Does This Patient Have Medical Decision-Making Capacity?

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**Clinical Scenario**

One of your patients, a 72-year-old woman, comes to you for a preoperative evaluation for a total hip replacement. Her medical history includes early-stage Alzheimer disease. At a recent clinic visit, her husband noted his wife seemed more forgetful, and on examination, her Mini-Mental State Examination (MMSE) score was 21 out of 30 points. Today, you ask the patient what she understands about the risks and benefits of the planned procedure. She smiles and tells you it will fix her hip. When you give her information about risks and alternative treatment options, and query about her understanding, she continues to smile and replies, “It’ll be okay.” You wonder whether she has the capacity to make the decision to proceed with the operation.

**Why Is the Clinical Examination Important?**

Patients are assumed to have capacity to make medical decisions unless proven otherwise,1 and many clinicians lack formal training in capacity evaluation. The practical consequence is that clinicians regularly fail to recognize incapacity.1-8 and generally question a patient’s capacity only at extreme scores. The ACE is the best available instrument to assist physicians in making assessments of medical decision-making capacity.10 The standards for whether a patient meets this last element also vary from state to state but are generally based on evaluating

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**Context**

Evaluation of the capacity of a patient to make medical decisions should occur in the context of specific medical decisions when incapacity is considered.

**Objective**

To determine the prevalence of incapacity and assessment accuracy in adult medicine patients without severe mental illnesses.

**Data Sources**

MEDLINE and EMBASE (from their inception through April 2011) and bibliographies of retrieved articles.

**Study Selection**

We included high-quality prospective studies (n=43) of instruments that evaluated medical decision-making capacity for treatment decisions.

**Data Extraction**

Two authors independently appraised study quality, extracted relevant data, and resolved disagreements by consensus.

**Data Synthesis**

Incapacity was uncommon in healthy elderly control participants (2.8%; 95% confidence interval [CI], 1.7%-3.9%) compared with medicine patients (26%; 95% CI, 18%-35%). Clinicians accurately diagnosed incapacity (positive likelihood ratio [LR+] of 7.9; 95% CI, 2.7-13), although they recognized it in only 42% (95% CI, 30%-53%) of affected patients. Although not designed to assess incapacity, Mini-Mental State Examination (MMSE) scores less than 20 increased the likelihood of incapacity (LR, 6.3; 95% CI, 3.7-11), scores of 20 to 24 had no effect (LR, 0.87; 95% CI, 0.53-1.2), and scores greater than 24 significantly lowered the likelihood of incapacity (LR, 0.14; 95% CI, 0.06-0.34). Of 9 instruments compared with a gold standard, only 3 are easily performed and have useful test characteristics: the Aid to Capacity Evaluation (ACE) (LR+, 8.5; 95% CI, 3.9-19; negative LR [LR−], 0.21; 95% CI, 0.11-0.41), the Hopkins Competency Assessment Test (LR+, 54; 95% CI, 3.5-846; LR−, 0; 95% CI, 0.0-0.52), and the Understanding Treatment Disclosure (LR+, 6.0; 95% CI, 2.1-17; LR−, 0.16; 95% CI, 0.06-0.41). The ACE was validated in the largest study: it is freely available online and includes a training module.

**Conclusions**

Incapacity is common and often not recognized. The MMSE is useful only at extreme scores. The ACE is the best available instrument to assist physicians in making assessments of medical decision-making capacity.
4 abilities. Patients must have the ability to (1) understand the relevant information about proposed diagnostic tests or treatment, (2) appreciate their situation (including their underlying values and current medical situation), (3) use reason to make a decision, and (4) communicate their choice.

Commonly, the ability to communicate a choice is the easiest to assess. Assessing a patient’s understanding of the proposed medical decision and his or her individual situation often requires probing. A decision that follows from the patient’s individual situation, the patient’s values, and the information given about the decision shows the patient’s ability to reason effectively. This ability references the process of information manipulation rather than the decision itself, as there is no absolute “right” or “wrong” decision against which the patient’s decision should be judged. In the case presented, the patient’s failure to answer specifically your questions about risks and alternative treatments raises concern about her capacity and should result in a formal assessment.

