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A Survey of Occupational Therapy Assessment and Treatment Practices in the Intensive Care Unit

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Abstract

Background: Survivors of critical illness suffer significant disability. Occupational therapists (OTs) have the expertise to address the physical, cognitive, and psychological impairments resulting from critical illness, yet their role in intensive care units remains underexplored.

Methodology: An electronic survey developed according to best practices was sent to OTs currently practicing in the ICU in the United States through purposive snowball sampling. The survey collected data on both current and perceived best practices among critical care OTs in the United States.

Results: Among 88 respondents, 51 (58%) had over 5 years of ICU experience, and 57 (70%) worked in academic medical centers. Respondents reported spending the greatest proportion of their ICU time addressing physical functioning, followed by ADL performance and cognition. Respondents used many different assessments for cognition while only 49 respondents (56%) used standardized ADL assessments. Fifty-two respondents (68%) indicated that standardized ADL assessment tools and 37 (51%) treatment protocols would benefit their practice.

Discussion: There is wide practice variation in how OTs evaluate and treat cognitive, ADL, physical functioning, and psychological impairments in clients with critical illness. The development and standardization of appropriate assessments could help standardize practice, differentiate OT's unique role in the ICU, and improve early rehabilitation efforts.

Keywords: Critical Care, ICU, Occupational Therapy, Rehabilitation, PICS

Background

Since the inception of critical care as a specialty, the medical and surgical management of critical illness has significantly improved. This has been characterized by a relative risk reduction of 35% in mortality from 1988 to 2012 (Zimmerman et al., 2013). Current intensive care unit (ICU) mortality rates range between 10-29%, dependent on age, comorbidities and illness severity (Hashem et al., 2016; Schweickert et al., 2009). More than 5 million patients (clients) are admitted to ICUs in the US annually, which results in an estimated 3.5-4.5 million survivors per year (Marra et al., 2017; Smith et al., 2025).

Increasing ICU survivorship has exposed the morbidity associated with critical illness (Marra et al., 2017; Turnbull et al., 2016). Post-intensive care syndrome (PICS) is defined as a constellation of new or worsening impairments in physical, cognitive, and psychological domains that persist after discharge from the ICU (Hiser et al., 2023). PICS can significantly impact a patient's (client's) quality of life and functional status for months to years following critical illness (Ramnarain et al., 2021). Approximately 50% to 78% of ICU survivors will be diagnosed with PICS after discharge (Geense et al., 2021; Kawakami et al., 2021; Lui et al., 2024).

The ICU Liberation Bundle, also known as the A-F Bundle, is a structured, evidence-based approach to enhance patient (client) outcomes and reduce the burden of ICU-acquired morbidities (Liu et al., 2021; Marra et al., 2017). The greatest impact occurs when all elements of the bundle are successfully implemented (Pun et al., 2019). Early mobility, a cornerstone of the bundle, has garnered particular attention for its potential to mitigate ICU-acquired weakness (ICU-AW), delirium, and functional decline

(Pun et al., 2019). Numerous studies have demonstrated that implementing mobility interventions, as early as safely feasible, reduces hospital length of stay, improves functional outcomes, and may decrease mortality (Bakhru et al., 2015; Hashem et al., 2016; Schujmann et al., 2020; Schweickert et al., 2009). However, despite robust evidence supporting early mobility, its implementation remains variable, and significant barriers persist, including staffing limitations, variability in interdisciplinary collaboration, and patient (client) safety concerns, especially among those requiring mechanical ventilation (Bakhru et al., 2015; Hashem et al., 2016; Hodgson et al., 2022). Early mobility is a critical component of ICU rehabilitation, but it represents only one facet of a comprehensive rehabilitation strategy (Costigan et al., 2019; Smith et al., 2025). While rehabilitation is inherently multidisciplinary, OTs can leverage a unique set of cognitive and self-care approaches to optimize recovery.

Occupational therapists specialize in using meaningful activities to improve human performance and address the effects of disease and disability. Through occupational assessment and analysis, OTs develop intervention plans that enhance participation in daily activities. Despite reports of the utility of OTs in the ICU as early as 1986, OTs remain underrepresented in ICU-based rehabilitation research (Costigan et al., 2019; Malcolm et al., 2021). They commonly work in a co-treatment model with physical therapists and often focus on basic mobility rather than interventions that define their unique skill set grounded in cognitive and self-care tasks (Bakhru et al., 2015; Costigan et al., 2019). A recent systematic review characterizing OT practice in the ICU found only nine studies including specific ICU OT interventions (Smith et al., 2025). Furthermore, current ADL assessments are not sensitive to small, clinically

meaningful functional changes in the severely debilitated, critically ill population. This leads to a lack of OT-specific guidelines and training for critical care practice (Rapolthy-Beck et al., 2022). This practice uncertainty has perpetuated an environment where the OT's role is ill-defined. Lack of role clarity in the ICU interdisciplinary team has been cited as a significant barrier to OTs' involvement in the ICU (Rapolthy-Beck et al., 2022) and may lead to missed and delayed referrals from the medical team (Dinglas et al., 2013; Foreman, 2005).

In addition to challenges around appropriate referrals, OT staffing shortages are a significant barrier to furthering their practice in the ICU setting. One study found that only one-in-three ICUs have access to a dedicated OT team, and several studies report high patient (client)-to-therapist ratios (Algeo & Aitken 2019). The Guidelines for Provision of Intensive Care Medicine suggest OT staffing ratios between 0.05 and 0.1 Full-Time Equivalent (FTE) per bed to allow appropriate patient (client) engagement and consistent service provision (Faculty of Intensive Care Medicine & Intensive Care Society, 2022). A recent Australian survey revealed a mean staffing ratio of 0.009 FTE per bed, far below these guidelines (Rapolthy-Beck et al., 2022). This is not indicative of worldwide staffing models but suggests that inadequate staffing limits the expanding role of OTs in the ICU.

Continuing to develop the role of OTs in the ICU has the potential to improve client functional and cognitive outcomes, reduce length of stay, and lower post-discharge healthcare costs given the profound cognitive and ADL impairments among ICU survivors (Algeo & Aitken 2019). However, critical gaps in clinical research, inadequate acute care training, lack of ICU-specific guidelines, and staffing challenges

remain significant barriers. These deficits contribute to role ambiguity, reduced job satisfaction, and restrict the profession's impact at a time when demand is rising (Algeo & Aitken, 2019). To advance the field, there is an urgent need to develop best practice guidelines, expand educational and training opportunities, and establish professional development infrastructure to equip OTs with the tools to deliver high-impact care in the ICU.

The purpose of this study is to develop and disseminate a cross-sectional survey to characterize the current state, identify barriers, and define best practice for OTs in the ICU setting. This survey will serve as a needs assessment that can be used to develop guidelines regarding the practice of OTs in the ICU.

