

RESEARCH PAPER

Decision-making capacity in older medical in-patients: frequency of assessment and rates of incapacity by decision-type and underlying brain/mind impairment

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Abstract

Background: Hospital clinicians find mental capacity assessment challenging and may lack the necessary skills. Given high rates of cognitive impairment, data on mental capacity assessment in real-world hospital cohorts are required to inform the need for staff training and workforce planning.

Objectives: In unselected medical inpatients, we determined the rate and outcome of mental capacity assessment by decision type and underlying brain/mind disorder, and recorded the discipline of the assessor.

Methods: We included consecutive patients (October–November 2018; November–December 2019) admitted to the complex medicine unit providing acute multidisciplinary care for multi-morbid patients (age ≥ 16 years, average age > 80 years). Audit data were collected at ward multidisciplinary meetings and extracted from electronic patient records.

Results: Among 892 patients (mean/SD age = 82.8/8.6, 465 male), 140 (16%) required mental capacity assessment (40/140 (29%) had ≥ 2 assessments) with 203 assessments in total of which 162 (80%) were done by doctors. Capacity was deemed lacking in 124 (61%) assessments, most commonly in delirium with/without other co-morbid conditions (94/114, 82%) or dementia (9/12, 75%) with lower rates in other disorders (15/27, 56%), and no formal diagnosis of brain/mind disorder (6/50, 12%). Cognitive test scores were overall lower in those lacking capacity (mean/SD abbreviated-mental-test-score = 5.2/2.6, range = 0–10 versus 6.8/2.8, $P = 0.001$, range = 1–10). Decisions involving discharge planning were most often assessed (48%) followed by treatment (29%), discharge against medical advice (12%) and others (11%).

Conclusion: Mental capacity assessments were performed frequently and often repeated, justifying the need for robust training in the practical application of the principles of capacity assessment for staff managing complex older patients.

Keywords: mental capacity, older people, decision making

Key Points

- One in six older medical in-patients required mental capacity assessment. Of these, 30% had repeated assessments.
- Capacity for decisions relating to discharge destination and care needs after discharge were most common.
- The rate of decisional incapacity was highest for decisions relating to discharge against medical advice and treatment.
- Delirium was the most common brain condition linked to the need for mental capacity assessment.
- Nearly 20% of assessments in patients with delirium or dementia found the patient to have capacity.

Introduction

With the shift in medical practice from a paternalistic approach to shared decision making, patients are routinely involved in discussions and decisions about their care and treatment. However, decision-making may be impaired in patients in the acute hospital [1, 2] where rates of cognitive impairment are high. People with dementia occupy around 25% of hospital beds [3], and delirium affects over 20% of acute medical patients overall [4] rising to 40% of those >75 years, and impairment on cognitive tests is common [5–7]. With the ageing population, numbers with co-morbid cognitive disorders are increasing [8], and the need for assessment of decision-making capacity is growing.

Most developed countries have legislation covering mental capacity, and in European and US jurisdictions, the principles for determining decision-making capacity are overall broadly similar [9–14]. In England and Wales, the Mental Capacity Act (MCA, 2005) was introduced to empower people to make decisions for themselves wherever possible but also to protect those lacking capacity by placing the individual at the heart of the decision process and ensuring decisions are made in their best interests [9–11]. The Act states that there is a presumption of capacity and therefore a capacity assessment should only be undertaken where there are concerns around a person's capacity for a specific decision.

According to the MCA, the first step in capacity assessment is to establish that there is 'an impairment of, or a disturbance in the functioning of, the mind or brain' that may affect a person's ability to decide. The second step is to determine whether the person can (i) understand (comprehend the information relating to the decision), (ii) retain (remember the information), (iii) weigh information relating to a particular decision (evaluate the risks and benefits) and (iv) communicate their decision (inform the assessor by whatever means). The person should be supported as much as possible to make the decision (e.g. by family/friends, use of simple language). A person is deemed to lack capacity if they cannot fulfil one or more of these four criteria. Importantly, capacity is both decision and time-specific: a person may have capacity for simple but not complex decisions and capacity may be regained or lost over time (e.g. with progression of dementia).

