learning from it, to provide consistent assessments. The method of assessment appears to have the advantages of considering all of the relevant points of view, as well as allowing a competent professional to administer a comfortable and sensitive assessment. The major concern with this type of assessment is the dependence placed on the competency of the rater and the quality of their training. However, to a large extent every type of assessment relies heavily on this.

The length of an assessment using the CANE would vary greatly depending on the availability of the interviewees and their willingness and ability to provide the necessary information. A study testing the use of the CANE in primary care found that the average interview times for a client, carer and staff were 22.0mins (range 9-55mins), 17.3mins (range 10-30mins) and 10.7mins (range 4-20mins) respectively.⁴¹ However, generally the assessment process is lengthened by the use of three interviews as the number of contacts made to arrange the interviews, the travel required to reach the interviewees and the total assessment time, are all increased.

As mentioned, the tool currently exists solely in a paper format. The assessment forms are simple, providing little cause for confusion but also relatively minor support to the rater. Figure 5.1 below shows an example of CANE form for one of the 26 areas of assessment.

Figure 5.1 The CANE: Form for the assessment of ‘Accommodation’.⁴⁴

Outputs & Domain coverage

The tool includes a very simple scoring system based on the identification of needs by the 4 parties (client, primary carer, auxiliary carer and rater):

0 = no need 1 = met need 2 = unmet need 9 = unknown

* includes provision for a tallying of met and unmet needs to yield an overall “score”

This scoring system assists in the identification of needs (both met and unmet) but does not to any significant extent support the prioritisation of the needs or the triggering of further evaluations.

The CANE includes relatively scant coverage of the domains in comparison to other tools, especially physical and functional, relying on an overall impression of the need situation in each area rather than using questions to specifically identify risk indicative problems. The tool prompts the interviewer to address all the important areas of the ‘Mental & Psychological’ domain but does not thoroughly deal with cognitive dysfunction, relying on a brief determination of memory problems. The medical condition of the client is only briefly addressed and the assessment of health and nutrition is limited to one question regarding the client’s diet. Similarly the coverage of the ‘Functional’ domain is thin relative to the other comprehensive assessment tools, with very limited investigation of the IADLs and general functioning of the client. The strength of its coverage lies in the assessment of the ‘Social & Environment’ domain. It touches upon all of the broad social and environment issues and thoroughly addresses the adequacy of the care situation, prompting the assessor to consider care adequacy with relation to each item.

Overall, the domain coverage of the CANE is fairly well balanced, however relatively thin compared to some other comprehensive tools.

Logistics & Implementation

As no software is currently available for the CANE its implementation would be relatively cheap due to the elimination of computer requirements (with the obvious disadvantage of not having an automated system in place). The indication is that a software version will be available in a matter of months although it is unclear what the form and requirements of this software will be.

As previously mentioned, this tool relies heavily on thorough training of competent professionals. Little support for training is available aside from the manual. A training program is currently being constructed for the UK³⁸, however it is unclear how much support may be provided for this country. The recommendation is for training to include at least 4 or 5 assessments to ensure the reliability of individual ratings.⁴⁵

As discussed below in Section 5.3.3, the accompanying screening tool (the Short CANE) does not appear to be the best screener available. However, the CANE could be supplemented with an alternate screening tool, although this may complicate the implementation somewhat.

Summary

The primary strength of the CANE is that it includes the perspectives of the client, primary carer, auxiliary carer and rater in the assessment. The inclusion of multiple perspectives in the assessment may reduce the effects of a biased, ill communicated or incorrect perception of the situation by one of the parties. Additionally, the flexible nature of the interview guidelines, while increasing the dependence on the quality of the rater, may facilitate the administration of a comfortable and sensitive assessment.

Its drawbacks include a current lack of automation and weak domain coverage, particularly of physical and functional domains and its high level of subjectivity necessitating highly skilled assessors. Also, the tool does not provide assistance for need prioritisation or assist in providing solutions for the identified unmet needs. Finally, the training support appears to be somewhat limited.

Table 5.5 Strengths and weaknesses of the CANE

| STRENGTHS | WEAKNESSES |
|---|---|
| Includes multiple perspectives of need situation | Does not support needs solutions or prioritisation |
| Potential provision of a comfortable and pleasant assessment for the client | Weak coverage of ‘Medical & Health’ domain |
| Strong consideration of care adequacy | Weak coverage of ‘Functional’ domain |
| | Minimal training support offered |
| | Accurate assessment dependent on competency of assessor as it is generally a highly subjective tool |
| | No software currently available |

5.2.3 FACE Core Assessment & Outcomes Package for Older People

Tool Overview

The FACE Core Assessment & Outcomes Package for Older People is one of a number of tools available from FACE Recording & Measurement Systems. The FACE tool for older people was adapted from a framework and set assessments originally devised for mental health. The tool includes an overview tool (Section 5.2.4) and a comprehensive tool comprised of four specialist assessments ('Activities of Daily Living and Physical Well-being', 'Psychological Well-being', 'Social Assessment' and 'Risk Profile') with the recent inclusion of 'Lifestyle and Personal Strengths', 'Communication' and 'Carer's Assessment' sections.

The tool provides a framework within which assessments can take place, providing a standard data collection format and a structure to help achieve consistent results. While question guidelines are provided, the tool is designed to allow professionals to determine the exact method of assessment. It is available in both paper and computer format and can be sourced from FACE Recording & Measurement Systems (www.facecode.com).

Evidence & Validation

This report has relied largely on material and communications provided directly from FACE. There is currently no literature available on the version of FACE for the assessment of older people, although the tools upon which they are based have a much more substantial evidence base. The FACE tool for older people is essentially an adaptation for older people of a framework and set of assessments originally devised for mental health which are well-validated and well-established.⁴⁶ There are publications concerning some of the other FACE tools, whose content overlaps considerably with the tool for older people (see Appendix B – Bibliography of other FACE Tools).⁴⁶

In addition, as communicated by the director of FACE^{47, 48}, journal articles on the FACE tool for older people are currently being prepared for data already obtained. The studies involved the testing of the internal consistency of the axes (n = 1500; alphas in the range of 0.8 – 0.9), validation against established scales (e.g. CAPE, Barthel Index) and measurement of outcomes in depression and dementia. Additional studies further investigating the reliability and validity of the FACE tool for older people will commence in 2003.⁴⁷ So, while there is current little direct evidence of the validity of the tool, this is expected to become available within the year.

Several studies (including some carried out independently in Italy and Australia) using other tools available from FACE indicate that FACE training materials result in high levels of inter-rater reliability (kappas in the region of 0.9).⁴⁶

As no scripted questions are associated with this tool, the cultural sensitivity of an assessment performed using FACE will depend totally on the cultural sensitivity of the assessor and the scales or questions chosen. No evidence for cultural sensitivity is available but conversely there is no obvious evidence suggesting that the tool is in any way culturally insensitive.

Table 5.6 Summary of evidence for the reliability, validity and cultural sensitivity of the FACE assessment tool.

| TEST-RETEST RELIABILITY | |
|---|---|
| Evidence for | NIL - no literature available to support test-retest reliability; studies to commence this year |
| Evidence against | NIL |
| Conclusion: currently NIL evidence for TEST-RETEST RELIABILITY | |

| INTER-RATER RELIABILITY | |
|--|--|
| Evidence for | WEAK – training material for other FACE tools shown to yield reliable assessments NIL - no literature available to support inter-rater reliability; studies to commence this year |
| Evidence against | NIL |
| Conclusion: currently VERY LIMITED evidence for INTER-RATER RELIABILITY | |

| FACE VALIDITY | |
|---|--|
| Evidence for | WEAK - use of established scales and questions is possible, although not required with this tool FAIR - tool was developed from other well-established and well-validated tools |
| Evidence against | NIL |
| Conclusion: currently LIMITED evidence for FACE VALIDITY | |

| CONTENT VALIDITY | |
|--|---|
| Evidence for | FAIR - ostensibly very good coverage of the domains NIL - no literature available to support content validity; studies to commence this year |
| Evidence against | NIL |
| Conclusion: currently LIMITED evidence for CONTENT VALIDITY | |

| CRITERION VALIDITY | |
|--|--|
| Evidence for | NIL - no literature available to support criterion validity; studies to commence this year |
| Evidence against | NIL |
| Conclusion: currently NIL evidence for CRITERION VALIDITY | |

| CONSTRUCT VALIDITY | |
|---|--|
| Evidence for | NIL - no literature available to support construct validity; studies to commence this year |
| Evidence against | NIL |
| Conclusion: currently NIL evidence for CONSTRUCTVALIDITY | |

| APPARENT CULTURAL SENSITIVITY | |
|--|--|
| Evidence for | FAIR BUT VARIABLE - does not use scripted questions relying on assessor for cultural sensitivity |
| Evidence against | NIL |
| Conclusion: FAIR BUT VARIABLE apparent CULTURAL SENSITIVITY | |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|---|-----|
| Evidence for | NIL |
| Evidence against | NIL |
| Conclusion: NIL evidence of CULTURAL SENSITIVITY | |

Inputs & Usability

The FACE tool does not use scripted questions or pre-established scales to gather the information but provides a framework with which to consistently arrange information and to ensure that all necessary information is obtained. One exception is the inclusion of the Mini Mental State examination score in the assessment of psychological well-being (the tool does not include the scale, but provides a box to input the score from the scale).

Correspondence from FACE has provided an explanation of how the tool is to be applied:

“[FACE] is not designed to be a structured interview but to summarise in standard format the results of a professional assessment undertaken as seen fit by the professional involved”.⁴⁷

“The tool provides standardised scales which in themselves provide quite clear indications to the assessor as to what information needs to be collected to support the judgment of severity. The attraction of FACE is that it formalises existing practice in a manner which provides high quality information. To date this has made it very attractive to practitioners, because practitioners do not in general wish to alter their practice to fit in with an assessment procedure devised by someone else, but are happier to record the results of their assessments in a standardised format. Thus [FACE] would regard the necessity for a standard assessment procedure as a weakness of a system to be used in routine practice...[FACE] would not in general recommend using other scales to collect the information necessary to support the FACE scales although there is nothing to prevent people from doing this.”⁴⁶

The approach of FACE is to formalise existing practice. If users of FACE already employ other scales this can be accommodated, but FACE would not otherwise impose them.⁴⁶

The time required to administer an assessment using FACE would vary depending on the determination of the assessment procedure. However, regardless of the exact nature of the assessment, the time required would most likely be substantial if information is obtained for all required fields. The language used in the tool is clear but not simplistic. This should not pose a problem, as the tool is not designed to be used as a scripted interview. A new addition to the tool has been a ‘Communication’ section designed to assess the ability of the client to

communicate and identify which, if any, supports for communication will be required for the assessment.

Outputs & Domain coverage

It is not possible to ascertain the outputs of the tool and software without having had experience using the tool. Therefore, this report has included descriptions of the software provided by the developers, and includes the recommendation that a demonstration of the software be arranged. According to correspondence from FACE:

“The software scores each assessment at 3 levels: item level; domain level; and full score for the full assessment. Outputs for an individual or population include:

- printed summaries, including any free text entered in relation to an item.
- graphical printed summaries showing trends or profile.
- graphical multi-dimensional profiles for each time point, showing either all items within a domain or a profile of domain scores.
- graphical outcome profiles at each of the 3 scoring levels for each assessment showing trends in score over time. These can include: all assessments, first and last assessments only; or first, last and penultimate assessments only. Graphs can be shown in real time (e.g. assessment 1 in January, Assessment 2 in March); relative time (assessment 1 at month 1, assessment 2 at month 3, assessment 3 at month 9); or sequence (disregarding time interval).
- all graphical outputs can show either one or two individuals or populations, so you can compare an individual with any population of your own selection or any two populations.
- all the above can either be done in relation to all items within any assessment or flagged 'key items' which have been prioritised and are reported upon and updateable independently of which assessment they were initially rated within.”⁴⁸

Regarding guidelines for solution of identified needs:

“[The approach of FACE] is not to prescribe solutions to problems but rather to provide information which supports the practitioner in making appropriate selections of solution. For example, the design of the software platform enables data to be accumulated and analysed to provide norms which can then be used to feed back to practitioners. Thus a practitioner may note that 75% of patients with x and y problem have been given a certain medication. This does not mean that he should prescribe that medication also, but is useful information to support that decision; or a practitioner may see that a person has more severe mental health problems than the typical person seen by their team – in which case they might consider whether to refer them to mental health services etc. [FACE] believe[s] that this approach, that enables practitioners to aid decisions through use of (in the first instance) locally-collected data and ultimately nationally-collated data will be more effective than premature prescription of solutions...the software also has facilities for offering prescribed sets of interventions for any prioritised problem. Thus if it is always recommended that paracetamol be given for headaches then the software can be set up so that paracetamol is the only intervention offered. The interventions to be available, however, are not determined by [FACE] but by the organisation using the system.”⁴⁶

So if FACE was used, any pre-determined prescribed solutions to specific needs could be communicated to FACE, who could then arrange an appropriate set up on the system.⁴⁶

In addition to assisting with the identification of needs, the tool provides a good framework for risk assessment. Each specialised assessment includes a section for the summarisation of the current risk status of the patient in particular areas. Furthermore, a complete 'Risk Assessment' is included as one of the specialised assessments, encouraging the recording of elements indicative of risk history and current warning signs. The evaluation of perceived risk involves extrapolation into the future and is very subjective, this must be considered when applying the risk assessment of this tool.

Beyond the risk assessment, the issue of subjectivity must be considered in the use of this tool. As with other tools which do not use objective testing, the tool may rely heavily on subjective opinions, again demanding the use of highly trained and competent professional raters. This assumes that the person conducting the assessment is qualified to undertake an assessment of the older person independently of whatever FACE training they have received.⁴⁶

The tool also includes a rather unique "Lifestyle and Personal Strengths" module. This section allows special provision for the understanding of the client's personal interests, values and pursuits. The inclusion of this section may not be 'clinically necessary', but may give a valuable human aspect to the assessment process. It is suggested to be used to support specialist assessments and when a client is moving into residential or nursing care. It should help to create a smooth transition into a new social environment.

Generally this tool provides very thorough coverage of the all assessment domains. Recently a very thorough caregiver assessment has been included in the tool. It includes a quick 'screener' survey investigating the impact caring for somebody else has on the carer's life and a more thorough formal carer assessment.

Logistics & Implementation

FACE may be implemented in paper format, computer format or using both formats. As with the other tools, costs will vary greatly depending on the level of automation sought. The assessors will be able to either input data directly into the computer during an assessment or record the interview using the paper forms and subsequently enter the data. A recent communication from the developers indicates that the tool is supplied on paper and in Word format and may now be fully completed within Word on a PC.⁴⁹

The software is available in both standalone and networked versions; with the hardware requirements as supplied by FACE outlined below.⁴⁷

FACE Technical Environment Requirements

Sites will need to supply a suitable hardware platform for the FACE server software and FACE client software, and an operating system environment as listed below.

Server Requirements:

- NT4 Server with SP 6 or later
- Display - 800x600 with 65536 colours - or greater.
- CD ROM Drive
- Microsoft Transaction server 2.0 or later. This is bundled with the operating system in Windows 2000 and later; otherwise, it is available as an NT4 option pack from the Microsoft website.
- SQL Server 7 SP 3 or later. It is essential to have SP3 for FACE install program to work.

- Microsoft Word 97 or 2000 if a client is also to be installed on the server. The software also uses the “Tahoma” true-type font which is supplied with Word, but can be made available separately.

Client Requirements:

- Windows NT4 Workstation with SP 6 or later
- Display - 800x600 with 65536 colours - or greater.
- Microsoft Word 97 or 2000 for document based reporting.

Interfacing

FACE software is able to interface to 3rd party systems to accept certain information on registrations, staff details, Site locations information, and Site programmes of care. If use is to be made of these import features, then FACE will require test 3rd party export files to be supplied to FACE’s import format requirements. An XML DTD and a corresponding sample XML file can be supplied on request.