Methodology

Study Design

Cross-sectional mixed-methods survey of OTs in the United States currently practicing in the critical care setting. The survey instrument collected both quantitative and qualitative data and was distributed via an online platform targeting licensed OTs with experience treating critically ill clients. The study was deemed exempt by the Beth Israel Deaconess Medical Center (BIDMC) Institutional Review Board (Protocol #: 2024P000362).

Survey Development

The survey instrument was developed through a multistage, iterative process informed by an interdisciplinary group of practicing critical care practitioners according to the international CHERRIES guidelines for the development of online surveys (Eysenbach, 2004). First, a comprehensive review of the literature on critical care OT

practices was conducted by two team members (JD and BM) to identify key themes and gaps. Next, input from a panel of six experts from within our institution, including critical care OTs, critical care physical therapists, physiatrists, and intensivists involved in early rehabilitation practices, was sought to ensure content validity. Pre-testing and pilot-testing were done with a small group (N=7) of critical care OTs, who were not in the target population, to refine clarity, relevance, and usability. This testing involved colleagues within (N=5) and external (N=2) to our institution.

The survey instrument consisted of 51 questions, including a combination of single-select multiple-choice (n = 16), multiple-select (n = 19), rank-order (n = 2), and open-ended free-text (n = 14) items, supporting both quantitative descriptive analyses and qualitative thematic analysis of narrative responses (Appendix A). Multiple-choice, multiple-response questions were used to collect comprehensive data, allowing for a realistic representation of clinical practice. Rank-order questions allowed respondents to make comparative judgments. Contingent, open-ended questions that allowed free-text responses were included to capture responses that may have been unanticipated by the research team. Branching logic was applied to some questions to tailor pathways based on respondent responses. This adaptive design ensured that respondents were only presented with questions relevant to their prior responses, reducing the response burden and enhancing data quality.

The final survey instrument was divided into four domains:

1. Demographics and Professional Background: Questions on participants' current practice location, years of experience, and clinical setting.

2. Current Practices: Questions assessing specific evaluation and treatment techniques currently employed in critical care.
3. Barriers: Questions exploring barriers to effectively employing best practices.
4. Best Practices: Questions exploring perceptions of optimal practices and potential value of new standardized assessment and treatment protocols.

Sampling and Recruitment

Eligible participants were all OTs working in a critical care setting. Participants were recruited using a purposive snowball sampling approach. Recruitment emails with a link to the electronic survey were distributed through professional networks, the ICU Recovery Network, the American Occupational Therapy Association (AOTA) Forum, and X (formerly Twitter). Because recruitment used a purposive snowball sampling approach, survey response rates were not calculated. Respondents indicated their consent to participate after review of informed consent information provided in introductory materials. No compensation was provided for participation in the survey.

Data Collection

Data were collected over a 60-day period from October 2nd, 2024 to November 30th, 2024. The survey was hosted on Microsoft Forms™, which ensured secure and anonymous responses. This predetermined collection window was chosen rather than closing the survey after a specific number of responses because, in this purposive snowball sampling design, the goal was to allow sufficient time for referral chains to propagate through networks and for potential participants to become aware of the survey; non-probability methods like snowball sampling do not rely on a defined sampling frame or statistical stopping rules based on sample size, and a time-bound

period supports clear planning while maximizing opportunities for broad participation across diverse subgroups of interest.

Data Analysis

Quantitative data were analyzed using Microsoft Forms™ built-in analytics to produce descriptive statistics (e.g., frequencies and percentages) to summarize demographic characteristics and practice patterns. These outputs were then exported to Microsoft Excel®, where additional summarization and organization were performed by the study team. For select ordinal variables, results are reported using medians and interquartile ranges (IQRs) where they meaningfully describe variability in practice patterns; for experience and workload variables with open-ended response categories, results are summarized using medians and proportions. Qualitative data from open-ended questions were analyzed to identify common themes. Analysis and grouping were performed independently by two authors (JD, KC), with any differences resolved in collaboration with a third researcher (BM) to ensure consistency and thematic accuracy. Both complete and incomplete surveys were included in the final analyses with no imputation for unanswered questions.

Results

Demographics and Professional Background

A total of eighty-eight respondents completed the survey (Table 1). Respondents were primarily experienced clinicians, with over half reporting more than 10 years of OT experience and the majority reporting more than 5 years of ICU experience. Most practiced in academic medical centers and urban settings. Respondents represented all regions of the United States, with the Northeast region most highly represented.

Table 1

Demographics and Professional Background

Variable	n (%)	Median (IQR)
Years of OT experience (n=88)		> 10
< 1	2 (2.3)	
1-5	15 (17.0)	
5-10	26 (29.5)	
>10	45 (51.1)	
Years of OT in ICU experience (n=88)		5-10
< 1	3 (3.4)	
1-5	34 (38.6)	
5-10	26 (29.5)	
>10	25 (28.4)	
Hospital type (n=82)		
Community hospital	23 (28.0)	
Academic medical center	57 (69.5)	
Other	2 (2.4)	
Region of the United States (n=81)		
Northeast	41 (50.6)	
South	17 (21.0)	
Midwest	13 (16.0)	
West	10 (12.3)	
Work setting (n=81)		
Urban	68 (84.0)	
Suburban	9 (11.1)	
Rural	4 (4.9)	

Note. Categorical variables are summarized using counts and percentages. Denominators vary due to permissible incomplete survey submission. Survey Response rates were not calculated because of the purposive snowball sampling.

ICU Practice Characteristics

ICU practice characteristics are summarized in Table 2. About 57% of respondents (46/81) reported spending between 5-32 hours in direct care of clients weekly in the ICU with a median of 5-16 hours per week. Approximately 83% (67/81) of respondents reported fewer than five hours of clinical mentorship per week. Neurologic and medical ICUs were the most commonly reported primary practice settings, whereas cardiac and trauma ICUs more frequently represented secondary practice settings. Thirty-nine percent (32/82) of respondents reported performing more than half of the

sessions as co-treatment with physical therapists. Respondents devoted the largest proportion of their clinical time to mobility and physical functioning, with progressively less time spent on ADL/IADL performance and cognition, respectively.

Table 2

ICU Practice Characteristics

Variable	n (%)	Median (IQR)
% of visits co-treatment with physical therapy (n=82)		25-50%
< 25	22 (26.8)	
25-50	28 (34.1)	
51-75	20 (24.4)	
>75	12 (14.6)	
% of time evaluating and treating cognition (n=82)		25-50% (25-50% to 51-75%)
0	2 (2.4)	
< 25	15 (18.3)	
25-50	27 (32.9)	
51-75	20 (24.4)	
>75	18 (22.0)	
% of time evaluating and treating ADL/IADLs (n=82)		51-75% (25-50% to 51-75%)
0	0	
< 25	7 (8.5)	
25-50	29 (35.3)	
51-75	27 (32.9)	
>75	19 (23.2)	
% of time evaluating and treating mobility functioning (n=82)		51-75% (25-50% to >75%)
0	0	
< 25	3 (3.7)	
25-50	18 (22.0)	
51-75	39 (47.6)	
>75	22 (26.8)	

Note. Categorical variables are summarized using counts and percentages. Ordinal variables are summarized using medians and interquartile ranges (IQRs) where appropriate. Denominators vary due to permissible incomplete survey submission.