Despite the rising numbers of older general hospital inpatients, most data on decision making capacity come from psychiatric services [2, 15–18], studies of specific conditions [18, 19] or decisions [1, 20–22] with treatment, discharge destination and finances most often assessed [2, 15, 23, 24]. Systematic reviews have reported a high prevalence of incapacity in medical in-patients overall (range 26–34%) [25, 26] with incapacity frequently going unrecognised by clinicians [25].

Mental capacity assessment is complex and assessments may take at least 45 min or longer [27, 28]. Evidence suggests that hospital staff find capacity assessment challenging because of time pressures, lack of knowledge and

anxieties around the legal aspects with a stated need for more support and resources [10, 27–29]. However, there is a lack of research/audit [10, 27] including on the frequency of capacity assessment in real-world older hospital cohorts to inform the need for training and to understand the workload implications. We therefore determined, in an unselected consecutive cohort of older medical inpatients, the number with a documented capacity assessment, and the decision for which capacity was assessed, together with the nature of the underlying brain or mind impairment and the discipline and grade of the person performing the assessment.

Methods

Study design and patient cohort

The Oxford University Hospitals NHS Foundation Trust (OUHFT) provides acute secondary care services to a population of ~660,000. Patients with acute medical conditions in the context of complex needs/frailty and anticipated length of stay ≥ 72 hours are transferred to the complex medicine unit (CMU) following assessment in the emergency department, medical assessment unit or Same-Day-Emergency-Care unit. Selection of patients likely to benefit from CMU multidisciplinary care (and comprehensive geriatric assessment where appropriate) is made by the operational managers working with the clinical teams and is dependent on bed availability. There are no strict admission criteria but patients are generally older (mean age over 80 years) with high rates of frailty and multimorbidity. The CMU team is led by geriatricians/physicians and includes nurses, allied health professionals and social workers with input from psychological medicine where required. This study was conducted as an OUHFT-approved audit (Datix 5197) and pseudonymised data were subsequently included in the Oxford-Cognitive-Comorbidity, Frailty and Ageing Research Database (ORCHARD [30] REC reference = 18/SC/0184).

Data collection

We assessed consecutive CMU admissions (1 October–30 November 2018; 1 November–31 December 2019, determined by funding and staff availability). Data were collected at ward multidisciplinary team meetings (authors RB, JR) and retrospectively from hospital electronic patient records (EPRs- author JMG). We determined whether a documented mental capacity assessment was performed and extracted data with the aid of an electronic form on predefined fields including the discipline and grade of the staff member performing the assessment, type of decision assessed, outcome of assessment, underlying conditions impairing brain/mind and scores on cognitive tests (Abbreviated-Mental-Test-Score (AMTS) and Montreal Cognitive Assessment (MOCA) where available [6, 31]). For patients who had multiple AMTS done, the score closest to the capacity assessment was used.

Evidence for underlying conditions impairing the mind/brain was informed by the electronic OUHFT cognitive screen administered to all patients aged ≥ 70 years, or younger people with 'brain at risk' [5] including the Confusion Assessment Method for delirium and AMTS with a drop down list recording the reason for AMTS-untestability. Additional cognitive testing with the MOCA was done at the discretion of the clinical team [31]. In addition, EPRs were hand-searched for documentation of delirium, dementia or other mental health disorders supplemented by ORCHARD routinely acquired EPR data.

Statistical analyses

Characteristics of patients with and without capacity were compared using t-test for continuous variables and Chi-square test for categorical variables. Where assessors were uncertain about the presence/absence of capacity, capacity was deemed absent for the purpose of analysis because although the MCA assumes capacity, where concerns have been raised regarding a person's capacity, in particular when these concerns related to safety, assessments with an uncertain outcome tend to prompt reassessment rather than a presumption of capacity. Cognitive test scores for AMTS/MOCA were presented as mean/SD and defined as normal/abnormal based on cut-off score (AMTS < 9 [31] and MOCA < 26 (mild cognitive impairment) and MOCA < 18 (severe cognitive impairment [6])). SPSS software version 27 was used for analyses.

