Neuropsychological assessment of mental capacity.

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Abstract

The assessment of mental capacity to assist legal determinations of competency is potentially a growth area for neuropsychology, although to date neuropsychologists have published relatively little in this area. In this paper a systematic review of methods used to assess capacity is presented, including coverage of specialised tests and interviews used for this purpose. A neuropsychological model for conducting capacity assessments is proposed. This model involves comprehensive assessment of a wide range of cognitive abilities as well as assessment of specific skills and knowledge related to the type of capacity being assessed. The purpose of proposing this model is to stimulate further discussion and debate about the contribution neuropsychologists might make in this area.

Keywords: mental capacity, decision-making, powers of attorney, competency, neuropsychological assessment

Neuropsychological assessment of mental capacity.

Although competence[1] is ultimately a legal determination (Grisso, 1994), the legal profession may seek the opinion of health care professionals including neuropsychologists regarding an individual's decision-making capacity (Anderer, 1990; Reid-Proctor, Galin, & Cummings, 2001). However, issues such as who should conduct such assessments, how these assessments should be performed, and what level of impairment constitutes incapacity remain largely unresolved. This lack of consistency presents a major challenge to health care professionals and those who rely on their recommendations. With few exceptions (e.g., Mattis, 1990) neuropsychologists have not made a significant contribution to the literature about capacity assessment, even though it could be argued that the assessment of mental capacity, particularly in the context of suspected brain disease, is pertinent to this field. Further, the lack of consistency in capacity assessment supports the main argument of this paper that there is a need to systematically review and improve methods of capacity assessment.

In this paper contemporary methods for assessing decision-making capacity are briefly reviewed, together with measures used to determine competency. There is also discussion about the nature of "capacity" as a variable subject to measurement. The paper concludes with a neuropsychological model for assessing capacity, proposed as a starting point for further discussion on this topic. The key recommendation from this paper is that capacity assessments in health settings should follow a two-stage process, incorporating assessment of general cognitive status, which in most cases would involve neuropsychological testing, as well as assessment of knowledge specific to the type of capacity being assessed.

To begin, it is important to present a definition of capacity. For the purposes of this paper, capacity is defined as something that distinguishes "between a person who is capable of making a decision and whose choice must therefore be respected [irrespective of the "reasonableness" of that decision], from one who requires others to make decisions for him/her" (Wong, Clare, Gunn, & Holland, 1999, p.458). This definition of capacity is a clinical definition and may differ from legal definitions of competency (note that the points at which such differences occur will be discussed further later). It is also important to note this paper deals with capacity assessments related to health (e.g., whether a person can make decisions about health care) as opposed to other types of capacity (e.g., "criminal competency", Moye, 1999; also see Denney & Wynkoop, 2000; or "capacity to return to work", Bigler, 1986).

This general definition of capacity can be further refined in such a way that may assist in the identification of methods for assessing this variable. There are several factors to consider here. First, we might ask: is capacity a discrete variable, as implied by terms such as competent or incompetent? Probably not. Even though "legally" adults are presumed to be competent until proven otherwise and as Mezey et al. note, this is the "traditional" approach taken to clinical assessment of competency (Mezey, Teresi, Ramsey, Mitty & Bobrowitz, 2000), it is now generally agreed that decision-making capacity is an attribute people possess in varying degrees (Haldipur & Ward, 1996). Therefore the method used to assess capacity should be capable of measuring the *degree* to which capacity is present.

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[1] The terms "competence" and "competency" are used interchangeably with "capacity" and "decision-making capacity". It should be noted that however that the term "competence" is more common in legal arenas, and maybe distinguished from the term "decision making capacity" (Christensen, Haroun, Schneiderman, & Jeste, 1995) or "clinical competence" (Barton, Mallik, Orr & Janofsky, 1996) in health-related literature. For a comprehensive discussion on the use of these terms see (Moye, 1999).

Second, we might ask: is capacity a unitary concept or are there "specific competencies"? On this point it is now fairly widely argued that capacity should not be regarded as a unitary concept (e.g., Verma & Silberfeld, 1997). Instead we are thought to possess a range of "specific competencies" although the extent to which the division of "capacity" into specific categories is supported by empirical evidence is somewhat difficult to determine. If there are discrete specific competencies then we might expect a weak correlation between a test of testamentary capacity, say, and a test designed to establish whether a person has the capacity to refuse treatment. However, it has also been previously argued that there are similar fundamental cognitive processes, such as the ability to take in information, reason, make a decision, and articulate that decision that underlie capacity (e.g., Leiff, Maindonald, & Shulman, 1984), and if this is so, this might reduce the likelihood of independence and discreteness of categories of competency. Further, from a legal perspective, capacity is often defined in terms of specific competencies (Collier, Coyne & Sullivan, In Press), and this has implications for assessments in this area.

The case for revising practice in the area of capacity assessment

I. Increased need for capacity assessment

The need for capacity assessments is predicted to increase, suggesting it is particularly timely for neuropsychologists to consider how we might contribute to this area. To understand the reasons for this anticipated increase, it is helpful to consider the context in which health-related capacity assessments occur. For example, Figure 1 shows three points in time at which health-related competency assessment might occur.