Recent communication with FACE suggests that a version of FACE has been developed that allows the use of handheld workstations.⁴⁹ Also,

“Over the past six months [FACE has] formed good working relationships with other providers of Overview assessments (e.g. EASY-Care/CAT). Where a commitment has already been made to use such tools as they can be used to trigger the FACE specialist assessments.”⁴⁹

A significant amount of software support and some training is provided by FACE. A training manual is available for the tool, which includes standardised vignettes and a range of instruction materials. General training is performed by trainers who have been specially trained over a couple of days by FACE. One issue is that FACE is located in the U.K. providing a hurdle for direct training. However, it has been indicated that groups in Australia may also be interested in using the tool, which may present opportunities for joint training workshops.²³ Automatic software updates are included as part of the licence costs. Currently, the software and software updates will have to be installed either via CD-ROM or distribution through a central server. However, FACE are expecting, that within 12 months, the software will be able to be installed via the internet.⁴⁸ The tool will already run using a Virtual Private Network (VPN) connection and can also be used effectively on Tablet PCs.⁴⁶

Again, a demonstration of the software is required before an accurate understanding can be obtained. However, FACE further reported of the software capability:

“...FACE software...incorporates a patented processing technology designed specifically to support the use and analysis of complex person-based data. The software is truly generic: any assessment tool can be put on the FACE platform with a minimum of effort. No programming or complex configuration is required, yet as soon as any tool is on the platform the full reporting and analytical system will operate upon it without the need to write new queries etc. Similarly, any or all fields within the FACE software can be replaced with different ones with no impact on functionality or reporting. The system is also language-independent so that in principle, for example, data could be input using one language (e.g. professional language) and printed in another (e.g. user-friendly language).”⁴⁶

Summary

This tool appears to be well-designed and well-supported. It provides flexible implementation options, as it is available in both paper and computer-based formats. It thoroughly addresses

all of the domains purported to be important in the assessment of older people, and provides a good framework for the accumulation of assessment data and the identification of client needs.

The main weakness of the tool may be that it does not include a clearly defined assessment procedure. However, this may also be a strength, as this allows flexibility.

Table 5.7 Strengths and weaknesses of FACE

| STRENGTHS | WEAKNESSES |
|--|---|
| Software and paper formats available | Does not provide needs solutions |
| Thorough, balanced coverage of all domains | Lacks clearly defined assessment procedures |
| Training and software support available | Little direct evidence of validity or reliability – but this should be available soon |
| Flexible implementation options | |

5.2.4 MDS-HC – Minimum Data Set for Home Care

The disproportionate length of the MDS-HC section of this report is indicative of the amount of literature available, in addition to the complexity of the tool, and should not be seen as a bias or an endorsement of the tool.

Tool Overview

The MDS-HC has been developed over many years by interRAI, an international collection of researchers and clinicians (more than 30 researchers from 18 countries)⁵⁰. They have provided the intellectual inputs for the tool, including the design, development and validation. Supporting the tool are software companies including AIS (Assessment and Intelligence Systems) and Momentum Healthcare. These companies have developed software systems specifically for the MDS-HC and control the distribution and licensing of the software.

The tool is branched into a North American version and a UK version.⁵¹ The UK version has been designed to fit into the Single Assessment Process (SAP)^{1,2} and includes levels of assessment. In the UK the tool is used by both health and social services, involving a diverse set of users (including GPs, nurses, home care services and clinicians). In North America its use has largely been restricted to social services, in particular the home care workers. The degree of integration between health and social services varies greatly between the provinces/states and the home care assessment is usually left to the home care services.⁵¹ For the purposes of this report the UK version of the MDS-HC has been reviewed. This is because the chosen application of the tool and the general population demographics in the UK, are possibly more closely aligned, than those of North America, to New Zealand.

The MDS-HC tool is able to facilitate the three levels of assessment for SAP (contact, overview/screening and comprehensive). However, an informal agreement between MDS and EASY-Care (Section 5.3.1) recognises that EASY-Care is the preferred instrument for contact and overview assessment and MDS-HC for comprehensive assessment.⁵² The MDS-HC Overview assessment is still a valid option, and is evaluated in Section 5.3.5.

Evidence & Validation

A large amount of published literature is available on the MDS-HC including numerous validation studies. As the volume of literature available is so great (over 500 published articles⁵¹), this report does not contain a comprehensive literature review of the MDS-HC. Important articles were selected for review and additional information was sourced directly from interRAI and AIS software systems.

Many researchers in a number of countries have performed validation studies of this tool. Much of the validation consists of comparing the results of assessments performed with established scales, to those generated from the scales contained within the MDS instrument, thus establishing criterion validity. A summary of the outcome scales (including validation against parallel, established scales, and establishment of reliability) is included in Table 5.8 below. Some of these studies use the scales within the MDS-RAI (Resident Assessment Instrument) and not the MDS-HC. However the MDS-HC was developed as an extension of the MDS-RAI, and the items have been shown to be equally applicable to the home care environment.⁵³

Table 5.8 Summary of MDS-HC outcome scales validation.

| Outcome Scales | Validated Against |
|--|--|
| Activities of Daily Living scales (short & long forms) | Reliability ⁵⁴ ; Barthel Index Scale ^{55,56} |
| MDS ADL Self-Performance Hierarchy Scale | Reliability ⁵⁴ |
| The Cognitive Performance Scale | MMSE ^{56,57,58} , Test for Severe Impairment ^{57,58} |
| The MDS Depression Rating Scale | 15-item Geriatric Depression Scale ⁵⁹ |
| MI-CHOICE Level of Care Scale for Home Care Clients | Professionally recommended Level of Care ⁶⁰ |

The ADL scales and contained items of the resident MDS (similar to those of Home Care) were found to be highly reliable in inter-rater tests.⁵⁴ Additional evidence for the inter-rater reliability of the MDS-HC was provided by studies performed by Morris *et al.* (1997). The study included inter-rater testing of 241 clients across 5 countries, with the results demonstrating high reliability (kappas >0.70).⁵³ This study also provides strong evidence to the cultural sensitivity of the tool as it was found to be acceptable and reliable across the 5 countries (Australia, Canada, Czech Republic, Japan and the USA).

Table 5.9 Summary of evidence for the reliability, validity and cultural sensitivity of the MDS-HC.

| TEST-RETEST RELIABILITY |
|--|
| Evidence for |
| NIL - no literature available to support test-retest reliability |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for TEST-RETEST RELIABILITY |

| INTER-RATER RELIABILITY |
|---|
| Evidence for |
| FAIR - evidence of reliability for ADLs provided by one study (Morris <i>et al.</i> , 1999). |
| WEAK - weak evidence (n=10) of inter-rater reliability provided by one Hong Kong study (Kwan <i>et al.</i> , 1999). |
| STRONG - strong evidence of inter-rater reliability provided by one study (Morris <i>et al.</i> , 1997). |
| Evidence against |
| NIL |
| Conclusion: STRONG evidence for INTER-RATER RELIABILITY |

| FACE VALIDITY |
|---|
| Evidence for |
| STRONG - developed by a large international panel of experts (interRAI) |
| Evidence against |
| NIL |
| Conclusion: FAIR evidence for FACE VALIDITY |

| CONTENT VALIDITY | |
|--|---------------------------------------|
| Evidence for | FAIR - strong coverage of all domains |
| Evidence against | NIL |
| Conclusion: LIMITED evidence for CONTENT VALIDITY | |

| CRITERION VALIDITY | |
|---|--|
| Evidence for | STRONG - many studies have demonstrated the criterion validity of many of the MDS scales against Gold-standard scales (Morris <i>et al.</i> , 1994; Carpenter <i>et al.</i> , 1999; Burrows <i>et al.</i> , 2000, Hartmaier <i>et al.</i> , 1994; Landi <i>et al.</i> , 2000). |
| Evidence against | NIL |
| Conclusion: STRONG evidence for CRITERION VALIDITY | |

| CONSTRUCT VALIDITY | |
|---|---|
| Evidence for | FAIR - found to possess good content validity in one study (Kwan <i>et al.</i> , 2000). |
| Evidence against | NIL |
| Conclusion: LIMITED evidence for CONSTRUCTVALIDITY | |

| APPARENT CULTURAL SENSITIVITY | |
|---|---|
| Evidence for | HIGH - as suggested by the strong evidence summarised below |
| Evidence against | NIL |
| Conclusion: HIGH apparent CULTURAL SENSITIVITY | |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|---|---|
| Evidence for | STRONG - one study found it to be highly reliable and acceptable across 5 countries (Morris <i>et al.</i> , 1997) FAIR - found to be valid and reliable amongst Hong Kong Chinese older people (Kwan <i>et al.</i> , 2000) FAIR - found to be valid and reliable when translated into Chinese (Leung <i>et al.</i> , 2001) STRONG - has been used successfully in many nations |
| Evidence against | NIL |
| Conclusion: VERY STRONG evidence of CULTURAL SENSITIVITY | |

Additional evidence of the cultural sensitivity of the MDS-HC was provided by a study of Hong Kong Chinese older people.⁶¹ The tool was found to be acceptable, reliable and valid, although the sample size for the inter-rater reliability study was very small (n = 10). This study also provides evidence that the tool possesses good construct validity, with assessment results using the tool agreeing strongly with clinicians' diagnoses. Another study in Hong Kong used a version of the MDS-HC that had been translated into Chinese and validated amongst Hong Kong older people. They found the translated version of the MDS-HC to be sensitive to identifying the holistic needs of older people and helpful in formulating care plans.⁶² This evidence has direct applicability to New Zealand as the New Zealand population includes significant numbers of people of Chinese ethnicity.

The Cognitive Performance Scale (CPS) contained within the MDS-HC and MDS-RAI has been extensively tested for validity against such established scales as the MMSE and the Test for Severe Impairment. Morris *et al.* found that scores generated by the CPS corresponded closely with the MMSE and provides a good functional view of cognitive performance.⁵⁷ A Pearson's correlation coefficient of 0.81 between the CPS and MMSE was found by Landi *et al.* in a study of 95 Italian home care patients.⁵⁶ Hartmaier *et al.* also found good correlation between the CPS and both the MMSE and Test for Severe Impairment.⁵⁸

The MDS Depression Rating Scale of the resident instrument was developed and validated against the Hamilton Depression Rating Scale and the Cornell Scale for Depression in Dementia.⁵⁹ The scale was established using a sample of 81 older people, to maximise sensitivity (94% for Hamilton, 78% for Cornell) and minimise the loss of specificity (72% for Hamilton, 77% for Cornell). It was subsequently validated against the Hamilton and Cornell scales with similar sensitivity and specificity resulting amongst a sample of 27 elders.⁵⁹ It was also found to compare favourably with the 15-item Geriatric Depression Scale, yielding greater sensitivity and specificity in detecting depression.⁵⁹

The Michigan MI-CHOICE continuing care project has developed objective criteria for the determination of appropriate Levels of Care (LoC). In a study involving 813 people over 55 years of age, the MI-CHOICE model was shown to agree strongly (kappa 0.52) with professionally recommended LoC.⁶⁰

Inputs & Usability

The MDS-HC aims to increase the objectivity of the assessment process by encouraging the observation of behaviours and actions and not on intentions or extrapolation of potential abilities/actions. The tool does not use scripted questions or objective testing, instead relying on multiple information sources and the professional judgement of well-trained assessors. For this reason, Hirdes *et al.* warn that "...assessors must be able to reconcile multiple inputs that often provide contradictory information. Also, information is not always available from the best possible source, so judgement must be exercised about the accuracy of alternative information sources."⁶³ This suggests the need for thoroughly trained and competent assessors.

While the tool can be used in paper format, only through the use of software (with either direct input of data, or subsequent data entry after initial paper based collection) can the full function of the tool result. The triggers, Client Assessment Protocols (CAPs – see below) and scales are all automatically calculated and summarised by the software.

“At first sight, the MDS-HC instrument is daunting. It contains 17 Sections covering health and social items, with tick-boxes and numbered codes, related to multiple-choice options in some sections. This looks complicated but in practice the options are appropriate and descriptive, even though concise. The assessor does not have to explain in narrative and the assessment tool ensures that detail is

consistently recorded. Once the assessor is trained and has had experience of the computerised tool, it is relatively quick and easy to complete an assessment.”⁶⁴

One study found that the time required for an average assessment was only 30 minutes.⁶¹ Also,

“it is estimated... that between 25-50% of clients reporting for assessment would require a comprehensive assessment. A good number will only require only a contact assessment and or overview assessment. The time taken to complete the contact assessment is only a few minutes, the time required to complete an overview assessment is about 50%-60% of the time required to complete a comprehensive assessment.”⁶⁵

Outputs & Domain coverage

The MDS-HC tool is by far the most comprehensive of the available assessment tools, providing a vast amount of decision-making support. Coupled with the available software, powerful decision-making support and data analysis are made possible. In addition to the usual identification of patient needs the MDS-HC includes many applications (algorithm, scale, indicator, outcome measure). It provides triggers for further evaluation, support for the prioritisation of needs (CAPs and MAPLe algorithm; see below), and guidelines for assembling solutions for the identified needs (CAPs; see below).

The MDS-HC has 30 Client Assessment Protocols (CAPs) which are “triggered” by clinical algorithms that determine whether various signs of a problem in health, function or well-being are currently or imminently present. The CAPs cover such potential problem areas as pain, health promotion, social isolation, falls etc.⁵⁰ The triggering of each CAP is based on the evaluation of need across a number of selected items included in the assessment. Once triggered, the home care team is prompted to investigate the problem further and prepare and implement a care plan to address the situation. The Canadian version of the AIS software includes a priority algorithm (MAPLe) that categorises clients into four levels of priority.⁶⁶ This is to assist professional judgement as to which client requires the most urgent attention.

A number of scored scales and indices are embedded within the tool. These scored scales form the important outcome measurement of the MDS-HC instrument. The information generated by the outcomes measures can be used to evaluate the clinical status of a patient or group of patients. Changes in the clinical status of the patients can be evaluated and compared with that of other clients when they are re-assessed over time.⁶⁶ The scales are automatically scored by the software based on inputs drawn from the relevant sections of the assessment. For instance, for the Cognitive Performance Scale (CPS) the evaluations of the items testing for ‘Short-term memory’, ‘Cognitive skills for daily decision making’, ‘Expressive communication’ and ‘Eating’ are extracted by the software and combined to yield an overall score of cognitive impairment.⁶⁷ These scales have largely been validated (see Table 5.8 above). In addition to the outcome measures listed in Table 5.8 are the IADL Difficulty Scale, IADL Involvement Scale, CHESS Scale (Changes in Health, End-stage disease and Signs and Symptoms).⁶⁷

An additional feature of the MDS-HC is the Resource Utilisation Groups Version III for Home Care (RUG-III/HC) case-mix system. This system can help with resource planning and funding decisions⁶⁵, and has been recently tested and refined for home care applications from a version for nursing homes.⁶⁸

Finally, two quality indicators (HCQIs) are also included in the tool, providing measurements of outcomes of care and process of care, which may be useful for benchmarking and quality

initiatives.⁶⁵ An article explaining the recent development of these quality indicators for the home care tool has been submitted to the Gerontologist journal.⁶⁹

The MDS-HC has strong coverage across all of the domains. It has particularly thorough coverage of the 'Medical & Health' domain. Some of the other assessment tools have a general section where medical records are entered, however little indication appears to be given as to how the data is used in the assessment. MDS-HC has a detailed disease section, which directly accommodates most common diseases. The only possible gap is that an assessment of the financial situation does not appear to be addressed.

Logistics & Implementation

The initial introduction of the MDS-HC may prove rather intimidating to the average practitioner. The need for assessment training, the use of a 250-page manual¹⁵, and the learning of a new software system may require some justification to the users. A clear explanation of the benefits of the use of this complex tool will need to be explicitly outlined to achieve the required motivation to get over the initial barrier of familiarising oneself with a new and complex system.

The manual is comprehensive, giving thorough explanations of how to assess each item, the reason for the inclusion of each item, how to score the items, and includes case vignettes. To address the issues of training large numbers of people, AIS has introduced a Computer Based Education system called Mastering MDS-HC. It is a multimedia instructional system that...

“...integrates the expert advice of instructional designers, certified MDS trainers, leading MDS researchers and proven MDS instructional material. Mastering MDS can be used in 'Train the Trainer' or 'self paced' training environments. Trainers are provided with expert advice on how to conduct highly effective training sessions and how to facilitate the transfer of knowledge from the classroom to the work place. The user will experience an interesting, relevant, and user-friendly presentation and navigation of the MDS-HC assessment methodology. The learning is situated within real life scenarios through the use of video and audio clips of clinical interactions and case studies.”⁷⁰

It is currently available for Canada and a UK version (which would likely work very well in New Zealand) is under development.⁶⁵ It is provided on a subscription basis from AIS Inc., with subscribers receiving systematic updates.⁷⁰

The assessment can be done in paper format with the data subsequently entered into the software.⁵¹ This may be useful during the initial stages of implementation (or the pilot study), allowing the participation of those without the necessary hardware or computer skills.

The software can be divided into two functional categories: operational and analytical. The operational software would be used by all assessors. The analytical software would be used by select, specially-trained staff such as case managers and supervisors. A new version of the AIS software is expected to become available around July 2003. This software would support the use of either a laptop or a pocket PC such as the Hewlett Packard iPAQ™ (Figure 5.2).⁵¹ The use of iPAQs would reduce the cost of implementation (iPAQ \$670 - \$1400; cheap laptop \$2170+)⁷¹. Additionally the use of a smaller, less intimidating piece of equipment may aid in the administration of the assessment, lessening the 'barrier' between assessor and the assessed.

