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Development of the Occupational Therapy Stroke Arm and Hand Record: An Upper Limb Treatment Schedule

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Occupational Therapy Stroke Arm & Hand Treatment Record (OT-STAR) Booklet:

for use in conjunction with the Occupational Therapy Stroke Arm & Hand Treatment Record

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Background

Both good clinical practice and research require a means to document therapy in an accurate and comprehensive manner. A consensus development study was undertaken to interview occupational therapists to establish which upper limb interventions they use when working with stroke survivors. The responses from the interviews were analysed to develop a comprehensive treatment record of upper limb interventions and a definition of each intervention.

The International Classification of Functioning (ICF)[1] has been used to provide a framework for the analyses. This framework was selected after consideration of the data, as it appeared to offer a structure for the wide variety of interventions provided by occupational therapists. The document has been split into four sections which reflect the ICF, these sections are as follows:

1. Interventions that Address Body Structure and Functions: Preparation for Activity
2. Interventions that Address Activity (Performance/Function Skills)
3. Interventions that Address Participation (Function/Occupation)
4. Other Aspects

It is hoped that the treatment record provides a concise and user-friendly tool. Every effort has been made to ensure that the treatment record represents the full range of occupational therapy upper limb interventions in current stroke practice. Please do not hesitate to contact me with any feedback or queries:

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Instructions for completion of the Occupational Therapy Upper Limb Treatment Record

This treatment record has been designed to record occupational therapy upper limb interventions, where a stroke survivor service-user is undertaking therapy by a qualified occupational therapist.

1. Please complete one form for each treatment session
2. Record client and therapist details, date and duration of session and number of staff involved in the session.
3. Place a tick by all the 'body structure and function' interventions that have been undertaken during the treatment session, and state postural set for the interventions
4. Place a tick by all the 'activity' interventions that have been undertaken during the treatment session, and state postural set for the interventions
5. Circle the main occupational performance area for first 'participation' intervention undertaken
6. Place a tick by all the appropriate 'participation' boxes
7. If more than one 'participation' intervention was undertaken, use the additional 'participation' sections on the reverse of the treatment record
8. Record any additional interventions including any advice given or any practice recommended
9. Add any additional comments

The next section of the document provides definitions to assist in the completion of the treatment record

Definitions

1: Interventions that Address Body Structure and Function: Preparation for Activity

Body functions: physiological functions of body systems (ICF, 2002)[1]

Body structures: anatomical parts of the body such as organs, limbs and their components (ICF, 2002)[1]

Theme	Definition
Functions of Joints and Bones	**Interventions that focus on the structure and function of joints and bones**
Re-alignment of joints and bones	Altering position of muscles, soft tissues and bones to re-align joints with aim of re-gaining normal alignment. Therapist uses hands, equipment or activity to align bones to a position that will allow movement.
Compression at joint	Application of pressure to increase sensory awareness of a joint. The pressure applied increases the proximity of the articulating surfaces of the joint. This pressure is usually, but not exclusive applied by the therapists hands.
Distraction	Therapist uses their hands to decrease the proximity of the articulating surfaces. The aim of this may be to alter alignment or to provide sensory in-put at the joint.
Muscle Functions	**Interventions that focus on the structure and function of the muscle**
Cognitively reducing tone	Service-user actively using mental functions to alter muscle tone.
Mobilising specific muscles and soft tissue	Therapist uses hands to effect a change to specific muscles/soft tissue through stretch of muscle/soft tissue. The aim may be to gain length in a muscle, alter tone, alignment or structure of muscle/soft tissue.
Re-alignment of muscles	Altering position of muscles and soft tissues with aim of re-gaining normal alignment.

