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Case Report

Outcome Measures for Individuals With Stroke: Recommendations From the American Physical Therapy Association Neurology Section Task Force

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Background and Purpose. The use of standardized outcome measures (OMs) can support clinicians' development of appropriate care plans, guide educators in curricular decisions, and enhance the methodological quality and generalizability of clinical trials. The purposes of this case report are to (1) describe a framework and process for assessing psychometrics and clinical utility of OMs used post-stroke, (2) describe a consensus process used to develop recommendations for stroke-related OMs in clinical practice, research and entry-level physical therapist education, (3) present examples demonstrating how the recommendations have been utilized to date, and (4) make suggestions for future efforts**.**

Case Description. A taskforce of 7 physical therapists with diverse clinical and research expertise in stroke rehabilitation used a 3-stage, modified Delphi consensus process to develop recommendations on OM use. An evidence-based systematic review template and a 4-point rating scheme were used to make recommendations on OM use by care setting and patient acuity, for research, and inclusion in professional education.

Outcomes. An initial list of 77 OMs was developed based on input from numerous professional sources. Screening measures and duplicate measures were eliminated. 56 OMs received full review. Measures spanned the constructs of body structure/function (21), activity (28), and participation (14). Fourteen measures received a rating of "highly recommend".

Discussion. Use of highly recommended OMs may provide a common set of tools enabling comparisons across patients, interventions, settings, and studies. The use of a clearly defined, comprehensive assessment template may facilitate the pooling of data on OMs and contribute to best practice guidelines. Educational recommendations may inform curricular decisions.

Recent evidence-based-practice initiatives and the need for accountability in clinical practice have focused attention on the use of standardized outcome measures (OMs) in physical therapy (PT). [1-4] Monitoring patient status through the appropriate use of OMs is considered good clinical practice[5] and has been suggested to enhance patient care as it contributes to a more thorough examination, assists in the development of a care plan,[6] allows therapists to quantify observations and compare patient status between examination periods,[7,8] facilitates communication between care settings,[9] and increases the efficiency of practice.[10] From an administrative perspective, appropriate use of OMs has been proposed to help managers measure costs,[9] identify "at-risk" hospitalized patients,[11] enhance reimbursement, [12] and compare outcomes between clinicians and settings.[11] Since OMs are key to answering study questions,[12] researchers have been urged to carefully consider OM choice in order to enhance the methodological quality and clinical relevance of clinical trials.[4,9,13,14]

While the benefits of routine use of appropriate standardized OMs abound, widespread use is lacking. In a 2009 survey of 1,000 PTs in clinical practice, fewer than half reported using standardized OMs. [6] Other studies report similar limited use patterns.[5,6,13,15-17] Barriers to consistent OM use include limited time, equipment, therapist perception that patients may have difficulty completing the OMs, PT attitude/knowledge/skill, lack of financial compensation for measure completion, and poor availability of tools. [6,15,17-21] Use of OMs is also lacking in research. A recent systematic review of stroke-related randomized trials reported that just slightly more than half used established OMs.[13]

Reports on frequency of use have focused on what OMs *have* been used versus what *should* be used. Test "batteries" of OMs used following stroke have been reported based on frequency of use.[5,10,13,22] Several authors have made recommendations for OMs use in stroke,[23-29]

but most are limited to specific constructs,[23,27,30] lack information about how recommendations were developed,[27,28] or recommended multiple measures of the same construct without guidance about choice.[24] The *Guide to Physical Therapist Practice*[31] Part 3 lists 1373 tests and measures in 24 categories but offers limited guidance about choosing between different measures of the same construct. Several online repositories contain information on OMs, both generic[32,33] and stroke specific[34,35] however, these resources do not provide recommendations regarding OM choice. Development of recommendations regarding OMs, based on appropriateness versus frequency, has been suggested to have numerous advantages including allowing comparisons across patients, clinicians, facilities, and interventions.[8] Consistent clinical use of recommended OMs could support the development of a data set that would inform clinical decisions and contribute to the evidence for practice guidelines.[8]

Thus, the purposes of this case report are to (1) describe a framework and process for reviewing and assessing psychometrics and clinical utility of OMs used post-stroke, (2) describe a consensus process resulting in recommendations regarding stroke related OMs for use in clinical settings, research studies and in entry-level physical therapist education, (3) present examples demonstrating how the recommendations have been utilized to date, and (4) offer suggestions for future efforts in consensus-based OM recommendations.