Insert Figure 1 About Here.
Figures and tables can be found at the end of this document

In the case of a person who wishes to make an advance health directive (referred to as Enduring Guardianship in some jurisdictions; Collier, Coyne, & Sullivan, in press), assessments of capacity over multiple occasions might occur as depicted in Figure 1. However in the case of someone with advanced dementia who wants to change their will, it may be that competency questions and assessments occur only or primarily at the instigation of others (i.e., Figure 1, time 2)[2]. Alternately, Figure 1 shows the trigger for investigating incapacity at time 2 may simply be when a "recommended treatment plan is refused" (Miller & Marin, 2000), and it is also important to note that time 2 assessments might occur *each* time a client refuses treatment or each time a client proposes to change their will. As Silberfeld and others have noted, those making plans for future incapacity may increasingly be required to demonstrate they were competent *at the time* plans were made to ensure care instructions are implemented (Biegler, Stewart, Savulescu, & Skene, 2000; Flew, 1999; Silberfeld, 1994). Assessment of capacity for this reason could occur at time 1 as noted previously, or it may occur after a contentious course of treatment has been enacted, in which case the assessment of capacity may be retrospective (e.g., a course of treatment is implemented but family doubt the person had the ability to consent to treatment).

A second reason for conducted retrospective assessment of capacity might be to challenge the validity of a power of attorney (e.g., if capacity at the time of making provision for power of

[2] Several approaches have been described in the literature to identify when assessments of capacity not instigated by the individual might occur (Silberfeld, 1994; Parker & Cartwright, in press; Wong et al., 1999). Briefly these approaches vary according to the criterion used to guide decisions about when others might initiate assessment of capacity and whether this should be based on the nature of decision that is being made (outcome approach), the illness the person has (status approach), or the person's current level of functioning and ability to understand the issues at hand (functional approach).

attorney is made) or to challenge actions taken at the point at which the power was enacted because of failure to demonstrate incapacity. These scenarios are depicted in Figure 1, time 3. It should also be noted that whilst assessment of capacity at each of the three points of time depicted in Figure 1 may occur as one-off assessments (e.g., an individual makes provision for power of attorney at time 1 after capacity to do so is demonstrated, but never looses capacity and is not re-assessed), it is also possible that an individual could be tested on multiple occasions (e.g., at the time they make provision for the power of attorney, at the time incapacity is suspected, or at the time a controversial course of treatment is followed assuming this is later challenged on the basis of incapacity). Thus, the need for capacity assessments at the time instructions for future care or action are delivered may be increasing (e.g., Biegler et al., 2000), and the possibility that multiple capacity assessments may be necessary suggests the need for a robust assessment method that should be able to withstand repeat administrations.

Second, the need for competency assessments may be increasing as a consequence of the current political and social climate that emphasizes accountability in the area of surrogate decision-making, although it should be noted that this trend has not been welcomed unconditionally by all health professionals (e.g., Crippen, Levey, Truog, Whetstine & Luce, 2000; Greenlaw, 2000, Leung, 1998; Treloar, 1999). That is, in line with increases in the array of legal devices and procedures that are evolving to facilitate surrogate decision-making (see Collier, Coyne & Sullivan, in press), there may be a corresponding increase in the need for capacity assessments at both time one and time two.

A third factor affecting the number of capacity assessments relates to changes in population demographics that have resulted in an increase in the type of clients for whom competency questions arise. For example, the elderly may: a) have a greater risk of developing conditions such as dementia, that compromise their ability to make decisions than the general population (Fitten, Lusky, & Hamann, 1990), b) wish to plan proactively for possible future incapacity (Silberfeld, 1994; Sprehe & Kerr, 1996) or c) be particularly vulnerable when making such decisions (e.g., changing a will to include or exclude carergivers). With the aging of the population the need for careful, considered assessments of capacity is likely to increase.

Fourth, predictions about demand for capacity assessments may be based on an examination of referral rates for such assessments. Although there is limited published empirical evidence on changes in referral patterns for competency assessment, one North American study documented a 50% increase in referrals for competency assessments in people aged over 65 years between the first and second half of the 1980's (Knowles, Liberto, Baker, Ruskin, & Raskin, 1994). The demand for capacity assessment in the elderly, including assessments for advance planning purposes seems set to further increase (Hasan & Baker, 1993), thus supporting the argument that it is timely for neuropsychologists to consider how they might contribute to capacity assessments.

II. Inconsistency and inaccuracy of capacity assessment by health professionals

If demand for capacity assessments is increasing as proposed and existing methods for assessing capacity are adequate, there may be no need to review current practice. This raises the question, to what extent is current practice in this area adequate?

Historically, medical staff largely conducted health-related competency assessments in accordance with legal standards (Moye, 1999). More recently, registered psychologists and other health professionals have presented evidence to the courts in relation to assessments of capacity. The reason for this change is thought to relate to: a) recognition of the need for more standardized and comprehensive assessments especially given the complexity of cases and b) an appreciation of non-medically trained health professionals' ability to provide such assessments (Moye, 1999).

However, just how health professionals might reach opinions about capacity has not been defined. For example, in Canada, Pepper-Smith and colleagues note that the courts have not specified what type of assessment is required to reach a conclusion of mental incapacity (Pepper-Smith, Harvey & Silberfeld, 1996) and, as Marson and colleagues note, there is no "widely accepted standardized instrument" for assessing capacity (Marson, Schmitt, Ingram, & Harrell, 1994). Without a specific standard to determine which test should be used, naturally there is variation and a lack of standardization in the way assessments are conducted, and this is seen by some as problematic (e.g., Anderer, 1990).

