

**Subject: AGREEMENT FOR THE ADOPTION OF A COMMON OPERATIONAL PROTOCOL FOR MOTOR AND COGNITIVE REHABILITATION OF THE PATIENT WITH ICTUS**

**BETWEEN**

The Directorate of the Integrated University Health Service of Trieste ASUITS, in the person of the Extraordinary Commissioner dr. Antonio Poggiana

**AND**

The Directorate of the General Hospital of Izola (Splošna Bolnišnica Izola), in the person of the General Director mag. Radivoj Nardin

**AND**

The Directorate of the Hospital of Sežana (Bolnišnica Sežana), in the person of the General Director mag. Ivana Sonc

**AND**

The Directorate of the ULSS n. 4 Veneto Orientale, in the person of the General Director dr. Carlo Bramezza

**Given that**

- the Directive 2011/24 / EU of the European Parliament of the Council of 9 March 2011 aims to establish rules directed at facilitating access to safe and high-quality cross-border assistance;
- the parties have successfully collaborated in the MEMORI-net project, funded by the Interreg V A Italy-Slovenia 2014-20 cross-border Italy-Slovenia Cooperation Program, and have jointly developed an Operational Protocol to offer post-stroke patients a common rehabilitation pathway;
- in particular, the cross-border collaboration within the MEMORI-NET project has produced, as the main result of the project, an Operational Protocol which includes evaluation, diagnostic and standardized therapeutic activities, aimed at overcoming, containing or minimizing cognitive disability and limitations of motor activity in patients who suffered a stroke,

**The following is agreed:**

**Art. 1**

The present agreement concerns the adoption of a common Operational Protocol (hereinafter P.O.) to define the activities carried out by the staff pertaining to the hospitals indicated above, concerning the motor and cognitive rehabilitation of patients who suffered a stroke.

**Art. 2**

2.1 This Operating Protocol is effective from 06.27.2019 and has a three-year duration.

2.2 No costs are charged to the parties.



The Extraordinary Commissioner of the Integrated University Health Service of Trieste ASUITS

dr. Antonio Poggiana .....

The General Director of the General Hospital of Izola (Splošna Bolnišnica Izola)

Mag. Radivoj Nardin .....

The General Director of the Hospital of Sežana (Bolnišnica Sežana)

Mag. Silvana Sonc .....

The General Director of the ULSS n. 4 Eastern Veneto

dr. Carlo Bramezza .....

Trieste, 27.06.2019

**Oggetto: ACCORDO PER L'ADOZIONE DI UN PROTOCOLLO OPERATIVO COMUNE PER LA RIABILITAZIONE  
MOTORIA E COGNITIVA DEL PAZIENTE CON ICTUS**

**TRA**

La Direzione dell'Azienda Sanitaria Universitaria Integrata di Trieste ASUITS, nella persona del Commissario Straordinario dott. Antonio Poggiana

**E**

La Direzione dell'Ospedale Generale di Izola (Splošna Bolnišnica Izola), nella persona del Direttore Generale mag. Radivoj Nardin

**E**

La Direzione dell'Ospedale di Sežana (Bolnišnica Sežana), nella persona del Direttore Generale mag. Ivana Sonc

**E**

La Direzione dell'Azienda ULSS n. 4 Veneto Orientale, nella persona del Direttore Generale dott. Carlo Bramezza

**Premesso che**

- la Direttiva 2011/24/UE del Parlamento Europeo del Consiglio del 9 marzo 2011 mira ad istituire norme volte ad agevolare l'accesso ad un'assistenza transfrontaliera sicura e di qualità;
- le parti hanno collaborato con successo nell'ambito del MEMORI-net, un progetto finanziato dal Programma di cooperazione transfrontaliero Interreg V-A Italia–Slovenia 2014-20, ed hanno sviluppato un Protocollo Operativo per offrire ai pazienti un percorso condiviso per la riabilitazione post-ictus;
- in particolare, la collaborazione transfrontaliera nell'ambito del progetto MEMORI-NET ha prodotto come principale risultato di progetto, un Protocollo Operativo che comprende test valutativi, diagnostici e attività terapeutiche standardizzate, finalizzate a superare, contenere o minimizzare la disabilità cognitiva e la limitazione delle attività motorie nei pazienti che hanno subito un ictus,

**Si concorda quanto segue:**

**Art. 1**

Il presente accordo riguarda l'adozione di un Protocollo Operativo (di seguito P.O.) comune per definire l'attività svolta dal personale afferente agli ospedali sopra indicati, inerente la riabilitazione motoria e cognitiva dei pazienti che hanno subito un ictus.

**Art. 2**

**2.1** Il presente Protocollo Operativo decorre dal 27.06.2019 ed ha durata triennale.

**2.2** Nessun costo è previsto a carico delle parti.



**Il Commissario Straordinario dell'Azienda Sanitaria Universitaria Integrata di Trieste ASUITS**

dott. Antonio Poggiana ..... 