Case Description: Target Setting

The recommendations for the use of OMs following stroke were developed in several stages using both qualitative and quantitative data analyses. As part of the first stage, the American Physical Therapy Association Neurology Section Board of Directors (NS BOD) appointed two individuals representing the NS regional continuing education course, *Neurologic*

Practice Essentials: A Measurement Toolbox (Toolbox) (JES) and the Consensus Conference for Entry-level Education Guidelines (GPZ) to co-chair the stroke taskforce. The co-chairs and the NS BOD then selected five additional taskforce members, representing geographic diversity and expertise in clinical, educational, and/or research areas related to stroke. Table 1 illustrates the backgrounds of the taskforce members. The NS charged the taskforce with the following objectives:

1. Determine criteria for OM review and recommendation,
2. Identify OMs to be reviewed,
3. Develop the process for achieving consensus on recommendation,
4. Provide recommendations for use of OMs in clinical practice, entry-level physical therapy education and research

Development of the Process

Determine the Criteria for OM Review and Recommendation

The taskforce reviewed the Evidence Database to Guide Effectiveness (EDGE)[36] template developed by the American Physical Therapy Association (APTA) Section on Research as a potential framework for assessing OMs. While the EDGE template provides a general format, it does not offer a decision-making framework specifically with regard to OMs appropriate to stroke. To ensure that the EDGE template would enable the reviewers to capture all necessary data to make an informed recommendation regarding OM use, the taskforce held a focus group discussion. During this discussion, taskforce members were asked to review and discuss the merits of each item on the EDGE template. The group proposed several revisions to the EDGE template in order to meet the specific outcomes of this project. For each proposed

addition to the template, a formal discussion was initiated. If the group achieved 100% consensus on a proposed item, it was incorporated into the EDGE template. The resulting modified template was termed the "StrokEDGE" template (Table 2). The StrokEDGE template integrates data from the following areas as it relates to each test: construct, type of measurement, instrument properties, instrument clinical usability, recommendation for use by practice setting and patient acuity, and suitability for entry-level education and research.

Application of the Process

Review of OMs

The taskforce used a critically appraised topic (CAT) approach to review the available literature on OMs. This process includes a structured format to formulate questions, appraise literature and make recommendations.[37] The CAT approach was developed by the McMaster University Occupational Therapy Evidenced-Based Practice Research Group and is a structured way to critically review the essential components of published peer-reviewed articles.[38] Using the CAT approach, taskforce members individually reviewed and evaluated the available literature on OMs in assigned content areas. The taskforce agreed that the International Classification of Functioning Disability and Health (ICF model)[39] would be used as a framework to characterize the OMs reviewed. The ICF framework has been recommended as a useful tool to capture the constructs of OMs.[7,8,22] The taskforce wished to include OMs capturing three levels of the ICF model: body structure and function, activities and participation. The ICF model defines *function* as the physiological and psychological functions of body systems; *structure* as the anatomical parts of the body. *Activity* describes the execution of a task or action by an individual; and *participation* refers to an individual's involvement in a life situation. In cases

where an OM captured multiple ICF categories (e.g. OMs that measure balance), taskforce members indicated this in their review.

In order to maximize inter-rater and intra-rater reliability in making recommendations for each of the OMs, a 4-point scoring matrix for clinical recommendations was developed. The scoring criteria were discussed and revised until the taskforce reached unanimous agreement. A score of 4 indicates the OM has good psychometric properties and clinical utility when used in the stroke population, whereas a score of 1 is assigned where the OM has poor psychometric properties and/or clinical utility. Table 3 lists the criteria of the 4-point recommendation system.