A search for empirical studies in the area of capacity assessment suggests that there have been relatively few such investigations (Marson et al., 1994). Indeed, as Marson et al. (1994) note, it is surprising how few empirical studies have been conducted to determine how reliably physicians (or other health professionals) make competency decisions. However, it should be noted there are a number of reasons why such studies are relatively difficult to conduct (such as difficulty identifying a criterion against which various methods of assessing capacity might be compared) which may partly account for the lack of research in this area (see Sullivan, in press). Of those studies that have been conducted to examine the extent and nature of inconsistency in capacity assessments in health settings, a number of problems with the assessment of capacity have been identified (e.g., Marson et al., 1994). These studies have typically sought to document the extent of agreement between various health professionals regarding whether someone is incompetent, the likelihood that "incompetent" people will be detected by a given method, and the type of cases in which agreement is most likely to be reached.

In relation to the extent of agreement among health professionals, Moye reported that, when an individual provider's assessment of capacity was compared to that of a multidisciplinary team of health professionals, a lack of agreement was apparent (Moye, 1999). Given that the multidisciplinary team approach to capacity assessments appears to be growing in popularity (e.g., Hasan & Baker, 1993; Landry, 1999; Midwest Bioethics Centre, 1996; Silberfeld & Checkland, 1999)[3], these findings seem particularly important. One of the reasons suggested that may account for this lack of agreement is conflicting dual roles (Moye, 1999). Conflicting dual roles may be experienced by individuals who are involved in the care of clients they are commenting on in relation to capacity (Moye, 1999). That is, it may not be possible for treating health professionals to be sufficiently objective to provide an accurate assessment of capacity (but see Farnsworth, 1989). Other possible reasons for a poor correlation between team and individual assessments of capacity include a lack of sensitivity to individual differences and, importantly, lack of empirical models and methods (Moye, 1999).

In relation to differences in assessment methods, some authors have noted the apparent "failure to treat like cases alike" (Backlar, 1996, p. 323), observing that the methods of

[3] The question of which personnel are responsible for making competency assessments, and in what order, is one that has been raised previously (Benesch, 1989). Currently, in the literature, several models outlining a multidisciplinary approach to capacity assessment have been presented, however these models differ in terms of how fully elaborated they are, the setting they are designed for, and the extent to which the specialist skills of participating professionals are utilised. For example, Farnsworth's (1989) model provides an example of how GPs might work with other health professionals to benefit from their specialist expertise, although this model does not utilise a teamwork approach. Hasan and Baker's (1993) model on the other hand, provides an example of a clinic-based approach to capacity assessment, in which the specialist skills of contributing health professionals are not as fully utilised (e.g., psychologist is seen as interchangeable with a nurse). Neither of these models appear to identify how capacity assessments from various health professionals might be combined, or how this information is weighted, particularly when evidence conflicts. This issue is important, since as a recent study by Barton et al. (1996) showed when allowed to use there usual assessment methods, there were unresolved conflicting opinions among nursing home staff regarding which of their patients were competent.

demonstrating incapacity used by physicians seemed inconsistent and had the potential to lead to decisions that were "confusing, arbitrary, and unfair" (Lo, 1990, p. 197). Part of this dissatisfaction related to the process of reaching a decision, since this might rely on methods ranging from a general assessment of capacity based on bedside cognitive assessment, a general or "subjective" impression about capacity (e.g., Verma & Silberfeld, 1997), or a brief mental status examination (Fitten et al., 1990; Mezey, Mitty & Ramsey, 1997). None of these methods have been universally endorsed as an adequate basis for opinions about capacity.

In other studies, the "subjective" opinions of health professionals (e.g., nurses, Weisensee, Kjervik, & Anderson, 1994; and emergency department physicians, Smithline, Mader, & Crenshaw, 1999) as to whether an individual lacked capacity were compared to the results of standardised assessments using specific tests (e.g., Cognitive Capacity Screening Exam; Weisensee et al., 1994). The results of these studies, suggest a lack of concordance between subjective and objective ratings of capacity. Similarly, opinions formed in response to questions about whether an individual lacks, or alternately has, sufficient decision-making capacity have been shown to result in missed cognitive deficits, compared to problems identified using a standardised capacity assessment tool where degree of function can be assessed (Palmateer & MacCartney, 1985). Thus, findings from studies where subjective opinion (or subjective opinion informed by extremely brief cognitive assessment) has been used determine capacity suggest that this method probably underestimates the extent of incapacity.

In terms of which cases are hardest to detect, the general literature on decision-making would suggest that judges will be more likely to agree when making decisions about "obvious" cases of incapacity than when deciding about "borderline" cases, and there is some evidence supporting this assertion (e.g., Marson, Hawkins, McInturff, & Harrell, 1997). The research by Marson et al., (1997) relates to capacity to consent to treatment decisions and, although it remains to be demonstrated whether these results generalise to situations involving other types of capacity, it seems reasonable to expect this would be the case.

