Supplementary material

Description of the different activities of the inpatient multidisciplinary rehabilitation program.

The multidisciplinary rehabilitation program was organized as 4 weeks of continuous hospitalization with the weekends off. For each patient, a team of MS-Specialists was assembled based on the individual's needs and personal goals. MS-Specialists included neurologists, neuropsychologists, clinical psychologists, social advisors, occupational therapists, physiotherapists, nutritional therapists, dietitians, MS-specialist nurses, and nursing assistants. The neurologist served as the consultant for the patient and case manager of the team. Symptomatic drug therapy was planned and administered in accordance with present consensus guidelines and the neurologist's judgment.

The multidisciplinary rehabilitation program was divided into 13 major subcategories: meetings with case manager, coaching, occupational therapy, group-based occupational therapy, physiotherapy, group-based physiotherapy, therapeutic horseback-riding, group-based interdisciplinary instruction/classes, sessions with psychologists or neuropsychologists, lessons on various topics, talks with a caregiver, nursing, and self-directed exercise**.**

Case manager: Every patient was assigned a case manager who was a physio- or occupational therapist or a nurse with specialized training in MS. Most case managers were certified coaches and all had at least 2 years of experience working at the hospital. They were responsible for overseeing the effort of the team and progress towards the agreed goals and ensuring that any necessary adjustments were made. The case manager and the patient continuously evaluated the progress at weekly conversations and at discharge.

Talks with a caregiver: Talks with a caregiver covered broadly different initiatives for the patients, which goes beyond the case manager's obligation. If it was considered necessary, the patients were offered various individual conversations with experts: neurologist, clinical dietitian or nutrition therapist, sexual counselor or social worker, and

they had expert interventions on topics like energy management, positive psychology or smoking cessation. Talks with a caregiver also covered interdisciplinary conversations with relatives and /or representatives from the municipality. The talks typically lasted 20 to 40 minutes and were offered 1 to 2 times per week.

Physiotherapy: A physiotherapist examined patient disability in physical function, which influences both activity and participation in daily life. Physiotherapy interventions were chosen with respect to other multidisciplinary priorities. The quantity and number of physiotherapy interventions varied, with a single intervention lasting from 15 to 60 minutes and offered 1 to 4 times per week. Commonly physiotherapy involved a tailored mix of supervised exercise (strength, balance, endurance, etc.) and individual therapy (working with posture, managing spasticity, trying assistive devices, therapeutic conversations, etc.). Quality was guaranteed by committing all physiotherapists to follow evidence-based local and national clinical guidelines.

Group-based physiotherapy: Some physiotherapy interventions were group-based, particularly common forms of exercise (strength, balance, endurance training, etc.). Each group session ranged from 30 to 60 minutes and is offered 2 to 3 times per week. All physiotherapists were committed to following accessible national clinical guidelines on exercise in MS as well as local guidelines on these group activities.

Therapeutic horseback riding: When relevant, patients were referred to therapeutic horseback riding, offered by a certified physiotherapeutic riding instructor. Different movements of the horse presented challenges to the rider to promote different postural responses and could be effective in improving balance, body stability, and range of movement and inhibiting spasticity. Therapeutic horseback riding was offered once or twice per week in 30-minute sessions. The physiotherapeutic riding instructor followed a locally developed guideline based on both evidence and best practice.

Occupational therapy: Occupational therapy was a patient-centered practice focused on achieving progress towards a patient's goals in order to increase participation in and performance of daily activities, particularly those that are meaningful to the patient. Occupational therapy interventions were chosen with respect to other multidisciplinary

priorities and could range from 15 to 60 minutes in duration and took place 1 to 3 times per week. Occupational therapy interventions were typically individual fatigue management, cognition, performing activities of daily living, training of the hand, and trying and adapting to assistive devices. The quality of occupational therapy was guaranteed by the conformance of all occupational therapists to evidence-based clinical guidelines as well as local and national clinical guidelines.

Group-based occupational therapy: Some occupational therapy interventions were group-based. This applied to the most common forms of training and exercising of the hand, fatigue management, and kitchen activities with reference to activities of daily living. The duration of group-based interventions ranged from 45 minutes to 90 minutes, 1 to 2 times per week. Occupational therapists were committed to following accessible national clinical guidelines as well as the local guidelines for these group activities.

Supervised self-directed exercise: When prioritized, patients were instructed to carry out some exercise on their own, ranging from 10 minutes to 2 hours each day, depending on each patient's level of personal resources. Self-directed exercise included both mental (resilience exercises, memory tasks, planning, etc.) and physical exercises (familiarization with home-based exercises or with a new walking aid, etc.). Self-directed exercise was regularly evaluated and adjusted to assure patient safety and ongoing improvement.

Psychologist or neuropsychologist sessions: Patients were referred, when relevant, to individual sessions at a licensed psychologist or neuropsychologist. A session could be described as an intervention with the purpose to clarify and achieve understanding of personal thoughts and behaviour that are common among patients with MS. A typical session lasted 1 hour, and patients were offered 1 to 4 sessions per week.

Group-based interdisciplinary instruction/classes: When relevant, the patients were referred to group-based interdisciplinary interventions, e.g., coping with cognition and cognitive impairments. The group sessions lasted from 30 to 60 minutes and were offered 2 times per week. Interdisciplinary interventions were conducted by neuropsychologists, occupational therapists, and nurses. Group-based interdisciplinary

interventions were followed up individually by each patient's caretaker. Group-based interdisciplinary interventions were based on best practice and clinical guidelines to maintain a consistent quality.

Lessons on different topics: The rehabilitation intervention involved various educational programs, such as lessons from a neurologist, social worker, psychologist, and neuropsychologist. Lessons could also address sexual problems; bladder and bowl problems; and topics regarding rehabilitation, goal setting, cognition, energy or resilience. Sessions lasted from 45 min to 90 min, and the teacher was a specialist on the topic. The education was group-based, and normally 50% of all patients participated. There were 2 to 3 various education sessions per week

Coaching: Coaching works by methods of appreciative inquiry to help patients develop, improve, find personal success, and manage life changes and personal challenges. Coaching is especially efficient to create motivation and goal-setting. It helped patients to find their own solutions, rather than prescribing a solution from the coach's viewpoint. Coaching generally looks forward more than it analyses the past and was performed by trained and examined coaches. The need for follow-up was always agreed in collaboration between the patient and coach. The need was defined by the complexity of the subject and the aimed outcome in relation to manage life changes and personal challenges. The duration for the first coach session and follow-up session was approximately 90 and 60 minutes, respectively.

Nursing: Nurses examined every patient with regard to Henderson's 14 needs and their use of medicine. The most basic needs, nutrition, personal hygiene, excretion, were always regarded as most important. On a more specialized basis, nurses could perform interventions chosen with respect to other multidisciplinary priorities. The quantity and duration of basic nursing interventions depended on the patient's disability. For example, personal hygiene could last from 15 to 90 minutes. More specialized interventions, for example unravelling bladder problems, could last from 1 to 2 hours. The quality of the nursing interventions was ensured by local guidelines based on national clinical guidelines or well-known best practice.