Reviewers also made recommendations on OMs physical therapy students should "learn to administer" or "have knowledge of/ be exposed to" during entry-level education. The taskforce used the Physical Therapist Normative Model and the Entry-Level Neurologic Content (E-L NC) to help inform educational recommendations. The Entry-Level Neurologic Content curriculum guidelines were developed to assist faculty with curriculum development in the area of neurology. These guidelines emerged from a consensus reaching process amongst experts in the field using the Normative Model of Physical Therapist Education and the Guide to Physical Therapist Practice as a frame of reference. Using a structured and systematic decision-making consensus reaching process participants identified specific and all-inclusive entry-level neurologic content, examples of terminal behavioral objectives for that specific content, examples of instructional objectives to be achieved in the classroom, and examples of instructional objectives to be achieved in clinical practice. Based upon the fact that these documents are intended to guide educators in the integration of essential neurologic content within a physical therapist professional curriculum they were used to inform the Taskforce as they evaluated measurements and made recommendations. One of the taskforce members (GPZ)

was a co-chair of the team that developed the E-L NC, and provided guidance in using the Guidelines as an evidenced based frame of reference for the development of the educational recommendations for this project.

The final area of recommendation was relative to use of OMs research involving individuals post-stroke. Strong psychometric data was the critical threshold in this area. The taskforce felt that clinical utility limitations such as time to administer and copyright issues were less critical in the research arena.

Formal OM Assessment: A Process of Achieving Consensus on Recommendations

A modified Delphi consensus method was used to reach agreement on the recommendations. Traditionally, the Delphi method uses a series of sequential questionnaires with controlled feedback to seek consensus among a group of experts.[40] Lindeman suggested that the Delphi method improves objectivity because of the participant's lack of inhibition from the group process.[41] Participation in a Delphi process promotes communication and debate particularly in an area where empirical evidence is lacking or limited. The taskforce members believed that the focus on objectivity, communication, and scholarly debate to achieve expert consensus made the Delphi process ideal for accomplishing the task. In this project, in order to achieve consensus on the recommendations, the Delphi approach consisted of two-rounds of formal assessment using a survey questionnaire approach and one final round termed the "Delphi consensus conference call". To further promote quality and efficiency in the Delphi review process, the taskforce was divided into working OM content subgroups (gait and balance, upper extremity and sensation, and motor control) based upon members' clinical and research expertise. Each taskforce member was the primary reviewer for 7-9 OMs. Primary reviewers

conducted a literature search and completed a StrokEDGE document for each assigned OMs.

Single Peer Review Delphi Process

Once the StrokEDGE document was completed by a primary reviewer, the document was sent to a secondary reviewer initiating the first step in the Delphi process, the "single peer review" process. The peer reviewer evaluated the StrokEDGE document to determine agreement with the recommendations in each category. In cases of disagreement, the two reviewers discussed the evidence and revised the recommendation, if appropriate, until consensus was achieved. The first round of the Delphi process took approximately three months.

Group Delphi Online Survey Review Process

The completed StrokEDGE documents were uploaded to an anonymous online survey site housed on the Seton Hall University server through Academic Survey System and Evaluation Tool (ASSET). Taskforce participants were asked to critically review all StrokEDGE documents and supporting evidence for each category of OM recommendation and indicate their agreement by a "yes" or "no" response. This process of critical review constituted round 2 of the Delphi process. Based upon prior literature which suggests that 70 to 80% agreement is considered a reasonable guideline for this type of data analysis, 80% agreement was sought for each recommendation.[42]

Delphi Consensus Conference Call

For those recommendations reaching less than 80% agreement, the co-chairs (GPZ and JES) independently conducted an additional review of the literature, proposed a

recommendation, and provided written support for the ratings. A summary document of the revised ratings and rationale was sent to taskforce members. Following review of the document by the taskforce, a conference call was held to address and discuss the proposed ratings and achieve consensus. Following discussion, members were asked to indicate whether they agreed with the revised recommendation. The final vote resulted in 100% consensus for all OM recommendations. Figure 1 provides an overview of the taskforce charges and the process the group developed and employed to address them.