Current Practice: Evaluation and Treatment in the ICU

Evaluation

Seventy-five percent of our respondents (66/88) reported routine use of standardized cognitive assessments in the ICU (Table 3). A total of 31 unique cognitive

assessments were reported; the Montreal Cognitive Assessment (MoCA) was identified most frequently at 37.9% (25/66). Additionally, 92% of our respondents (81/88) reported the use of non-standardized cognitive assessments addressing multiple aspects of cognitive functioning.

In contrast, 56% of our respondents (49/88) reported routine use of standardized ADL assessments performed in the ICU (Table 3). A total of nine unique ADL assessments were reported with the Activity Measure for Post-Acute Care (AM-PAC) cited most frequently (57.1%). Eighty-six percent of our respondents (76/88) reported the use of non-standardized ADL assessments (Table 3). Comparison of routine assessment and perceived feasibility demonstrated alignment for basic self-care activities, but also identified domains in which tasks were perceived as feasible yet infrequently assessed in routine practice (Figures 1a-g).

Table 3

Current Practice: Assessment in the ICU

Variable	n (%)
Commonly used standardized cognitive assessments (n=66)	
Montreal Cognitive Assessment	25 (37.9)
Coma Recovery Scale-Revised	15 (22.7)
Confusion Assessment Method for the Intensive Care Unit / 3-Minute Diagnostic Confusion Assessment Method	16 (24.2)
Saint Louis University Mental Status Examination	13 (19.7)
Blessed Orientation-Memory-Concentration Test	10 (15.2)
Commonly used non-standardized cognitive assessments (n=81)*	
Basic cognitive status and responsiveness	81 (100)
Applied task performance and safety	80 (98.9)
Language and communication	69 (85.2)
Higher-order executive functions	76 (93.8)
Commonly used standardized ADL assessments (n=49)	
Activity Measure for Post-Acute Care	28 (57.1)
Original/Modified Functional Independence Measure	5 (10.2)
Original/Modified Barthel Index	5 (10.2)
Other ADL Assessments**	

Perceptions regarding the use of non-standardized ADL assessments*

	Routine (n=76)	**Not Feasible (n=53)**
Transfers/mobility-related activities	71 (93.4)	0
Energy conservation/endurance strategies	65 (85.5)	1 (1.9)
Fine motor/upper extremity functional activities	54 (71.1)	0
Communication-related activities	49 (64.5)	1 (1.9)
Basic self-care ADLs	43 (56.6)	2 (3.8)
High-level ADLs/IADLs***	26 (34.2)	15 (28.3)

Note. Responses were not mutually exclusive; respondents could select multiple options, and denominators vary due to permissible incomplete survey submission.

** Domain-level percentages reflect endorsement of at least one item within each category. Cognitive assessment domains were defined as: basic cognitive status (arousal, attention, orientation, command following); applied task performance and safety (task sequencing, safety awareness, problem solving); language and communication (communication, naming, fluency); high-order executive and self-monitoring functions (executive function, judgment, insight, memory).*

*** Items endorsed by fewer than 10% of respondents were collapsed into an "Other" category to improve readability. Because responses were not mutually exclusive, unique n (%) values for the "Other" categories are not reported. A full list of collapsed items is provided in Supplementary Table S1.*

**** High-level ADLs/IADLs include tasks such as medication management, money management, laundry, and bed-making*

Figure 1a-g.