Results

During the four-month study period, 892 consecutive patients (mean/SD age = 82.8/8.6, male = 465 (52%), delirium only = 181 (20%), delirium with co-morbid dementia = 147 (16%), dementia only = 102 (11%), mean/SD AMTS = 7.2/2.8, Figure 1) were admitted to the CMU. In total, 203 capacity assessments were performed in 140/892 (16%) patients with mean/SD age = 82.2/8.4 years, range 57–99 years, $n = 7$ aged < 65 years. Mean/SD AMTS was 5.9/2.8 (Figure 1, Table 1) but there was no AMTS in 68 assessments ($n = 21$ too unwell, $n = 20$ confused, $n = 2$ dysphasic, $n = 1$ drowsy, $n = 1$ language barrier, $n = 1$ end-of-life, $n = 22$ no reason). One hundred patients had one capacity assessment, 27 had two assessments and 13 had three assessments or more. Doctors performed 162/203 (80%) of assessments (Table 1) of which most (94 in total, consultant geriatricians = 44, junior doctors = 50) were done by the medical team with a smaller number performed by psychiatrists ($n = 40$) and doctors from other specialties ($n = 28$). Assessments by non-medical staff (e.g. nurses, physiotherapists, occupational therapists) or others (e.g. independent mental capacity advocate) were less common ($n = 41$, 20%).

The most common underlying brain/mind impairment in patients undergoing capacity assessment was delirium (114/203, 56%) with or without other conditions followed

by other brain/mind conditions (27, 13%) and dementia only (12, 6%, Table 1, Figure 2). However, 50/203 (25%) of assessments were performed in patients with no formal diagnosis of brain/mind disorder, although rates of cognitive deficits in this group were high (AMTS $< 9 = 28/37$ (76%), mean/SD AMTS = 7.1/2.4, MOCA $< 18 = 10/10$ (100%), mean/SD MOCA = 16.3/0.7, 13 = no cognitive test).

Overall, in 124/203 (61%) assessments, patients lacked capacity for the specific decision assessed. There was no difference in age or gender between patients with/without capacity. However, the mean cognitive test scores for those without capacity were lower (mean/SD AMTS = 5.2/2.6 versus 6.8/2.8, $P = 0.001$; mean/SD MOCA = 15.3/5.7 versus 18.3/3.4, $P = 0.051$, Table 1, Figure 1). Patients with delirium were most likely to lack capacity (94/114, 82%), followed by dementia only (9/12, 75%) and other brain/mind conditions (15/27, 56%). In contrast, only 6/50 (12%) of patients with no formal diagnosis of brain/mind conditions were judged to lack capacity (Figure 2).

Capacity was most frequently assessed for discharge destinations (98/203, 48%), followed by treatment-related decisions ($n = 58$, 29%) and discharge against medical advice ($n = 24$, 12%, Figure 3). Other decisions assessed ($n = 23$, 11%) included continuing healthcare funding applications ($n = 12$), deprivation of liberty safeguards ($n = 8$), advanced care planning ($n = 2$) and safeguarding concerns ($n = 1$). Assessments for discharge against medical advice had the highest rate of decisional incapacity ($n = 17/24$, 71%), followed by treatment decisions (40/58, 69%) and discharge destination (45/98, 46%, Figure 4).

In the 50 patients with no formal diagnosis of brain/mind disorder (Figure 4), 31 assessments were for discharge destination, of which 17/31 were performed on patients with a low cognitive score, only one of whom lacked capacity. This patient had a MOCA score of 15/30, despite AMTS of 9/10, and was referred to the memory clinic. The capacity status for one further patient was uncertain. Of the 29/31 assessments where capacity was retained, disagreements had been noted between healthcare professionals' recommendations and patient (22/29) and family (3/29) preferences. Of the 12 assessments for treatment decisions in patients with no formal diagnosis of brain or mind disorder, 6 were in patients with low cognitive test scores but in only 2 assessments was the patient found to lack capacity. Of these, one (with AMTS = 5) was initially thought to lack capacity due to inability to retain information, but was deemed to have capacity upon reassessment on the same day. The second patient (AMTS = 8) lacked the ability to weigh up information. In assessments for capacity for discharge against medical advice, among the five assessments, three patients had low cognitive test score but in all cases capacity was judged to be retained. There were two assessments regarding advanced care planning decisions in the same patient with AMTS = 6, and it was determined this patient lacked capacity at both assessments.