Strengthening incl resistance training eg putty)	Use of specific activities to increase muscle strength. This might include use of equipment such as putty, theraband and exercises against resistance.
Neuromuscular electrical stimulation	Application of electrical stimulation to stimulate activity specific muscles, not related to a task.
Movement Functions	**Interventions that focus on movement without a task/activity**
Supporting, guiding, assisting an action	Offering assistance to undertake a movement, this is not facilitated (ie focus is not on providing sensory stimuli to alter outcome of movement). Therapist providing assistance if required, service-user actively focused on increasing movement. May be carried out by carer/relative. Incorporates 'active assisted' movements.
Facilitation of movement	Application of a sensory stimulus to access a desired active response from the service-user [2] This is facilitation of a movement without involvement of a specific activity or function/occupation.
Passive movements	Taking a limb or an aspect of a limb through its range of motion. During this process, the therapist aims for the service-user to attend to the movement. In a passive movement, the therapist is providing all of the movement.
Positioning of upper limb	Positioning of upper limb to enable movement, eg to increase access to activity that exists, or to decrease risk of future complications.
Stabilising an aspect of upper limb to enable a movement	Stabilising aspects of upper limb to enable movement in upper limb. Therapist often uses hands to provide this stability.
Weight transfer between upper limbs	Encouraging an equal weight distribution between both upper limbs during a task, eg in sit to stand.
Sensory input or priming	Provision of sensory information with the goal of increasing awareness of upper limb (priming) to improve movement, eg tactile, proprioceptive, thermal in-put to increase awareness. The aim is to increase movement, rather than to re-educate sensory functions.

Consideration of body to enable upper limb movement	Recognition that the upper limb doesn't work in isolation and that the rest of the body impacts on upper limb movement. Examples of interventions in this category include weight transfer (transfer of body weight from one part of body to another), positioning of body other than upper limb and stabilising aspects of body (non-upper limb) to enable movement in upper limb.
Sensory Functions	**Interventions that focus on sensory re-training, ie interventions that aim to re-train the sensory aspects of the upper limb, these often, but not exclusively focus on the hand.**
Proprioception	Interventions that require a person to develop their ability to know their position in space. This may involve the therapist increasing awareness of position, this may be done whilst restricting the use of sight.
Temperature	Interventions to re-train temperature, for example using different temperatures which a service-user identifies as warm, cold, or checking the water before washing. Often focuses on hand, but not exclusively.
Touch and texture	Interventions to re-train touch and texture, often, but not exclusively within hand. Usually involves using different types of material to allow service-user to experience textures through touch. This may be used as part of an activity eg washing.
Stereognosis interventions	Interventions where a person is required to identify an object through tactile stimuli and without the use of sight.
Desensitisation techniques	Interventions that aim to desensitize areas (particularly the hand) where this area is considered hyper-sensitive (ie more sensitive to stimuli than prior to stroke). Pain, unpleasant sensations, hyperreflexivity. May include using a 'rice bowl', massage, stretch, hand hygiene
Combined Body Functions/Structures	**Interventions that address body structure and function, but address more than one of the above areas**
Massage	Therapist moves hands over skin with enough pressure to manipulate skin, muscle and other soft tissue. The gliding movements made by the therapist's hands may be circular, unidirectional or multi-directional. The aim may be oedema management, increasing awareness of the upper limb, desensitization or altering structure of muscle/soft tissue. May be undertaken by therapist, service-user or other person.

Retrograde Massage/Effleurage	A gliding manipulation which involves rhythmical, sweeping strokes moving distally to proximally over treatment area.[3]
Weight-bearing	Taking weight through more affected upper limb, on supporting surface, equipment or therapist.
Provision of orthoses	A device that is applied to the upper limb or body to provide support, re-alignment or facilitate movement, alter tone or reduce oedema. Eg splints, strapping, casting, shoulder supports, pressure garments. To include provsion, education, adaptation of orthoses or use of orthoses.
Other	Document any additional interventions that address body structure or function. An example of this may be Proprioceptive Neuromuscular Facilitation (PNF)

Definitions cont'd

2: Interventions that Address Activity (Performance/Function Skills)

Activity: the execution of a task or action by an individual (ICF, 2002)[1]