Practice Patterns and Attitudes Regarding Feasibility of ADLs

Figure 1a

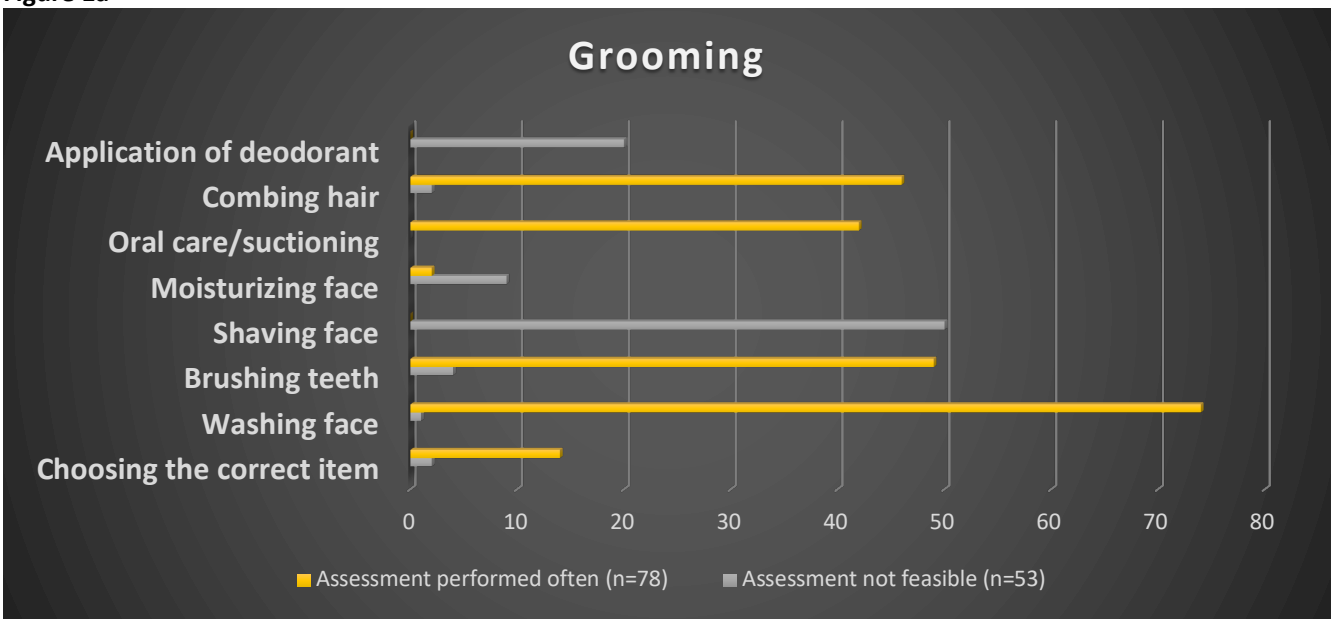


Figure 1b

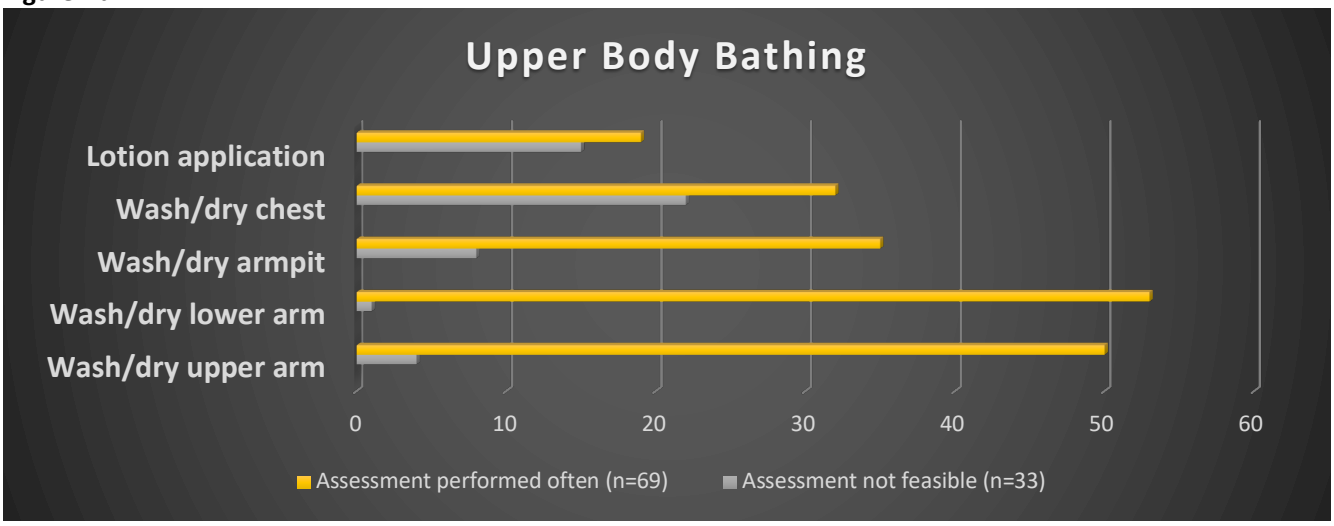


Figure 1c

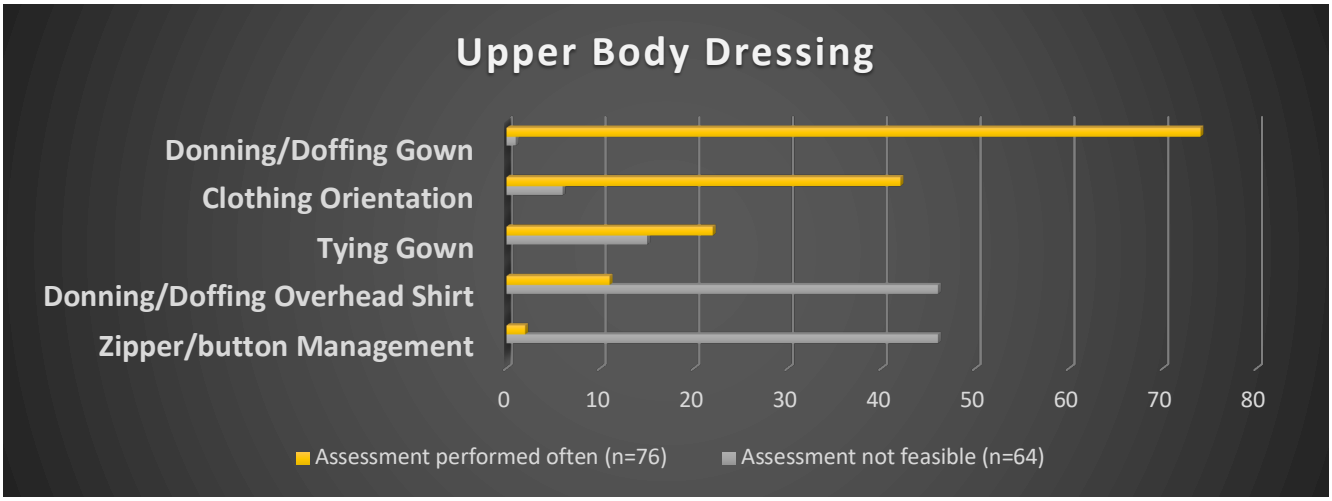


Figure 1d

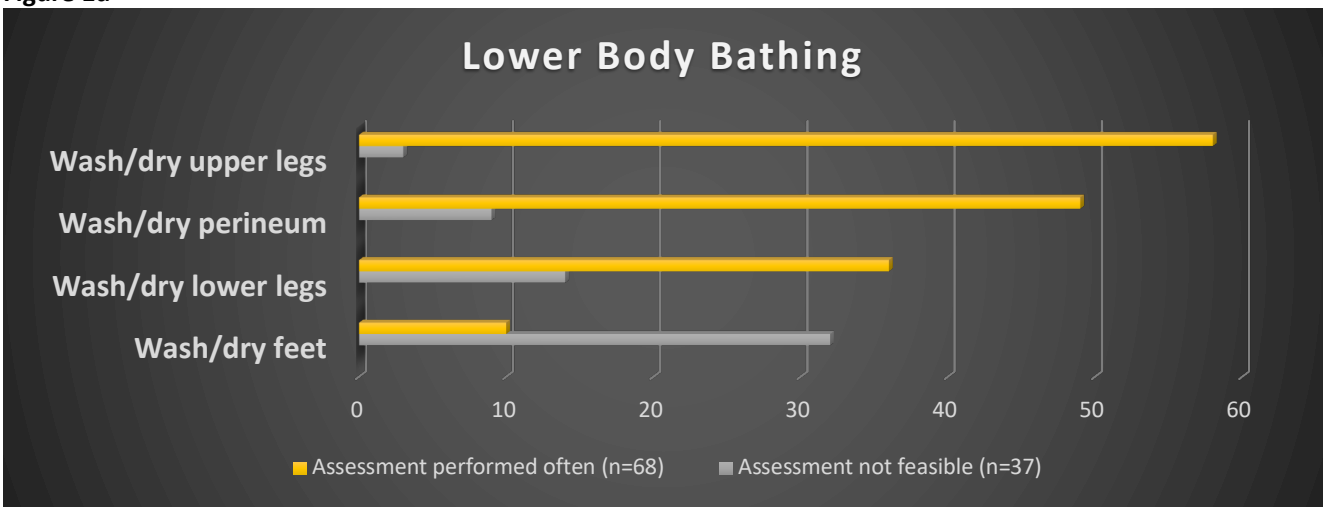


Figure 1e

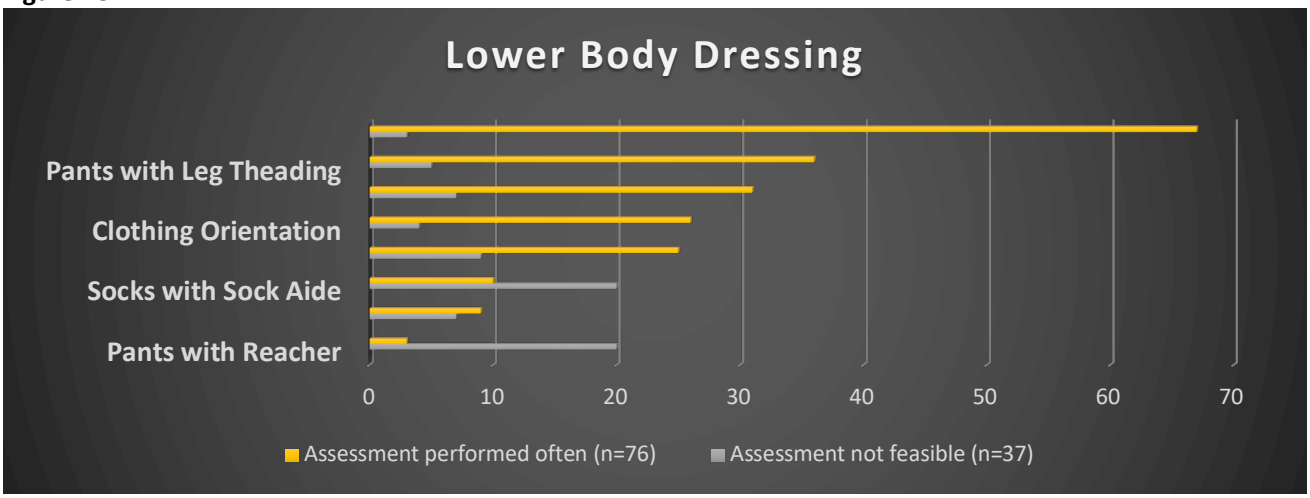


Figure 1f

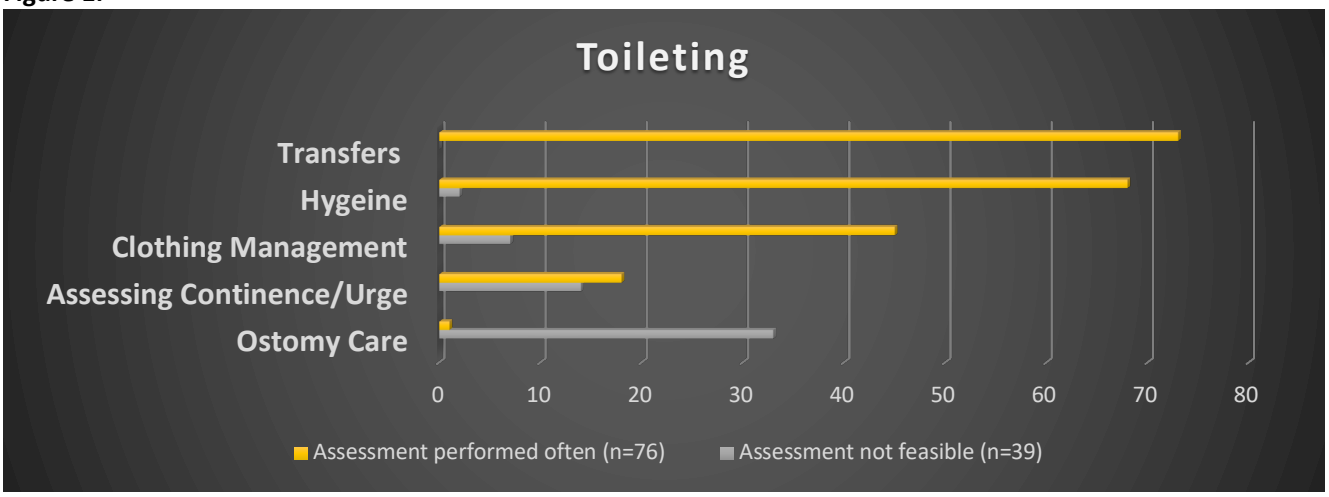
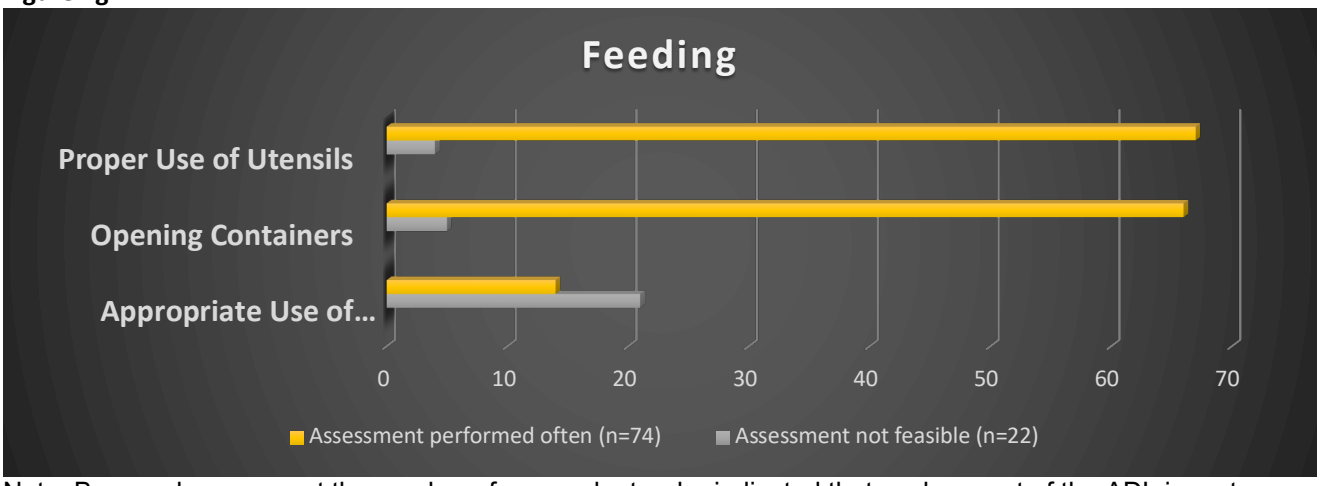


Figure 1g



Note: Bar graphs represent the number of respondents who indicated that each aspect of the ADL is part of their regular practice (yellow) and each aspect of the ADL that is not feasible to perform in the ICU (grey).

Treatment

Thirty-nine respondents provided open-ended descriptions of interventions used to address ADL performance in the ICU (Table 4), most frequently reporting ADL retraining and task-specific practice, functional mobility and balance training, therapeutic exercise, and endurance or energy conservation strategies. The most commonly endorsed cognitive interventions approaches included delirium prevention and

orientation strategies as well as task-based cognitive engagement embedded within ADL performance (Table 4).