There seems to be scope to develop a more a systematic approach to competency determinations so that assessors might reach similar conclusions about whether an individual lacks capacity. Indeed, the need to uncover a "standard framework" for determining decision-making capacity has been recognised previously (Backlar, 1996). Without some way of standardizing competency assessments, it would seem that, at least in some cases, we risk clinical competency determinations becoming a subjective and "highly unreliable enterprise" (Marson, McInturff, Hawkins, Barolucci, & Harrell, 1997, p.454). Such methods, once developed, could then be subject to rigorous comparative study to assist in the quantification of costs and benefits of each method of capacity assessment.

It should be noted that in the preceding discussion reference was made to some of the methods used to make decisions about capacity (e.g., bed-side cognitive exam versus subjective impression and so on), and the appropriateness of these methods for capacity assessments. Recently however, there has been an expansion of methods recommended for use in capacity assessments, partly in response to the increasing array of legal devices for this purpose, partly due to changing conceptions of notions of capacity away from a unitary concept, and partly in recognition of the need to improve practice in this area, and it is important to review the adequacy and rationale of existing methods of assessing capacity.

Tests to assess capacity

Assessment methods used to determine capacity have included formal tests, direct observations, behavioural checklists, and semi-structured interviews (Searight & Hubbard, 1998). The type of tests used in capacity determinations can be sub-divided into two main categories:

a. general ability tests (i.e., test of cognitive or independent living skills), and

b. purpose-built capacity assessment tools, including vignette-based assessments of capacity. Tests in each of these categories are discussed separately below.

General ability tests

I. General cognitive ability tests

Two types of test will be discussed here: the screening tests of cognitive function (such as the MMSE, Folstein, Folstein, & McHugh, 1975) and more specialized neuropsychological tasks. These two methods are commonly used to assess cognitive status in clinical settings (Malloy et al., 1997) and in capacity research studies (Christensen et al., 1995). For example, in a recent review of 12 published research articles investigating decision-making capacity, a range of tests and scales were used to assess competency (Christensen et al., 1995). Of those 12 studies, the majority (nine) used at least one test or scale. In 7 of these 9 studies, subtests of the Wechsler Adult Intelligence Scale (WAIS or WAIS-R) were employed. In the remaining two studies the MMSE was used either alone or in conjunction with other measures. This suggests that both neuropsychological tests and brief cognitive exams, like the MMSE, are currently used in capacity research, although there are significant differences in the type of information these measures yield.

The use of the MMSE for capacity assessments is the subject of on-going debate (Mezey et al., 2000); arguments for and against its use in capacity assessments having recently been expressed. For example, the case *for* the use of the MMSE has been put by authors such as Etchells et al. (1999); Frank, Smyer, Grisso, & Appelbaum (1999) and Molloy et al. (1996), whilst the case *against* has been put by authors such as Farnsworth (1989); Marson, Chatterjee, Ingram, & Harrell (1996); and Mezey et al. (2000). The debate centers on cost effectiveness and sensitivity of this tool to cognitive deficits in the context of capacity assessments, and similar arguments may well apply to other screening measures of cognitive function when used for competency testing. Assessments made with such tools may be regarded as comprehensive (testing a wide range of cognitive function), low-cost (quick to administer; requiring relatively little equipment or training), but unreliable because few items are included to measure each construct.

II. Specialized neuropsychological tests

Moye (1999) suggests that neuropsychological tests of abilities such as attention, memory, executive function, language and visuospatial abilities should be incorporated into capacity assessments. Examples of these tests are shown in Table 1. Mattis (1990) has also listed a range of specialized neuropsychological tasks that could be used to assess competency, as have Marson, Cody, Ingram, and Harrell (1995). The use of neuropsychological tests is advocated by researchers such as Marson, on the basis that decision-making capacity involves abilities that have an explicit neurological basis (Marson, Annis, McInturff, Bartolucci, & Harrell, 1999; Marson & Harrell, 1999). However, it should be noted that neuropsychological tests that have been recommended for use in capacity assessments vary in terms of purpose and quality (i.e., reliability, validity). Further, "neuropsychological" tests vary in terms of cost (time and finances) and comprehensiveness, given that some tests use multiple items to assess one or two domains of function (e.g., the Auditory Verbal Learning test), whereas other tests (such as

the Wechsler Memory Scale) test a broader range of abilities. Neither the MMSE nor neuropsychological tasks were specifically developed to assess questions of legal capacity.

Insert Table 1 about here

III. General independent living tests

Other tests of general function used in capacity assessments include measures like the Everyday Problem Test (EPT; described in Willis, 1996), and the Independent Living Scales (ILS; Loeb, 1996). Both of these tests use "realistic" rather than abstract stimuli to test function on tasks of every day living, such as determining the amount to pay from a household account. Neither the ILS nor the EPT was specifically developed to assess questions of legal capacity however both tests are normed and standardised and may yield some useful information about the client's level of functioning, though perhaps not as the primary measure of capacity (Moye, 1999).