Outcomes

The taskforce developed an initial list of 77 potential OMs for review, including those recommended by the NS Stroke Special Interest Group (25), and by the Entry-Level Neurologic Content Guidelines (19), OMs included in two web-based repositories of stroke OMs (45), [31,32] and OMs included in the Toolbox Course (16). Numerous OMs were represented in more than one of these sources. The taskforce agreed that tools capturing the constructs of language (1), depression (3), perception (8), and cognition (5) would not be reviewed at this time because these tools are used primarily during the screening or systems review components of the examination, versus to measure the outcome of intervention. Further the group eliminated measures where there was overlap in a construct. For example, the 2, 3, and 5-minute walk tests were eliminated and only the 6-minute walk test was included for review. A final list of 56 OMs was selected for detailed review and recommendation. Taskforce members agreed that if review of the literature uncovered additional OMs that would be appropriate for review, these could be added at a later point. However no additional measures were identified.

Following the modified 3-round Delphi process, 100% consensus was reached among the 7-taskforce members for the OMs recommendations in the areas of practice setting and patient

acuity (Table 4). Insert Table 4 The list includes measures that capture the ICF domains body structure/function (21), activity (28) and participation (14). Some of the reviewed measures captured multiple ICF domains. Fourteen OMs (25%) received a rating of "4" in at least 2 practice categories (setting, patient acuity). These ratings are highlighted in Table 4.

During the Delphi consensus process, taskforce reviewers made recommendations for inclusion of OMs in entry-level physical therapy education by either not recommending inclusion, indicating students should "learn to administer" or "have knowledge of/ be exposed to" the OM. As with other recommendations, a standard of 80% agreement was used in the area of educational recommendations. Table 4 illustrates the 14 OMs that the taskforce recommended physical therapy students learn to administer, as well as the 20 OMs that are recommended for student exposure.

Finally, using this same consensus process, the taskforce developed OM recommendations for use in studies involving individuals post-stroke. Forty-eight measures were recommended for research purposes. These measures span all 3 ICF domains. All measures recommended for research have good to excellent psychometric properties. Many OMs receiving a recommendation for research are not highly recommended for clinical practice, however due to longer administration time, equipment required, copyright restrictions, or cost.

Discussion

One of the goals of the taskforce was to develop recommendations regarding the use of OMs for individuals post-stroke. Through the use of a Delphi process, consensus was reached among seven PTs with clinical and research expertise in stroke rehabilitation. The review criteria and recommendation categories reported are consistent with established psychometric

standards.[43,44] The recommendation criteria include clinically relevant issues such as administration time, ease of scoring, equipment required, and copyright issues. Additionally, the use of a CAT while reviewing the evidence on OMs further strengthens the recommendations.

The EDGE template developed by the APTA Section on Research[36] was adapted to assess psychometric properties and clinical utility of the OMs reviewed. The revised StrokEDGE template addresses many of the previously described barriers to systematic OM use including time, equipment, and cost. [6,15,17-19] Explicitly evaluating these issues and structuring recommendations to support OMs that can be administered efficiently and with equipment typically available in most clinics may facilitate clinicians to more readily incorporate OM use. Additional barriers to OM use such as therapist knowledge of OMs and lack of information regarding their utility based upon evidence have been reported in the literature. [6,15,17-19]

Feedback received from nearly 400 therapists who have attended the Toolbox Course suggested that availability of information on OM is an additional barrier to systematic OM use. The NS addressed these issues via dissemination of the final StrokeEDGE documents, score sheets, recommendations and administration information in a web-based format.[45] Further, dissemination will occur via a collaborative agreement with Rehabilitation Measures Database (RMD), a web-based repository of information on OMs. Beginning in 2013, RMD will include a category of "Professional Association Recommendations" to each OM listed.[32] In addition, the collaboration with RMD may help address the concern about updating OM information, as the site conducts regular reviews to ensure content is current. Dissemination of the recommendations is also planned to occur via the *Tests & Measures* section of PT Now, a web-based information portal developed and sponsored by the American Physical Therapy Association.[46]

Following the StrokEDGE taskforce work, the NS BOD has launched several additional taskforces focused on those diagnosis groups commonly treated in neurological practice. These taskforces utilized the process developed by the StrokEDGE taskforce with modifications specific to their target population. Taskforces focused on multiple sclerosis, spinal cord injury and traumatic brain injury made their recommendations in 2012-3, while groups focused on vestibular disorders and Parkinson's disease began work in early 2013. Various groups outside the NS have also mounted similar efforts.