A subscription to the AIS software includes a yearly update. The distribution of the software is relatively simple as it can be done through the Internet. Each user receives a verification

code which is used to download the software onto the necessary computer. This facilitates a potential mass-distribution and would be expeditious for the yearly updates.⁵¹



Figure 5.2 The Hewlett Packard iPAQ™.

Regarding the modifiability of the tool and the software, Baribeau, T. of AIS Inc. has provided the following information:

“Changes to the assessment instrument must go through the official research body, for example if New Zealand wanted to simply change the wording of an assessment item, it could invalidate the instrument or at least break the standard. These types of changes must be carefully considered. If NZ wanted to modify an item or add some items because there are cultural issues, then I think you would find the researchers keen to address these requests.

Changes to non-MDS or EASY-Care Assessment items in the software are not really a big issue. The system that Liquidlogic and AIS are working on will include an assessment builder, which allows the customer to create additional specialist assessment; this feature can accommodate quite a lot of those specialty situations. Some changes like validation of NZ health numbers and postal codes etc, would be done by AIS because they would be standard, required features in a NZ solution.”⁷²

The tool has been used in two extensive studies in Italy, with results indicating that it can, when guided by a case manager, be used to achieve cost saving in long-term care of frail older people.^{73,74} In a similar, smaller study, they found that the MDS-HC can be used to reduce institutionalisation and functional decline in older people.⁷⁵ This group has also effectively used a database to collect MDS-HC assessment information for over 1000 patients.⁷⁶

Summary

The MDS-HC appears to be the gold-standard of assessment tools. Time and attention would be required to adequately train assessors, however once trained very good results should be obtained. It may be somewhat costly and time-consuming to implement but an automated

MDS-HC system could become a part of a total electronic health record, providing many outputs unavailable with other assessment tools.

The tool has been widely used and validated. It has excellent coverage of all domains. The only minor gaps may be in the evaluation of the financial and social support situations. The tool is well supported with software and training programs available.

The amount of information on this tool is immense. It is complex system that offers more than any other tool. A true understanding of the tool and the software requires more information than can be provided in this report. To assist with this a demonstration of the software may be provided upon request by AIS.

Table 5.10 Strengths and weaknesses of the MDS-HC

| STRENGTHS | WEAKNESSES |
|--|---|
| Thorough, balanced coverage of all domains | Possibly expensive implementation |
| Well-documented and validated tool | Vast and complicated tool |
| Popular, widely used and established tool | Accurate assessment dependent on competency of assessor |
| Wide array of outputs including outcome measures, CAPs, algorithms and scales. | |
| Well-supported software available | |
| Organised training available | |

5.3 OVERVIEW ASSESSMENT TOOLS

5.3.1 EASY-Care

Tool Overview

The EASY-Care 2003 instrument was developed at the University of Sheffield as an assessment tool to meet demand from the field and criteria set by the UK Department of Health. It is used in at least 18 countries with particularly widespread use in the UK⁷⁷. It has experienced many levels of development, originally starting as EASY, developed to EASY-Care in June 1998⁷⁸, updated to a 2002 version, and is currently available in the 2003 version. It will continue to be developed in conjunction with feedback from users and governmental guidance.⁷⁹ The particular focus at the present time is on developing black minority ethnic (BME) language versions⁷⁹, cross-cultural validity, an electronic version and a development programme to support local implementation.⁷⁷ The EASY-Care English Version 2003 is currently available in paper format from the University of Sheffield. An electronic version from Liquidlogic, UK⁸⁰ is fully developed and currently being piloted in 12 locations across the UK.⁸¹

Evidence & Validation

Information on EASY-Care was sourced from the tool developers, software developers and the literature. Although the tool has been extensively used across Europe, only a few definitive articles have to date been published on its use and validity.

The original version of EASY-Care, EASY, was extensively used and underwent studies for validity and reliability.^{78,82} Also, positive feedback provided from extensive use throughout Europe⁸³ provides some evidence of the face validity of this tool. Additionally, a large number of the questions contained in the survey have been sourced from pre-validated scales establishing some external validity.⁸⁴ In a 2002 study, Philp *et al.* found the reliability of EASY-Care to be moderate to very good for all items except communication, feeding, use of telephone and cognitive impairment which suffered from poor data spread (the data was insufficiently spread to provide strong correlations).⁸⁵ The study involved 50 subjects who were retested with different raters, providing a combined estimate of test-retest and inter-rater reliability.

The cultural sensitivity of the tool is evidenced by its acceptability across a number of European nations and stems from the use of validated questions using simple language. Philp *et al.* cite studies from Germany and Poland that provide published evidence of cross-cultural validity of the original version of EASY-Care.⁸⁵ Additionally, future studies are planned for evaluating the reliability and validity of the tool in a cross-cultural context.⁷⁷

Table 5.11 Summary of evidence for the reliability, validity and cultural sensitivity of the EASY-Care assessment tool. Note a large number of the items come from pre-existing scales with established reliability and validity.

| TEST-RETEST RELIABILITY | |
|--|--|
| Evidence for | |
| FAIR - fair evidence provided by one study (Philp <i>et al.</i> , 2002). | |
| Evidence against | |
| NIL | |
| Conclusion: LIMITED evidence for TEST-RETEST RELIABILITY | |

| INTER-RATER RELIABILITY | |
|---|--|
| Evidence for | FAIR - fair evidence provided by one study (Philp <i>et al.</i> , 2002). |
| Evidence against | NIL |
| Conclusion: LIMITED evidence for INTER-RATER RELIABILITY | |

| FACE VALIDITY | |
|--|---|
| Evidence for | FAIR - high levels of acceptability throughout Europe (Philp, 2000) FAIR - use of simple language suggests face-valid questions FAIR - use of validated questions suggests face-valid questions |
| Evidence against | NIL |
| Conclusion: FAIR evidence for FACE VALIDITY | |

| CONTENT VALIDITY | |
|--|--|
| Evidence for | WEAK - ostensibly fair coverage of the domains WEAK - one article affirming content validity of previous tool version (Philp, 1997) WEAK - new tool versions developed under the auspices of expert opinions |
| Evidence against | NIL |
| Conclusion: LIMITED evidence for CONTENT VALIDITY | |

| CRITERION VALIDITY | |
|--|---|
| Evidence for | NIL - no literature available to support criterion validity |
| Evidence against | NIL |
| Conclusion: NIL evidence for CRITERION VALIDITY | |

| CONSTRUCT VALIDITY | |
|---|---|
| Evidence for | NIL - no literature available to support construct validity |
| Evidence against | NIL |
| Conclusion: NIL evidence for CONSTRUCTVALIDITY | |

| APPARENT CULTURAL SENSITIVITY | |
|---|--|
| Evidence for | FAIR - uses many validated questions with simple language HIGH - as suggested by the strong evidence summarised below |
| Evidence against | NIL |
| Conclusion: HIGH apparent CULTURAL SENSITIVITY | |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|--|--|
| Evidence for | STRONG - found to be acceptable across many European nations STRONG - published articles from Germany and Poland affirming cultural sensitivity |
| Evidence against | NIL |
| Conclusion: STRONG evidence of CULTURAL SENSITIVITY | |

Inputs & Usability

The EASY-Care tool is comprised of a series of simple, scripted questions, designed for a structured interview with the patient. Generally this tool provides a form of self-reporting, although room is provided for additional comments from the assessor or a carer. EASY-Care developer Joy Marriott notes that...

“EASY-Care can be used as a self-assessment but is generally used as part of a consultation with a health or social care professional. The emphasis is that the assessment should be person-centred and from the user or older person’s perspective.”⁷⁹

An assessment using the EASY-Care tool has been found to be moderately brief, requiring approximately 40 minutes (range 18-50 min; mean 39 min) to administer.⁸⁶ The tool appears to be very usable, with clear worded questions using simple language. High acceptability of the tool amongst both the patients and the assessors has been consistently found.^{83,86}

The EASY-Care tool was usefully applied in one study comparing EASY-Care data obtained from two populations in nurse-administered annual health checks. The results demonstrated the ability of data generated by the EASY-Care assessment system to discriminate between populations of older people.⁸⁷

Outputs & Domain coverage

Of all of the screening tools, EASY-Care provides the most thorough coverage of the assessments domains, with items provided to assess all of the domains. The only significant gap in coverage is that no questions address psychological behaviour and risk.

One possible drawback of the EASY-Care system is that it does not produce many outputs except for an identification of needs. The other outputs it includes are an aggregate score of disability (weighted aggregate of items), a cognitive function score, a depression score, and two impact on carers scores.⁷⁹ It includes a space for an action plan but this consists of little more than a prompting for an action plan to be made. No assistance is provided for the prioritisation of, or solutions for, the identified needs.

Logistics & Implementation

The implementation of a paper-based EASY-Care is currently available. Using the computerised version, it is possible to accumulate data using an electronic database to show referral trends and generate outcome scores.⁷⁸ If linked, this would allow access to completed assessments, providing baseline assessment details on patients.⁸⁴ The electronic EASY-Care is fully developed and currently being piloted in 12 UK locations including Newcastle-upon-Tyne and Guernsey.⁵² The software appears to be well supported by Liquidlogic, with installation advice and software training available.⁸⁸

EASY-Care is not freely available and annual registration is obligatory should an organisation wish to use the tool.⁷⁹ Registration involves an annual fee of £500 per statutory organisation (there is a £50 discount for organisations who register as a composite, and a further £100 discount for voluntary organisations).⁷⁹ Registration brings various benefits such as 12 months of free copyright to photocopy the instrument, access to all new developments and a membership to the EASY-Care network. Dissemination of the tool would then be possible through the post but it cannot be download via the Internet.⁷⁹ EASY-Care suggest that the tool can be modified but warn that too much adaptation may undermine the validity of the tool and comparability with results from other users.⁷⁷

Training materials and support for the tool are currently being developed.⁷⁷ Also a training programme is available for the use of EASY-Care, training of trainers and facilitation⁸⁹, and assistance in developing training programmes in other countries is available.⁷⁹ Software training would be provided by Liquidlogic, through a ‘training of trainers’ system. User-training for the software would take approximately ½ day, assuming computer-literacy.⁸⁸

Summary

EASY-Care is a widely used and popular overview assessment tool. It appears to be the most comprehensive of the available screening tools, with thorough coverage of all domains. It is a simple tool with simple outputs, and does not provide much support beyond the identification of needs.

Table 5.12 Strengths and weaknesses of EASY-Care

| STRENGTHS | WEAKNESSES |
|---|--|
| Thorough, balanced coverage of all domains | Does not support needs prioritisation or solutions |
| Widespread use of validated questions / items | Amount of training support available is somewhat unclear |
| Popular, widely used and established tool | |
| Well-supported software available | |

5.3.2 75+ Health Assessments

Tool Overview

The 75+ Health Assessment tool was developed in Australia by Dr Jonathan Newbury as part of a study investigating the benefits of annual home visit health assessment of the elderly. It is not strictly an off-the-shelf assessment tool, but rather a tool developed and tested during a study. It is however worth investigation, and is available from Dr Newbury at the Adelaide University.

Evidence & Validation

Information on the tool was sourced from an MD thesis⁹⁰ and two published articles^{91,92}. The tool was developed for, and used in an Australian study, however it has not been formally validated. Overall, very little published evidence is available to support the reliability and validity of the tool.

Table 5.13 Summary of evidence for the reliability, validity and cultural sensitivity of the 75+HA tool. Note a large number of the items come from pre-existing scales with established reliability and validity.

| TEST-RETEST RELIABILITY |
|--|
| Evidence for |
| NIL - no literature available to support test-retest reliability |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for TEST-RETEST RELIABILITY |

| INTER-RATER RELIABILITY |
|--|
| Evidence for |
| NIL - no literature available to support inter-rater reliability |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for INTER-RATER RELIABILITY |

| FACE VALIDITY |
|--|
| Evidence for |
| NIL - was not developed by a panel of experts |
| WEAK - use of relatively simple language suggests face-valid questions |
| WEAK - use of some validated scales suggests some face-valid questions |
| Evidence against |
| NIL |
| Conclusion: VERY LIMITED evidence for FACE VALIDITY |

| CONTENT VALIDITY | |
|---|---|
| Evidence for | |
| | WEAK - ostensibly fair coverage of the domains NIL - no literature available to support content validity |
| Evidence against | |
| | NIL |
| Conclusion: VERY LIMITED evidence for CONTENT VALIDITY | |

| CRITERION VALIDITY | |
|--|---|
| Evidence for | |
| | NIL - no literature available to support criterion validity |
| Evidence against | |
| | NIL |
| Conclusion: NIL evidence for CRITERION VALIDITY | |

| CONSTRUCT VALIDITY | |
|---|---|
| Evidence for | |
| | NIL - no literature available to support construct validity |
| Evidence against | |
| | NIL |
| Conclusion: NIL evidence for CONSTRUCTVALIDITY | |

| APPARENT CULTURAL SENSITIVITY | |
|---|---|
| Evidence for | |
| | FAIR - use of simple language suggests face-valid questions |
| Evidence against | |
| | NIL |
| Conclusion: FAIR apparent CULTURAL SENSITIVITY | |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|--|--|
| Evidence for | |
| | VERY WEAK - High acceptance found amongst a sample of 20 clients (Newbury, J. MD thesis) |
| Evidence against | |
| | NIL |
| Conclusion: VERY LIMITED evidence of CULTURAL SENSITIVITY | |

Inputs & Usability

The tool consists of a scripted questionnaire, relying on an interview with the client. It also allows the presence of a carer or relative during the interview. It appears to be a reasonably brief questionnaire to administer. Although it contains a large number of questions, they are relatively straightforward. However it has been found that the questionnaire takes approximately 90 mins to administer⁹² with a total time of 2.0-2.5 hours required per assessment (including arrangement of interview, data entry and report delivery)⁹⁰, which is longer than most other screening tools. Reviewing the tool, it is unclear why the reported

assessment time is so great. There do not appear to be many more items than, for example, EASY-Care, which has reported assessment times to be half that of 75+HA.

Outputs & Domain coverage

The tool can be used to identify client needs, although the adequacy of care in meeting these needs is not thoroughly addressed by the tool. It contains scales for cognition (MMSE), ADLs (Barthel Index) and nutrition (Australian Nutrition Screening Initiative; ANSI)⁹³ that include simple scoring systems. However, it does not include any definite triggering mechanisms for further assessment.

The tool provides very thorough coverage of the 'Medical & Health' domain and good coverage of the 'Functional' domain. It lacks somewhat in the coverage of the 'Mental & Psychological' domain, including very few items on mood and none on behaviour. It has fair coverage of the 'Social' domain except that it lacks any assessment of the adequacy of the care provided.

Logistics & Implementation

Although it is available only in paper format, it is possible to create a simple database for direct data-entry.⁹⁰ It may be possible to obtain the pre-made database used during the studies conducted by Dr Newbury.

As the 75+HA is not a formalised tool, no training support is available. During studies by Newbury *et al.* the questionnaire was administered by trained research nurses during home visits.⁹² Newbury suggests that training should be the responsibility of the General Practitioner⁹¹, although he does not suggest how the General Practitioner should be prepared to perform the training.

Summary

Table 5.14 Strengths and weaknesses of the 75+ Health Assessment tool.

| STRENGTHS | WEAKNESSES |
|---------------------------------------|--|
| Cheap to implement | Weak coverage of the 'Mental & Psychological' domain |
| Includes a number of validated scales | Very little support provided |
| | No current evidence of validity or reliability |
| | No software available, although data-base collection should be easily achieved |

5.3.3 Short CANE

Tool Overview

The Short CANE is included as a supplement to the CANE comprehensive assessment tool (see Section 5.2.2).

Evidence & Validation

The literature available on the CANE does not seem to include an evaluation of the Short CANE. As such, no evidence is available to suggest this tool is valid or reliable. As with the full CANE, cultural sensitivity appears to be wholly dependent on the ability of the assessor to conduct an unbiased, cultural sensitive assessment.

A validation summary chart has not been included as there is little to summarise.

Inputs & Usability

Similar to the full CANE, the Short CANE entails interviews with the client, carer and health professional. This adds balance to the perspective of the assessment but also increases the time required to organise and administer the assessment. While the language used in the questions is simple, the items are rather vague. For example, for an assessment of 'Accommodation', the assessor is supported solely by the question "Does the person have an appropriate place to live?".

Outputs & Domain coverage

The Short CANE allows the identification of unmet needs in the 26 dimensions of the full CANE. It does not provide triggers for further assessment or a scoring system to help determine the required course of action.

The coverage of the domains is broad but shallow. It touches upon all 26 dimensions addressed in the full CANE, however only provides guidance for one short question to assess each.

Logistics & Implementation

The implementation of the Short CANE would have similar requirements to that of the full CANE as outlined in Section 5.2.2. This includes the need for highly trained professional assessors due to the highly subjective nature of the instrument.