Because a patient’s capacity is both temporal and situational, capacity evaluations should occur in the context of the specific health care decision that needs to be made. Some patients lack capacity for specific periods of time, such as when critically ill, but not permanently. Although some patients are completely incapacitated, many have limited capacity. Those with limited capacity may be able to make some diagnostic and treatment decisions (generally less risky decisions) but not others. Physicians commonly hold patients to higher standards when judging capacity for riskier medical decisions.

Any licensed physician—not just a psychiatrist—can make a determination of incapacity. The gold standard for capacity determination is a clinical examination by a physician trained to do the examination who has performed an extensive number of capacity evaluations. Most physicians do not meet this standard and their capacity evaluations—as well as experts’—could benefit from a standardized approach. An ideal clinical tool for evaluating capacity should be brief and reliable and facilitate documentation of the 4 capacity abilities. A number of instruments have been developed for assessing capacity to make medical decisions, mostly in psychiatric patients. While there are previous reviews assessing capacity evaluation in the psychiatric literature, our review asks several new questions. What is the prevalence of incapacity in commonly encountered medical populations? How frequently do clinicians recognize incapacity? Since physicians frequently assess cognition and may use it as a surrogate for capacity, how useful are tests of cognition, such as the MMSE, in assessing patient capacity? What are the test characteristics of capacity instruments for medical patients without significant psychiatric comorbidities? Our goal is to provide a guide for clinicians selecting a valid, reliable, and clinically useful tool for assessing and documenting incapacity in their own patients.

METHODS

We searched MEDLINE and EMBASE from their inception to April 2011 for English-language articles that studied instruments assessing medical decision-making capacity (not just cognitive ability) for treatment decisions and were feasible to use in the office or bedside (see the eMethods, available at http://www.jama.com). We excluded studies that involved only patients with severe psychiatric illness, such as suicidal depression or severe psychosis, and those assessing capacity to consent to research (eFigure 1). Capacity for treatment decisions in the mentally ill is a significant issue but is usually addressed by psychiatrists. Further, the literature addressing it is both voluminous and, to some extent, specialized, so it is not addressed here.

Sensitivity, specificity, and likelihood ratios (LRs) were calculated from raw data. When sensitivity or specificity was 1.0 or 0, an exact method was used for calculating the confidence interval (CI). For tables where any cell had a zero value, 0.5 was added to each cell for calculating the LR CIs. Prevalence and reliability data were pooled using a random-effects model, calculating variance with exact binomial methods. Diagnostic test accuracy for the MMSE was pooled using a generalized linear mixed model, fitting a 2-level mixed logistic regression model, with independent binomial distributions for the true positives and true negatives conditional on the sensitivity and specificity in each study, and a bivariate normal model for the logit transforms of sensitivity and specificity between studies. We a priori focused on capacity instruments that were possible to perform in an office visit, had moderate to strong levels of quality, and had robust likelihood ratios. All analyses were performed using Stata version 11.1 (StataCorp, College Station, Texas).

RESULTS

The search strategy yielded 5568 unique articles. Of these, 4040 articles were grossly inapplicable based on review of title and abstract. An additional 43 articles were uncovered by hand review of the bibliographies, resulting in a total of 1571 full-text articles retrieved. After full review, we excluded 1518 articles (eFigure 1), yielding 53 studies that met eligibility criteria. Of these 53 studies, 10 were excluded because they were duplicate reports or subgroup analyses from the same patient data set. We used data from all available articles in the abstraction process, although we included each data set only once. All studies were prospective, involved a total of 3684 participants, and came from 7 different countries (eMethods).

How Often Do Patients Lack Capacity?

The prevalence of patients lacking capacity varied by type of patient population (n=25 studies) (Table 1)

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and eTable 1) and likely reflected the severity of the underlying cognitive deficits of the respective population. Participants with learning disabilities had the highest prevalence of incapacity at 68% (95% CI, 41%-97%) followed by patients with Alzheimer disease at 54% (95% CI, 28%-79%). Nursing home residents lacked capacity 44% of the time (95% CI, 28%-60%). Incapacity was common among medicine inpatients (26%; 95% CI, 18%-35%) but unusual among healthy elderly controls (2.8%; 95% CI, 1.7%-3.9%). While a prevalence estimate of incapacity assessed using a single, reliable instrument would be most accurate (these 25 studies used different capacity instruments), the summary average of incapacity in some of the groups studied with multiple instruments had reasonably narrow CIs. Those that did not may reflect the varying levels of disease severity in the underlying, heterogeneous study populations as well as methodological and instrument differences between studies.