The appeal of task-oriented tests in the context of capacity assessments, such as the EPT and the ILS, may be that they have good criterion and face validity; namely these tests both assess and have the appearance of assessing the ability to carry out tasks related to specific capacities. For instance, in the case of someone wishing to make a financial enduring power of attorney, "task-specific" assessment of their financial capacity might involve watching them undertake an actual (or simulated) transaction with a bank. Whilst such observation would seem to be important, this raises questions about how many such observations would be needed to ensure reliable measurement. Also, perhaps such a task is too basic to highlight subtle deficits that might be contributing to failure at other financial management tasks (would we therefore have to observe the person conducting all such tasks?). It is also important to consider what these tests do not measure. For example, if a person fails a task such as how to interpret the amount owing on a bill, but we know very little else about their level of cognitive functioning, we may not be able to determine *why* this is the case or make an assessment of whether the underlying problem can be remedied. Such information is a critical component of assessment.

Purpose-built methods for the assessment of capacity

Since the 1990's, there has been an increase in the number of structured methods to assess capacity, particularly to assess capacity to consent to treatment (Table 2). Table 2 includes a list of tasks specifically designed to assess capacity such as the Hopkins Competency Assessment Test, indicates the format of the test (e.g., whether it is structured interview or informant report) and provides an indication of where further details about each measure can be found. Importantly, it should be noted that the evolution of task-specific tests of competency would seem to fit with the notion of specific competencies, since different tests would be needed to assess different decision-making capacities. Such measures include tests (or interviews that are in fact marketed or referred to as "tests"), specific questions sets, and vignette-based approaches to assessing capacity.

I. "Tests" of capacity.

Purpose-built tests of capacity are listed in Table 2 along with an indication of where further information on each test might be sought. Given that purpose-built tests of competency have been devised only recently however, there has been little time for the research community to evaluate these measures or build up a substantial literature base on the properties of these tests.

Insert Table 2 about here

The appeal of tests such as those listed in Table 2 may also relate to criterion and face validity, as well as changing legal standards that emphasis specific capacity. For example, it may be easier to encourage examinee's to take a test that appears to, and in fact, measures behaviours or abilities that are specifically related to capacity, than asking people to undertake a test of memory, which may be perceived as peripherally related to capacity. However, a limitation of these measures (as well as measures such as the ILS) is that these tests arguably provide us with less insight into the specific nature and extent of cognitive problems that underlie a lack of capacity.

II. Recommended question sets

As noted previously, in addition to formal competency tests/ interviews, there are a number of published question sets recommended for competency assessments. Question sets have been devised, for example, to assess competency to make treatment decisions, capacity to appoint a financial enduring power of attorney, capacity to make medical decisions for oneself, and capacity to give informed consent for treatments. Some of these question sets are shown below.

For example, Australian health professionals have been asked to consider seven questions when assessing capacity to make health decisions (Finucane, Myser & Ticehurst, 1993). These are shown in Table 3. Table 3 includes questions that prompt health professionals to consider important aspects of assessment, such as the person's level of cognitive function and whether this is stable over time. The use of such questions may be further enhanced by prompts that encourage the assessor to consider *how* cognitive function was assessed, and whether this is has been documented. In an effort to extend the recommendations made by Finucane and colleagues (1993), these additional cues have been added to Table 3. Finally, questions sets such as those illustrated in Table 3 could be greatly enhanced by explication of a question that specifically directs the assessor to identify evidence contrary to the hypothesis, and such a question is shown in Table 3. Finally, whilst it is important to note that the benefit of expanding question sets (such as Finucane et al.'s) in the manner proposed in Table 3 remains an empirical question, there would seem to be sufficient practical benefits to warrant such a trial.

Insert Table 3 about here

Other question sets have been developed in other areas of capacity. For example, Moye (1999) includes a list of supplemental questions, specifically related to competency in areas such as financial management, medical decision-making and independent living. Examples of questions related to medical decision making are shown in Table 4, since these are most likely to be relevant to assessments of capacity to make advance health directives or health-related powers of attorney. This table includes questions to assess fitness to make medical decisions. Questions are grouped into five broad categories, including categories specific to the decision in question (e.g., knowledge of current health status) and categories that assess more general factors with the potential to impact decision making (such as perceptions of quality of life and religious and cultural preferences). Several questions are listed under each of the five categories and this may maximise the chances that assessments made using such tools are more reliable and valid than

when a briefer, less structured approaches are used, although this is an empirical question that has yet to be investigated.

Insert Table 4 about here

III. Vignette-based assessments of capacity

Another variation on the interview approach incorporates clinical vignettes. Vignettes continue to be used as a way of eliciting information about individual's preferences in relation to health decision-making (e.g., Emanuel, Barry, Stoeckle, Ettlson & Emanuel, 1991; Fazel, Hope & Jacoby, 1999; Marson, Ingram, Cody, & Harrell, 1995; Sach et al., 1994). In this context, the vignette is a description of imaginary situation in which the subject is asked to decide on a proposed treatment (or participation in research) and understanding of relevant issues is assessed in the context of an interview (Schumand, Gouwenberg, Smitt, & Jonker, 1999).

In the few studies where clinical vignette-based assessments have been compared to other methods of determining capacity (e.g., "expert medical ratings"), little agreement has been found, at least in cases with minimal dementia (Marson et al., 1997). Nonetheless, advocates of this method recommend it over physician's subjective ratings of capacity especially in patients with early dementia because it provides some structure to the assessment of capacity (Schumand et al., 1999).

