

Supplementary Table 0: ICD-10 codes used to identify diseases from the National Patient Register and Anatomical Therapeutic Chemical (ATC) codes used to identify prescriptions from the Prescribed Drug Register to classify individuals with a specific disease.

Disease category	National Patient Register ICD-10 diagnoses. Codes in bold were extracted from the register.	Prescribed Drug Register ATC prescription codes. Codes in bold were extracted from the register.	Drug name	How individuals were identified with the disease	Reason for disease inclusion
Amyotrophic lateral sclerosis (ALS)	G12.2			The first diagnosis of ALS within the National Patient Register was used as the date of diagnosis of ALS. Given the speed as to which ALS progresses, individuals were also identified from the Cause of Death register using the same ICD-10 code.	Individuals with either or ALS and cerebral palsy have been shown to have spasticity.
Cardiovascular diseases and disorders ¹	Vascular hypertensive disorders: I10-I13, I15 Coronary artery disorders: I20-I25			First recorded diagnosis of either disease was used as the date of vascular hypertension, or coronary artery disease.	Vascular hypertensive disorders and coronary artery disorders are risk factors for stroke. Individuals who have experience a stroke are more likely to have spasticity.
Cerebral palsy	G80			The earliest date of diagnosis in the National Patient Register was used to identify individuals with cerebral palsy.	Individuals with cerebral palsy are known to have spasticity.
Depression ² NOTE: the drug names are the ones currently recommended for use in Sweden under treatment guidelines. The ATC prescription categories contain more ATC codes, with drugs used previously. Both	F31 – Bipolar affective disorder F32: Depressive episode F32.0 – Mild depressive symptom F32.1 – Moderate depression F32.2- Severe without psychotic episode F32.3- Severe with psychotic episode F32.8 – Other depressive episodes F32.9 – Depressive episode, unspecified F33: Recurrent depressive episode F33.0 — Mild	‘N06A’ +(A-G,X) TCA: ‘N06AC’ N06AA09 N06AA04 N06AA21, ‘N06AC01 N06AA10 SSRI: ‘N06AB’ N06AB04 N06AB10 N06AB03 N06AB08 N06AB05 N06AB06	Antidepressants TCA: (Tricyclic antidepressants)/Non-specific monoamine oxidase inhibitors Amitriptyline Clomipramine Maprotiline Nortriptyline SSRI: (Selective serotonin reuptake inhibitors) Citalopram Citalopram Fluoxetine Fluvoxamine Paroxetine Sertraline	First ever date of prescription or of diagnosis used to identify depression. Earliest date of prescription or diagnosis used as the date of the start of depression.	Some of the spasticity treatments are also indicated for anxiety and pain, among other diseases/conditions. Therefore, it is important to identify individuals with depression to determine the overlap between depression and spasticity treatments/diagnoses. Depression can also increase pain, a symptom that is also associated with spasticity. Some spasticity treatments, such as baclofen, are counter indicated for use with tricyclic antidepressants, which may lead to use of other spasticity

¹ Treatment of cardiovascular diseases in Sweden: <https://www.lakemedelsverket.se/globalassets/dokument/behandling-och-forskrivning/behandlingsrekommendationer/behandlingsrekommendation/behandlingsrekommendation-att-forebygga-aterosklerotisk-hjart-karlsjukdom-med-lakemedel.pdf>

² Treatment of depression in Sweden: <https://www.lakemedelsverket.se/globalassets/dokument/behandling-och-forskrivning/behandlingsrekommendationer/behandlingsrekommendation/behandlingsrekommendation-lakemedel-depression-angestsyndrom-tvangssyndrom.pdf>