Summary

The Short CANE includes the same 26 topics as the full CANE and again includes the perspectives of the patient, carer and staff. Rather than using select questions indicative of risk, as the other screening tools do, the Short CANE relies on a quick and extremely subjective assessment of need in the 24 broad topics. Questions such as "How is the person's physical health?" and "Does the person have problems with mood or anxiety?" are categorised into 'no need', 'met need' or 'unmet need' without the guidance of further established questions. This does not seem to provide much support for professional judgement. Additionally, the need for three separate interviews complicates and lengthens the screening process.

Table 5.15 Strengths and weaknesses of the Short CANE.

| STRENGTHS | WEAKNESSES |
|--|---|
| Includes multiple perspectives of need situation | Broad but thin domain coverage Extremely subjective Does not provide support for deciding on further assessment No evidence of validation Software not currently available Administration complicated by the use of three interviews |

5.3.4 FACE – Contact and Overview Assessment

Tool Overview

The FACE Overview Assessment is included as one of the modules in the FACE comprehensive assessment tool (see Section 5.2.3). It has been very recently updated to Version 2.0. This is the version that has been analysed for this report.

Evidence & Validation

The evidence and validation for the FACE Overview tool assessment is the same as for the FACE comprehensive assessment tool (see Section 5.2.3). Literature is supposed to be available soon, affirming the validity of the FACE tool, although it is unclear as to whether or not these studies have included the Overview assessment tool.

A validation summary chart has not been included as there is little to summarise.

Inputs & Usability

The assessment consists of a number of items which entail a simple ‘yes’ or ‘no’ response to the presence of a problem. The release version includes a standard dependency scale in the functional domain. Little instruction is provided for how to go about the assessment, with no scripted questions or suggested scales provided with the tool. However the user’s guide provides some assistance with this.⁴⁶ Rather, the tool provides a structure for an assessment and which domains/dimensions should be addressed. It appears to be relatively brief to administer, although this would depend on the nature of the assessment procedures chosen by the assessor.

Outputs & Domain coverage

Generally the Overview assessment has good domain coverage in comparison to other screening tools. However the question remains as to how to obtain consistent information using this tool as no scripted questions or guidelines are provided, instead simply a box to tick if there is deemed to be a need in a particular area.

The Overview assessment aids in the identification of need. Also, the software is supposed to provide a triggers system for further assessment⁴⁸, although it is somewhat unclear what exactly this includes. The tool prompts decisions as to whether or not a specialist assessment is required but this does not include the assistance of a scoring system.

Logistics & Implementation

As the FACE Overview assessment is included in the overall FACE product, its implementation would have the same (no further) requirements.

Summary

The Face Overview assessment appears to be an appropriate accompaniment to the FACE comprehensive tool. It employs a design similar to that of the FACE comprehensive tool by simply providing a guideline and structure for assessment rather than a rigorous scripted process. If this method is deemed satisfactory for the comprehensive tool it should probably also be satisfactory for the Overview tool.

Table 5.16 Strengths and weaknesses of the FACE Overview assessment tool.

| STRENGTHS | WEAKNESSES |
|---|--|
| Generally thorough domain coverage | Weak coverage of the 'Functional' domain |
| Couples well with the FACE comprehensive tool | Lacks clearly defined assessment procedures |
| Software available | No current evidence of validity or reliability |

5.3.5 MDS-HC Overview & Overview+

Tool Overview

The MDS-HC Overview and Overview+ instruments were created by interRAI based on data from the interRAI HC database. Item selection was based upon fitting to the Self Reliance and MI-CHOICE algorithms (see Section 5.2.4) and prevalence of problems.⁹⁴ They were originally called the 'Screener' and 'Screener +' but renamed 'Overview' and 'Overview +' for UK practice to match the terminology used by the UK Department of Health for the Single Assessment Process.

The MDS-HC includes two options for overview assessment. The MDS-HC Overview is simply a selected group of items from the comprehensive tool. A more thorough overview assessment is provided by Overview+, which includes the same set of items as the Overview tool with an additional group of supplementary items. These tools are inherently included in the MDS-HC tool and in the software.

Evidence & Validation

As the items used in the MDS-HS Overview and Overview+ tools are taken directly from the MDS-HC comprehensive tool (see Section 5.2.4) the cultural sensitivity, reliability and validity of these instruments should be equivalent.

The exception may be content validity, as this relates to the appropriateness of the selection of items rather than the validity of the items chosen. The selection process, as outlined below by I. Carpenter, evidences the content validity of the overview tools.

“The domains within the 'Overview' and 'Overview +' match the UK Department of Health (DoH) domains required for the SAP exactly (www.doh.gov.uk/scg/sap), except for requiring the addition of an item on sleep copied from the MDS-RAI (nursing home instrument) and copied into the HC for UK practice. Thus the validity of the content of these components comes from the requirements in the UK DoH National Service Framework for Older People.”⁹⁴

Inputs & Usability

The inputs and usability are generally the same for the overview tools as for the comprehensive MDS-HC. The length of an assessment will vary, as the MDS-HC Overview and Overview+ assessments contain approximately 1/3 and 2/3 respectively, of the total items of the comprehensive assessment.

Outputs & Domain coverage

As the tool is an 'integrated whole', the outputs of the overview assessments directly feed into the comprehensive tool. The domain coverage of the MDS-HC Overview assessment is relatively well-balanced and thorough compared with other overview tools. The MDS-HC Overview+ assessment lies somewhere between an overview and a comprehensive assessment tool, and as such has very thorough domain coverage.

The contact assessment is a very quick and simple process taking only a few minutes to complete.⁶⁵ It includes the gathering of general information, an evaluation of cognitive skills for decision making, a small number of ADLs and IADLs, and an identification of general physical activity.

Logistics & Implementation

As the MDS-HC Overview and Overview+ assessments are included in the overall MDS-HC product, their implementation would have the same (in other words no further) requirements.

Summary

It has the advantage of directly comparable data between itself and the MDS-HC comprehensive tool. However it has a potential disadvantage in that it was not created specifically as an overview tool, rather it consists of a selection of comprehensive tool questions.

It appears that the MDS-HC would function well as a whole, using the Overview, Overview+ and comprehensive tools where appropriate. However, the EASY-Care tool may soon be available in a form which is compatible with the MDS-HC, and may provide a more effective overview assessment than the MDS-HC Overviews.

Table 5.17 Strengths and weaknesses of the MDS-HC Overview and Overview+ assessment tools.

| STRENGTHS | WEAKNESSES |
|---|-------------------------------|
| Compatible with MDS-HC comprehensive tool Generally thorough domain coverage | Uses comprehensive tool items |

5.4 SCREENING TOOLS

5.4.1 STEP

Tool Overview

The STEP tool (Standardised Assessment of Elderly People in Primary Care in Europe) was developed between 1995 and 2002 by a panel of European professionals with extensive experience in various aspects of caring for older people.⁹⁵ It was designed as a ‘proactive’ assessment tool aimed at recognising existing disability/handicap in order to contain or improve the situation by treatment or rehabilitation. It was designed to be applied opportunistically and is aimed at prevention rather than assessing a pre-identified problem situation. Therefore it is more closely aligned to a screening assessment tool than an overview or comprehensive tool. It is designed as a pre-emptive health-screening tool to identify risks before the manifestation of problems.

Evidence & Validation

The report by Williams *et al.* provides a complete account of this tool, including its design and development, validity and source of questions, and its purpose⁹⁵.

Although no literature is currently available demonstrating the validity and reliability of the tool as a whole, STEP was developed on a solid evidence base. The questions included in the instrument were as far as possible validated on populations of older people and designed to reliably identify the given condition. Each item was chosen based on criteria indicating the quality and validity of the question. Conditions were only included for assessment if evidence existed that benefit would arise from their identification, giving an element of content validity to the tool. Face validity is supported by the use of an expert panel in the tool development.⁴

The cultural sensitivity of the tool appears to be high as the tool was developed specifically for use in the culturally diverse setting of Europe. Despite the different cultural make-ups of the New Zealand and European populations, the tool would most likely perform effectively in this country.

Table 5.18 Summary of evidence for the reliability, validity and cultural sensitivity of the STEP assessment tool. Note a large number of the items come from pre-existing scales with established reliability and validity.

| TEST-RETEST RELIABILITY | |
|---|--|
| Evidence for | NIL - no literature available to support test-retest reliability |
| Evidence against | NIL |
| Conclusion: NIL evidence for TEST-RETEST RELIABILITY | |

| INTER-RATER RELIABILITY | |
|---|--|
| Evidence for | NIL - no literature available to support inter-rater reliability |
| Evidence against | NIL |
| Conclusion: NIL evidence for INTER-RATER RELIABILITY | |

| FACE VALIDITY | |
|--|--|
| Evidence for | |
| | FAIR - developed by an international panel of experts |
| | WEAK - use of relatively simple language suggests face-valid questions |
| | FAIR - use of validated questions suggests face-valid questions |
| Evidence against | |
| | NIL |
| Conclusion: FAIR evidence for FACE VALIDITY | |

| CONTENT VALIDITY | |
|--|---|
| Evidence for | |
| | VERY WEAK - good coverage except for weak coverage of 'Mental & Psych.' and 'Social & Environ.' domains |
| | WEAK - evidence-based selection of items |
| | NIL - no literature available to support content validity |
| Evidence against | |
| | NIL |
| Conclusion: LIMITED evidence for CONTENT VALIDITY | |

| CRITERION VALIDITY | |
|--|---|
| Evidence for | |
| | NIL - no literature available to support criterion validity |
| Evidence against | |
| | NIL |
| Conclusion: NIL evidence for CRITERION VALIDITY | |

| CONSTRUCT VALIDITY | |
|---|---|
| Evidence for | |
| | NIL - no literature available to support construct validity |
| Evidence against | |
| | NIL |
| Conclusion: NIL evidence for CONSTRUCTVALIDITY | |

| APPARENT CULTURAL SENSITIVITY | |
|---|--|
| Evidence for | |
| | FAIR - development under the scrutiny of many experts |
| | FAIR - use of simple language suggests face-valid questions |
| | FAIR - uses established questions that have been tested for cultural sensitivity |
| Evidence against | |
| | NIL |
| Conclusion: HIGH apparent CULTURAL SENSITIVITY | |

| EVIDENCE OF CULTURAL SENSITIVITY | |
|---|---|
| Evidence for | |
| | NIL - no literature available to support cultural sensitivity |
| Evidence against | |
| | NIL |
| Conclusion: NIL evidence of CULTURAL SENSITIVITY | |

Inputs & Usability

The STEP tool relies on the administration of carefully scripted questions to obtain the necessary assessment information from the client. Although it does not initially involve the input of the carer or examination of the client, triggers are present in the tool to prompt these inputs where required. The questionnaire is relatively brief to administer, consisting of 30 concise questions. The language used for the scripted question has been kept to a relatively simple level to facilitate use with people whose native language is other than English. However, the panel recognises that translation may be necessary to account for the needs of some ethnic minorities and non-English speakers.

Outputs & Domain coverage

The outputs of the STEP tool provide the most comprehensive professional support of any of the available screening tools. The results of the questions are tied to outlines of how the identified needs should be addressed. These outlines include triggers for further assessments (including some recommendations as to which scale may be appropriate), indications of which parties require notification, and prompts for the investigation of cause.

The STEP tool is primarily grounded in the ‘Medical & Health’ and ‘Functional’ domains of older person assessment. Its coverage of the ‘Mental & Psychological’ and ‘Social & Environmental’ domains is comparatively thin. Despite the relative slenderness of coverage in the mental and social domains, the assessments may in fact be adequate for the aims of a screening assessment.

Logistics & Implementation

The tool is available only in paper format and as such the administration of the assessment is limited. However, due to the simple nature of the tool, development of an elementary software system would be a relatively straightforward undertaking. The tool does provide a suggested database for the compilation and comparison of data. Training is not available, although as the questions are generally validated and straightforward, the need for training will not be as great as with some other tools.

Summary

The STEP tool appears to be a well-designed screening instrument. It is strongly evidence based, quick to administer and provides excellent support for professional decision-making. The only ostensible weaknesses of the tool are that it is not available in software format and it provides thin coverage of the ‘Mental & Psychological’ and ‘Social & Environmental’ domains. The addition of a few carefully chosen items addressing cognition, memory, social functioning and care adequacy could greatly improve the coverage of this tool.

Table 5.19 Strengths and weaknesses of STEP.

| STRENGTHS | WEAKNESSES |
|--|--|
| Widespread use of validated questions / items | Weak coverage of ‘Mental & Psychological’ domain |
| Triggers further necessary assessments | Weak coverage of ‘Social & Environmental’ domain |
| Provides excellent support for deciding on solutions for unmet needs | Software not available |
| | Training not available |

5.4.2 VES-13: Vulnerable Elders Survey

Tool Overview

The Vulnerable Elders Survey was developed as a simple method for identifying community-dwelling older people at increased risk of death or functional decline. VES-13 is a highly concise, 13-item, self-reporting survey that uses a simple scoring system to classify the vulnerability of the clients.

Evidence & Validation

The development and validation of this tool is provided in a self-contained article⁹⁶, which has been critically appraised for levels of evidence. No evidence is provided for the reliability of the tool, and although the tool uses simple questions, it relies on self-reporting, which may underestimate the prevalence of under-diagnosed conditions.⁹⁶ Although there is no direct evidence for face validity, the relatively simply worded questions and consultation with an expert panel during development, lend a limited amount of evidence.

The language used for the scripted question has been kept to a relatively simple level to facilitate use with people whose native language is other than English suggesting a level of cultural sensitivity although no evidence is provided. However, the age item may cause problems with cultural sensitivity, as the relationship between vulnerability and age may differ across races, which is not taken into consideration by the survey.

Table 5.20 Summary of evidence for the reliability, validity and cultural sensitivity of the VES-13 survey.

| TEST-RETEST RELIABILITY | |
|---|--|
| Evidence for | NIL - no literature available to support test-retest reliability |
| Evidence against | NIL |
| Conclusion: NIL evidence for TEST-RETEST RELIABILITY | |

| INTER-RATER RELIABILITY | |
|---|--|
| Evidence for | NIL - no literature available to support inter-rater reliability |
| Evidence against | NIL |
| Conclusion: NIL evidence for INTER-RATER RELIABILITY | |

| FACE VALIDITY | |
|--|--|
| Evidence for | WEAK - developed in consultation with a panel of experts WEAK - use of relatively simple language suggests face-valid questions |
| Evidence against | NIL |
| Conclusion: VERY LIMITED evidence for FACE VALIDITY | |

| CONTENT VALIDITY |
|--|
| Evidence for |
| NIL - no literature available to support content validity |
| Evidence against |
| STRONG - nil coverage of 'Mental & Psychological' and 'Social & Environment' domains |
| Conclusion: NEGATIVE evidence for CONTENT VALIDITY |

| CRITERION VALIDITY |
|---|
| Evidence for |
| NIL - no literature available to support criterion validity |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for CRITERION VALIDITY |

| CONSTRUCT VALIDITY |
|---|
| Evidence for |
| NIL - no literature available to support construct validity |
| Evidence against |
| NIL |
| Conclusion: NIL evidence for CONSTRUCTVALIDITY |

| APPARENT CULTURAL SENSITIVITY |
|--|
| Evidence for |
| FAIR - development under the scrutiny of many experts |
| FAIR - use of simple language suggests face-valid questions |
| Evidence against |
| WEAK - vulnerability versus age relationship may vary across races |
| Conclusion: FAIR apparent CULTURAL SENSITIVITY |

| EVIDENCE OF CULTURAL SENSITIVITY |
|---|
| Evidence for |
| NIL - no literature available to support cultural sensitivity |
| Evidence against |
| NIL |
| Conclusion: NIL evidence of CULTURAL SENSITIVITY |

Inputs & Usability

The VES-13 tool relies on self-reported responses to carefully scripted questions to obtain the necessary assessment information from the client. It does not involve the input of the carer or any examination of the client. The questionnaire is very brief to complete (<5 min phone interview⁹⁶), requiring answers to just 13 simple questions.

Outputs & Domain coverage

The VES-13 is a ‘functional risk factor’ screening tool. Every question contained in the tool assesses ‘Functional’ domain except the statement of the client’s age and perception of general health. It omits any consideration of the other domains limiting its conclusions. While it may demonstrate a very good correlation at identifying older persons at greater risk of physical decline, a large percentage of older persons with needs would slip through the large gaps in the assessment.

The scoring system of the tool provides a kind of trigger, designating clients as either significantly vulnerable or not significantly vulnerable. It does not however identify specific needs of the client or address the adequacy of the care situation. A need which is met by care, is actually scored as an indicator of vulnerability, whereas an unmet need does not register increased vulnerability. Also, age weighs heavily in the scoring system, contributing up to 3 out of 10 possible points. This means it is possible for an 84 year old who is unable to stoop, crouch, kneel, lift or carry heavy objects, extend their arms above shoulder level, write or grasp small objects, walk a quarter of a mile, or scrub floors, can score the same VES-13 vulnerability as an 85 year able to perform all of these tasks without difficulty.