Models of decision-making capacity

Given there is a range of existing capacity assessment tools, which one(s) should we use? One way of resolving this question may be to use a model of decision-making capacity to inform test selection. If we accept that a fundamental part of the capacity to make decisions about finances, health, and lifestyle is the ability to process information, this might constitute the "common" component in capacity assessments. That is, common among individuals with capacity is the ability to take in information, reason, reach a decision, and communicate that decision to another. Even before the specifics of the decision are considered, these fundamental abilities probably need to be present, and if in doubt, should be assessed and demonstrated. If this basic premise is accepted the ideal competency assessment might involve assessment of these basic abilities *in addition to* assessment of the specifics of a particular decision, not assessment of one without the other. This approach is depicted in Figure 2, and is similar to models proposed previously by others (Grisso, Appelbaum, & Hill-Fotouhi, 1997; Lo, 1990; Roth, Meisel, & Lidz, 1977). Figure 2 depicts the relationship between the assessment of general cognitive abilities and specific knowledge relating to capacity or decision-making. In this figure, the assessment of general cognitive abilities would normally *precede* the assessment of specific knowledge and capacity. Case-study examples of how this approach might be implemented by neuropsychologists have also been recently described by Ambrose (Ambrose, in press).

Insert Figure 2 about here

Some of the fundamental cognitive abilities implicated in capacity are: orientation, reasoning/judgment, general knowledge, memory, calculation ability (Lieff et al., 1984). Specific knowledge may be assessed through one or a combination of methods such as vignette based approaches, recommended question sets, or purpose built tests. The assessment of fundamental cognitive abilities is ideally by neuropsychological assessment, which permits more

comprehensive assessment of cognitive abilities than cognitive screening. In cases where there is already substantial cognitive impairment however, as is the case at some time 2 assessments of capacity (see Figure 1), assessment of cognitive skills may need to involve a cognitive screening test, such as MMSE. Given that research suggests that the most disagreement occurs among professionals regarding capacity determinations in *borderline* cases however, neuropsychological assessment of general cognitive abilities according to this model is likely to be particularly important in such cases. Other reasons for combining a comprehensive assessment of general cognitive function, in addition to assessment of specific decision making capacity are summarised in Table 5. For example, the information in Table 5 identifies the potential contribution that neuropsychological assessment could make to capacity assessment. Some of the reasons for incorporating neuropsychological assessment in capacity tests listed in Table 5 include the argument that such testing seems to be warranted on theoretical grounds and such assessments may lead to greater detail about the reasons why a person lacks capacity than would be generated otherwise (e.g., compared to subjective assessments of capacity, or assessments of capacity based only on the results of a vignette-interview style assessment of capacity).

Insert Table 5 about here

The two-stage capacity assessment model proposed here may also have the potential to overcome limitations associated with dual roles (e.g., if initial screening assessment by the family doctor using the mini-mental status examination suggested capacity may be impaired, the client could then be referred for independent specialist neuropsychological opinion regarding capacity). Further this approach to capacity assessment should enable practitioners who use this method to comment on the *extent* to which capacity is present, as well as the likely contribution of general and specific factors to such behaviour. In addition, this approach is responsive to previous criticisms that a more standardised method of assessing capacity is needed, since currently, assessment of general cognitive function is may be more amenable to standardisation than assessment of knowledge specific to a given area of capacity. Further, the inclusion of neuropsychological tasks to assess general cognitive function may increase the usefulness of such assessments when used for repeat assessment, as the test-retest reliability of many of these tests has been well researched (e.g., Lezak, 1995). Clearly there is need for more research in this area to determine if assessments of capacity based on this approach improve on current methods of capacity assessment. Such research may well need to include the development of new tools that could be used in either or both steps of this process, or the further refinement of the psychometric properties of existing tools, followed by empirical validation of the whole two-step approach to capacity assessment that has been proposed here. Such research will also need to include participants with mild to severe loss of capacity (although as noted earlier this model is likely to be most useful in borderline cases of incapacity) as well as participants from different clinical groups including those with conditions that produce progressive, generalized deterioration of function such as Alzheimer's disease and those with more localized cases of brain injury. The two-stage model of capacity assessment proposed above is intended to stimulate further discussion on the question of capacity assessment, particularly since the demand for such assessments is likely to increase.

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Figure Caption

Figure 1. Capacity assessment may occur for different reasons and in the Figure above these reasons are represented schematically as separate occasions. That is, questions about competency may be raised when the legal document is signed (time 1) and when the document is to take effect because of loss of capacity (time 2), or after contentious treatment (retrospective analysis of capacity; time 3). As noted previously, early assessment of capacity (at time 1) may be particularly important in cases where future incapacity is considered likely, and challenges about the validity of the power of attorney are anticipated. Such assessments of capacity would occur at the time provision for a power of attorney is made. The second occasion at which capacity may need to be assessed, is the point at which incapacity is suspected (time 2) and the need to enact the power may be identified. Such assessments may be precipitated by contentious treatment decisions (e.g., family members disagrees with a treatment being proposed by the treating team or the individual). Depending on prognosis, assessment of capacity may need to be repeated if, for example, the person regains some of their faculties and not longer requires the assistance of their Attorney. That is, there may be multiple assessments of capacity at time 2 and the potential for repeat assessments at this point is shown by the dotted line (with arrowhead) in this Figure. In addition, multiple assessments of capacity might also be needed *across* occasions. For example, assessment of capacity may occur when provision for the power is made (time 1), and then when need to enact the power is demonstrated (time 2). The potential for follow-on assessments of capacity across occasions is represented by the dotted line (with arrowhead) shown in Figure 1). Assessments of capacity may also occur *after* a course of treatment that is subsequently challenged. The dashed line in the Figure (to the right of time 2 assessments) is intended to represent assessments of capacity that are made after treatment has been undertaken, whereas assessments of capacity made in advance of treatment are shown to the left of this line (i.e., time 1 and time 2 assessments). Such assessments are retrospective assessments of capacity and may be instigated if a contentious treatment was undertaken that is later questioned by family (e.g., family doubt that the person could have consented to participate in treatment). Alternately, if power of attorney is made and then acted on without formal documentation of the validity of such actions, a retrospective assessment of capacity may be requested. Such an assessment may constitute a challenge of the point at which provision of the power was made, or the point at which the decision to enact the power of attorney was made. Retrospective assessments of capacity are represented in the Figure at time 3.