Recently, the Centers for Medicare and Medicaid Services (CMS) implemented a claims-based data collection requirement for outpatient therapy services by requiring reporting of functional "G-codes" on physical therapy claims.[47] Therapists will be required to provide information about a client's status and goals in several areas including walking and moving, changing body position, carrying objects, and self care. Severity modifiers indicating the percent impairment/limitation/restriction will be required. CMS encourages the use of an appropriate assessment tool to justify the assigned level of severity. While clinicians may use clinical judgment, their documentation must indicate how they determined the level of severity. Easy access to and use of recommended OMs may facilitate therapists' compliance with the requirements and ultimately enhance the provision of care for Medicare and Medicaid beneficiaries.

The taskforce recommendations were organized using ICF domains. This framework has been previously advocated to enhance comprehensive clinical examination[7,8] and as a useful reference to identify and quantify the concepts of interest in clinical trials. [22] While the authors used the best available evidence and a consensus process among experts to classify measures across the three domains of the ICF, not all measures are "homogeneous" with regard to the

domains. Some OM's may arguably be categorized in more than one domain (e.g. balance), while other measures may contain sample items pertaining to more than one ICF construct. The identification of OMs that evaluate participation-level constructs addresses concerns about the paucity of participation OMs used in clinical practice and research.[10 48] The fact that there were fewer OMs in this area (14 participation OMs versus 21 and 28 in body structure function and activity respectively) and only one participation domain OM received a 4 rating suggests that this is a potential area for additional OM development.

The recommendations developed address what has been advocated previously, that consistent use of agreed-upon, standardized OMs will facilitate clinical decision making,[8] guide educators in curricular decisions,[10] and enhance the methodological quality and generalizability of clinical trials.[4,12-14] The explicit review of criteria in the StrokEDGE template and the definitions of recommendation categories will allow individual PTs or facilities to examine existing or newly developed OMs to determine appropriateness. The ability to decide, as a department or service, which OMs to use has been cited as a key factor in successful clinical implementation of OMs.[19] Optimally, these OM recommendations may be incorporated into proposed strategies to enhance more widespread OM use.[18,29,30,49] The description of the process used along with the detailed recommendation criteria utilized may provide a blueprint for groups interested in developing OM recommendations for other patient diagnostic groups.

The authors acknowledge several potential limitations of the recommendations developed, which include the challenge of maintaining up-to-date recommendations as the field of OM research evolves and the individual biases of taskforce members. While all taskforce members have clinical practice experience, most are not currently in full-time clinical practice. However, the development of explicit definitions of review categories and use of the Delphi

consensus process was intended to mitigate individual biases. While the taskforce did not use specific criteria to guide their decision making for the educational content recommendations the published Entry-Level Neurologic Content curriculum guidelines were used as a frame of reference when reviewing the available evidence and posing education recommendations. Additionally, the taskforce has recommended the development of an on-going process to examine newly developed OMs and current information on existing OMs to ensure up-to-date recommendations.

The authors of this study suggest that the use of the recommended OMs in physical therapy clinical practice, education, and research can provide a common set of tools and a consistent language to capture and describe body function/structure, activity and participation limitations following stroke. The use of a clearly defined and comprehensive assessment template as used here may facilitate the pooling of data on OMs and contribute the necessary evidence for the determination of best practice guidelines. The explicit description of the process used for developing an evaluation template and discussion of the actual processes involved in evaluating OMs and reaching consensus on recommendations may prove useful for other groups interested in developing recommendations. While the authors acknowledge a formal systematic review was not utilized, the approach employed ensured that the reviews were detailed and scholarly and that there was expert consensus regarding the recommendations. Therefore, the use of these recommended OMs can assist PTs in developing patient-centered care plan that are based upon well informed, sound decisions.