**Relationship Between Cognition and Incapacity**

The majority of studies included an assessment of cognition (n=35) (eTable 1), with most using the MMSE (n=23),† a measure of overall cognitive ability heavily weighted toward orientation, attention, and memory. Studies investigating patient characteristics associated with being judged incapacitated found evidence of a strong relationship between capacity scores and cognition. There was also evidence of a trade-off between sensitivity and specificity in the relationship between the MMSE score and capacity (eFigure 2). MMSE scores less than 20 increased the likelihood of incapacity (summary LR, 6.3; 95% CI, 3.7-11; 5 studies), and scores less than 16 increased the likelihood further (summary LR, 12; 95% CI, 5.3-27; 5 studies; I²=0.0%). Scores from 20 through 24 had no effect on the likelihood of incapacity (summary LR, 0.87; 95% CI, 0.53-1.2; 5 studies), and scores greater than 24 significantly lowered the likelihood of incapacity (summary LR, 0.14; 95% CI, 0.06-0.34; 8 studies).

**Physician Recognition of Incapacity**

Eight studies reported the rate of recognition of incapacity by the patients’ physicians.14 In all 8 studies, the physician was blind to the results of formal capacity assessments. Physicians recognized that patients were incapable of medical decisions in 42% (95% CI, 30%-53%) of patients independently judged to lack capacity. While physicians routinely missed the diagnosis of incapacity (negative LR [LR−], 0.61; 95% CI, 0.48-0.74), they were usually correct when they made the diagnosis (positive LR [LR+], 7.9; 95% CI, 2.7-13).

**Instruments for Assessing Capacity**

We found 19 different instruments for assessing capacity (eMethods and eTable 1). Most of the studies included formal measures of cognition (n=33, 79%), most commonly the MMSE.‡ A total of 9 capacity instruments have been studied in comparison with a gold standard among adult medicine patients.§ TABLE 2 shows the studies comparing these instruments with gold standards, and TABLE 3 shows the characteristics of these as well as additional selected competency tests (with types of validity described in eTable 2). The Box describes the 3 instruments that are possible to perform in an office visit, have robust likelihood ratios, have moderate to strong levels of evidence,67 and are based on US or Canadian law: the Aid to Capacity Evaluation (ACE27) (LR+, 8.5; 95% CI, 3.9-19; LR−, 0.21; 95% CI, 0.11-0.41), the Hopkins Competency Assessment Test (HCAT)38 (LR+, 54; 95% CI, 3.5-846; LR−, 0; 95% CI, 0.0-0.52), and the Understanding Treatment Disclosure (UTD)54 (LR+, 6.0; 95% CI, 2.1-17; LR−, 0.16; 95% CI, 0.06-0.41). (Additional details about the studies of the 9 instruments are shown in eTable 3, and descriptions of all 9 instruments appear in eTable 4.) The ACE evaluated 100 consecutive medicine inpatients; the HCAT, 41 inpatient medicine and psychiatric patients; and the UTD, 50 nursing home residents. Of these, the ACE was validated in the largest study, has excellent test characteristics, is the only instrument available online, and is the only instrument for which training materials are provided. Because the UTD does not measure all the capacity abilities, it is less useful. The HCAT has been compared with a gold standard in only a single study38 from a single center. Of the other studies using HCAT, 2 used it to assess prevalence,1,21 and 2 reported on construct validity,37 but had no gold-standard comparison. In this single comparison, the cut point selected yielded perfect results, but it has not been replicated, and it is unlikely

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**Table 1. Prevalence of Incapacity in Select Populations**