Theme	Definition
Motor and Sensory Components of Function	**Interventions that address the motor and sensory components of activity**
Dexterity & Fine Motor Skills	Use of hand/s to undertake dexterous tasks/activities.
Grasp and release	Use of different grips to pick up and let go of objects. Different grips including gross grip, lumbrical grip, tripod grip, pincer grip.
Reach and grasp	Tasks which require service-user to grasp an object with a linked reach from upper arm.
Pull and push	Use of pull and push, using therapist or equipment.
Polishing	Use of polishing movements on a horizontal, vertical or angled surface.
Working to enable placing of upper limb in an activity	Focusing on a part of an activity with the aim of enabling a service-user to place their paretic upper limb in/during the activity.
Remedial activities to address a motor and sensory impairment	Use of activities to improve motor/sensory performance skills, these activities do not relate directly to a goal set by service-user.
Hand washing-with active involvement	Washing hands with service-user actively involved in achieving task. May include applying hand cream.
Exfoliation-with active	Removal of outer layer of skin with the aim of improving the skin condition (with service-user involved).

involvement	Used in conjunction with hand-washing.
Bilateral interventions	Use of both hands in a task either performing similar (symmetrical) movements or different movements.
CIMT or mCIMT	Restraint of less affected arm (including encouraging not to use this arm) usually with practice of tasks with more affected arm. Also includes forced-use, where only a restraint is worn.
Functional electrical stimulation (FES)	Use of electrical stimulation to increase activity of specific muscle/s whilst participating in a task/activity.
Mirror use (to provide alternative feedback ie visual)	Use of mirror to provide visual feedback with the aim of increasing knowledge of body position.
Imagery or visualization	Use of service-user mental imagery to augment motor re-learning.
Mirror therapy	Use of a mirror to reflect non-paretic upper limb while practicing symmetrical movements with both upper limbs and with paretic upper limb out of sight.
Working on components of functional task	Includes breaking down an activity into its component parts, this may include practicing component parts of an activity to be able to put these back together to perform that activity. May involve practice, provision of supervision, verbal prompts, assistance or facilitation.
Other	Document any additional interventions that address the motor and sensory components of activity.
Cognitive Components of Function	**Interventions that address the cognitive components of activity**
Conceptualisation of goal	Techniques to enable the stroke survivor to conceptualise a goal and understand the requirements of an intervention with the aim of increasing ability to achieve goal. May include discussion or demonstration.
Increasing attention to task	Prompting to task to increase attention to task. Prompting may be verbal, visual, or tactile. The cues may be therapist initiated, and may include encouraging service-user to self-cue.
Increasing attention to upper limb	Prompting to increase attention to upper limb. Prompting may be verbal, visual, or tactile. The cues may be

	therapist initiated, and may include encouraging service-user to self-cue.

Remedial activities to address cognitive impairment	Use of activities to improve cognitive (processing) performance skills, these activities do not relate directly to a goal set by service-user.
Use of unaffected upper limb to gain feeling of movement	Practicing a movement with non-paretic upper limb prior to attempting with paretic upper limb.
Use of grading to moderate complexity of task	Use of grading to support cognitive (processing) skills, eg length of session (might adapt by providing additional shorter sessions to support cognitive abilities) or prompts in different forms
Strategies to reinforce therapy	Methods that a therapist may use to reinforce the therapy they are providing. This might include providing feedback in alternative forms and the use of repetition.
Other	Document any additional interventions that address the cognitive components of activity.

