**PREP2 Advanced Key Competencies**

This document is designed for physiotherapists and occupational therapists who prescribe and deliver upper limb rehabilitation after stroke. It provides information that will enable you to obtain NIHSS scores, support TMS assessments, and deliver predictions for patients in the Good, Limited and Poor PREP2 categories with a Day 3 SAFE score of less than 5. PREP2 Basic should have been successfully completed before starting PREP2 Advanced.

The competencies required will be different depending on your role. Ensure that you have discussed with your supervisor which competencies are relevant to you. The competencies related to PREP2 Basic are prerequisite to this competency document. The PREP2 Basic modules and ‘PREP2 TMS operator’ are located in separate competency documents.

Agreed competencies are to be signed off by yourself and your trainer.

Bring your competency document to any training sessions.

**On completion of competencies:**

Copy to be retained by employee and healthcare organisation.

Once signed off, it is the responsibility of the trainee to ensure that skills are kept up to date, and opportunities to refresh skills and knowledge are sought on a regular basis

**PREP2 Basic:**

*Trainee*: “I acknowledge that I have successfully completed the PREP2 Basic module”

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

Date of competency sign off: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PREP2 Advanced:**

*Organisation representative:* “I acknowledge that the trainee has successfully completed PREP2 Advanced training”

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

*Trainee*: “I acknowledge that I have successfully completed PREP2 Advanced training and understand the training given”

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

**Readings & Resources**

In addition to the listed readings and resources you are expected to look for some up to date literature and record this as you go.

Stinear C (2010) Prediction of motor recovery after stroke *Lancet Neurology* 9(12): 1228-32

Stinear C (2017) PREP 2: A biomarker-based algorithm for predicting upper limb function after stroke. *Annals of Clinical and translational Neurology. 4(11): 811-820.*

Stinear C. (2017) [Prediction of motor recovery after stroke: advances in biomarkers](https://www.sciencedirect.com/science/article/pii/S1474442217302831). *Lancet Neurology* 16(10): 826-36.

Smith, M. C., Ackerley, S. J., Barber, P. A., Byblow, W. D., & Stinear, C. M. (2019). PREP2 Algorithm Predictions Are Correct at 2 Years Poststroke for Most Patients. *Neurorehabilitation and neural repair*, *33*(8), 635-642.

Hallett M (2007) Transcranial magnetic stimulation: a primer *Neuron* 55(2):187-99

Rothwell J (2007) Techniques and mechanisms of action of transcranial stimulation of the human motor cortex *Journal of Neuroscience Methods* 74:113-22

Rossi S (2009) Safety, ethical considerations, and application guidelines for the use of transcranial magnetic stimulation in clinical practice and research *Clinical Neurophysiology* 122 (8), 1686

Lerner A (2019) Seizures from transcranial magnetic stimulation 2012–2016: Results of a survey of active laboratories and clinics *Clinical Neurophysiology (*https://doi.org/10.1016/j.clinph.2019.03.016*)*

[www.presto.auckland.ac.nz](http://www.presto.auckland.ac.nz)

https://preptraining.auckland.ac.nz/

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| --- | --- |
| **Article Reference:** | **Key points:** |
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| **Required?**  **Y or N/A** | **Competency** | **Measurement** | **Relevant self-directed learning module** | **Self-sign off & date** | **Trainer**  **Sign off & date** |
| --- | --- | --- | --- | --- | --- |
|  | Demonstrates competence in completing day 3 NIHSS assessment | * Completed online NIHSS certification * Completes NIHSS assessment accurately and within correct time frame * Records NIHSS results in clinical notes accurately | NIHSS – English Program  Course completed |  |  |
| NIHSS – English Program  Assessment passed |
|  | Demonstrates basic knowledge of transcranial magnetic stimulation (TMS) | * Can describe the mechanism of action of TMS * Can describe the relative and absolute contraindications to TMS * Can identify and name parts of TMS and EMG equipment and their function * Can identify the components of the motor evoked potential and their interpretation | TMS Overview  Section completed |  |  |
| TMS Overview  Quiz passed |
|  | Demonstrates an understanding of screening patients for TMS | * Can describe the screening process for TMS * Can identify the main relative and absolute contraindications to TMS | TMS Safety Checklist  Section completed |  |  |
| TMS Safety Checklist  Quiz passed |
| TMS for PREP 2  Section completed |
| TMS for PREP 2  Quiz passed |
|  | *Repeat if needed:*  Demonstrates knowledge of using and supporting all PREP2 predictions | * Can describe all four prediction categories, including their rehabilitation focus * Can describe how to tailor upper limb therapy for each prediction * Can describe how to answer questions regarding each prediction category from patients, families, and other clinicians * Can describe how to include PREP2 predictions in referrals and discharge summaries | Using and supporting predictions  Section completed |  |  |
| Using and supporting predictions (Part 1)  Quiz passed  Using and supporting predictions (Part 2)  Quiz passed |
|  | Demonstrates knowledge of PREP2 prediction categories and communicates them appropriately to patients, family, and clinical team | * Demonstrates ability to deliver **‘Good’**, **‘Limited’** & **‘Poor’** predictions and implications of each to the patient and their family * Documents prediction accurately and in a timely fashion * Communicates results to all appropriate MDT members   *Please use attached clinical observation records for sign off on practical skills* | Obtaining and delivering predictions  Section completed |  |  |
| Obtaining and delivering predictions  Quiz passed |
|  | Uses results of the PREP2 prediction tool appropriately | * Demonstrates knowledge of resources available i.e. patient information handouts * Develops appropriate UL goals depending on the prediction * Delivers focussed UL rehabilitation based on the prediction * Able to discuss appropriate discharge planning and referral options for patients in **‘Good’**, **‘Limited’** & **‘Poor’** prediction groups | N/A  Practical assessment only |  |  |