Logistics & Implementation

The tool is available in a simple paper format which could be easily posted for a mail survey. No software support exists but for the purposes of this tool a simple database of the results would suffice. No training is available for this tool, although it is not required as the survey uses self-reporting.

Summary

It appears of little applicable use due the fact that it doesn’t address the care situation and its adequacy. The scoring system is highly weighted towards age as an indicator of potential functional decline. Generally, it has considerable gaps, and caution should be taken if applying this tool as a screening device.

Table 5.21 Strengths and weaknesses of VES-13.

| STRENGTHS | WEAKNESSES |
|----------------------------|--|
| Very brief to administer | Zero coverage of ‘Mental & Psychological’ domain |
| Simple and clear questions | Zero coverage of ‘Social & Environmental’ domain |
| | Weak coverage of ‘Medical & Health’ domain |
| | Support, training and software not available |
| | Does not identify needs |
| | Does not evaluate care adequacy |
| | Self-reporting may contain bias |

5.5 OTHER ASSESSMENT TOOLS

This section includes a brief introduction to a number of assessments tools and projects that, while relevant to the broader issues, fall outside the scope of this report.

HRA: Health Risk Appraisal

Health Risk Appraisal (HRA) is a method of assessment designed at improving health situations/lifestyles as opposed to assessing the needs and care situations of older people. While it may be a useful concept, it does not fall into the category of tools included in the agenda of this report. A separate preliminary investigation into the potential implementation of HRA may be useful. A good comprehensive assessment tool for older people will ideally include an element of HRA, as it should serve health promotion in addition to simply assessing needs.

Rand ACOVE project: Assessing Care of Vulnerable Elders

The ACOVE project is designed to assess the quality of the care given to an older person rather than assessing their needs and the adequacy of care they are receiving.^{97,98,99} It has been aimed at the development of quality of care indicators for vulnerable elderly. It does not fall within the scope of this report, but may be worth investigating further. A system such as the ACOVE could be used in conjunction with the tools reviewed here; assisting in the formulation and planning of appropriate, high-quality care in response to the identified unmet needs of the older person.

CAPE: Clifton Assessment Procedures for the Elderly

The CAPE appears to be primarily a psychological rating scale rather than a comprehensive assessment tool. It dates back to 1979¹⁰⁰, and has been used extensively to assess mental state and psychiatric symptoms such as behaviour, communication and cognition. However, it does include some measures of other areas of disability including self-care, incontinence, and mobility.

MDS-RAI: Minimum Data Set – Resident Assessment Instrument

The MDS Resident Assessment Instrument was designed by interRAI as an equivalent to the MDS-HC tool for use in nursing homes. The tool seems to be very well supported, thoroughly documented and validated, and has well-established software available. The MDS-RAI and MDS-HC (Section 5.2.4) have been designed to complement one another and share many common features. An in-depth analysis of this tool has not been included in this report.

RCN Assessment Tool: Royal College of Nursing

The RCN assessment tool has been designed to assess the nursing needs of older people living in care homes. It is supposed to assist in evaluating the health of an older person, identify whether or not they need the care of a registered nurse, and estimate the level and number of hours of nursing care they require.¹⁰¹ It appears to be a well-established and popular tool, and should be evaluated along with the MDS-RAI as an instrument for assessing older people in nursing homes.

Caregiver Assessment Tool

This tool was designed to collect information on many different aspects of the caregivers situation and to identify areas of difficulty being experienced and which services or support would best assist the caregiver. The tool design and validation are thoroughly explained in a report by Guberman *et al.* (2001).¹⁰² It is possible that the Caregiver Assessment Tool could be usefully coupled with a comprehensive tool that is lacking an assessment of carer needs.

CAT: The Common Assessment Tool

The Common Assessment Tool (CAT) is a local adaptation of the EASY-Care. It was redesigned and augmented to fit the local conditions of Cambridgeshire County in the UK.¹⁰³ The primary significance of this tool is that an extensive amount of work has been put into developing a state-of-the-art electronic data gathering system.¹⁰⁴ This system includes software developed in partnership with Microsoft¹⁰⁵, the use of portable iPAQ mini-computers, and comprehensive information networks. This tool demonstrates the adaptability of assessment tools (particularly EASY-Care) to meet local needs, and provides an example of a highly efficient method of implementation.

PRA: Probability of Repeated Hospital Admission Questionnaire

The PRA (Probability of Repeat Admission) questionnaire is a simple, self-administered, postal questionnaire used to identify older adults at risk of repeated hospitalisation.¹⁰⁶ The probability of repeated admission (P_{ra}) is computed using an algorithm which uses scored answers from a series of questions. The population can then be divided into 'high risk' and 'low risk' categories using the algorithm results. The survey questions cover self-perceived health, age, hospital admissions, gender, presence of some diseases, and care availability.

A number of studies have shown that it appears to be valid, and that it may be usefully used to help target older people for interventions to prevent the need for hospital care.¹⁰⁶ Also, a study in the USA used a combination of the PRA and MDS-HC with a large group of veterans, finding the system helped to discover previously unidentified unmet needs.¹⁰⁷

It may be considered as a less comprehensive, but more medically focussed alternative to the VES-13 screening tool. However, the information it gains seems to be rather limited, suggesting that its use would require careful consideration of what is not included.

6.0 COMPARISON OF TOOLS

It would be of little use to make comparisons across the categories of comprehensive and screening assessment as they are designed for different purposes within the overall assessment process. Therefore the comparisons will include a Comprehensive tool comparison (Section 6.1), Overview tool comparison (Section 6.2) and a Screening tool comparison (Section 6.3). Substantial parts of the comparisons were drawn from an in-depth breakdown analysis of each tool summarised in the spreadsheet analysis (Section 5.1). This analysis sliced the many confounding aspects of the assessment tools into their most basic elements expediting subsequent comparisons.

While this report has endeavoured to identify the major strengths and weaknesses of each tool, the relative importance of these must be decided based on the issues covered externally to this report. For this reason, the following comparison of the tools should be supplemented with findings of other reports that deal with how the issues relating to the tools will affect the goals and concerns surrounding a New Zealand implementation.

6.1 COMPREHENSIVE TOOL COMPARISON

As will be seen, the tools vary substantially in content and design. This section will attempt to provide contrast by highlighting some of the key differences between these tools.

Validity

It is highly important that the scientific literature indicates that the assessment instrument is valid, reliable and culturally sensitive.⁶ These criteria can be fulfilled at the level of the individual items, scales, or the level of the tool as a whole, but it must be met. Unfortunately, largely due to the relatively recent emergence of these tools, with the exception of MDS-HC, very little literature is available affirming validity.

Of the comprehensive tools, the MDS-HC has the most evidence indicating its reliability, validity and cultural sensitivity, with numerous published articles available. Although no literature is available on the contextio Geriatric Assessment Wizard it has substantial evidence for validity. This is due to its inclusion of many validated scales, items and objective tests. The CANE and FACE tools currently both lack conclusive validation evidence. The CANE is supported almost exclusively by the results presented in one article³⁷, while evidence of the validity of the FACE tool is expected to be available within the year.⁴⁷

Usability

It is very difficult to objectively compare the usability of each tool, especially without direct experience using the tools. The relative usability of the tools has been based on comparing the items of each tool with regards to the brevity of the assessment, the simplicity of the language used and how clearly defined the assessment process and questions are.

Very few estimates were available as to the relative time requires for the comprehensive assessments. The contextio Geriatric Assessment Wizard would appear to be the most time consuming as it involves a series of objective tests, each of which would require time to organise, administer and analyse. The CANE would perhaps be somewhat lengthier than the MDS-HC as it requires an extra interview. The time required for an assessment using the FACE tool may vary depending on how the tool is used.

Language simplicity is of relevance to ease and clarity of information transfer and is particularly important concerning people with English as a second language, hearing problems, or cognitive disability. It is only of direct importance if the tool uses scripted questions. However, if a tool incorporates guidelines for an assessment that use complicated language, this may encourage an assessor to transfer this complexity to the interview. Although it is difficult to compare, it appears that of the four comprehensive tools the CANE uses the simplest language and the FACE tool the most difficult language. Of the four tools, only contextio uses scripted questions, for which the language appears to be appropriately simple.

It is important that the information to be gained from a question or item is clear to both the assessor and the assessed. If a question is vague miscommunication could result and inter-rater reliability may be compromised. It seems that all of the comprehensive tools use questions and items that are clearly defined. The CANE tool is perhaps the most vague, relying on broad questions supported by a few examples of symptoms/needs.

Inputs

The tools vary as to which people's inputs are allowed and/or required. All of the tools require an input from the client, whether it is in the form of direct questioning, observation or objective testing. Three of the tools (MDS-HC, CANE and FACE) additionally allow for assessment information sourced from the primary caregiver. The contextio Geriatric Assessment Wizard does not emphasise the sourcing of information from the caregiver (although allowance is made), relying instead on questioning and objective testing of the client. The CANE also draws information from 'staff', who may be the client's general practitioner, or another formal carer who is familiar with the client's clinical condition. This provides an additional perspective, which may help to increase the accuracy and sensitivity of an assessment, but also increases the amount of time required to perform an assessment.

Outputs

The outputs of the MDS-HC and accompanying software are very impressive, including many features not available with the other tools. Among these unique features are the Client Assessment Protocols (CAPs) which assist in the development of plan to address the identified unmet needs. The features of the FACE tool, while not as comprehensive as those of the MDS-HC, appear to be useful. Contextio may be used to effectively manage and process assessment data, but does not appear to contain features as innovative as those of the MDS-HC and FACE tools. As the CANE tool does not currently have software available, its outputs are rather limited in comparison to the other comprehensive tools. It is still unclear what the CANE software will include.

The CANE, FACE and contextio tools do not include a standardised system to assist in responding to the identified unmet needs. If considered a requirement for New Zealand this would need to be developed. Additionally, the FACE tool does not contain an exact assessment procedure. This may require development at either a local or national level.

The domain coverage is most comprehensive for the FACE and MDS-HC tools. The contextio Geriatric Assessment Wizard has comparatively thin coverage of the 'Social & Environment' domain, while the coverage of the 'Medical & Health' and 'Functional' domains are relatively weaker for the CANE.

Modifiability

No matter which tool or tools are chosen, some amount of modification will be required for use in New Zealand. The issue is the amount of modification required and the difficulty and cost associated with implementing the change. It is difficult to quantify the amount of change needed for each tool until it has been decided exactly what requires changing.

The modification of a tool involves two separate issues: firstly, the modification of the tool itself (questions, wording, content etc.) and secondly modification of the software (if available). For all tools, modification of the questions would have to be carefully considered, probably in consultation with the tool developers. Any changes to the tool may have an impact on the reliability and validity of the tool and must be made with care. The possibility of modifying the software depends on the software developer. It is difficult to estimate how difficult and expensive a modification will be until it is clear what it will entail. It has been indicated that a certain amount of modification of each software system is possible (AIS Inc. MDS-HC⁷², contextio and FACE).

Training Support

Adequate training of the assessors is crucial for assessment accuracy, consistency and sensitivity. Although some tools rely more on the competency of the assessor than others, assessor competence is absolutely vital no matter which tool is used. Training is necessary for both the administration of an assessment using the tool, and for the use of the software (where applicable). The training workshops that are available are invariably located outside of New Zealand. However, if a New Zealand wide implementation were to take place it would likely be possible to organise local training workshops. The organisation of a local training program would be facilitated if the tool had a pre-established training system as training material and experience would be readily available.

Of the four comprehensive tools the MDS-HC has the most training support available. It includes a comprehensive manual, a multimedia instructional system (Mastering MDS), training workshops and comprehensive software support. The FACE tool also appears to have a good training program in place, especially with regards to software support and training. Training support seems to be limited for the CANE. A manual is available, however it appears that a formal training program and material would need to be developed. Contextio does not provide any training with the tool. Only a limited amount of software support could be provided.

Implementation and Operating Costs

All cost estimates would be very speculative until a pilot study was performed. The development of usefully accurate cost estimates would involve extensive research for each tool suggesting a detailed costing analysis be left until the most promising tools have been selected. For these reasons costing issues rather a comparison of cost estimates are included in this report (see Section 7.0).

Summary

The main advantage of the contextio Geriatric Assessment Wizard is that it is the only tool to employ objective tests and established scales. The main disadvantages of the tool are the relative lack of support provided (training and software), the seemingly limited applications of the software and potentially lengthy and awkward assessment procedure required.

The primary advantage of the CANE is that it uses a multi-perspective assessment/interview process. Also, the assessment procedure guidelines it provides are flexible. This may allow a more sensitive and comfortable interview than possible with more rigidly structured tools, but also increases the subjectivity and dependence on the assessor. The weaknesses of the CANE include the current unavailability of software, and the somewhat limited training support available.

The FACE tool has comparatively strong domain coverage, ostensibly effective software and significant training and software support. One shortcoming is that there is currently little evidence of its validity (although this is expected soon).

The MDS-HC is a widely used, strongly supported and validated tool. It includes thorough domain coverage, comprehensive software, and ample training and software support. The only foreseeable disadvantage of the MDS-HC is the amount of time and resources that its implementation and use may require.

6.2 OVERVIEW TOOL COMPARISON

An overview tool may be used to identify particular areas of need or risk that need further specialised or comprehensive assessment. EASY-Care, 75+ Health Assessments and the overview tools associated with the CANE, FACE and MDS-HC are compared here in a similar manner to the comprehensive tools (Section 6.1).

Validity

Of the overview assessment tools, EASY-Care and the MDS-HC overviews have the most evidence suggesting reliability, validity and high levels of cultural sensitivity. The FACE, CANE and 75+HA overview tools have very little validation evidence, but appear to be adequately culturally sensitive. However, the 75+HA tool does include a number of pre-validated items and scales supporting validity.

Usability

The language used in the EASY-Care questions and by the CANE tool is particularly simple, and for the other overview tools the language seems adequately undemanding.

Few estimates are available for the time required for assessments using these tools. However it appears that the FACE overview assessment would require the least amount of time to administer having relatively fewer items. However this would depend once again on the procedural choice of assessment. The MDS-HC Overview+ and 75+HA appear to be significantly longer to administer than the other overview tools. For the MDS-HC Overview+ this is because of the large number of items included, close to that of a comprehensive tool. The 75+HA would appear to be somewhat briefer to administer, however estimates are available that suggest that a relatively length 90 minutes are required for an assessment.⁹⁰

The MDS-HC, EASY-Care and 75+HA overview tools all have well defined questions and items. However, the items of the FACE and CANE tools appear rather vague, particularly those of the latter. Both tools require yes/no evaluations of need in broad areas, with relatively little supporting clarification included.

Inputs

The 75+HA and EASY-Care tools use scripted questions for their assessment, while the FACE, CANE and MDS-HC overview tools simply include assessment guidelines. This means that the 75+HA and EASY-Care assessments are more likely to rely on fewer perspectives than the other tools.

Outputs

The MDS-HC and accompanying software once again offer the most comprehensive outputs of the available overview tools. The 75+HA and the CANE overview tool do little more than assist in the identification of unmet needs. When coupled with the available software, the FACE overview and EASY-Care tools provide triggers for further assessment in addition to need identification. The following software arrangements are supposed to provide triggering mechanisms feeding from an overview assessment directly into the comprehensive assessment:

Table 5.22 Summary of direct triggering from overview to comprehensive assessments

| Overview Tool | Comprehensive Tool |
|--|---------------------------------|
| EASY-Care (with Liquidlogic software)* | MDS-HC (with AIS software) |
| EASY-Care (with Liquidlogic software)* | FACE (with supporting software) |
| FACE (with supporting software) | FACE (with supporting software) |
| MDS-HC Overview(+)(with AIS software) | MDS-HC (with AIS software) |

*These collaborations are still under development.

The domain coverage of the overview assessment tools is generally fairly thorough, although less than that of the comprehensive tools. Of the available overview tools, the MDS-HC Overview+ provides by far the most comprehensive domain coverage. The least substantial coverage is given by the CANE overview, with large gaps occurring across the ‘Medical & Health’ and ‘Functional’ domains.

Modifiability

Although it is difficult to ascertain, it appears that all of the overview tools can be modified somewhat. The most easily modifiable tool would be the 75+HA, as this tool is not an off-the-shelf, rigorously defined tool. It is difficult to estimate the ease with which modifications could be made to the software systems, especially as the links between the EASY-Care (Liquidlogic) and FACE software, and the EASY-Care and MDS-HC (AIS Inc.) software are still under development.

Training Support

The thorough support and training available for the MDS-HC appears to be applicable to the overview sections of the tool. This training and support includes a comprehensive manual, a multimedia instructional system (Mastering MDS), training workshops and comprehensive software support. Similarly the training program for the FACE tool and software should be applicable for the overview section. EASY-Care seems to have a fair amount of training support available and has more material under development. Training is also available for the Liquidlogic software. Training is again somewhat limited for the CANE. No training or support would be available for the 75+HA, although perhaps the tool developer could be approached for advice.