**Il Direttore Generale dell'Ospedale Generale di Izola (Splošna Bolnišnica Izola)**

mag. Radivoj Nardin ..... 

**Il Direttore Generale dell'Ospedale di Sežana (Bolnišnica Sežana)**

mag. Silvana Sonc ..... 

**Il Direttore Generale dell'Azienda ULSS n. 4 Veneto Orientale**

dott. Carlo Bramezza ..... 

*Trieste, 27.06.2019*

**Zadeva: SPORAZUM ZA SPREJETJE SKUPNEGA OPERATIVNEGA PROTOKOLA ZA MOTORNO IN  
KOGNITIVNO REHABILITACIJO PACIJENTA Z MOŽGANSKI KAPI**

**MED**

Direktorat Integrirane univerzitetne zdravstvene službe v Trstu ASUITS, v izredni komisar dr. Antonio Poggiana

**IN**

Direktorat Splošne bolnišnice Izola, generalni direktor mag. Radivoj Nardin

**IN**

Direktorat Sežanske bolnišnice (Bolnišnica Sežana), generalni direktor mag. Ivana Sonc

**IN**

Direktorat ULSS n. 4 Veneto Orientale, generalni direktor dr. Carlo Bramezza

**Glede na to**

- Direktiva 2011/24 / EU Evropskega parlamenta Sveta z dne 9. marca 2011 je namenjena vzpostavitvi pravil, namenjenih olajševanju dostopa do varne in visokokakovostne čezmejne pomoči;
- stranke so uspešno sodelovale v projektu MEMORI-net, ki ga je finančiral čezmejni Program sodelovanja med Italijo in Slovenijo Interreg VA Italija-Slovenija 2014-20, in so skupaj razvile operativni protokol, ki bolnikom po možganski kapi ponudi skupno rehabilitacijsko pot;
- čezmerno sodelovanje v okviru projekta MEMORI-NET je kot glavni rezultat projekta pripravilo operativni protokol, ki vključuje vrednotenje, diagnostične in standardizirane terapevtske dejavnosti, namenjene premagovanju, omejevanju ali zmanjševanju kognitivne invalidnosti in omejitve motorične aktivnosti pri bolnikih, ki so doživeli možgansko kap,

**Dogovorjeno je naslednje:**

**Člen. 1**

Ta sporazum se nanaša na sprejetje skupnega operativnega protokola (v nadaljevanju P.O.) za opredelitev dejavnosti, ki jih izvaja osebje zgoraj navedenih bolnišnic v zvezi z motorično in kognitivno rehabilitacijo bolnikov, ki so doživeli možgansko kap.

**Člen. 2**

2.1 Ta operativni protokol začne veljati 27.6.2019 in traja tri leta.

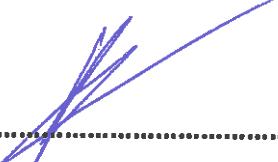
2.2 Strankam se ne zaračunajo nobeni stroški.



Izredni komisar Integrirane univerzitetne zdravstvene službe v Trstu

dr. Antonio Poggiana ..... 

Generalni direktor Splošne Bolnišnice Izola

Mag. Radivoj Nardin ..... 

Generalni direktor Bolnišnice Sežana

Mag. Silvana Sonc ..... 

Generalni direktor ULSS st. 4 Vzhodni Veneto

dr. Carlo Bramezza ..... 

Trst, 27.06.2019

## **MEMORI-net MOTOR AND COGNITIVE REHABILITATION PROTOCOL**

Starting from the clinical protocol that has been applied in the three centers involved in the Memorinet Project (the public ULSS4 Veneto Orientale (VE) and ASUITS (TS) in Italy and the public Slovenian hospital in Izola (KP) and Sezana), a core of clinical scales and tests are suggested here for their application in the acute and sub-acute phase of cerebral stroke, based on their efficacy and feasibility in different clinical settings.

Memori-net Clinical guidelines should be implemented within the diagnostic and treatment procedure existing in each medical center for the management of stroke.

### **STROKE ACUTE PHASE IN THE NEUROLOGY WARD**

The acute phase following a stroke is regulated by the current protocols adopted in the different medical centers on the basis of regional or national guidelines for the management of acute stroke patients (PDTA in the F.V.G. and Veneto Regions). Here, are identified additional diagnostic tests that are recommended according to the experience made by the staff involved in the Memori-net project

#### **Early Screening of cognitive Impairment**

The identification of cognitive difficulties early in the recovery process can be an important prognostic factor for the evolution of post-stroke recovery and may assist in taking decision concerning the appropriateness of different setting options (i.e. intensive versus extensive rehabilitation programs). Guidelines for acute stroke patient care and rehabilitation do not clearly define the right timing, nor the most appropriate instruments for cognitive evaluation in this setting. In our opinion, the request for the assessment of cognitive efficiency should be activated within 24h in the acute/sub-acute phase of cerebral stroke. Such evaluation should take into account the particular context of examination, therefore, quick and easy-giving tests are proposed that, if necessary, may be administered at bedside, but are still capable of answering diagnostic and treatment questions.