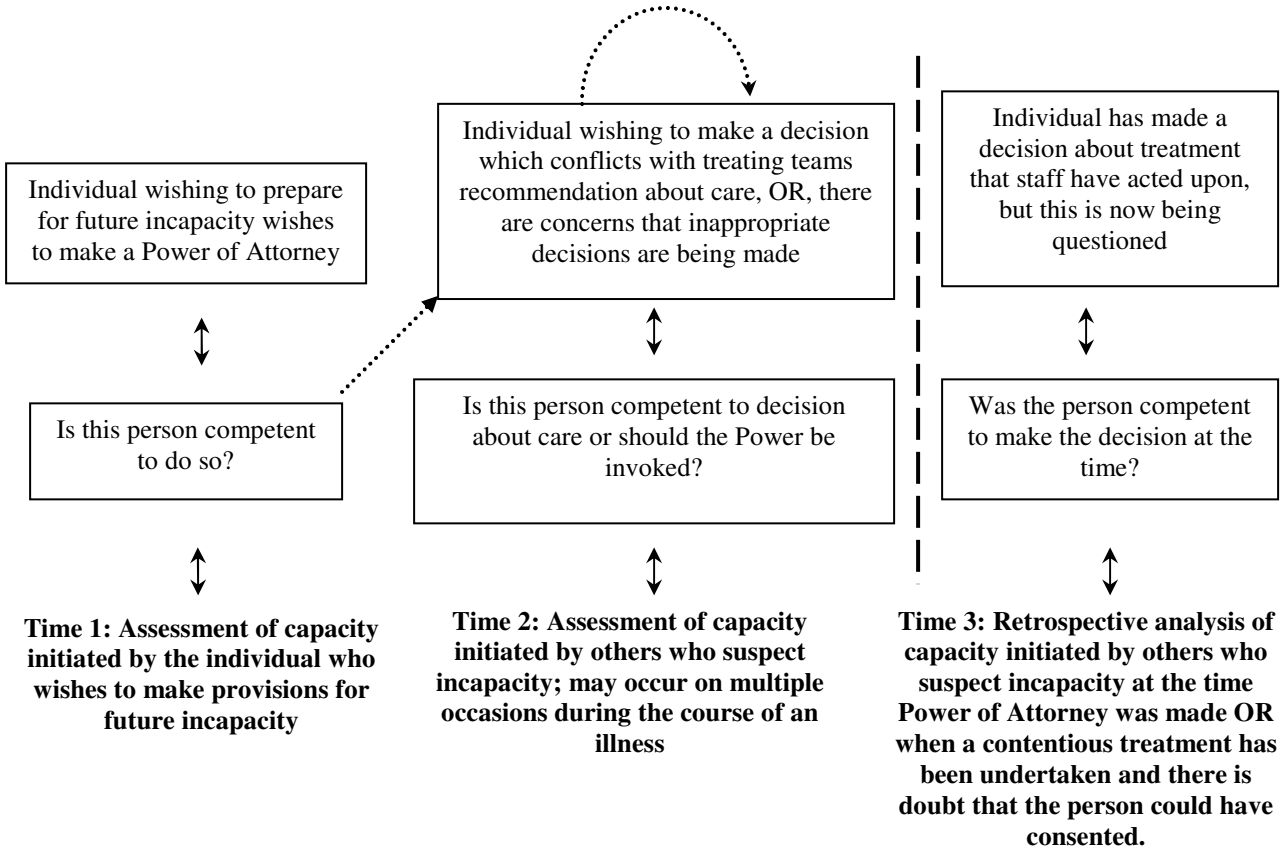

Table 1.

Selected neuropsychological tests recommended by Moye (8) for competency assessment.

Neuropsychological tests recommended for competency assessments
Auditory Verbal Learning Test or
California Auditory Verbal Learning Test
Boston Diagnostic Aphasia Examination or MAE
Controlled Oral Word Association Test
Dementia Rating Scale
Hooper Visual Organisation Test
Trail Making Test
Wechsler Memory Scale
Wisconsin Card Sorting Test

Table 2.

"Purpose-built" competency tests: types and sources of further information.