Implementation and Operating Costs

As mentioned above (see Section 6.1), a costing analysis has not been included in this report.

Summary

EASY-Care is widely used, popular and has been somewhat validated. It is the only overview tool that uses scripted questions and includes software. The software system will soon be compatible with both the MDS-HC and FACE tools. Generally it appears to be a soundly developed tool with few obvious weaknesses.

The 75+HA has the advantage that it is cheaply available and easily modified. However, it is relatively unvalidated, provides little support in addition to need identification, and does not have software or training available.

The CANE overview tool does not appear to be as useful as the comprehensive CANE tool. It does not seem to have been separately validated, has relatively weak domain coverage, and provides vague guidelines for the assessment.

The MDS-HC overview tools share many of the strengths of the comprehensive MDS-HC. If the MDS-HC comprehensive tool was to be used, a choice between the MDS-HC overviews and EASY-Care would need to be made. The major difference between these tools is the assessment method – with EASY-Care using scripted questions, and the MDS-HC relying on assessment guidelines.

6.3 SCREENING TOOL COMPARISON

A screening tool may be desired for a mass screening of the population to identify people of higher risk than others. Three screening tools were assessed in this report. The STEP and VES-13 tools have both been thoroughly analysed (Sections 5.4.1 and 5.4.2 respectively) while the PRA questionnaire has been briefly reviewed (Section 5.5). The relative strengths and weaknesses of these tools are discussed here.

All of these screeners use scripted questions, relying on self-reporting, and can be administered by postal or telephone surveys. The STEP would be considerably lengthier to administer, involving about five times more items than the other two surveys.

The STEP tool is much more comprehensive than the VES-13 and PRA, touching upon most domains and sub-domains. The VES-13 assesses vulnerability based almost exclusively on questioning of the 'Functional' domain, while the PRA is based almost entirely on the 'Medical & Health' domain. The VES-13 and PRA simply identify older people who may be more vulnerable than the general population and cannot be used to identify specific needs. STEP however, is able to assist with need identification and also provides assistance for the determination of further assessments and action plans.

The STEP survey, while taking longer to administer, would appear to provide a much more useful assessment of need as it considers a much broader range of issues than the VES-13 or PRA.

7.0 IMPLEMENTATION AND COSTING

A large-scale implementation of an automated assessment system would be costly. Expenditures would be required for many aspects of the implementation. The implementation would require both an initial capital investment and ongoing maintenance costs. An attempt at providing a detailed costing analysis for a New Zealand implementation has not been attempted in this report. Rather, a cost estimate from a UK implementation of the MDS-HC has been included below to highlight some of the generic costing issues involved.

A thorough cost estimate has been performed for a large-scale implementation of the MDS-HC in Cheshire County, UK. Cheshire County has about one fifth the population of New Zealand. These cost estimates have been based on pilot studies⁶⁴ performed across the county, and include many factors relevant to a New Zealand implementation. Although the study has used the MDS-HC and accompanying AIS software, many aspects are applicable to the use of other tools and software systems. The report has been included in Appendix A with the permission of the author, David Hamilton, with a warning that the MDS license costs are ‘book’ prices rather than realistic negotiated prices, and are probably disproportionately high.¹⁰⁸ This is just one study and should be interpreted as such. The actual costs will be confounded by many factors including:

- Price differences between New Zealand and the UK (hardware, salaries etc).
- Fluctuations in the exchange rate.
- Different scale of implementation.

The importance of this costing analysis is some of the issues it raises, highlighting many of the inputs required for an implementation.

The report provides cost estimates for three different degrees of implementation – minimal intermediate, and maximum (with 576, 2600 and 5849 total users respectively). These estimates assume a ‘big bang’ implementation, completed within a year. Both the initial capital costs and the annual maintenance and support costs have been estimated (see Table 7.1 below).

Table 7.1 Summary of Cheshire County cost estimates for an implementation of an automated Single Assessment Process using the MDS-HC (summarised from Appendix A).

| Users | | Costs | |
|-------|------------|----------|----------|
| Total | Concurrent | Initial | Annual |
| 576 | 115 | £385,310 | £118,810 |
| 2600 | 520 | £807,960 | £198,500 |
| 5849 | 1170 | £972,570 | £255,368 |

Expectedly, costs per user decrease as the scale of implementation increases. This would have positive implications for a large-scale nationwide implementation in New Zealand.

The individual elements contributing to the total initial capital costs (Table 7.2) and annual maintenance and support costs (Table 7.3) have been itemised.

Table 7.2 Cost elements and their percentage contribution to total initial capital requirements as identified in the Cheshire County cost estimates for a ‘maximum’ implementation of an automated Single Assessment Process using the MDS-HC (summarised from Appendix A).

| | |
|---|-------------|
| Hardware | % |
| Application Servers, (10) in total | 5.1 |
| Database Servers, (5) in total | 4.1 |
| Network connections and power supplies for (15) servers | 0.4 |
| Monitors, Keyboards, Mouse & Racking | 2.1 |
| Backup Device & Tapes | 2.6 |
| <u>Delivery</u> | <u>0.1</u> |
| Total Hardware Costs | 14.3 |
| Software | 0.0 |
| SQL Database Licenses | 2.2 |
| Terminal server internet connector licence | 0.5 |
| MDS Licenses (Core module with all assessment levels, + Care Planning + Referral modules) | 47.9 |
| Windows 2000 Server licenses | 0.6 |
| <u>Backup Software licenses</u> | <u>0.2</u> |
| Total Software Costs | 51.3 |
| Resources, including project management | 0.0 |
| Consultancy from ICT departments | 3.3 |
| Populate MDS database with client details from CRRIS system, 2 days x £650 | 0.1 |
| <u> AIS Project Management</u> | <u>7.0</u> |
| Total Resources, including project management | 10.5 |
| Software Integration / Enhancements | 0.0 |
| Third Party Consultancy (develop export routines for each agency Interface) | 5.0 |
| Lifeline Networks Integration software license (unlimited) | 6.2 |
| Lifeline Networks Consultancy (configuration of integration software for agency interfaces) | 5.0 |
| <u> AIS Consultancy (Enhancements to existing MDS system)</u> | <u>2.1</u> |
| Total Software Integration /Enhancements | 18.3 |
| Initial Training for 'local experts' | 0.0 |
| MDS software training: 4 days each for 200 'local experts' in groups of 10 | 5.3 |
| <u>Additional training costs for 'local experts' – Hire of training rooms etc</u> | <u>0.3</u> |
| Total Initial Training for 'local experts' | 5.7 |

Table 7.3 Cost elements and their percentage contribution to total annual requirements as identified in the Cheshire County cost estimates for a ‘maximum’ implementation of an automated Single Assessment Process using the MDS-HC (summarised from Appendix A).

| | |
|--|------|
| Annual Support, Maintenance and Training Resource | % |
| Computer-based training resource for MDS-HC, annual subscription, unlimited Cheshire users | 14.1 |
| MDS software support (25% of list license cost, reducing to 20% after the first year) | 45.6 |
| Hardware support | 1.8 |
| SAP administration: authorisation and lost passwords (estimated at 30 mins per user per annum) | 22.9 |
| Cheshire Project Manager, to cover salary, expenses and on-costs | 15.7 |

It is noticeable that the software license fees and support contribute greatly to the overall costs. However, as mentioned above, the software prices included in the Cheshire County

estimates were book prices and would probably be greatly reduced for an implementation of this scale. In general, software prices have not been included in this report. This is because, for a large-scale implementation such as the one that would be required in New Zealand, the prices would be tailor-made, rendering estimation at this stage, inadequate, if not misleading. Although negotiated prices requires direct contact with the software/tool developers, generic software costs are generally readily available from the relevant websites.

The above estimates do not appear to include workstation requirements. This will vary depending on the software used, but will be a very significant cost. Although initially expensive, using workstations to directly input data from an assessment avoids double handling of data thereby reducing salary costs. Newbury has found that the use of portable computer can significantly reduce the total assessment time, as data entry can be performed during an interview. As a result of this, the cost of the portable computer is more than offset by the savings in assessor's wages.⁹⁰

Also, modification of the chosen tool for the New Zealand environment may incur additional costs that must be considered. This includes the cost of researching which modifications are required, as well as the cost of altering the tool and software.

Despite these shortcomings, the above tables outline many of the costs that would need to be considered in an eventual implementation of an automated assessment process.

8.0 GENERAL DISCUSSION & RECOMMENDATIONS

Each tool reviewed in this report has unique advantages and limitations. It must be decided which tool (or tool combination) possesses the most essential traits and does not hold unredeemable shortcomings. The relative advantages and disadvantages of each tool must be weighed with consideration of the New Zealand context and requirements. The following points are recommendations and cautions arising from this report:

- An issue for all of the tools is the dependence on the quality of the assessor for consistent, sensitive and accurate assessments. This necessitates an effective training system to ensure consistency and quality.
- If the cultural sensitivity of the various tools for the Maori population is to be known, studies will have to be conducted in New Zealand directly addressing this issue. No current literature is available, and studies must be performed here as the Maori population is unique to New Zealand.
- A pilot study must be performed before any meaningful estimates of costs can be obtained. There are too many issues to allow an untested estimate. Additionally, the reported estimates for the time requirements of an assessment appear to be somewhat unreliable. Pilot studies could accurately provide this comparison, which is necessary for a cost analysis as labour costs form a significant proportion of the assessment costs.
- The possibility exists for multiple, perhaps concurrent, pilot studies for two or more tools if it is unclear which tool is ideal.
- A tele-conference software demonstration with AIS (the software developers of MDS-HC) and FACE should be organised. The software systems of these tools are complicated and difficult to describe adequately without a demonstration. A demonstration would provide great insights into the usability, versatility and usefulness of these tools.
- The CANE and FACE comprehensive tools appear to have some potential for implementation, however the accompanying screening tools seem inadequate. If these tools are to be used, they should perhaps be coupled with another overview tool such as EASY-Care.
- Many of the tools have little evidence supporting their reliability and validity. However this does not indicate that the tools are not reliable or valid. If a tool is believed to be suitable but does not possess evidence of validity, a pilot study could resolve this problem.
- This is an extremely dynamic period in the development of assessment tools. Even during the compiling of this report, many new tool versions and updates emerged. Changes and evolutions in these tools appear likely to continue, and as such, it will be important to maintain contact with the tool developers.

REFERENCES

1. Department of Health (UK). The Single Assessment Process: assessment tools and scales. Department of Health, 26 September 2002. Available on DoH website: <http://www.doh.gov.uk/scg/sap/toolsandscales/index.htm>
2. Department of Health (UK). Guidance on the Single Assessment Process. Department of Health, HSC2002/001; LAC(2002)1.
3. Cave, R. Best practice evidence-based guideline for assessment processes for people over 65 – Draft, November 2002. New Zealand Guidelines Group 2002.
4. Stevenson, J. Comprehensive assessment of older people. King's Fund Rehabilitation Programme Developing Rehabilitation Opportunities for Older People: Briefing Paper 2. 1999.
5. Byles, JE. A thorough going over: evidence for health assessments for older people. *Australian and New Zealand Journal of Public Health* 2000; 24(2):117-123.
6. Applegate, WB, Blass, JP, Williams, TF. Instruments for the functional assessment of older persons. *The New England Journal of Medicine* 1990; 322(17):1207-1214.
7. Rice ME, Harris GT, Quinsey VL. The appraisal of violence risk. *Current Opinion in Psychiatry* 2002;15(6):589-593.
8. Cave, R. (Project Manager, New Zealand Guidelines Group) Personal communication – Feedback from draft report dated 5 March 2003.
9. Palmer RM. Geriatric Assessment. *Medical Clinics of North America*. 1999;83(6):1503-1523.
10. Cave, R. (Project Manager, New Zealand Guidelines Group) Personal communication – Feedback from draft report dated 4 March 2003.
11. Tuokko, H, Hadjistavropoulos, T, Miller, JA, Beattie, BL. The Clock Test: A sensitive measure to differentiate normal elderly from those with Alzheimer disease. *Journal of the American Geriatrics Society* 1992; 40:579-584.
12. Watson, YI, Arfken, CL, Birge, SJ. Clock Completion: An objective screening test for dementia. *Journal of the American Geriatrics Society* 1993; 41:1235-1240.
13. Folstein, MF, Folstein, SE, McHugh, PR. Mini-Mental State: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research* 1975; 12:189-198.
14. Miller, KE, Zylstra, RG, Standridge, JB. The geriatric patient: A systematic approach to maintaining health. *American Family Physician* 2000; 61(4):1089-1104.
15. Carpenter, I, Francis, S, Roberts, S, Wyman, C, *et al.* interRAI UK MDS Home Care© assessment instrument user's manual, July 2001.
16. Yesavage, JA, Brink, TL, Rose, TL, *et al.* Development of a geriatric depression screening scale: A preliminary report. *Journal of Psychiatric Research* 1983;17:37-49.
17. Sheikh, JI, Yesavage, JA. Geriatric Depression Scale (GDS): recent evidence and development of a shorter version. *Clinical Gerontologist* 1986;5:165-172.
18. Rubenstein, LZ, Harker, JO, Salva, A, Guigoz, Y, Vellas, B. Screening for undernutrition in geriatric practice: Developing the short-form Mini-Nutritional Assessment (MNA-SF). *Journal of Gerontology: MEDICAL SCIENCES* 2001; 56A(6):M366-M372.
19. Mahoney, FI, Barthel, DW. Functional evaluation: The Barthel Index. *Maryland State Medical Journal* 1965;14.
20. Shah, S, Cooper, B, Maas, F. Improving the sensitivity of the Barthel Index for stroke rehabilitation. *Journal of Clinical Epidemiology* 1989;42:703-709.
21. Power, MJ, Champion, LA, Aris, SJ. The development of a measure of social support: the Significant Others Scale *British Journal of Clinical Psychology* 1988;27.

22. Wenger, GC. *Support networks for older people: a guide for practitioners* Centre for Social Policy Research and Development, University of Wales, Bangor 1994.
23. Peat, JK, Mellis, C, Williams, K, Xuan, W. *Health Science Research: A handbook of quantitative methods*. Allen & Unwin, Crows Nest, Australia, 2001.
24. Nikolaus T, *et al*. A randomised trial of comprehensive geriatric assessment and home care intervention in the care of hospitalised patients. *Age and Aging* 1999;28(6):543-550.
25. Reuben D, *et al*. A randomised clinical trial of outpatient comprehensive geriatric assessment with an intervention to increase adherence to recommendations. *Journal of the American Geriatrics Society* 1999;47:269-276.
26. Trentini M, *et al*. Effectiveness of geriatric evaluation and care. One-year results of a multi-centre randomised clinical trial. *Aging Clin. Exp. Res.* 2001;13(5):395-405.
27. Kleindienst, R. (contexio), Electronic communication, 13 February 2003.
28. Kleindienst, R. (contexio), Electronic communication, 25 March 2003.
29. Bach, M., Hofmann, T., Nikolaus, T. *et al*. (editors - Arbeitsgruppe Geriatisches Assessment - AGAST) *Geriatisches Basisassessment: Handlungsanleitungen für die Praxis* ISBN 3-8208-1309-8, MMV-Medizin Verlag Munich, Germany 1995. Book publication available in German language only.
30. Hachinski, VC, Iliffe, LD, Zilhka, E, Du Boulay, GH, McAllister, VL, Marshall, J, Russell, RWR, Symon, L. Cerebral Blood Flow in Dementia. *Archives of Neurology* 1975; 32:632-637.
31. Reitan, RM Validity of the Trail Making Test as an indicator of organic brain damage. *Perceptual and Motor Skills* 1958; 8:271-276.
32. Mac Phee, GLA, Crowther, JA, McAlpine, CH. A simple screening test for hearing impairment in elderly patients. *Age and Aging* 1988; 17:347-351.
33. Hyatt, RH, Whitelaw, MN, Bhat, A, Scott, S, Maxwell, JD. Association of muscle strength with functional status of elderly people. *Age and Aging* 1990; 19:330-336.
34. Podsiadio, D, Richardson, S. The Timed "Up & Go": a test of basic functional mobility for frail elderly persons. *Journal of the American Geriatric Society* 1991; 39:142-148.
35. Tinetti, ME. Performance-oriented assessment of mobility problems in elderly patients. *Journal of the American Geriatric Society* 1986; 34:119-126.
36. Kleindienst, R. User's Guide: contexio Geriatric Assessment Wizard, Scientific Toolkit Version 2.0, 2001.
37. Phelan, M, Slade, M, Thornicroft, G, Dunn, G, Holloway, F, Wykes, T, Strathdee, G, Loftus, L, McCrone, P, Hayward, P. The Camberwell Assessment of Need: The validity and reliability of an instrument to assess the needs of people with severe mental illness. *British Journal of Psychiatry* 1995; 167:589-595.
38. The Camberwell Assessment of Need for the Elderly Website:
<http://www.ucl.ac.uk/~rejugh/>
39. Reynolds T, Thornicroft G, Abas M, Woods B, Hoe J, Leese M, Orrell M. Camberwell Assessment of Need for the Elderly (CANE): Development, validity and reliability. *British Journal of Psychiatry* 2000;176:444-452.
40. Walters K, Iliffe S, See Tai S, Orrell M. Assessing needs from patient, carer and professional perspectives: the Camberwell Assessment of Need for Elderly people in primary care. *Age and Aging* 2000; 29:505-510.
41. Walters, K, Iliffe, S, See Tai, S, Orrell, M. Assessing needs from patient, carer and professional perspectives: the Camberwell Assessment of Need for Elderly people in primary care. *Age and Aging* 2000; 29:505-510.
42. Hancock, G. (Administrator of EASY-Care, Sheffield Institute for Studies on Aging), Electronic communication – response to draft report, 20 March 2003.
43. Mesa, YM, Alvarez, MR, Alvarez, G, Paz, A, Perez, FI. Validacion de la version Espanola del CANE (Escala de evaluacion de necesidades para ancianos de Camberwell). *Revista de Psicogeriatría* 2002; 38-44 (in Spanish).
44. The Camberwell Assessment of Need for the Elderly Tool (CANE): Version IV.