Of the 63/203 (31%) assessments that were repeated assessments on the same patient, 36 (Figure 3) were for

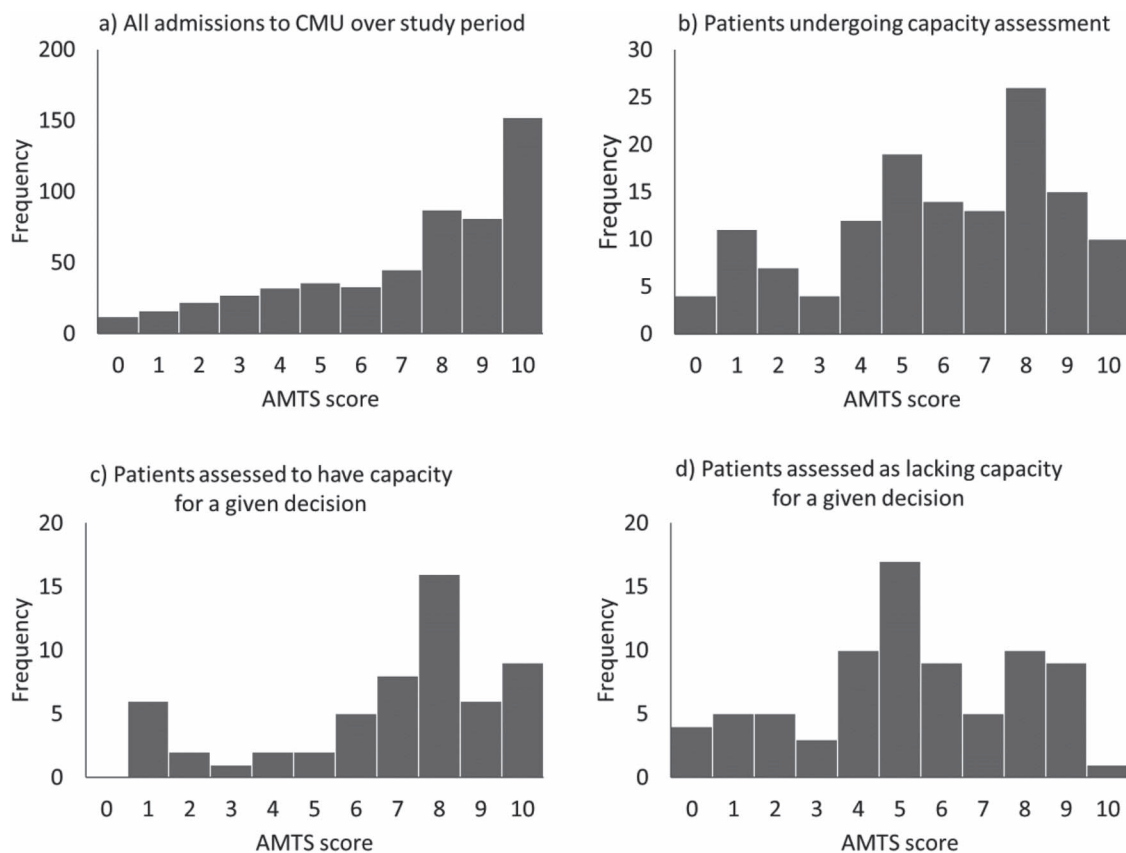


Figure 1. Histogram showing the distribution of AMTS scores for a) the cohort as a whole ($n = 892$), b) in those undergoing the 203 capacity assessments and c) in those with and d) without capacity.

the same decision: discharge destination (24/98, 24%), discharge against medical advice (4/24, 17%) and treatment decisions (7/58, 12%, Figure 3). The proportion of reassessments was similar in patients with vs without delirium (delirium = 20/114, 18% versus other brain/mind conditions = 6/27, 22% and no formal diagnosis of brain/mind disorders = 10/50, 20%) with 8/10 reassessments occurring where the patient had previously disagreed with the care recommendation).

