

## **Appendix S1.**

### **The spasticity monitoring tool**

The spasticity monitoring tool consists of a smartphone app for patients, which included a daily self-assessment and a daily stretching exercise program), and an existing online physical therapy platform (Physitrack®) for healthcare professionals to read out the sampled data.

The online smartphone app provided people with spasticity the opportunity to rate their spasticity-related symptoms and perceived activity limitations daily. These data were automatically stored in the online platform, where they could be plotted as visual (timeline) graphs accessible for both patients and their healthcare providers through a personal and secured internet account. The visual graphs aimed to provide optimal insight in the time course of individual complaints and activity limitations in order to empower self-management, shared decision making, and timing and execution of subsequent BoNT-A treatment.

Besides the daily self-assessment, the smartphone app provides several stretching exercises to be executed on a daily basis to prevent muscle shortening. Patient-relevant topics for the smartphone app were identified through two qualitative studies in people with HSP or chronic stroke as well as through a nation-wide online survey amongst people with HSP in the Netherlands (7,8,23). In addition, experiences and feedback from people with spasticity and their healthcare providers were used to improve the content of the spasticity monitoring tool (smartphone app and online platform) and tailor it to the needs of these users.

### ***The smartphone app***

#### ***The daily self-assessment***

A. The daily self-assessment for persons with treatment of lower extremity spasticity (person with HSP, and persons with stroke) consisted of the following questions:

- How much are you bothered by:
  - Stiffness in your leg?
  - Muscle cramps in your leg?
  - Pain in your leg at rest?
  - Pain in your leg during movement?
  - Fatigue?
  - Fatigue after being active?

- How satisfied were you with your gait?
- How much have you fallen the last 24 hours?

B. The daily self-assessment for persons with treatment of upper extremity spasticity (persons with stroke) consisted of the following items:

- How much are you bothered by:
  - o Stiffness in your arm?
  - o Muscle cramps in your arm?
  - o Pain in your arm at rest?
  - o Pain your arm during movement?
  - o Fatigue?
  - o Fatigue after being active?
  
- How satisfied were you with your arm function?

C. The daily self-assessment for persons with treatment of upper and lower extremity spasticity (persons with stroke) combined both abovementioned daily self-assessments.

The fall incidence was entered in numbers. All other questions were scored using an 11-point scale. Answer option zero represented no experienced problems, and 10 represented extremely bothered.

All data were visualised in a graph. As default setting, the individual items were grouped per date of entry. To increase understandability of the course of spasticity over time, items of choice could be selected and be presented as a trendline in the graph.

### *The stretching exercise program*

A facultative daily stretching exercise program was incorporated in the smartphone app. The exercises were focused on stretching of the spastic muscles of the upper, lower, or upper and lower extremity.

### *The online platform*

Data entered in the smartphone app by patients were stored on the online platform and could be consulted by the individual patients themselves and their healthcare professionals.

All data were visualised in a graph. As default setting, the individual items were grouped per date of entry. To increase understandability of the course of spasticity over time, items of choice could be selected and be presented as a trendline in the graph. The timeline of the graph was neither adjustable, nor were the dates of botulinum toxin injections marked in the graph.