45. The Camberwell Assessment of Need for the Elderly Tool (CANE): Instruction Manual (Version III).
46. Clifford, P. (Director of FACE Recording & Measurement Systems), Electronic communication – response to draft report, 26 March 2003.
47. Clifford, P. (Director of FACE Recording & Measurement Systems), Electronic communication, 4 February 2003.
48. Clifford, P. (Director of FACE Recording & Measurement Systems), Electronic communication, 19 February 2003.
49. FACE Recording & Measuring Systems, Electronic communication, 11 March 2003.
50. Hirdes JP, Fries BE, Morris JN, Steel K, Mor V, Frijters D, *et al.* Integrated health information systems based on the RAI/MDS series of instruments. *Healthcare Management Forum* 1999;12(4):30-40.
51. Baribeau T, Personal communication, AIS Inc., Friday 24 January 2003.
52. Marriott, J. (Administrator of EASY-Care, Sheffield Institute for Studies on Aging), Electronic communication, 26 February 2003.
53. Morris, JN, Fries, BE, Steel, K, Ikegami, N, Bernabei, R, Carpenter, GI, Gilgen, R, Hirdes, JP, Topinkova, E. Comprehensive clinical assessment in community setting: Applicability of the MDS-HC. *Journal of the American Geriatrics Society* 1997; 45:1017-1024.
54. Morris, JN, Fries, BE, Morris, SA. Scaling ADLs within the MDS. *Journal of Gerontology* 1999; 54A(11):M546-M553.
55. Carpenter, GI, Gill, S, Potter, J, Maxwell, C. A comparison of MDS/RAI activity of daily living, cognitive performance and depression scales with widely used scales. *Age and Aging* 1999; 28(S2):29.
56. Landi, F, Tua, E, Onder, G, Caprara, B, Sgadari, A, Rinaldi, C, Gambassi, G, Lattanzio, F, Bernabei, R. Minimum Data Set for Home Care: A valid instrument to assess frail older people living in the community. *Medical Care* 2000; 38(12):1184-1190.
57. Morris, JN, Fries, BE, Mehr, DR, Hawes, C, Phillips, C, Mor, V, Lipsitz, LA. MDS Cognitive Performance Scale. *Journal of Gerontology* 1994; 49(4):M174-M182.
58. Hartmaier, SL, Sloane, PD, Guess, HA, Gary, G, *et al.* Validation of the Minimum Data Set cognitive performance scale: Agreement with the Mini-Mental State Examination. *Journal of Gerontology* 1995; 50A(2):M128-M133.
59. Burrows, AB, Morris, JN, Simon, SE, Hirdes, JP, Phillips, C. Development of a Minimum Data Set-based depression rating scale for use in nursing homes. *Age and Aging* 2000; 29:165-172.
60. Fries, BE, Morris, JN, James, M, Carpenter, GI. Building eligibility criteria for continuing care from systematic assessment data. *Age and Ageing* 1999; 28(S2):30.
61. Kwan, CW, Chi, I, Lam, TP, Lam, KF, Chou, KL. Validation of Minimum Data Set for Home Care Assessment Instrument (MDS-HC) for Hong Kong Chinese elders. *Clinical Gerontologist* 2000; 21(4):35-48.
62. Leung, AC, Liu, CP, Tsui, LL, Li, SY, Tang, GW, Yau, DC, Chi, I, Chow, NW. The use of the Minimum Data Set: Home care in a case management project in Hong Kong. *Care Management Journals* 2001; 3(1):8-13.
63. Hirdes, JP, Pearson, B, Telegdi, NC. Educational Approaches for the Minimum Data Set (MDS) series of instruments: The key to successful implementation. Report provided by Baribeau, T, 17 March 2003.
64. Bull, L, Wood, D, Dutton, K, Birnie, S, Douglas, C. The Single Assessment Process: The Cheshire Study.
65. Baribeau T, Electronic communication, AIS Inc., 17 March 2003.
66. interRAI UK. Outcome measurement with Minimum Data Set assessments. February, 2002.
67. Assessment and Intelligence Systems Inc. (AIS). Complex client case study v3 (Mrs Jane T. Williams).

68. Bjorkgren, MA, Fries, BE, Shugarman, LR. A RUG-III case-mix system for home care. *Canadian Journal on Aging* 2000; 19(S2):106-125.
69. Hirdes, JP, Fries, BE, Morris, JN, Ikegami, N, Zimmerman, D, Dalby, D, Aliaga, P, Hammer, S, Jones, R. Home Care Quality Indicators (HCQIs) based on the MDS-HC. Article submitted to the *Gerontologist* 2003.
70. AIS Inc.© Mastering RAI-Home Care: System Overview. Provided by Baribeau, T, 17 March 2003.
71. hpdirect website: <http://www.hpdirect.co.nz/itshop/> , Prices quoted 25 March 2003.
72. Baribeau T, Electronic communication, AIS Inc., 5 March 2003.
73. Landi, F, Onder, G, Russo, A, Tabaccanti, S, Rollo, R, Federici, S, Tua, E, Cesari, M, Bernabei, R. A new model of integrated home care for the elderly: impact on hospital use. *Journal of Clinical Epidemiology* 2001; 54:968-970.
74. Landi, F, G, Gambassi, G, Pola, R, Tabaccanti, S, Cavinato, T, Carbonin, PU, Bernabei, R. Impact of integrated home care services on hospital use. *Journal of the American Geriatrics Society* 1999; 47:1430-1434.
75. Landi, F, Onder, G, S, Tua, E, Carrara, B, Zuccala, G, Gambassi, G, Carbonin, PU, Bernabei, R. Impact of a new assessment system, the MDS-HC, on function and hospitalisation of homebound older people: A controlled clinical trial. *Journal of the American Geriatrics Society* 2001; 49:1288-1293.
76. Landi, F, Lattanzio, F, Gambassi, G, Zuccala, G, Sgadari, A, Panfilo, M, Ruffilli, MP, Bernabei, R. A model for integrated home care of frail older patients: The Silver Network project. *Aging Clin. Exp. Res.* 1999; 11:262-272.
77. EASY-Care website: <http://www.shef.ac.uk/sisa/easycare>
78. McCormick, W, Kane, K, Shaw, P. Assessments made EASY. *Nursing Standard* 1999; 13(22):24-25.
79. Marriott, J. (Administrator of EASY-Care, Sheffield Institute for Studies on Aging), Electronic communication – response to draft report, 20 March 2003.
80. Liquidlogic software company website: <http://www.liquidlogic.co.uk>
81. Harrison, D. (Liquidlogic Software) Electronic communication, 17 March 2003.
82. Philp, I. Can a medical and social assessment be combined? *Journal of the Royal Society of Medicine* 1997; 90(S32):11-13.
83. Philp, I. EASY-Care: A systematic approach to the assessment of older people. *Geriatric Medicine* 2000; 30(5):15-19.
84. Richardson, J. The EASY-Care assessment system and its appropriateness for older people. *Nursing Older People* 2001; 13(7):17-19.
85. Philp, I, Lowles, RV, Armstrong, GK, Whitehead, C. Repeatability of standardized tests of functional impairment and well-being in older people in a rehabilitation setting. *Disability and Rehabilitation* 2002; 24(5):243-249.
86. Philp, I, Newton, P, McKee, KJ, Dixon, S, Rowse, G, Bath, PA. Geriatric assessment in primary care: formulating best practice. *British Journal of Community Nursing* 2001; 6(6):290-295.
87. Bath, P, Philp, I, Boydell, L, McCormick, W, Bray, J, Roberts, H. Standardized health check data from community-dwelling elderly people: the potential for comparing populations and estimating need. *Health and Social Care in the Community* 2000; 8(1):17-21.
88. Liquidlogic. Single assessment and electronic EASY-Care: The approach to implementation. June 2002.
89. Marriott, J. EASY-Care Training & Development Programme. *The Development Centre for Older Peoples Services.* 2003.
90. Newbury, J. 75+ Health Assessments: a Randomised Controlled Trial. MD thesis for the Department of General Practice, Adelaide University. July 2001. Available from: <http://adt.caul.edu.au/> (search for: institution = Adelaide University; Author = Newbury).
91. Newbury, J, Marley, J. 75+ health assessments. *Australian Family Physician* 2001; 30(1):82-87.

92. Newbury, JW, Marley, JE, Beilby, JJ. A randomised controlled trial of the outcome of health assessment of people aged 75 years and over. *Medical Journal of Australia* 2001; 175:104-107.
93. Lipski, P. Australian nutrition screening initiative. *Australian Journal on Ageing* 1996; 15(1):14-17.
94. Carpenter, I. (interRAI fellow, University of Kent), Electronic communication – response to draft report, 20 March 2003.
95. Williams EI, Fischer G, Junius U, Sandholzer H, Jones D, Vass M. An evidence-based approach to assessing older people in primary care. *Occasional Paper 82*, The Royal College of General Practitioners. 2002.
96. Saliba D, Elliott M, Rubenstein LZ, Solomon D, Young RT, Kamberg CJ, Roth C, MacLean CH, Shekelle PG, Sloss EM, Wenger NS. The Vulnerable Elders Survey: a tool for identifying vulnerable older people in the community. *Journal of the American Geriatric Society* 2001;49:1691-1699.
97. RAND Health. Developing quality of care indicators for the vulnerable elderly: The ACOVE project. <http://www.rand.org/publications/RB/RB4545/>
98. Wenger NS, Shekelle PG and the ACOVE Investigators. Assessing care of vulnerable elders: ACOVE project overview. *Annals of Internal Medicine*. 2001;135:642-646.
99. Westropp, JC. New tools address unmet need in quality assessment for older patients. *Geriatrics* 2002; 57(2):44-51.
100. Pattie AM, Gilliard CJ. *Manual of the Clifton Assessment for the Elderly (CAPE)*. Sevenoaks, UK: Hodder and Stoughton Educational, 1979.
101. Royal College of Nursing. Older People: assessing their nursing needs. How the RCN assessment tool can help older people get the best out of life. Brochure issued by and available upon request from the Royal College of Nursing; <http://www.rcn.org.uk>
102. Guberman N, Keefe J, Fancey P, Nahmiash D, Barylak L. Development of screening and assessment tools for family caregivers. 2001.
103. Shields, A. CAT Walk: Making the Common Assessment Tool mobile. Presentation 28 January 2002. PowerPoint presentation available from <http://www.doh.gov.uk/scg/infsoc/cambridgeshirepresentation.ppt>
104. Shields, A. Remote use of Common Assessment Tool – Project definition report. 12 September 2001. Available from <http://www.doh.gov.uk/scg/infsoc/pid/cambridgeshire.pdf>
105. Microsoft Website <http://www.microsoft.com/resources/casestudies/CaseStudy.asp?CaseStudyID=13167> Microsoft case study: Cambridgeshire County Council.
106. Pacala, JT, Boulton, C, Boulton, L. Predictive validity of a questionnaire that identifies older persons at risk for hospital admission. *Journal of the American Geriatrics Society* 1995; 43:374-377.
107. Ritchie, C, Wieland, D, Tully, C, Rowe, J *et al.* Coordination and Advocacy for Rural Elders (CARE): A model of rural case management with veterans. *The Gerontologist* 2002; 42(3):399-405.
108. Hamilton, D. (Service Needs Officer, Social Services Department, Cheshire County Council), Electronic communication, 12 March 2003.

APPENDIX A

CHESHIRE SAP SCOPING ESTIMATES

Introductory Notes - Cheshire SAP scoping estimates

This workbook has been developed to provide scoping estimates for SAP in Cheshire. I would be grateful for comments on what may be missing or obviously wrong.

It needs to be taken for what it is, an attempt to meet a request by those involved in the SAP discussions for a tool that gives a reasonable sense of what the eventual costs might be, given various assumptions about numbers of users and sites. Prices and fees are based on 'book prices' and may well change when serious negotiations can begin with potential suppliers.

The workbook can be used in two ways. First, the three middle sheets, labelled Minimum, Intermediate and Maximum, give details of what the cost might be for a 'big bang' project of that size, rolled out in one year.

On the 'Maximum' sheet, I have added comments to various cells, giving some of the assumptions built into the sheet. These should print out when the Maximum sheet is printed. The comments apply equally to the equivalent cells in the other two sheets.

Key variables for the three sizes of project can be changed in the yellow cells on the sheet labelled Staged Costs.

Second, the sheet labelled Staged Costs takes the three sizes of project, and arranges them as stages in a three-year roll-out. The numbers will not always correspond in obvious ways to the individual project sheets. The Staged Costs sheet is arranged so that for each stage, participants pay proportionately to their number of users. This can mean that an agency gets a notional refund, because it has paid much of a previous stage, but then has its proportion of users drop dramatically in the next. The labelling should be self-explanatory. If not, I need to know!

In each sheet, costs are split between Health and Social Services on the basis of users. However, within Health, there is then a split in costs, and a notional 'entitlement' of users, on the basis of the ratio presently used by the SCHA for allocation of ICT monies.