Discussion

Cognitive frailty was prevalent in this cohort of complex medicine patients with, in particular, high rates of delirium. Formal documented assessment of mental capacity was undertaken in just under a fifth of the cohort, in whom nearly a third required multiple assessments either for the same decision or for a different decision. Capacity in regards to discharge destination was most often assessed, consistent with the complex care needs of this patient group. Rates of incapacity in those assessed were high overall, except in patients without a formal diagnosis of a brain or mind disorder in whom cognitive test scores were nevertheless generally low.

Delirium

The majority of assessments were undertaken in patients with delirium in which just under one-fifth found retained capacity illustrating the importance of presuming capacity until proven otherwise. Since capacity is both time and decision-specific, the fluctuating nature of delirium has particular implications. The MCA recommends deferring decisions until capacity is regained and patients with delirium might therefore be expected to have more frequent reassessment than those with other conditions—we did not see this but numbers were limited. Our study was focussed on the CMU but delirium is also common in general surgery (10–50%), trauma and orthopaedics (~50%) and high dependency/critical care units (>50%) [32] with implications for capacity assessment.

The overall rate of incapacity in our study was very high: 60% lacked capacity overall and >50% lacked capacity across a range of decisions. The reason for incapacity was not systematically recorded in terms of the functional test. However, in acute medicine patients, with high prevalence of dementia (both vascular and Alzheimer's disease) and delirium, problems in understanding, retaining and weighing information are common [10]. In other settings (e.g. stroke units), communication may be more important. We

Table 1. Clinical characteristics of patients undergoing formal capacity assessment and those with and without capacity

	Assessment	Capacity present	No capacity ^a	P-value
	<i>n</i> = 203	<i>n</i> = 79	<i>n</i> = 124	
Age				
Mean/SD	82.2/8.4	81.8/9.8	82.5/7.4	0.568
Sex				
Male	92 (45.3)	38 (48.1)	54 (43.5)	0.525
Brain/mind disorder				<0.001
Delirium only	32 (15.8)	6 (7.6)	26 (21.0)	
Delirium with other comorbid brain/mind conditions	82 (40.4)	14 (17.7)	68 (54.8)	
Dementia only	12 (5.9)	3 (3.8)	9 (7.3)	
Other disorders ^b	27 (13.3)	12 (15.2)	15 (12.1)	
No formal diagnosis of brain/mind disorder	50 (24.6)	44 (55.7)	6 (4.8)	
Cognitive score				
AMTS mean/SD ^c	5.9/2.8	6.8/2.8	5.2/2.6	0.001
AMTS <9	110 (54.2)	42 (53.2)	68 (54.8)	0.046
AMTS >9	25 (12.3)	15 (19.0)	10 (8.1)	
MOCA mean/SD ^d	16.7/4.9	18.3/3.4	15.3/5.7	0.051
MOCA <18	24 (11.8)	12 (15.2)	12 (9.7)	0.853
MOCA 18–26	17 (8.4)	8 (10.1)	9 (7.3)	
Assessor type				0.009
Consultant geriatrician	44 (21.7)	22 (27.8)	22 (17.7)	
Junior doctors in geriatric medicine	50 (24.6)	23 (29.1)	27 (21.8)	
Psychiatrist (psychological medicine liaison)	40 (19.7)	11 (13.9)	29 (23.4)	
Doctors from other specialties	28 (13.8)	4 (5.1)	24 (19.4)	
Allied health professionals	41 (20.2)	19 (24.1)	22 (17.7)	

SD, standard deviation. Numbers are *n* (%), unless specified otherwise. ^a4 out of 124 were deemed as uncertain capacity and categorised as no capacity (delirium only = 1, delirium with other comorbid brain/mind conditions = 1, other disorders = 1, no formal diagnosis of brain/mind disorder = 1). ^bOther disorders include cognitive impairment, mental health disorder, alcohol withdrawal, or neurological condition e.g. haemorrhage, tumour. ^cMissing total *n* = 68 (Not feasible = 46, not screened/no record = 22). ^dMissing total *n* = 162.