Test name	Test type	Further information
Clinical Competency Test interview	Structured patient interview	Marson et al., 1995
Cognitive Capacity Screening Exam (CCSE)	Structured patient interview	Weisensee et al., 1994
Community Competence Scale	Structured patient interview	Searight & Hubbard, 1998
Competency Interview Schedule	Patient interview	Bean et al., 1994
Decision-making instrument for Guardianship	Structured patient interview	Anderer, 1990
Hopemont Capacity Assessment Instrument	Structured patient interview	Edelstein et al., 1993
Hopkins Competency Assessment Test	Structured patient interview	Janofsky et al., 1992
Incompetency Assessment Scale	Structured patient interview	Weisensee et al., 1994
MacArthur Competence Assessment Tool-Treatment	Semi-structured patient interview	Grisso & Appelbaurm, 1995; Grisso et al., 1997[4]
Patient competency rating scale	Completed by patient and informant	Leathem et al., 1998
Scale of Competency in Independent Living Skills	Scale completed by relative	Searight & Hubbard, 1998
Testament definition scale	Structured patient interview	Heinik et al., 1999

[4] For a criticism of this test see Kirk and Bersoff (1996) for an adaptation of this test see Carpenter et al., (2000).

Table 3.

Questions to ask when assessing competence to make medical treatment decisions (Based on Finucane et al., 1993; italics added)

1	Is the environment conducive to decision-making? (*Has this been documented?*)
2	What is the patient's cognitive function (*How was this assessed?*) and is it stable over time?
3	How does the patient cope with activities of daily living? (*How was this assessed?*)
4	Has the patient been adequately informed (Has this process been documented?) and is this information understood?
5	Is the patient's frame of mind conducive to decision-making? (*How was this assessed?*)
6	What is the health professional's frame of mind? (*How was this assessed?)*
7	What family and social factors are at work? (*How were these assessed?*)
8	*What contrary evidence is there against the current working hypothesis?*

Table 4 Questions to assess medical decision-making (from (8), Table 18.5).

Current health care status
What is your understanding of your problem/diagnosis?
What is your understanding of the prognosis, or what will happen if the problem is not treated?
What are the treatment options? What do they involve? How will they affect your daily life?
How will each help? What do you want to do? Why?
Involvement of others in medical decisions
Who has been involved in making this medical decision (family, friends, doctors, nurses)?
What does your family want you to do?
Who do you want to be involved in making medical decisions for you?
Who would you trust to make decisions for you if you could not speak for yourself? Why?
Who would you not trust? Why?
What thoughts do you have about how your illness or care might affect others in your life?
Have other people's emotional or financial interests influenced your wishes about medical care? How?
Perceptions of Quality of Life
What do you think it is that makes your life worth living?
What would make you want to continue to live even if you were very ill or disabled?
Can you imagine any circumstances in which you would prefer to be dead than remain alive?
How important are: thinking clearly, taking care of your own personal needs, being able to move around by yourself, enjoying hobbies, being able to communicate, being able to chew or swallow food?
Experiences with Pain
Have you had experience with severe pain?
How have thoughts about pain and suffering influenced your medical decisions?
Religious and Cultural Preferences
Do you have particular religious, spiritual or moral beliefs that influence your treatment decision? What are they? How do these guide what you want?
Do you have any cultural beliefs that influence your treatment decision? What are they? How do these guide what you want?

Figure Caption

Figure 2. A two-stage model of a capacity assessment.

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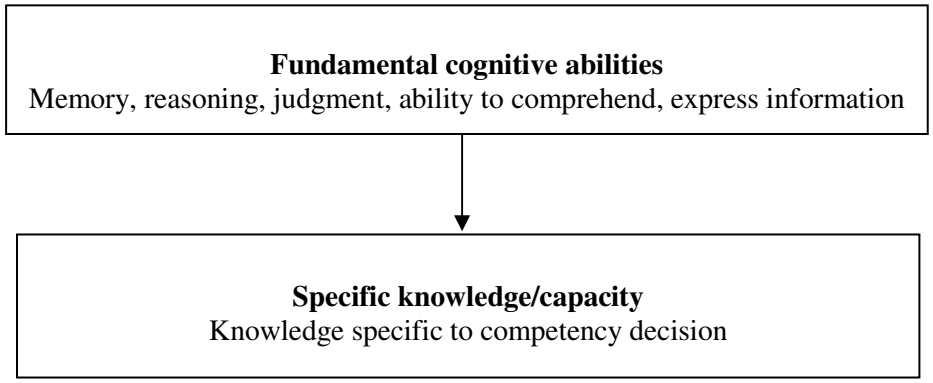

Table 5.

Reasons for including thorough assessment of general cognitive function in addition to specific tests or interview questions related to capacity.

1. Theoretically, general and specific abilities are related. That is, general cognitive abilities, such as memory, are also thought underlie decision-making capacity, and have a common neurological basis.
2. Overall, the properties of general ability tests have been better documented and may be of a higher standard that specific competency or task-specific tests.
3. General ability tests are accompanied by an extensive knowledge base that is more comprehensive than the knowledge base associated with newer or less well established tests, including specific measures of capacity.
4. The comprehensiveness of a good general ability assessment may provide insights into why specific ability tests are failed and this could lead to remediation of deficits as part of a process approach to competency assessment.
5. The general cognitive assessment component of a two-stage capacity assessment can be more easily standardised than the assessment of specific competencies that are mostly interview based.