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Table 1. Background information on the StrokEDGE taskforce members

Task-force Member	Faculty appointment in Physical Therapy Educational Program	Teaches Neurologic content in Physical Therapy Educational Program	Conducted and published stroke-related research	Neurologic Clinical Therapist	Conducted and published research using the Delphi process	Current Clinical Position	Year of Years of Clinical Practice	State of Licensure
JES (Co-chair)	●	●	●				36	Illinois
BC	●	●		●		Outpatient Facility	24	Missouri
PMK	●	●	●				21	Kansas
DN			●	●		Research physical therapist at Inpatient Rehabilitation Facility	36	District of Columbia
DR	●	●	●				28	Florida
RY						Acute Care Facility	6	Oregon
GPZ (Co-chair)	●	●			●		27	New Jersey

Table 2. The StrokEDGE outcome measure review form. This form was adapted from the Section on Research Evidence Database to Guide Effectiveness (EDGE) Taskforce template.

Instrument name:

ICF Domain (check all that apply): _____Body function/structure ____ Activity _____Participation			
Type of measure: _____ Performance-based _____Self-report			
Instrument properties:			
Reliability (test-retest, intra-rater, inter-rater)			
Validity (concurrent, criterion-related, predictive)			
Ceiling/ floor effects			
Sensitivity to change (responsiveness, MCID, MDC)			
Instrument use:			
Equipment required			
Time to complete			
How is the instrument scored? Are there subscales?			
Level of client participation required. Is a proxy version available?			
Limitations			
Recommendations:			
Practice Setting: • Acute • In-patient Rehab • Home care • Skilled Nursing • Out-patient	Patient Acuity: • Acute (< 2 months since stroke) • Sub-acute (2-6 months since stroke) • Chronic (> 6 months since stroke)	Entry-Level Education: ___ Students should learn to *administer* OM ___ Students should have *knowledge of* OM	Is this OM appropriate for research use? ___yes ___no
References			

Table 3. Outlines the StrokEDGE scoring matrix used to make clinical recommendations for OM use by evaluating the strength of the outcome measurement tools psychometric properties and utility in the stroke population.

4	Highly Recommend	• Excellent psychometrics in a stroke population → valid and reliable and some data on responsiveness, MDC, MCID, etc. and • Excellent clinical utility → administration time is ≤ 20 minutes, requires equipment typically found in the clinic, no copyright payment required, easy to score
3	Recommend	• Good psychometrics → may lack information about validity, reliability, or responsiveness in a stroke population, and • Good clinical utility → administration time is > 20 minutes, may require equipment purchase or construction or copyright payment
2	Unable to Recommend at this Time	Insufficient information to support a recommendation → may have limited or no psychometric data available in a stroke population
1	Do not Recommend	Poor psychometrics &/or poor clinical utility (time, equipment, cost)

Table 4. Reviewed OMs by ICF category. Taskforce recommendations for OM use by practice setting and patient acuity. OMs recommended for entry-level physical therapy education. OMs recommended for research use.
*The Orpington Prognostic Scale is a predictive measure of recovery and needs to be conducted within the 1st two weeks post-stroke.

Outcome Measure	ICF Category			Practice Setting					Patient Acuity			Education		Recommended for use in Stroke Research
	Body Structure Function	Activity	Parti-cipation	Acute	IP Rehab	Home	SNF	OP	Acute	Sub-acute	Chronic	Students should learn to administer OM	Students should be exposed to OM	
5 Time Sit to Stand[50]	●	●		3	3	3	3	3	3	3	3		●	●
6 Minute Walk[51]	●	●		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	●		●
9 Hole Peg Test[52]		●		1	3	3	3	3	1	3	3			●
10 Meter Walk[53]		●		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	●		●
Action Research Arm Test[54]	●	●		3	3	3	3	3	3	3	3		●	●
Activities-Specific Balance Confidence Test (ABC)[55]		●	●	1	3	3	3	3	1	3	3		●	●
Arm Motor Ability Test[56]		●		1	3	3	3	3	1	3	3			●
Ashworth[57]	●			3	3	3	3	3	3	3	3		●	●
Assessment of Life Habits[58]			●	1	3	3	3	3	1	3	3		●	●
Balance Evaluation Systems Test (BESTest)[59]	●	●		2	2	2	2	2	2	2	2			●
Berg Balance	●	●		3	**4**	**4**	**4**	**4**	3	**4**	**4**	●		●