included only patients in whom a formal capacity assessment was felt necessary and our findings are not therefore comparable with the rates of incapacity for treatment-related decisions reported in systematic reviews (26–34%) [25, 26] where capacity was assessed irrespective of clinical need. Interestingly, our study contrasts with a previous UK study of medical/surgical inpatients where only 6% had delirium and 65% had dementia [2] but this study only included liaison psychiatry referrals and non-urgent decisions were deferred, which may not always be feasible in the acute hospital setting.

No formal diagnosis

Interestingly, a quarter of capacity assessments were undertaken in patients with no formal diagnosis of brain/mind disorder. At first glance, this appears inconsistent with the MCA in which the first step is to determine the presence of 'an impairment of mind or brain'. However, many of those without a formal diagnosis nevertheless had a low cognitive test score and even in those with normal scores, the multidisciplinary team may have been concerned about undiagnosed cognitive impairment. Our findings are in line with previous work showing that healthcare professionals are likely to undertake a capacity assessment in patients who disagree with recommended care [15, 33]. Patient safety is paramount to healthcare professionals and when a patient opts for a less safe option, it seems reasonable to be concerned regarding the patient's mental capacity [34]. Staff may also

fear litigation for not detecting decisional incapacity [34] leading to multiple assessments. These factors likely explain why patients without a formal diagnosis of brain/mind disorder had much lower rates of incapacity than those with a diagnosis in our study (12 versus 77%).

Decision type in hospital vs community setting

Our study corroborates previous evidence from the USA/UK [2, 15] that decisions relating to discharge destination or treatment are most frequently assessed in hospitalised older adults. However, the nature and complexity of decisions may differ in other settings. For instance, oncologists are more likely to assess capacity to consent to complex cancer treatments, or clinical trials [35] whereas in surgical patients, capacity to consent to surgery/anaesthesia dominates [36]. Decisions assessed in hospital may also vary depending on country, the associated legal frameworks and decisions for which (jn)capacity must be demonstrated. In Thailand, inpatients (mean age = 60 years) referred to a liaison psychiatry service were most likely to be assessed for testamentary/financial capacity [37] as seen also in community geriatrics in New Zealand [38].

Staff

There are few data from other studies detailing the background of individuals undertaking capacity assessment not least because many studies are restricted to patients referred to psychiatrists. NICE recommends that capacity assessment

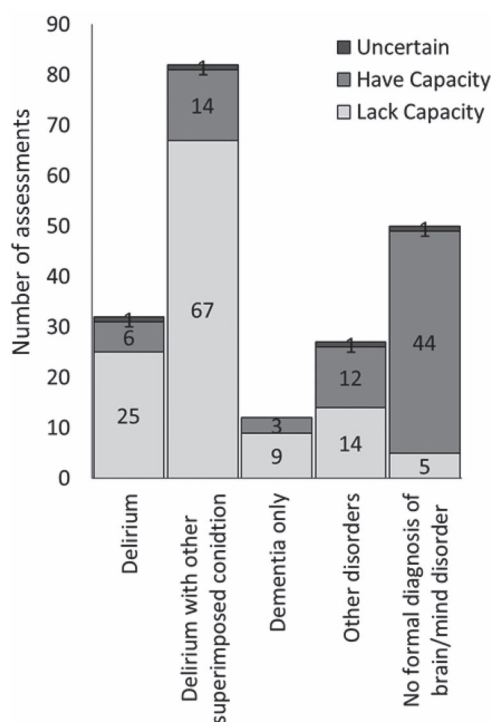


Figure 2. Bar graph showing the underlying brain/mind disorder present when capacity was assessed ($n = 203$) and the corresponding assessment outcome, for all decision types combined. Note: Other disorders include cognitive impairment, mental health disorder, alcohol withdrawal or neurological condition e.g. haemorrhage, tumour.