Definitions cont'd

3: Interventions that Address Participation (Function/Occupation)

Participation: involvement in a life situation (ICF, 2002)[1]

Function can be described in the following functional/occupational categories:

Basic (self-care) activities of daily living: activities that involve taking care of one's own body[4]

Instrumental activities of daily living: activities which are orientated towards 'self maintenance, requiring interactions in the home and in the community'[4]

Work: all activities involved in gaining, seeking and retaining remunerative employment or volunteer activities[5]

Leisure: 'a non-obligatory activity that is intrinsically motivated and engaged in during discretionary time, that is, time not committed to obligatory occupations such as work, self-care or sleep' [6]

Education: all activities involved in being a student, including establishing learning needs, accessing education and participating in formal and informal education[5]

Social participation: interaction with social activities and networks, these may be linked to the community, one's own family or friends[5]

Theme	Definition

Work on a specific function	Working on a function or occupation in its entirety. Assistance may be required, supervision, verbal prompts, assistance, facilitation or may be carried out independently. Function may be bilateral or unilateral.

Support	**Independent:** service-user able to complete function independently (ie without supervision). **Supervision:** no physical assistance is given, but a person is required to ensure safety. **Verbal prompts:** no physical assistance is given, but verbal prompts are provided. **Assistance:** physical assistance is given to undertake a function, this is not facilitated (ie focus is not on providing sensory stimuli to alter outcome of movement). Incorporates 'active assisted' movements. Therapist provides assistance. **Facilitation:** Application of a sensory stimulus to access the desired active response from the service-user [2] during the function/occupation.
Activity undertaken	**Bilateral:** undertaken with both upper limbs. **Unilateral:** undertaken with one upper limb only.
Compensation for lost function:	Alternative ways of achieving a function.
• Equipment	Equipment that is provided or recommended to overcome a specific functional barrier.
• Techniques	Teaching of alternative techniques/ways to achieve a function. This includes teaching scanning to compensate for neglect and the use of vision to compensate for lost movement or sensation.
• Adaptation	Changes to environment to facilitate function, for example moving or altering furniture/tools to improve ability to participate in function, or using vision to compensate for lost movement or sensation.
• Functional orthoses	Splinting to increase function, eg dynamic splint, static splint or pressure garment to assist in a specific function.

Definitions cont'd

4: Other Aspects

These aspects overarch the ICF framework and may relate to any of the previous sections

Theme	Definition
Psychosocial interventions	Interventions to address mood, motivation, confidence, anxiety, eg counseling, anxiety management strategies, motivational interviewing, confidence building strategies.
Advice and Education	Any advice or education provided to service-user, carer/relative or other members of healthcare team. This advice/education can be provided as verbal, written or pictorial instructions.
Homework and practice outside therapy	Any activities, tasks recommended for practice outside the therapy sessions. These may be completed individually or with a carer/relative/other member of healthcare team. This practice/homework can be provided verbally, as a written document or pictorially.

References

1. World Health Organization (2002) 'Towards a common language for functioning, disability and health ICF'. Geneva: World Health Organization.
2. Hunter, S.H. et al (2006) 'Development of treatment schedules for research: a structured review to identify methodologies used and a worked example of 'mobilisation and tactile stimulation' for stroke patients', *Physiotherapy*, 92, pp.195-207.
3. Andrade, C-K. and Clifford, P. (2001) 'Outcome-based massage', in Donaldson, C., Tallis, R.C. and Pomeroy, V.M. (2009) 'A treatment schedule of conventional physical therapy provided to enhance upper limb sensorimotor recovery after stroke: expert criterion, validity and intra-rater reliability', *Physiotherapy*, 95(2), pp. 110-119.
4. Adapted from Spear, P. S. and Crepeau, E.B. (2003) 'Glossary', in Crepeau, E. B., E. S. Cohn and Boyt Schell, B. A. (eds.) *Willard and Spackman's occupational therapy*.10th edn. Philadelphia: Lippincott Williams and Wilkins.
5. Adapted from The Commission on Practice (2002) 'Occupational therapy practice framework: domain and process', *American Journal of Occupational Therapy*, 56, pp. 609-39.

6. Adapted from Parham, L.D. and fazio, L.S. eds. (1997) 'Play in occupational therapy for children' in Pendleton, H.M. and Schultz-Krohn, W. eds. (2006) Pedretti's occupational therapy practice skills for physical dysfunction. 6th edn. St Louis: Mosby Elsevier.