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Staged Implementation of SAP: entry of parameters, summary of costs for three year project

| | | | | | |
|------------------------------------|------|--|---|---------|--|
| SSD Users: Minimal numbers | 336 | Interfaces: Minimal numbers | 7 | Grant 1 | |
| SSD Users: Intermediate numbers | 600 | Interfaces: Intermediate numbers | | Grant 2 | |
| SSD Users: Full SAP numbers | 700 | Interfaces: Full SAP numbers | | Grant 3 | |
| | | <i>(if no entry made, present estimate is assumed: 13 agency interfaces: 7 GP packages, 3 hospital systems, Commwise, CRRIS, C&WPT system)</i> | | | |
| Health Users: Minimal numbers | 240 | | | | |
| Health Users: Intermediate numbers | 2000 | | | | |
| Health Users: Full SAP numbers | | (if different from present estimate of 5149) | | | |

| | | |
|---|--------------|-----|
| Total wards, offices or teams (each work setting or group will need a 'local expert') | Minimal | 40 |
| | Intermediate | 200 |
| | Full SAP | 200 |

| | Minimal Stage - first Year | | | Intermediate Stage - second Year | | | Full SAP - third year | | |
|---------------------------------|----------------------------|--------------------|-------------------------------|----------------------------------|--------------------------------|-------------------------------|-------------------------------|--------------------------------|-------------------------------|
| | Capital commitment | Revenue commitment | Net actual payment this stage | Aggregated Capital commitment | Revenue commitment, this stage | Net actual payment this stage | Aggregated Capital commitment | Revenue commitment, this stage | Net actual payment this stage |
| | £0 | | | £0 | | | £0 | | |
| Grants, etc | | | | | | | | | |
| Social Services | £224,764 | £69,306 | £294,070 | £186,452 | £45,808 | 7,496 | £116,396 | £30,562 | -£39,494 |
| East PCT | £43,139 | £13,302 | £56,440 | £166,999 | £41,028 | 164,889 | £230,054 | £60,405 | 123,460 |
| Central PCT | £57,925 | £17,861 | £75,786 | £224,240 | £55,091 | 221,406 | £308,908 | £81,110 | 165,777 |
| EP & N PCT | £20,999 | £6,475 | £27,475 | £81,293 | £19,972 | 80,266 | £111,988 | £29,405 | 60,099 |
| Chester PCT | £38,483 | £11,866 | £50,349 | £148,975 | £36,600 | 147,093 | £205,225 | £53,886 | 110,135 |
| True project expenditure | £385,310 | £118,810 | £504,120 | £807,960 | £198,500 | £621,150 | £972,570 | £255,368 | £419,978 |

| | | | |
|--|------------|-------------|-------------|
| Social Services users this stage: | 336 | 600 | 700 |
| East PCT + Hospital user entitlement this stage | 64 | 537 | 1384 |
| Central PCT + Hospital user entitlement this stage | 87 | 722 | 1858 |
| EP & N PCT + Hospital user entitlement this stage | 31 | 262 | 673 |
| Chester PCT + Hospital user entitlement this stage | 58 | 479 | 1234 |
| User totals for this stage: | 576 | 2600 | 5849 |

Implementation Costs for Cheshire SAP - estimate of 576 users, 115 concurrent users

| | Connection GCAT Cost | Integration Non-GCAT Cost | |
|---|-------------------------|---------------------------------|-----------------|
| Hardware | | | |
| Application Servers, (3) in total | 15,000 | | |
| Database Servers, (1) in total | 8,000 | | |
| Network connections and power supplies for (4) servers | 1,000 | | |
| Monitors, Keyboards, Mouse & Racking | 4,000 | | |
| Backup Device & Tapes | 5,000 | | |
| Delivery | 160 | | |
| Total Hardware Costs | £33,160 | £0 | £0 |
| Software | | | |
| SQL Database Licenses | 4,200 | | |
| Terminal server internet connector licence | | 4,500 | |
| MDS Licenses (Core module with all assessment levels, + Care Planning + Referral modules) | | 130,200 | |
| Windows 2000 Server licenses | 1,600 | | |
| Backup Software licenses | 600 | | |
| Total Software Costs | £6,400 | £134,700 | £0 |
| Resources, including project management | | | |
| Consultancy from ICT departments | | 17,500 | |
| Populate MDS database with client details from CRRIS system, 2 days x £650 | | 1,300 | |
| AMS Project Management | | £48,750 | |
| Total Resources, including project management | £0 | £67,550 | £0 |
| Software Integration / Enhancements | | | |
| Third Party Consultancy (develop export routines for each agency Interface) | | | 26,250 |
| Lifeline Networks Integration software license (unlimited) | | | 60,000 |
| Lifeline Networks Consultancy (configuration of integration software for agency interfaces) | | | 26,250 |
| AMS Consultancy (Enhancements to existing MDS system) | | 20,000 | |
| Total Software Integration /Enhancements | £0 | £20,000 | £112,500 |
| Initial Training for 'local experts' | | | |
| MDS software training: 4 days each for 40 'local experts' in groups of 10 | | £10,400 | |
| Additional training costs for 'local experts' – Hire of training rooms etc | | £600 | |
| Total Initial Training for 'local experts' | £0 | £11,000 | £0 |
| TOTAL by category | £39,560 | £233,250 | £112,500 |
| GRAND TOTAL: CAPITAL REQUIRED FOR THE SAP PROJECT | £385,310 | | |

| Annual Support, Maintenance and Training Resource | Hours | Cost |
|--|--------------|-----------------|
| Electronic training resource for MDS-HC, annual subscription, unlimited Cheshire users | | 36,000 |
| MDS software support (25% of list license cost, reducing to 20% after the first year) | | 32,550 |
| Hardware support | | 4,500 |
| SAP administration (authorisation and lost passwords) | 288 | 5,760 |
| Cheshire Project Manager, to cover salary, expenses and on-costs | | 40,000 |
| Total Revenue: Annual Support, Maintenance and Training Resource | 288 | £118,810 |

| | |
|---|------------|
| Current estimate of Health Users of the SAP system = | 240 |
| Current estimate of the Social Services Users of the SAP system = | 336 |
| TOTAL ESTIMATED USERS OF THE SINGLE ASSESSMENT SYSTEM = | 576 |
| TOTAL ESTIMATED CONCURRENT USERS OF THE SAP = | 115 |

Implementation Costs for Cheshire SAP - estimate of 2600 users, 520 concurrent users

| | Connection | | Integration |
|---|-----------------|-----------------|-----------------|
| | GCAT Cost | Non-GCAT Cost | |
| Hardware | | | |
| Application Servers, (6) in total | 30,000 | | |
| Database Servers, (3) in total | 24,000 | | |
| Network connections and power supplies for (9) servers | 2,250 | | |
| Monitors, Keyboards, Mouse & Racking | 12,000 | | |
| Backup Device & Tapes | 15,000 | | |
| Delivery | 360 | | |
| Total Hardware Costs | £83,610 | £0 | £0 |
| Software | | | |
| SQL Database Licenses | 12,600 | | |
| Terminal server internet connector licence | | 4,500 | |
| MDS Licenses (Core module with all assessment levels, + Care Planning + Referral modules) | | 368,000 | |
| Windows 2000 Server licenses | 3,600 | | |
| Backup Software licenses | 1,100 | | |
| Total Software Costs | £17,300 | £372,500 | £0 |
| Resources, including project management | | | |
| Consultancy from ICT departments | | 32,500 | |
| Populate MDS database with client details from CRRIS system, 2 days x £650 | | 1,300 | |
| AIS Project Management | | £68,250 | |
| Total Resources, including project management | £0 | £102,050 | £0 |
| Software Integration / Enhancements | | | |
| Third Party Consultancy (develop export routines for each agency Interface) | | | 48,750 |
| Lifeline Networks Integration software license (unlimited) | | | 60,000 |
| Lifeline Networks Consultancy (configuration of integration software for agency interfaces) | | | 48,750 |
| AIS Consultancy (Enhancements to existing MDS system) | | 20,000 | |
| Total Software Integration /Enhancements | £0 | £20,000 | £157,500 |
| Initial Training for 'local experts' | | | |
| MDS software training: 4 days each for 200 'local experts' in groups of 10 | | £52,000 | |
| Additional training costs for 'local experts' – Hire of training rooms etc | | £3,000 | |
| Total Initial Training for 'local experts' | £0 | £55,000 | £0 |
| TOTAL by category | £100,910 | £549,550 | £157,500 |
| GRAND TOTAL: CAPITAL REQUIRED FOR THE SAP PROJECT | | £807,960 | |

| Annual Support, Maintenance and Training Resource | Hours | Cost |
|--|--------------|-----------------|
| Computer-based training resource for MDS-HC, annual subscription, unlimited Cheshire users | | 36,000 |
| MDS software support (25% of list license cost, reducing to 20% after the first year) | | 92,000 |
| Hardware support | | 4,500 |
| SAP administration (authorisation and lost passwords) | 1300 | 26,000 |
| Cheshire Project Manager, to cover salary, expenses and on-costs | | 40,000 |
| Total Revenue: Annual Support, Maintenance and Training Resource | 1300 | £198,500 |

Current estimate of Health Users of the SAP system = 2,000

Current estimate of the Social Services Users of the SAP system = 600

TOTAL ESTIMATED USERS OF THE SINGLE ASSESSMENT SYSTEM = 2,600

TOTAL ESTIMATED CONCURRENT USERS OF THE SAP = 520

Implementation Costs for Cheshire SAP - estimate of 5849 users, 1170 concurrent users

| | Connection | | Integration |
|---|-----------------|-----------------|-----------------|
| | GCAT Cost | Non-GCAT Cost | |
| Hardware | | | |
| Application Servers, (10) in total | 50,000 | | |
| Database Servers, (5) in total | 40,000 | | |
| Network connections and power supplies for (15) servers | 3,750 | | |
| Monitors, Keyboards, Mouse & Racking | 20,000 | | |
| Backup Device & Tapes | 25,000 | | |
| Delivery | 600 | | |
| Total Hardware Costs | £139,350 | £0 | £0 |
| Software | | | |
| SQL Database Licenses | 21,000 | | |
| Terminal server internet connector licence | | 4,500 | |
| MDS Licenses (Core module with all assessment levels, + Care Planning + Referral modules) | | 465,470 | |
| Windows 2000 Server licenses | 6,000 | | |
| Backup Software licenses | 1,700 | | |
| Total Software Costs | £28,700 | £469,970 | £0 |
| Resources, including project management | | | |
| Consultancy from ICT departments | | 32,500 | |
| Populate MDS database with client details from CRRIS system, 2 days x £650 | | 1,300 | |
| AIS Project Management | | £68,250 | |
| Total Resources, including project management | £0 | £102,050 | £0 |
| Software Integration / Enhancements | | | |
| Third Party Consultancy (develop export routines for each agency Interface) | | | 48,750 |
| Lifeline Networks Integration software license (unlimited) | | | 60,000 |
| Lifeline Networks Consultancy (configuration of integration software for agency interfaces) | | | 48,750 |
| AIS Consultancy (Enhancements to existing MDS system) | | 20,000 | |
| Total Software Integration /Enhancements | £0 | £20,000 | £157,500 |
| Initial Training for 'local experts' | | | |
| MDS software training: 4 days each for 200 'local experts' in groups of 10 | | £52,000 | |
| Additional training costs for 'local experts' – Hire of training rooms etc | | £3,000 | |
| Total Initial Training for 'local experts' | £0 | £55,000 | £0 |
| TOTAL by category | £168,050 | £647,020 | £157,500 |
| GRAND TOTAL: CAPITAL REQUIRED FOR THE SAP PROJECT | £972,570 | | |

| Annual Support, Maintenance and Training Resource | Hours | Cost |
|--|--------------|-----------------|
| Computer-based training resource for MDS-HC, annual subscription, unlimited Cheshire users | | 36,000 |
| MDS software support (25% of list license cost, reducing to 20% after the first year) | | 116,368 |
| Hardware support | | 4,500 |
| SAP administration (authorisation and lost passwords) | 2925 | 58,500 |
| Cheshire Project Manager, to cover salary, expenses and on-costs | | 40,000 |
| Total Revenue: Annual Support, Maintenance and Training Resource | 2925 | £255,368 |

Current estimate of Health Users of the SAP system = 5,149

Current estimate of the Social Services Users of the SAP system = 700

TOTAL ESTIMATED USERS OF THE SINGLE ASSESSMENT SYSTEM = 5,849

TOTAL ESTIMATED CONCURRENT USERS OF THE SAP = 1170

Estimates of Health Staff requiring access to the Single Assessment Process for Older People within Cheshire, February 2003

Estimates last updated by D. Hamilton 12 February 2003

| | EP&NPCT | CWPCT | CCPCT | ECPCT | COCH | MCHT | ECT | Cross-County | Notes |
|---|------------|------------|------------|------------|-------------|-------------|-------------|--------------|--|
| GPs | 48 | 102 | 134 | 111 | 0 | 0 | 0 | | all GPs and salaried GPs included |
| Practice Managers | 13 | 26 | 30 | 24 | 0 | 0 | 0 | | assuming a 1:1 ratio with practices |
| Practice Nurses | 34 | 72 | 90 | 81 | | | | | assume all practice nurses may access SAP |
| District Nurses requiring access to SAP | 56 | 110 | 150 | 118 | | | | | assume all district nurses may access SAP, unless their job expressly limits them to a younger group. |
| Health Visitors requiring access to SAP | " | 48 | " | 49 | | | 26 | | assume all health visitors may access SAP, unless their job expressly limits them to a younger group. |
| Hospital Consultants and Hospital doctors requiring access to SAP | 4 | | | | 280 | 280 | 114 | | assume that all may access SAP, unless their post or speciality limits them to a younger group. |
| Hospital Nurses requiring access to SAP | 36 | | | | 761 | 536 | 802 | | assume that all nurses who take 'named nurse' or discharge responsibility, or who conduct triage or other screening, may access SAP, unless their ward or speciality limits them to a younger group. |
| Physios requiring access to SAP | | 89 | 52 | | 57 | 26 | 26 | | assume that all may access SAP, unless their post or speciality limits them to a younger group. |
| OTs requiring access to SAP | | " | " | | 25 | 56 | 20 | | assume that all may access SAP, unless their post or speciality limits them to a younger group. |
| W&CPT - Mental Health | 101 | | 43 | 51 | | | | | |
| Community + Practice Pharmacists | 17 | 54 | 53 | 40 | | | | | |
| Ambulance Service | | | | | | | | | |
| Others not listed above | | | 57 | 2 | 101 | 102 | 42 | | please make a note of what job these staff do |
| TOTALS | 309 | 501 | 609 | 476 | 1224 | 1000 | 1030 | | 5149 |

For info - Social Services estimated numbers: 336 OP Purchasing; 264 OP Providing; 100 Adult Purchasing

APPENDIX B

BIBLIOGRAPHY OF OTHER FACE TOOLS

1. Clifford, P. (1988) Assessing the Quality of Care. Paper presented at the Association of Psychological Therapies' 2nd Annual Conference. Sainsbury Centre for Mental Health.
2. Clifford P. (1992) The Strategic Relevance of FACE to Community Information Systems. Report to the Department of Health Information Management Group.
3. Clifford P.I. (1994) The FACE Project: Final report. Report to the Department of Health. London: England: University College London, Centre for Outcomes, Research and Effectiveness.
4. Lelliott, P., Wing J. and Clifford P. (1994). A National Audit of New Long-Stay Psychiatric Patients. *British Journal of Psychiatry*. 165. 160-169.
5. Clifford P.I. (1995) The FACE Outcomes Programme: validation of the Approach. Report to the Department of Health. London: England: University College London, Centre for Outcomes, Research and Effectiveness.
6. Clifford P.I. (1997a) Structuring the Clinical Record: the FACE Assessment & Outcome System. Main report to the Department of Health. London: England: University College London, Centre for Outcomes, Research and Effectiveness.
7. Clifford P.I. (1997b) Structuring the Clinical Record: the FACE Assessment & Outcome System: Appendices. Main report to the Department of Health. London: England: University College London, Centre for Outcomes, Research and Effectiveness.
8. Clifford P.I. (1998) M is for Outcome: The CORE Outcomes Initiative. *Journal of Mental Health*, 7(1), 19-24.
9. Clifford P. (1998) Evaluating Community Care: the CORE Outcomes Programme. *The Psychologist*.
10. Clifford P.I. (1998) Implementing Assessment & Outcome Systems in the UK and the USA: the FACE Recording System. Towards an Electronic Health Record, Conference Proceedings 1997, November 1998.
11. Fonagy P. (1998) Process and outcome in mental health delivery: A model approach to treatment evaluation. . *Bulletin of the Menninger Clinic*, 63, 288-304.
12. Clifford P.I., Orbach G., Hobbins J., Pavyer J. (1999). Measuring disability and outcomes in routine practice with the FACE Core Assessment. *Bulletin of the Menninger Clinic*, 63, 332-346.
13. Katsavdakis K.A., Clifford P.I., Evans R., Graham P., Allen J.G., Sargent J., Lyle J., & Frager D.C. (1999). The How Are You? Scale: A quality of life outcomes measure for routine practice. *Bulletin of the Menninger Clinic*, 63, 366-387.
14. Clifford P.I. (1999). The FACE Recording & Measurement System: A scientific approach to person-based information. *Bulletin of the Menninger Clinic*, 63, 305-331.
15. Graham P. (1999). Implementation of an outcomes management model of treatment. *Bulletin of the Menninger Clinic*, 63, 346-365.
16. Elzinga R., Meredith F., Clifford P., Pant G. (1999). Outcomes Management in an Object Oriented EPR for Mental Health Community Teams. Towards an Electronic Health Record, Conference Proceedings 2000, November 1999.
17. Webb Y., Clifford P.I., & Graham P., (1999). A simple method of evaluating patients' perceptions of their treatment and care. *Bulletin of the Menninger Clinic*, 63, 401-412.

18. Clifford P. (2000) The FACE Assessment & Outcome System: Psychometrics. FACE Recording & Measurement Systems, Nottingham and Kansas.
19. Webb Y., Clifford P., Fowler V., Morgan C., Hanson M. (2000) Comparing patients' experience of mental health services in England: a five-Trust survey. *Int. J. of Healthcare Quality Assurance* Vol. 13 pp 273-281.
20. Rob Elzinga and Fiona Meredith About FACE: the applications of a structured approach to mental health information. *Australian Health Review*, vol 24, no. 1, 68- 78, 2001
21. Clifford P. (2001) The National Outcome Audit of Severe Mental Illness. Report to the Department of Health. CORE, UCL, London.
22. Elzinga R, Meredith F and Clifford P (2001) International Mental Health Outcomes and Benchmarking using the FACE approach, *Australian Healthcare Review* Vol 24(3) pp 103-115.
23. Paul I. Clifford, Kostas A. Katsavdakis, Janet L. Lyle, Jim Fultz, Jon G. Allen, Peter Graham, (2002) How Are You? Further development of a generic quality of life outcome measure. *Journal of Mental Health* 11,4, pp. 389-404.
24. Spinogatti F., Emilia Agrimi (2003) Il triage in psichiatria: validazione e utilizzo routinario di uno specifico strumento di valutazione. Triage in psychiatry: validation and routine adoption of a specific assessment tool. (In press).