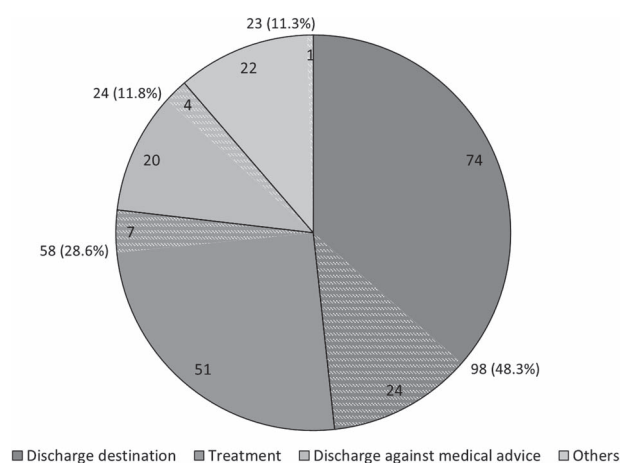


Figure 3. Pie chart showing the proportion of capacity assessments undertaken for a specific decision type and the proportion that were repeat assessments for the same decision (patterned segment). 'Others' refers to any other decisions assessed (i.e. not discharge destination, treatment decisions or discharge against medical advice).

is undertaken by staff familiar with the patient, usually a member of the ward team, with referral (e.g. to psychiatrists/psychologists) reserved for challenging cases [10]. In general, assessment should be performed by the person

requiring the decision to be made who has relevant expertise (e.g. the treating clinician for complex treatment decisions). We found that doctors performed the majority of assessments including around discharge destination even though discharge planning is often led by allied health professionals skilled in evaluating activities of daily living who might be well-placed to assess capacity for such decisions [10].

Strengths and limitations

Strengths of our study include the reliable estimation of the frequency of capacity assessment in an unselected consecutive older in-patient cohort, the underlying brain/mind disorder, type of decision assessed, rates of incapacity and the discipline of the assessing healthcare staff. Our findings demonstrate the high need for mental capacity assessment in this population with the burden of assessment falling largely on doctors without a specialist psychiatric background. There are some limitations to our study. First, we only evaluated documented capacity assessments but we believe this was unlikely to have missed many assessments, given medico-legal requirements and the need for documentation to enable progression of care. Second, no standardised tool for capacity assessment was used by staff in our study but there is no consensus on which tool is best and all have drawbacks [10, 39]. Third, some patients did not have a cognitive test score recorded. Whilst cognitive test scores may inform mental capacity assessment [22, 25], cognitive scores alone should not be used to predict a person's mental capacity. Fourth, our findings from a cohort of older patients with complex co-morbidity from a single centre in England may not be generalisable to other populations or settings.

Implications of our findings

The frequent need for often time consuming capacity assessment in older patients with complex conditions has substantial implications for staff workload and workforce planning [27, 28]. There are already substantial shortages of healthcare staff (vacancies currently ~10% overall in the UK [40]), and this is compounded by the additional needs of complex patients. Our findings also evidence the requirement for robust training in the practical application of the MCA principles given clinician anxiety and perceived lack of training and support, with assessments often being inconsistent and poorly documented [10, 27–29, 41]. Indeed, poor documentation was also the case here with the reasons for incapacity not systematically recorded. In geriatric medicine, although assessment of mental capacity is listed in specialist training curricula [42, 43], anecdotal reports suggest that this is often patchy and lacks practical value. Our study further supports NICE guidelines highlighting the need for research into how best to deliver training to improve compliance with the principles of the MCA and the barriers to effective implementation [10]. There is also a need for structured tools to aid capacity assessment including of the four pillars of assessment (understanding, retention of information, weighing up risks/benefits and communicating the decision) particularly for patients with executive dysfunction [10].