Table 4

Current Practice: Interventions in the ICU

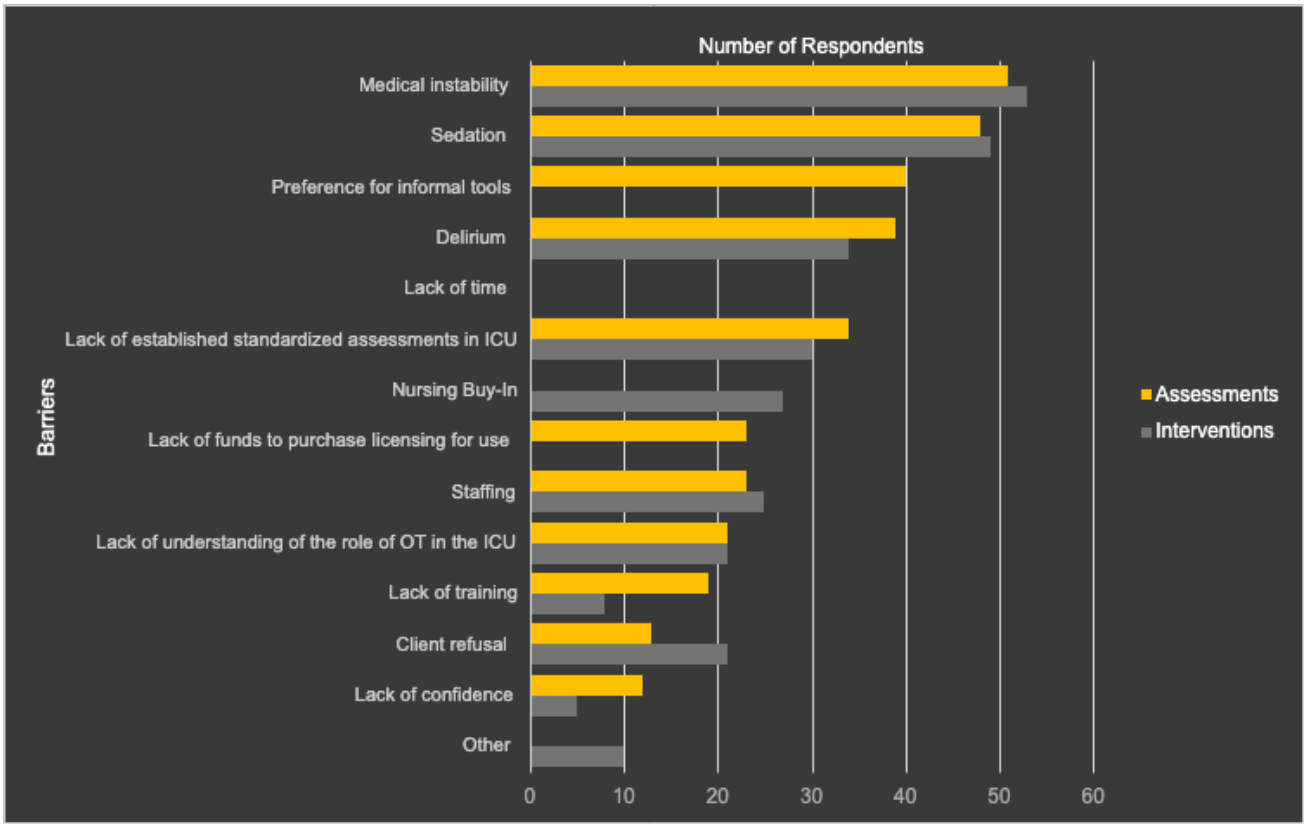
Variable	n (%)
Commonly performed cognitive treatments (n=58)*	
Delirium and treatment/reorientation	29 (50.0)
Task-based cognitive engagement	31 (53.4)
Cognitive Training and Learning Strategies	20 (34.5)
Education and sensory based interventions	9 (15.5)
Communication and interaction strategies	8 (13.8)
Commonly performed ADL treatments (n=39)*	
ADL retraining and task-specific practice	22 (56.4)
Therapeutic exercise and strengthening	18 (46.2)
Functional mobility and balance training	17 (43.6)
Endurance and energy conservation	12 (30.8)
Compensatory strategies and adaptations	6 (15.4)

Note. Responses were not mutually exclusive; respondents could select multiple options, and denominators vary due to permissible incomplete survey submission.
** Domain-level percentages reflect endorsement of at least one item within each category. Cognitive assessment domains were defined as: basic cognitive status (arousal, attention, orientation, command following); applied task performance and safety (task sequencing, safety awareness, problem solving); language and communication (communication, naming, fluency); high-order executive and self-monitoring functions (executive function, judgment, insight, memory).*

More than half of the respondents cited medical instability and sedation as barriers to performing ADL-focused assessments and interventions, with additional open-ended responses identifying time and staffing constraints as contributing factors (Figure 2.)

Figure 2

Barriers to ADL Interventions and use of Standardized Assessments in the ICU



Fifty respondents provided open-ended responses addressing which ADL interventions would be most beneficial to clients in the ICU if all previously identified barriers were eliminated (Table 5). Across responses, basic self-care activities were most frequently identified as high-value targets. Sixty-one respondents also provided open-ended responses regarding ADL tasks believed to have the greatest potential for change over time during an ICU stay (Table 5). Task-specific self-care activities and functional mobility or transfers were most frequently endorsed.

Table 5

Perceptions of Ideal Practice

Variable		n (%)
ADLs with most benefit and the greatest potential for change in the ICU*		
	Benefit (n=50)	**Potential for Change (n=61)**
Dressing	16 (32.0)	42 (67.2)
Toileting	15 (30.0)	38 (62.3)
Bathing	11 (22.0)	13 (21.3)
Grooming/hygiene	12 (24.0)	45 (73.8)
Feeding	7 (14.0)	13 (21.3)
Functional mobility and transfers	9 (18.0)	19 (31.1)
Endurance and routine engagement	8 (16.0)	
Other ADL tasks**		
Perceived need for standardized ADL assessments (n=76)		
Yes		52 (68.4)
No		24 (31.6)
What should be included in an ICU ADL assessment (n=38)		
Dressing		22 (57.9)
Grooming/hygiene		18 (47.4)
Toileting		14 (36.8)
Bathing		11 (28.9)
Feeding		6 (15.8)
Cognitive-functional performance during ADLs		8 (21.1)
Functional mobility and transfers		4 (10.5)
Perceived need for standardized ADL treatment protocol (n=73)		
Yes		37 (50.7)
No		36 (49.3)

Note. Responses were not mutually exclusive; respondents could select multiple options, and denominators vary due to permissible incomplete survey submission.
** Domain-level percentages reflect endorsement of at least one task within each ADL category. Responses were not mutually exclusive; denominators vary due to permissible incomplete survey submission. Collapsed domain definitions are based on thematic similarity of open-ended responses.*
*** Items endorsed by fewer than 10% of respondents within each subsection were collapsed into an "Other" category to improve readability. Because responses were not mutually exclusive, unique n (%) values for the "Other" categories are not reported. A full list of collapsed items is provided in Supplementary Table S1.*

Perceptions of Standardized ICU OT Assessment and Treatment Protocols

Findings related to perceived priorities for standardized ADL assessment and treatment protocols are summarized in Table 5. Sixty-eight percent of our respondents (52/76) reported that a validated and standardized test for assessing ADLs would be beneficial to their practice. Among those endorsing standardized assessment, core self-care tasks and functional mobility were most commonly identified as essential components, along with evaluation of cognitive-functional performance during ADL tasks.