Test[60]													
Box & Blocks Test[52]		●		3	3	3	3	3	3	3	3		●
Brunnel Balance Test[61]		●		2	2	2	2	2	2	2	2		
Canadian Occupational Performance Measure[62]		●	●	1	2	2	2	2	2	2	2		●
Chedoke Arm Hand Inventory[63]		●		1	1	1	1	1	1	1	1		●
Chedoke-McMaster Stroke Assessment[64]	●			3	3	3	2	3	3	3	3	●	
Dynamic Gait Index (DGI)[65]		●		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	●		●
Dynamometry[66]	●			1	3	1	1	3	3	3	3	●	●
EuroQOL[67]			●	1	3	3	3	3	1	3	3	●	●
Falls Efficacy Scale[68]			●	2	3	2	2	2	3	2	2		●
Fugl-Meyer Assessment of Motor Performance LE Subscale[69]	●			**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	●		●
Fugl-Meyer Assessment of Motor Performance - UE Subscale[69]	●			3	3	3	3	3	3	3	3	●		●

Fugl-Meyer Sensory Exam[70]	●			1	1	1	1	1	1	1	1		●	
Functional Ambulation Categories[71]		●		2	3	2	2	2	3	2	2			
Functional Independence Measure (FIM)[72]		●		2	**4**	2	2	2	**4**	2	2		●	●
Functional Reach[73]	●	●		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	●		●
Goal Attainment Scale[74]			●	2	**4**	2	2	2	**4**	2	2			●
Hi Level Mobility Assessment Tool (HiMAT)[75]		●		2	2	2	2	2	2	2	2		●	●
Jebsen Taylor Arm Function Test[76]		●		1	2	2	2	2	1	2	2			●
Modified Fatigue Impact Scale[77]			●	1	1	2	2	2	1	2	2			●
Modified Rankin Scale[78]		●		3	3	3	3	3	3	3	3		●	
Motor Activity Log[79]		●		1	**4**	**4**	**4**	**4**	1	**4**	**4**			●
Motricity Index[80]	●			2	2	2	2	2	3	2	2		●	
NIH Stroke Scale[81]	●			3	3	3	3	3	3	3	3			●