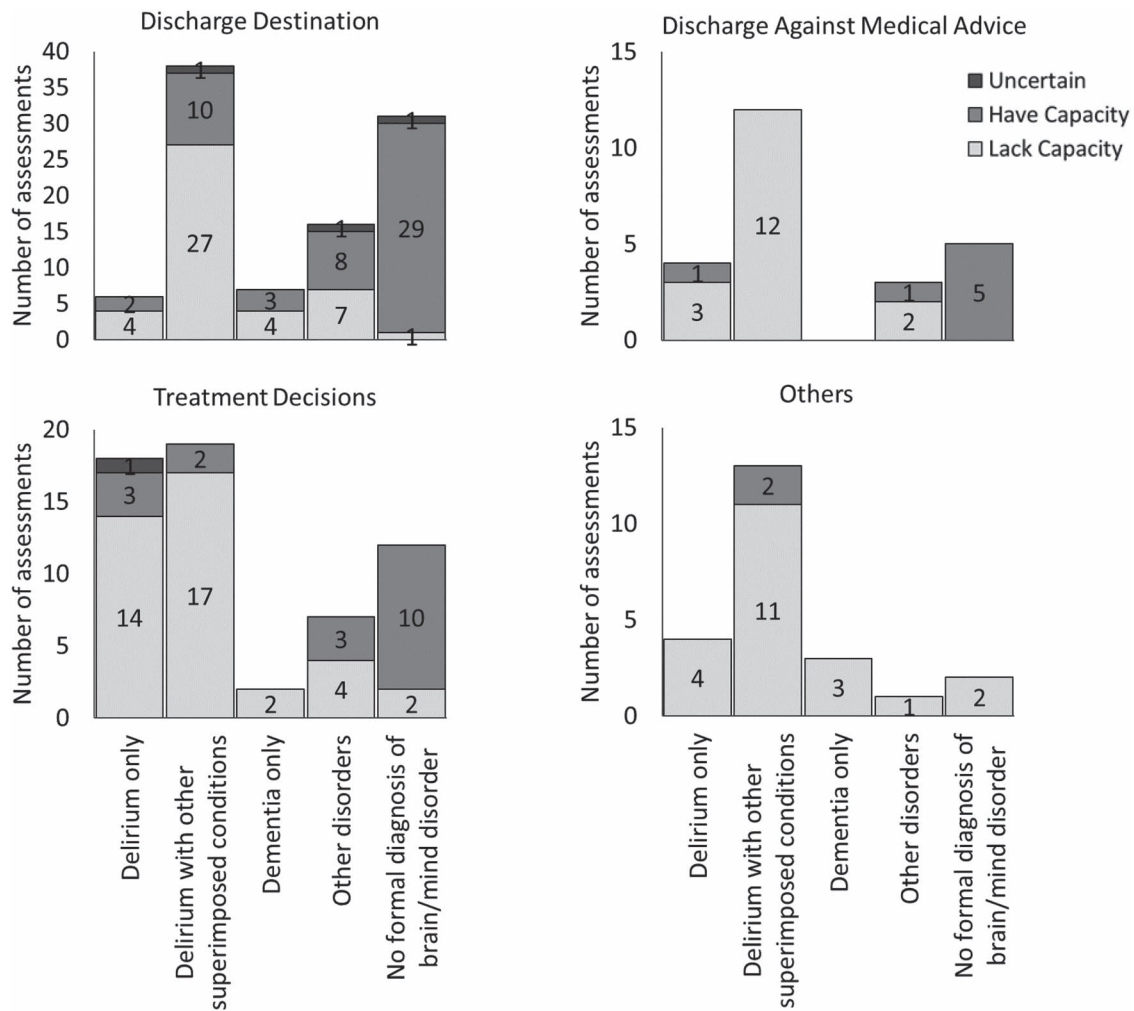


Figure 4. Bar graphs showing the specific decision types and the underlying brain/mind disorder when capacity was assessed ($n = 203$) for each type of decision, and the corresponding assessment outcome.

Conclusion

We found a frequent need for capacity assessment in older medical in-patients in whom delirium was the most frequent brain condition impairing capacity. Assessment of capacity was generally undertaken by doctors, usually generalists including junior staff, who often lack relevant skills/training. Our study supports the need for multidisciplinary staff training in the practical aspects of mental capacity assessment in older/complex patients and for research into the most effective training methods and tools to aid assessment.

Declaration of Conflicts of Interest: None.

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Data Availability Statement: Requests for data should be directed to Professor Sarah Pendlebury.

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