<table>
<thead>
<tr>
<th>Disease or Patient Care Setting</th>
<th>No. of Studies</th>
<th>No. of Patients</th>
<th>Patients With Incapacity</th>
<th>No. % (95% CI) Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy elderly controls</td>
<td>16</td>
<td>1817</td>
<td>51</td>
<td>2.8 (1.7-3.9) 0.005</td>
</tr>
<tr>
<td>Mild cognitive impairment</td>
<td>1</td>
<td>147</td>
<td>29</td>
<td>20 (14-26) 0.03</td>
</tr>
<tr>
<td>Gliona patients</td>
<td>1</td>
<td>26</td>
<td>6</td>
<td>23 (6.9-39) 0.08</td>
</tr>
<tr>
<td>Medicine inpatients</td>
<td>8</td>
<td>816</td>
<td>212</td>
<td>26 (18-35) 0.11</td>
</tr>
<tr>
<td>Parkinson disease</td>
<td>4</td>
<td>148</td>
<td>62</td>
<td>42 (23-60) 0.13</td>
</tr>
<tr>
<td>Nursing home</td>
<td>5</td>
<td>346</td>
<td>152</td>
<td>44 (28-60) 0.08</td>
</tr>
<tr>
<td>Alzheimer disease</td>
<td>10</td>
<td>1425</td>
<td>770</td>
<td>54 (28-79) 0.13</td>
</tr>
<tr>
<td>Learning disabled</td>
<td>4</td>
<td>208</td>
<td>141</td>
<td>68 (41-97) 0.14</td>
</tr>
</tbody>
</table>

**Abbreviation:** CI, confidence interval.

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†References 1-5, 7, 23, 27-29, 37-39, 41, 43, 45, 48, 49, 54-57, 60.

‡References 1-5, 7, 23, 27-29, 37-39, 41, 43, 45, 48, 49, 54-57, 60.

§References 3, 23, 27, 28, 38, 49, 54, 56, 57.
that these perfect discriminatory results will be found in other settings. As with other standardized instruments, patients can find the scenario confusing and inapplicable, making it clinically difficult to use.

**SCENARIO RESOLUTION**

The question of whether a patient has impaired capacity for medical decision-making is common, as exemplified by this patient. She has the capacity for deciding to have her hip replaced if she is able to understand the proposed treatment as well as the risks, benefits, and alternative options, and she is able to make and communicate her choice.68 Because of her tangential response, you are concerned that she may not appreciate the risks and treatment alternatives, so a formal capacity evaluation should be performed.

You repeat the patient’s MMSE evaluation, and she scores 20 out of 30, similar to her previous score of 21. She has Alzheimer disease, and this population has a high prevalence of incapacity (32%). Her MMSE score is in the range (20-24) that has no effect on the likelihood of incapacity. You decide to evaluate her capacity for medical decision making using the ACE. Since this instrument is based on making decisions about her actual problem, you ask the ACE questions based on the decision about whether to have the hip replaced. She is clearly able to communicate her choice, and you find that she appreciates and understands her medical problem (“I have hip pain from arthritis”) and the proposed treatment (“They are planning on replacing my hip”) and that she can refuse the proposed treatment (“It’s up to me to have the surgery or not”). However, she is unable to answer questions about the rehabilitation required after hip surgery and the risk of surgical complications or death. You decide she doesn’t appreciate the foreseeable consequences of accepting or declining the treatment.

Weighing her responses to the ACE and the moderate risk of the hip surgery, you decide she lacks capacity to make the decision about the proposed surgery. Given a pretest probability of incapacity of 52% and an LR of 8.5 based on her ACE results, you calculate that there is a 90% chance that she lacks capacity to make this decision. You discuss the situation with her husband and agree that he will make the decision as her surrogate under her previously executed health care power of attorney. You advise him that, because capacity is decision specific, she might have capacity for future, less risky decisions. He eventually makes the decision that her pain is significant enough to merit the risks and decides to proceed with the hip replacement. On follow-up several months later, she is ambulating well and is happy that she “decided” to have the operation.