In contrast, endorsement of ADL treatment protocols was more evenly divided, with 51% of our respondents (37/73) reporting that such protocols would be beneficial to their practice (Table 5). Among those expressing concerns, respondents noted that treatment approaches should remain individualized and adaptable to client-specific medical and functional factors.

Discussion

This national cross-sectional survey of OT practice in the ICU provides important insights into the current and best practices of OTs in the ICU. The results revealed significant practice variation as only half of the respondents reported using a standardized ADL assessment, and there were thirty-one unique cognitive assessments utilized. Standardization of assessments was viewed as an important step towards a best practice, while therapists viewed standardization of treatment plans with mixed support due to potential constraints on the flexibility and creativity needed for tailoring client-specific interventions. This survey adds to the limited available literature regarding

OT practice in the ICU, specifically providing guidance to create standardized assessments unique to the scope of occupational therapy practice.

Our findings showed significant practice variation in standardized cognitive assessments currently employed by OTs across the ICU setting. The impact of this variation results in inconsistent cognitive assessments, and discrepancies in the identification and management of cognitive impairments, which limits rehabilitation outcomes (Hoyer et al., 2018). Of the cognitive assessments identified, the MoCA emerged as the most frequently used tool. Although the MoCA is comprehensive and validated in various clinical settings, its implementation within the ICU presents unique practical challenges due to its complexity, duration, and requisite cognitive engagement from critically ill clients who may experience significant fatigue, delirium, or compromised alertness (Eman et al., 2022; Devlin et al., 2018). Previous research highlights similar concerns, emphasizing the need for brief, valid, and contextually appropriate cognitive screening instruments specifically designed or adapted for ICU settings (Casey et al., 2023).

Among respondents who used standardized ADL assessments, the AM-PAC was used most frequently. While the AM-PAC's concise format, ease of administration, and clear delineation of functional tasks have clinical utility, its implementation within the ICU remains limited by several factors. Notably, critically ill clients often experience profound physical weakness and impaired endurance, which significantly influences their ability to perform even basic ADL tasks captured by the AM-PAC (Parry et al., 2015). This "floor effect" is a common limitation of functional assessments in the ICU (Thrush and Steenbergen, 2022). The AM-PAC was designed to support cross-setting

comparison through standardized T-scores, including use in low-functioning hospitalized clients. However, evidence supporting their interpretation in ICU-specific cohorts remains limited, and moderate reliability between client and clinician proxy ratings (ICCs of 0.57 for mobility and 0.45 for daily activity) further complicates score interpretation in critically ill populations (Johnson et al., 2022). Furthermore, the AM-PAC does not explicitly differentiate between limitations arising from cognitive versus physical deficits, potentially complicating its interpretation in a population characterized by complex, multi-system impairments (Parry et al., 2015). Multiple versions of the AM-PAC have been created to account for varying client populations as well as the needs of these assessments (mobility, ADL, cognition). This can improve the accuracy and applicability of the assessments; but leads to ambiguity when reporting results in clinical practice or research (Jette et al., 2015). Future investigations should seek to modify or supplement the assessments to address these limitations.

The use of standardized tools is the basis of evidence-based practice, and non-standardized measures should only be used as a complement (Howieson, 2019). Many respondents utilized non-standardized cognitive assessments in this manner. For ADL performance, however, respondents utilized non-standardized assessments more frequently than standardized ones. Non-standardized assessments are limited in reliability, validity, and clinical utility (Downing, 2004). Furthermore, the lack of standardization hinders the ability to track change over time or evaluate the effectiveness of interventions in a systematic manner (Neugebauer et al., 2021). Comparison of ADL assessment frequency with perceived feasibility identified clinically

relevant ADLs that were feasible yet infrequently assessed, informing prioritization for ICU-specific assessment development.

Common barriers to routine use of standardized assessments are lack of time and training, and limited knowledge of the most suitable tool to use (Wales et al., 2016). There is clear uncertainty regarding the best assessment tool in the ICU setting, which is perpetuated by the lack of ICU-specific training, education, and practice standards among OTs (Margetis et al., 2021). High-level ADLs and instrumental ADLs (IADLs) were deemed not feasible in the ICU setting. These tasks require higher cognitive processing, motor precision, and sustained physical stamina beyond what most critically ill clients can achieve early in their ICU stay. This reinforces the necessity for graded and contextually relevant assessments and interventions.

Despite valuable insights, notable limitations exist. Firstly, although we sought to enhance content validity through external pre-testing and pilot-testing, only two reviewers outside our institution were involved in refining the survey, which may limit the breadth of external perspectives contributing to its development. Nonetheless, the development process incorporated input from multiple specialties and clinicians with diverse training backgrounds, helping to mitigate this limitation. The relatively small sample size limits generalizability and statistical power. Although differences in sample size and regional practice patterns may constrain direct cross-study comparisons, the scope of our sample remains consistent with similar national surveys in rehabilitation research (Fang et al., 2024; Rapolthy-Beck et al., 2022) and contributes descriptive insight into practice patterns. Additionally, non-response bias is possible, as respondents who completed the survey might disproportionately represent those

already invested in ICU rehabilitation practice or research, influencing results toward a more engaged or informed subgroup. Finally, our sampling methods and patterns of response may have produced a form of selection bias via regional clustering. This can reduce the generalizability of our results as they may not be representative of the breadth of practice patterns across the country.

Conclusion

The growing population of ICU survivors, those who experience ongoing disability following their critical illness, and hospital systems alike would benefit from the further development of OT practice standards in the ICU. This will require OT-led clinical research, appropriate acute care training, and the development of ICU-specific guidelines. This survey highlights the substantial variability in evaluation and intervention practices and underscores clinicians' perceived need for standardized assessments and flexible, client-specific interventions in ICU settings to bolster the practice of OT in the ICU.

Implications for Practice

The results of this study reveal an important opportunity to advance occupational therapy practice in the ICU through the development and dissemination of standardized tools and protocols. Variability in current practice highlights gaps in training and a lack of practice guidelines that, if addressed, would improve consistency and quality of care. OTs are uniquely qualified to provide holistic, occupation-based interventions that support functional recovery, but they must be equipped with evidence-based practice tools specific to ICU clients. Establishing guidelines for ICU-based OT, promoting research to evaluate the efficacy of interventions, and ensuring equitable access to OT

services in all types of ICUs are key steps in shaping the future of the profession when working with clients who are critically ill. This should be the focus of ongoing OT practice guideline development in the ICU. In the interim, continued integration of OTs within interprofessional ICU teams, routine use of functional and occupation-based assessments, and participation in quality improvement and collaborative research initiatives represent practical steps clinicians can take to advance ICU-based OT practice.