The following diagnostic tools that rapidly assess cognitive functioning are suggested:

#### **- A global cognitive screening tool**

The Montreal Cognitive Assessment (MoCA – Nasreddine et al., 2005): it assesses attention and concentration, verbal memory, language, visual-constructional skills, conceptual thinking, calculations, and orientation.

#### **- A Frontal-executive screening tool**

The Frontal Assessment Battery (FAB – Dubois et al., 2000): it evaluates attentional and executive functions and consists of six subtests, each exploring functions related to the frontal lobes: conceptualization (by means of a similarities task), mental flexibility (by means of a phonological fluency task), motor programming (by means of Luria's motor series), sensitivity to interference (by means of a conflicting instructions task), inhibitory control (by means of a go-no-go task), and environmental autonomy (by means of evaluation of prehension behavior).

#### **- A Target cancellation test**

In addition to the above screening tools, we recommend to employ a simple cancellation task for the identification of spatial neglect. MoCa and FAB may not detect its presence and the occurrence of spatial neglect may influence stroke recovery and direct rehabilitation options.

The Star Cancellation test has already been employed in acute stroke (Friedman, 1992) and as a screening tool to detect the presence of unilateral spatial neglect in the near extrapersonal space in patients with stroke (Zelter & Menon, 2008).

### **SUB-ACUTE PHASE IN REHABILITATION SETTINGS**

We consider the VAS scale the most appropriate and quick to assess, additional measures (like scale nr. 2 and nr. 3) can be performed if needed, but these scales are not mandatory in this suggested protocol.

**ASSESSMENT PERFORMED BY:**  
Physiatrist (Rehabilitation Physician)

### **C. Assessment of Cognition**

Rehabilitation planning requires a deep neuropsychological evaluation that assesses a wide spectrum of cognitive abilities to determine the patient's cognitive strengths and weaknesses and, consequently, establish the rehabilitation needs. Such comprehensive assessment should be completed early in the recovery process, as soon as the patient achieves enough physical and cognitive resistance. Regardless of which approach will be used, a precise characterization of cognitive deficits is critical for the development of appropriate treatment programs: neuropsychological findings can inform clinical decision-making and are used to tailor intervention to each individual case.

A core battery of tests is proposed across a number of critical domains of cognition (attention, memory and executive functioning) however, additional tests should be selected according to the patient's impairments. The domain of attention, memory and executive functioning have been chosen because of their frequency of impairment after stroke and their critical role in predicting functional recovery (Jankowska et al., 2017).

The following tests tapping these areas are suggested:

The Montreal Cognitive Assessment (MoCA – Nasreddine et al., 2005) and the Frontal Assessment Battery (FAB – Dubois et al., 2000) should be repeated at stabilization, in order to give (i) a first idea of the spontaneous improvement that may occur soon after the acute phase and (ii) a first hypothesis of the most impaired cognitive domains to be deeply evaluated and eventually treated.

#### ***Working Memory***

- Digit span and Corsi block forward (Milner, 1971) to assess verbal and visuo-spatial short-term memory.
- Digit span backward (Milner, 1971) and Corsi block backward (Kessels et al., 2000) to assess verbal and visuo-spatial working memory.

#### ***Long Term Memory***

- A Recognition Memory Test to detect verbal and visual memory impairment, such as the Warrington Recognition Memory Test – Words and Faces (Warrington, 1996).

#### ***Attention and Executive Functioning***

- A simple cancellation task for the identification of spatial neglect: The Star Cancellation test (Friedman, 1992) can be proposed (or repeated if already administered in the acute phase) to verify the persistence of unilateral spatial neglect.
- The Trail Making Test - A (Reitan, 1958) to assess attention, visual search and scanning
- The Trail Making Test - B (Reitan, 1958) to assess cognitive flexibility, task switching
- The Stroop test (Stroop, 1935) to assess selective attention and the ability to inhibit cognitive interference
- The Tower of London (Shallice, 1982) to assess planning and problem solving abilities

- Short Form of the Fugl-Meyer Motor Scale (Hsieh et al., 2007) to assess motor impairments.
- Movement Imagery Questionnaire-Revised for Stroke (Butler et al., 2012) to evaluate the imagery ability of stroke patients.
- The Montreal Cognitive Assessment (MoCA, Nasreddine et al., 2005) in order to estimate the cognitive impairment.
- Quantitative electroencephalographic (QEEG) to inform about the efficacy of Neurofeedback therapies (Finnigan and van Putten 2013).

#### **ASSESSMENT PERFORMED BY:**

Physiatrist (Rehabilitation Physician), physical therapist

## **2. FOLLOW-UP EVALUATIONS**

At patients discharge and on completion of rehabilitation programs, follow-up assessments are suggested (using the same standardized scales and tests as when entering each rehabilitation program) for outcome evaluation and measure progress made during treatments.

In addition, to ascertain and monitor the maintenance of rehab gains, re-evaluation/s should be planned post-discharge (if possible, at 1 and/or 6-8 months).

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