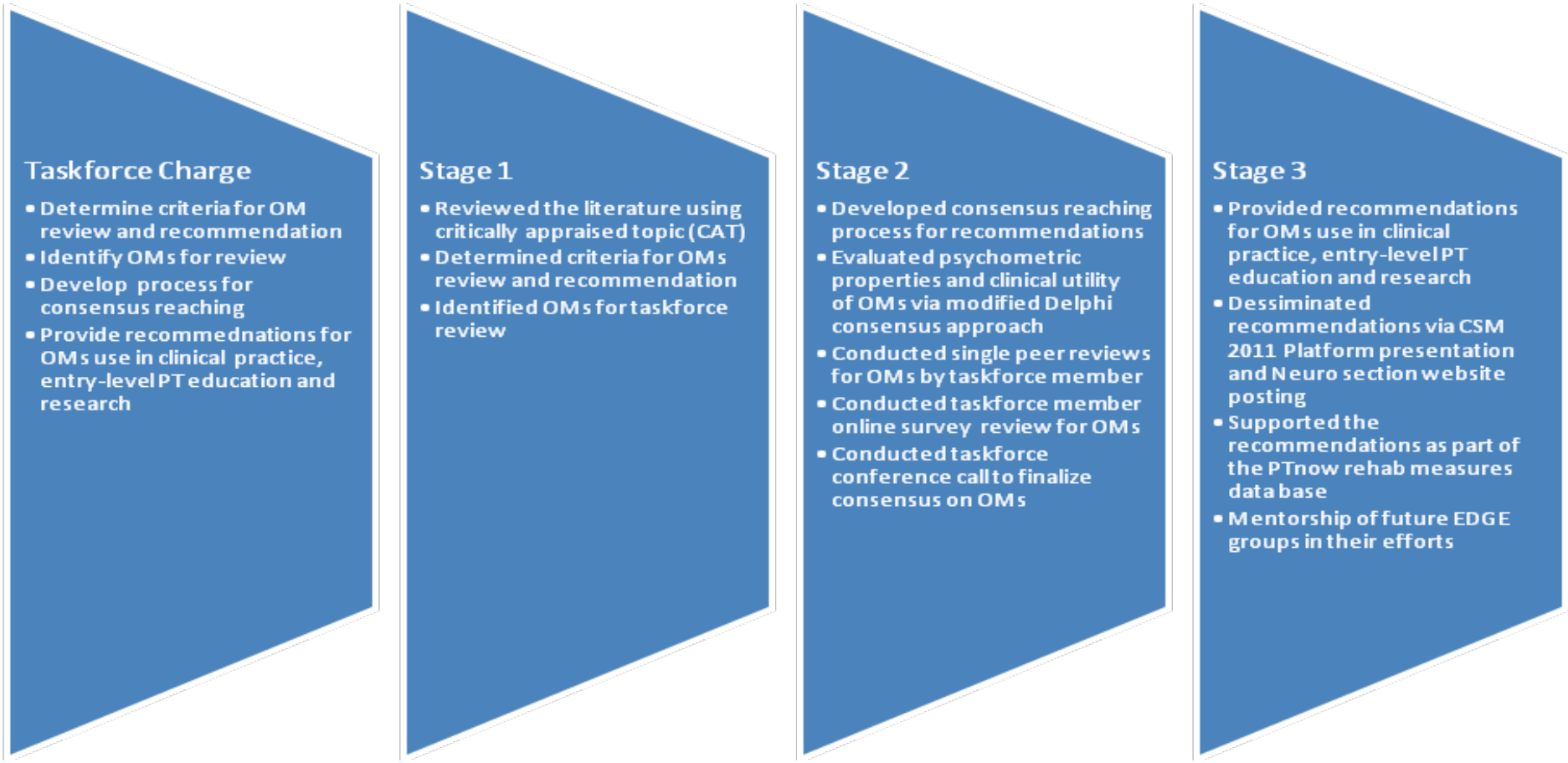
Nottingham Assessment of Somato-sensation[82]	●			1	2	2	2	2	2	2	2		●	●
Orpington Prognostic Scale[83]		●		**4**	**4***	1	1	1	**4**	**4***	1	●		●
Postural Assessment Scale for Stroke Patients[84]	●			**4**	**4**	**4**	**4**	**4**	**4**	3	1	●		●
Rating of Perceived Exertion[85]	●			1	1	1	1	1	1	1	1			
Reintegration to Normal Living[86]			●	1	1	2	1	2		2	2			
Rivermead Assessment of Somatosensory Performance[87]	●			1	1	1	1	1	1	1	1			●
Rivermead Motor Assessment[88]	●			3	3	3	3	3	3	3	3			●
Satisfaction with Life Scale[89]			●	2	2	2	2	2	2	2	2			
Semmes Weinstein Monofilaments[90]	●			2	2	2	2	2	2	2	2			●
SF-36[91]			●	1	3	3	3	3	1	3	3		●	●
Stroke Adapted Sickness Impact Scale - 30[92]			●	1	1	3	3	3	1	3	3		●	●

Stroke Impact Scale (SIS)[93]			•	1	2	**4**	**4**	**4**	1	**4**	**4**	•		•
Stroke Rehabilitation Assessment of Movement - Mobility Subscale (STREAM)[94]		•		3	3	3	3	3	3	3	3		•	•
Stroke Rehabilitation Assessment of Movement - Limb Subscales (STREAM)[94]	•			**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**		•	•
Stroke-Specific Quality of Life Scale[93]			•	1	1	2	1	2	2	2	2			•
Tardieu Spasticity Scale[95]	•			3	3	3	3	3	3	3	3	•		•
Timed Up & Go (TUG)[65]		•		**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	•		•
Tinetti Performance Oriented Performance Assessment (POMA)[96]		•		2	2	2	2	2	2	2	2			•
Trunk Control Test[97]		•		1	1	1	1	1	1	1	1			
Trunk Impairment Scale[98]		•		3	3	3	3	3	3	3	3			•

VO2 Max[99]	●			1	1	1	1	1	1	3	3		●	●
Wolf Motor Function Test[100]		●		3	3	3	3	3	3	3	3		●	●

Figure 1. Taskforce charges and 3 stage process developed and employed by the StrokEDGE taskforce.

Figure 1



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