**CLINICAL BOTTOM LINE**

Capacity is a basic requirement for informed consent and is determined based on the process of the patient’s decision making rather than the final decision itself. In most US jurisdictions, the patient is required to demonstrate 4 abilities to have capacity:10: ability to

### Table 2. Studies Comparing Capacity Instrument With a Gold Standard

<table>
<thead>
<tr>
<th>Source</th>
<th>Capacity Instrument</th>
<th>Gold Standard</th>
<th>Level of Evidence&lt;sup&gt;a&lt;/sup&gt;</th>
<th>LR+ (95% CI)</th>
<th>LR− (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janofsky et al,&lt;sup&gt;38&lt;/sup&gt; 1992 (US)</td>
<td>Hopkins Competency Assessment Test (HCAT)</td>
<td>Forensic psychiatrist</td>
<td>2</td>
<td>54 (3.5-846)</td>
<td>0 (0.0-0.52)</td>
</tr>
<tr>
<td>Fazel et al,&lt;sup&gt;9&lt;/sup&gt; 1992 (UK)</td>
<td>Fazel Questionnaire</td>
<td>Expert psychiatrist</td>
<td>3</td>
<td>9.4 (4.6-19)</td>
<td>0.07 (0.02-0.26)</td>
</tr>
<tr>
<td>Etchells et al,&lt;sup&gt;27&lt;/sup&gt; 1999 (Canada)</td>
<td>Aid to Capacity Evaluation (ACE)</td>
<td>Forensic psychiatrist</td>
<td>2</td>
<td>8.5 (3.9-19)</td>
<td>0.21 (0.11-0.41)</td>
</tr>
<tr>
<td>Pruchno et al,&lt;sup&gt;54&lt;/sup&gt; 1995 (US)</td>
<td>Understanding Treatment Disclosure (UTD)</td>
<td>Forensic psychiatrist</td>
<td>2</td>
<td>6.0 (2.1-17)</td>
<td>0.16 (0.06-0.41)</td>
</tr>
<tr>
<td>Fassassi et al,&lt;sup&gt;28&lt;/sup&gt; 2009 (Switzerland)</td>
<td>Fazel Questionnaire</td>
<td>Expert psychiatrist</td>
<td>2</td>
<td>4.4 (2.3-8.3)</td>
<td>0.69 (0.56-0.85)</td>
</tr>
<tr>
<td>Pruchno et al,&lt;sup&gt;54&lt;/sup&gt; 1995 (US)</td>
<td>Hopemont Capacity Assessment Interview (HCAI)</td>
<td>Forensic psychiatrist</td>
<td>2</td>
<td>3.8 (1.5-9.5)</td>
<td>0.38 (0.21-0.68)</td>
</tr>
<tr>
<td>Moloy et al,&lt;sup&gt;36&lt;/sup&gt; 1996 (Canada)</td>
<td>Specific Capacity Instrument (score &lt;16)</td>
<td>Competency panel</td>
<td>1</td>
<td>2.0 (1.5-2.8)</td>
<td>0.12 (0.04-0.37)</td>
</tr>
<tr>
<td>Billick et al,&lt;sup&gt;23&lt;/sup&gt; 2009 (US)</td>
<td>Competency Questionnaire–Medicine (CQ-M)</td>
<td>Expert psychiatrist</td>
<td>2</td>
<td>2.0 (0.7-6.1)</td>
<td>0.33 (0.08-1.4)</td>
</tr>
<tr>
<td>Schmand et al,&lt;sup&gt;57&lt;/sup&gt; 1999 (the Netherlands)</td>
<td>Clinical Vignette</td>
<td>Forensic psychiatrist</td>
<td>1</td>
<td>1.7 (1.1-2.4)</td>
<td>0.29 (0.12-0.71)</td>
</tr>
<tr>
<td>Rutman and Silberfeld,&lt;sup&gt;26&lt;/sup&gt; 1992 (Canada)</td>
<td>Cognitive Competency Test (CCT)</td>
<td>Multidisciplinary competency panel</td>
<td>2</td>
<td>1.5 (0.87-2.7)</td>
<td>0 (0-3.0)</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; LR+, positive likelihood ratio; LR−, negative likelihood ratio.

<sup>a</sup>The Rational Clinical Examination level-of-evidence score rates the quality of studies of diagnostic tests on a scale from 1 (highest) to 3 (lowest).
appreciate the nature of one’s situation and the consequences of one’s choices (an ability frequently impaired in dementia-related illness and not measured by the MMSE), ability to understand the relevant information, ability to reason about the risks and benefits of potential options, and ability to communicate a choice.