**Practical assessment - TMS**

**(Trainee to be assessed in session with qualified TMS operator)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name:** |  | **Diagnosis:** |  | **Position:** Chair / Bed |
| **Date:** |  | **Age:** |  | **Tested:** One side / Both |
| **Assessor:** |  | **Gender:** |  | **Outcome:** MEP+ / MEP- |
| **Ward:** |  | **Day 3 SAFE:** /10 |  | **Prediction: Good / Limited / Poor**  **Prediction given:** YES / NO - Plan? |
| **Present:** |  | **NIHSS:** |  |  |
|  |  | **Day post stroke:** |  |  |

|  |  |  |
| --- | --- | --- |
| **Competency** | **Yes/No** | **Comments** |
| **Can screen patient for contraindications to TMS**   * Accurately completes the TMS Safety Checklist, in consultation with the patient, their family, and the patient’s clinical notes * Presents the completed checklist to the patient’s physician for consideration * Records the outcome of the TMS safety screening in the patient’s clinical notes, and conveys the outcome to the patient and their family * Provides the patient and their family with an accurate and concise explanation of the TMS procedure |  |  |
| **Can record surface EMG**   * Prepares the skin appropriately * Accurately positions EMG electrodes over the target muscle(s) and reference site * Correctly connects the EMG electrodes to the EMG recording system * Correctly uses EMG system software to observe EMG activity * Can discern between acceptable and unacceptable EMG signals, and between biological and environmental sources of noise in the signal * Can trouble-shoot to improve the quality of the EMG signal as required |  |  |
| **Participation in TMS delivery**   * Communicates effectively with the patient before and during the testing procedure * Safely turns on, arms and tests the TMS unit * Monitors the patient throughout the TMS session and responds appropriately * Communicates appropriately with other staff members throughout the session * Accurately evaluates whether motor evoked potentials can be elicited in the target muscle(s) * Uses facilitation techniques where appropriate * Removes EMG electrodes and cleans patient’s skin * Disconnects, turns off and stores equipment correctly |  |  |
| **Explains results from TMS assessment to patient and family**   * Chooses an appropriate time and place for discussion * Ensures that family is present for discussion if this has been agreed to prior to testing * Checks patient/family expectations for upper limb recovery * Forecasts results and then provides prediction clearly and at an appropriate pace * Responds appropriately to verbal and non-verbal cues from patient/family * Describes focus of UL rehabilitation based on prediction * Accurately answers any questions from patient/family * Checks patient/family understanding of the prediction * Communicates with patience and empathy |  |  |
| **Provides PREP2 prediction to team**   * Communicates results from TMS assessment and resulting PREP2 prediction to rehabilitation and medical teams * Able to discuss appropriate goals with rehabilitation team in light of the TMS assessment results and PREP2 prediction * Able to discuss appropriate discharge planning and referral options for patients in **’Good’,** **‘Limited’** and **‘Poor’** prediction groups |  |  |
| **Post-session debrief:** |  | **Action plan:** |

**Patient Log:** Training sessions

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Date** | **Trainer** | **Comments** |
| **1** |  |  |  |
| **2** |  |  |  |
| **3** |  |  |  |
| **4** |  |  |  |
| **5** |  |  |  |

Trainee Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

Trainer Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

**Patient Log:** Training sessions (continued)

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| --- | --- | --- | --- |
| **Number** | **Date** | **Trainer** | **Comments** |
| **6** |  |  |  |
| **7** |  |  |  |
| **8** |  |  |  |
| **9** |  |  |  |
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Trainee Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

Trainer Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_