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Appendix A. ICU Occupational Therapy Practice Survey

Section 1. Professional Background and ICU Experience

1. Years of experience as an occupational therapist:

<1 year; 1–2 years; 3–5 years; 6–8 years; 9–10 years; >10 years

2. Years of experience evaluating and treating adults (>16 years) in the ICU:

None; <1 year; 1–2 years; 3–5 years; 6–8 years; 9–10 years; >10 years

3. Average weekly hours providing direct ICU patient care:

0; 1–4; 5–8; 9–16; 17–24; 25–32; 33–40

4. Average weekly hours providing ICU mentorship to other therapists:

0; 1–4; 5–8; 9–16; 17–24; 25–32; 33–40

5. Percentage of ICU visits co-treated with Physical Therapy:

<25%; 25–50%; 51–75%; >75%

6. Percentage of ICU visits co-treated with Speech-Language Pathology:

<25%; 25–50%; 51–75%; >75%

7. Percentage of ICU visits that are initial evaluations:

0%; 1–25%; 26–50%; 51–75%; >75%

8. Percentage of ICU visits that are follow-up treatments:

0%; 1–25%; 26–50%; 51–75%; >75%

9. Percentage of time addressing cognition in ICU practice:

0%; 1–25%; 26–50%; 51–75%; >75%

10. Percentage of time addressing ADL/IADL performance in ICU practice:

0%; 1–25%; 26–50%; 51–75%; >75%

11. Percentage of time addressing mobility/physical functioning in ICU practice:

0%; 1–25%; 26–50%; 51–75%; >75%

Section 2. Practice Setting Characteristics

12. Hospital type: Community hospital; Academic medical center; Other (specify)

13. Hospital location: Urban; Suburban; Rural

14. Geographic region: Northeast; Midwest; South; West

15. Rank order ICU types where you spend the most clinical time:

Medical; Cardiac; Neuro; Trauma; Oncology; General Surgery

16. Rank order ICU types where occupational therapists could have the most impact:

Medical; Cardiac; Neuro; Trauma; Oncology; General Surgery

Section 3. Cognitive Assessment and Intervention

17. Standardized cognitive assessments routinely used in ICU: (Open-ended)

18. Non-standardized cognitive domains routinely assessed (select all that apply):

Attention; Arousal; Orientation; Insight; Memory; Problem solving; Communication; Executive functioning; Judgment; Safety awareness; Command following; Task sequencing; Naming; Word fluency; Other (specify)

19. Other cognitive elements routinely assessed:(Open-ended)

20. Interventions used to improve cognition in ICU:(Open-ended)

Section 4. ADL Assessment Practices

21. Standardized ADL assessments routinely used in ICU:(Open-ended)

Grooming (select up to three)

22. Most often assessed: choose correct item; wash face; brush teeth; shave face; moisturize face; oral care/suctioning; comb hair; apply deodorant

23. Not feasible to assess: same options as above

Upper Body Bathing (select up to three)

24. Most often assessed: upper arm; lower arm; armpit; chest; lotion application

25. Not feasible to assess: same options as above

Upper Body Dressing (select up to three)

26. Most often assessed: gown don/doff; gown tying; zipper/button management; overhead shirt; clothing orientation

27. Not feasible to assess: same options as above

Lower Body Bathing (select up to three)

28. Most often assessed: feet; lower legs; upper legs; perineum

29. Not feasible to assess: same options as above

Lower Body Dressing (select up to three)

30. Most often assessed: socks (figure-4); socks with sock aid; underwear; pants with leg threading; pants with reacher; pants using rolling; pants using standing; clothing orientation

31. Not feasible to assess: same options as above

Toileting (select up to three)

32. Most often assessed: hygiene; clothing management; ostomy care/management; transfers; continence/urge awareness

33. Not feasible to assess: same options as above

Feeding

34. Routinely assessed: proper use of utensils; opening containers; appropriate use of condiments

35. Not feasible to assess: same options as above

22. Other basic ADL elements routinely assessed:(Open-ended)

Section 5. Other Functional Activities

23. Other activities routinely assessed (select all that apply):

Making bed; washing tray table; folding laundry; transfers (chair, commode, shower chair, wheelchair); sleep preparation/anxiety management/visual imagery; splinting to facilitate function; energy conservation techniques; leisure activities (e.g., reading, playing catch); fine motor activities; facilitation of communication; medication management; money management; other (specify)

24. Other activities not feasible to assess: Same options as above

25. Other assessments routinely performed: (Open-ended)

Section 6. Barriers to ADL Assessment and Intervention

26. Barriers to standardized ADL assessment (select all that apply):

OT staffing levels; lack of OT role understanding; lack of funds for licensing; lack of confidence; lack of training; preference for informal assessment; lack of time; lack of established ICU assessments; delirium; sedation; medical instability; client refusal; other (specify)

27. Other barriers to standardized assessment:(Open-ended)

28. Interventions to improve ADL functioning performed in ICU: (Open-ended)

29. Barriers to ADL interventions (select all that apply):

OT staffing levels; lack of OT role understanding; lack of nursing buy-in; lack of confidence; lack of training; lack of time; delirium; sedation; medical instability; client refusal; other (specify)

30. Other barriers to intervention:(Open-ended)

Section 7. Perceived Value of Standardization

31. If all barriers were eliminated, which ADL interventions would most benefit ICU patients? (Open-ended)

32. Top three ADL tasks with greatest potential for change during ICU stay: (Open-ended)

33. Would a validated standardized ADL assessment be beneficial? Yes; No

34. If yes, which ADL elements should be included? (Open-ended)

35. Would a standardized ADL treatment protocol be beneficial? Yes; No

36. If yes, which ADL interventions should be included? (Open-ended)

Section 5. Other Functional Activities

37. Other activities routinely assessed (select all that apply):

Making bed; washing tray table; folding laundry; transfers (chair, commode, shower chair, wheelchair); sleep preparation/anxiety management/visual imagery; splinting to facilitate function; energy conservation techniques; leisure activities (e.g., reading, playing catch); fine motor activities; facilitation of communication; medication management; money management; other (specify)

38. Other activities not feasible to assess: Same options as Item 37
39. Other assessments routinely performed: (Open-ended)

Section 6. Barriers to ADL Assessment and Intervention

40. Barriers to standardized ADL assessment (select all that apply):

OT staffing levels; lack of OT role understanding; lack of funds for licensing; lack of confidence; lack of training; preference for informal assessment; lack of time; lack of established ICU assessments; delirium; sedation; medical instability; client refusal; other (specify)

41. Other barriers to standardized assessment: Open-ended)
42. Interventions to improve ADL functioning performed in ICU: Open-ended)

43. Barriers to ADL interventions (select all that apply):

OT staffing levels; lack of OT role understanding; lack of nursing buy-in; lack of confidence; lack of training; lack of time; delirium; sedation; medical instability; client refusal; other (specify)

44. Other barriers to intervention: (Open-ended)

Section 7. Perceived Value of Standardization

45. If all barriers were eliminated, which ADL interventions would most benefit ICU patients? (Open-ended)
46. Top three ADL tasks with greatest potential for change during ICU stay:(Open-ended)
47. Would a validated standardized ADL assessment be beneficial? Yes; No
48. If yes, which ADL elements should be included? (Open-ended)
49. Would a standardized ADL treatment protocol be beneficial? Yes; No
50. If yes, which ADL interventions should be included? (Open-ended)