are included for completeness.	<p>F33.1 – moderate F33.2 – severe with psychotic F33.3 – severe without psychotic F33.8 – other F33.9 – unspecified</p> <p>F34 – Persistent mood disorders F38 – Other mood disorders F39 – Unspecified mood disorder</p>	<p>MAOI: ‘N06AF’, ‘N06AG’ N06AG02</p> <p>Other: ‘N06AX’ N06AX03 N06AX11</p> <p>Other: ‘N06AX’ N06AX21 N06AX16</p> <p>N06AX12 N06AX18</p> <p>N06AX22 N06AX26</p>	<p>MAOI: (Monoamine oxidase inhibitor) Moclobemide</p> <p>NaSSA: (Noradrenergic and specific serotonergic antidepressants) Mianserin Mirtazapine</p> <p>SNRI: (Serotonin norepinephrine reuptake inhibitors)³ Duloxetine Venlafaxine</p> <p>Other: Bupropion Reboxetine (Noradrenergic reuptake inhibitors) Agomelatine (limited use in Sweden) Vortioxetine (limited use in Sweden)</p>		pharmacological treatments instead of baclofen.
Diabetes	<p>E10 – Type I diabetes E11 – Type II diabetes E13 – Other specified diabetes E14 – Non-specific diabetes</p>			Individuals with ICD-10 codes of E13 and E14 combined together into “unknown” diabetes category. In the event of multiple diagnoses, the earliest date of diabetes diagnosis was used.	Diabetes is a risk factor for both cardiovascular diseases and stroke, both possibly leading to an increased risk in spasticity.
Epilepsy Seizures ⁴	G40 G41	Anti-epileptics were not available.		Individuals with at least two diagnoses of seizure/epilepsy were used to identify individuals with epilepsy, as there is considerable overlap between both ICD-10 codes.	Seizures among people with MS have been previously shown to be associated with spasticity.
Stroke/TIA	<p>Ischemic stroke: I63, I64, I69*, G46** Haemorrhagic stroke: I60, I61, I62, I69*, G46** TIA: G45</p>			Due to the limited number of individuals with stroke, all types of stroke were combined, and classified as ever vs never stroke. In the event of multiple diagnoses,	Individuals who have experienced a stroke are also likely to develop spasticity.

³ For treatment of severe depression, SNRI (mainly venlafaxine) has been shown to be more effective than SSRIs.

⁴ Treatment of seizures and epilepsy in Sweden: <https://www.lakemedelsverket.se/globalassets/dokument/behandling-och-forskrivning/behandlingsrekommendationer/behandlingsrekommendation/behandlingsrekommendation-epilepsi.pdf>

	*I69 includes sequelae of both ischemic and haemorrhagic stroke **Vascular syndromes of brain in cerebrovascular diseases could be both ischemic and haemorrhagic.			the first diagnosis was used as the date of stroke.	
Traumatic brain injuries (TBI) causing bleeding due to external causes.	S06.1, S06.3-S06.8* *All S chapter ICD codes are traumatic brain injury types of bleeding most similar to stroke, excluding concussion. Not included under stroke as these are due to external causes.			Concussion and TBI (first date of either) are combined into one variable as they were a rare occurrence among individuals in this study.	Concussions and TBI may be associated with spasticity.
Concussion & spinal cord injury	S06.0 - Concussion S06.2 – Diffuse brain injury S06.9 – Intracranial injury, unspecified T90.5 – sequelae of intracranial injury Spinal cord injuries T02.0 T02.1 T02.7 T03.0 T03.1 T04.0 T04.1 T06.0 T06.1 T08 T09.3			Concussion and TBI (first date of either) are combined into one variable as they were a rare occurrence among individuals in this study. Note: No one in the dataset had any of the spinal cord injury ICD codes. One person had a 4 th diagnosis of one of the codes, but likely a suspected spinal cord injury. Not include in further analyses.	Concussions and TBI may be associated with spasticity.
Parkinson's disease	G20 – Primary Parkinson's disease G21 – Secondary parkinsonism				Due to similar clinical presentation of tremors, rigidity and overlap with respects to possible mechanisms causing Parkinson's symptoms and Parkinson's like symptoms, it is possible that an individual receives an ICD code in hospital for Parkinson's disease.