Capacity is influenced by a variety of factors, including situational, psychological, medical, psychiatric, and neurological factors. Accordingly, capacity exists on a continuum, can be evanescent, and can be optimized. Experts advise suggesting the patient do his or her best to avoid losing the right to make decisions; this may be particularly appropriate for a patient who does not appear to appreciate the importance of the evaluation. The physician doing the capacity evaluation should do so in the context of a specific decision, so he or she must be fully knowledgeable about the proposed decision (or observe the person who is most knowledgeable explaining it to the patient), including the potential risks and benefits. The nature of the decision should be fully explained in the simplest possible language, using the patient’s own words if possible, and reviewing information as needed. Pseudo incapacity occurs when the patient is provided information in a way he or she cannot understand. Examples include excess use of medical jargon or communicating in a language in which the patient is not proficient. If a physician determines that a patient is incapacitated, he or she should consider whether the patient’s capacity can be optimized and capacity reassessed at a later date.

Optimization can include treating reversible disorders that affect cognition (eg, drug-induced or metabolic delirium), thought processes, or communication (eg, patient with moderately severe Parkinson disease whose ability to communicate could be improved with medication adjustment); shortening and simplifying the information given to and asked of the patient; and using alternative methods of communication. Methods to simplify the information presented include changing both wording and sentence

Table 3. Characteristics of Selected Competency Tests

<table>
<thead>
<tr>
<th>Test</th>
<th>No. of Studies</th>
<th>Time to Complete, min</th>
<th>Reliabilityα</th>
<th>Construct Validityβ</th>
<th>Criterion Validityβ</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aid to Capacity Evaluation (ACE)</td>
<td>1</td>
<td>10-20</td>
<td>Overall κ = 0.79</td>
<td>Correlation, discriminate</td>
<td>Yes</td>
<td>Free⁶⁹</td>
</tr>
<tr>
<td>Hopkins Competency Assessment Tool (HCAT)</td>
<td>5</td>
<td>10</td>
<td>r = 0.96-0.97</td>
<td>Correlation, discriminate</td>
<td>Yes</td>
<td>Free⁶⁹</td>
</tr>
<tr>
<td>Understanding Treatment Disclosure (UTD)</td>
<td>1</td>
<td>&lt;30</td>
<td>κ = 0.55-0.85</td>
<td>Correlation, discriminate</td>
<td>Yes</td>
<td>Grisso and Applebaum⁶⁶</td>
</tr>
<tr>
<td>Ability to Consent Questionnaire (ACQ)</td>
<td>1</td>
<td>&lt;30</td>
<td>Overall κ = 0.85</td>
<td>Correlation</td>
<td>No</td>
<td>Free, available from author</td>
</tr>
<tr>
<td>Assessment of Capacity of Everyday Decision Making (ACED)</td>
<td>1</td>
<td>NS</td>
<td>NS</td>
<td>Correlation, discriminate</td>
<td>No</td>
<td>Free, available from author</td>
</tr>
<tr>
<td>Capacity to Consent to Treatment Instrument (CCTI)</td>
<td>9</td>
<td>20-25</td>
<td>κ = 0.31-0.57 on the 5 domains</td>
<td>Correlation, discriminate, factorial</td>
<td>No</td>
<td>$200, University of Alabama Research Foundation</td>
</tr>
<tr>
<td>Cognitive Competency Test (CCT)</td>
<td>1</td>
<td>60-120</td>
<td>NS</td>
<td>Correlation</td>
<td>Yes</td>
<td>Wang et al⁶⁵</td>
</tr>
<tr>
<td>Cognitive Questionnaire (CQ-M)</td>
<td>2</td>
<td>30</td>
<td>NS</td>
<td>Discriminate</td>
<td>Yes</td>
<td>Free⁶⁵</td>
</tr>
<tr>
<td>Decision Making Rating Scale (DMRS)</td>
<td>1</td>
<td>NS</td>
<td>NS</td>
<td>Correlation</td>
<td>No</td>
<td>Not available</td>
</tr>
<tr>
<td>Fazel Questionnaire</td>
<td>2</td>
<td>30-45</td>
<td>r ≥ 0.92</td>
<td>Discriminate</td>
<td>Yes</td>
<td>Free⁶⁴</td>
</tr>
<tr>
<td>Hopemont Capacity Assessment Interview (HCAI)</td>
<td>4</td>
<td>&lt;30</td>
<td>κ = 0.93</td>
<td>Correlation, discriminate</td>
<td>Yes</td>
<td>Free,⁶⁴ available from instrument author</td>
</tr>
<tr>
<td>MacArthur Competency Assessment Test (MacCAT-T)</td>
<td>7</td>
<td>20-25</td>
<td>ICC = 0.87-0.99</td>
<td>Correlation, discriminate</td>
<td>No</td>
<td>$87.95, kit from Professional Resource Press</td>
</tr>
<tr>
<td>Medical Decision Making Capacity Instrument (DCACPTY)</td>
<td>2</td>
<td>NS</td>
<td>NS</td>
<td>Correlation, discriminate</td>
<td>No</td>
<td>Free⁶⁵</td>
</tr>
<tr>
<td>Schmand Vignettes</td>
<td>1</td>
<td>NS</td>
<td>α = 0.82</td>
<td>Correlation, discriminate</td>
<td>Yes</td>
<td>Free⁶⁸</td>
</tr>
<tr>
<td>Specific Capacity Instrument</td>
<td>1</td>
<td>NS</td>
<td>NS</td>
<td>Face, correlation</td>
<td>Yes</td>
<td>Not available</td>
</tr>
<tr>
<td>Structured Interview for Competency/Incompetency Assessment Testing and Ranking Inventory (SICITARI)</td>
<td>2</td>
<td>20</td>
<td>κ = 0.14-0.82 for 12 questions</td>
<td>Face</td>
<td>No</td>
<td>Kitamura and Kitamura⁶⁶</td>
</tr>
<tr>
<td>Vellinga Vignettes</td>
<td>1</td>
<td>NS</td>
<td>κ = 0.64</td>
<td>Face</td>
<td>No</td>
<td>Free⁷¹</td>
</tr>
</tbody>
</table>

Abbreviations: ICC, intraclass coefficient; NS, not stated.

α is a Cronbach α; r is a Pearson (or Spearman) correlation coefficient.
β Levels of validity are described in eTable 2, available at http://www.jama.com.
① Compared with gold standard in medicine patients.
incapacity and medical decision making

Box. Capacity Instruments That Can Be Performed in an Office Visit and That Have Robust Likelihood Ratios and Moderate to Strong Levels of Evidence

**Aid to Capacity Evaluation**

The Aid to Capacity Evaluation (ACE) uses the patient’s own medical situation and diagnosis or treatment decision. It provides training in presenting the information using a 1-paragraph scenario in which a patient with gangrene has to make a decision about having an amputation. The instrument consists of 8 questions that assess understanding of the problem, treatment proposed, treatment alternatives, the option to refuse treatment, possible consequences of the decision, and the effect of an underlying mental disorder on decision. The instrument includes a scoring manual that provides objective criteria for scoring responses.

**Hopkins Competency Assessment Test**

The Hopkins Competency Assessment Test (HCAT) is a 4-paragraph essay written at 3 reading levels (6th grade, 8th grade, and 13th grade [completed high school]). The essay explains the nature of informed consent, the patient’s right to make decisions, how certain decisions can impair decision-making ability, and the patient’s right to make advance directives. The examiner reads aloud while the patient reads the same material, starting with the 13th-grade example. The essay is followed by 6 questions: 4 open ended, 1 true or false, and 1 sentence completion. Answers are scored 1 point for each correct answer (1 question has 4 parts), for a total of 10 points. Scores lower than 3 suggest incapacity. The 8th-grade and then 6th-grade level essays are used if the patient does not score more than 3 using the higher-level essay.

**Understanding Treatment Disclosure**

Understanding Treatment Disclosure (UTD) has 3 possible scenarios: schizophrenia, major depression, and ischemic heart disease. In the original study, participants were given the scenario corresponding with their disease. They are given (oral and written) 5 paragraphs that provide information about the disorder and treatment options. This is followed by 10 questions that assess understanding of information, with respondents providing their own paraphrasing of the information provided. The 5 paragraphs are presented again, 1 at a time, with questions involving the presentation of 4 statements about the information, 2 of which are the same but in different words and 2 of which are different. Respondents indicate which statements are the same. Scoring is from 0 to 2 points on each question, and the UTD yields 3 subscale scores: uninterrupted disclosure, paraphrased recall (UDPR); element disclosure, paraphrased recall (ED-PR); and element disclosure, recognition (ED-RC). The UTD has a scoring manual that provides objective criteria for scoring responses.

structure, providing visual aids such as photographs and drawings, and reducing the dependence on verbal and memory ability by presenting only small amounts of material at a time. Because capacity is evanescent and decision specific, a patient found to have or lack capacity for one medical decision should be retested when future medical decisions arise.

Problematic therapeutic relationships as well as cultural, linguistic, and educational barriers can preclude reliable capacity assessment and should result in referral of the patient. Undiagnosed depression or other psychiatric illness can confound the capacity assessment, so the examiner must determine whether the psychiatric illness is affecting the patient’s decision making (eg, a depressed patient who feels unworthy of medical treatment or a delusional patient worried that parasites about which she has delusions render her a nonsurgical candidate). It is important to note that psychiatric illness alone does not render a patient incapable of medical decision making. Referral to an expert in capacity evaluation may be required for confirmation or when there is diagnostic uncertainty.

Unfortunately, physicians often fail to recognize incapacity. In our pooled analysis, physicians missed the diagnosis in 58% of patients judged incapable, although when physicians do diagnose incapacity, they are usually right. Although patients are presumed to have capacity unless proven otherwise, missing a diagnosis of incapacity means any informed consent the patient has given for medical treatment is not valid.

Physicians often rely on measures of cognition, such as the MMSE, to aid in their capacity assessment. While cognition has been consistently found to be the most important correlate of capacity, it is not the only criterion. In our pooled analysis, the MMSE performed well among patients with low cognition (MMSE score <20) or high cognition (MMSE score >24), but not for patients in the “gray” zone. Patients with low cognition nearly always lack capacity, and conversely those with high cognitive abilities usually retain capacity. However, these patients are not ones physicians are likely to mistakenly categorize. These results show that the MMSE could be used as a screen for patients very likely to have or lack capacity and can provide support for performing a formal capacity assessment when a patient’s score is low or in the gray zone. Any patient with a cognition problem shown by a low MMSE score should be given relevant information about a health care decision and have his or her capacity for that decision explicitly addressed rather than the physician relying solely on the MMSE score for determining incapacity.

Numerous instruments have been developed to improve physicians’ ability to diagnose incapacity, and most have undergone rigorous and repeated evaluation for construct validity. Unfortunately, only a few have been judged against a gold standard in a medical
population. The ACE is the only instrument evaluated against a gold standard, with an acceptable Rational Clinical Examination level-of-evidence score and robust test characteristics, that can be performed in less than 30 minutes, is available for free online, and includes training materials. Moreover, the ACE is based on the actual decision the patient is facing. Most of the other instruments use a clinical vignette, violating the tenet that capacity assessment is specific rather than generic.

Teaching specifically applicable legal standards, performing capacity evaluations using a standardized instrument when appropriate, and testing capacity-centered cognitive domains (eg, semantic knowledge, short-term recall) could increase the consistency and accuracy of physicians’ capacity judgments. Documenting each aspect of a capacity assessment is important, including a cognitive test score (if performed); capacity assessment questions asked and the patient’s responses; persons present for the assessment; the examiner’s conclusions about capacity; and, if retesting, the stability of the patient’s decision making. Standardized forms can simplify this process and also provide a template to appropriately structure the examination. Although there are a number of candidate instruments for evaluating capacity in patients without severe psychiatric disorders, and most are based on similar constructs, virtually all have been validated against a gold standard in only 1 study. More studies are needed, but in the interim, we recommend using the ACE to assist physicians in capacity determination for medicine patients.

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