Supplementary Table A.1: Rosser Classification System

Level of disability	Description	Grade of distress
1	No disability	(For each level)
2	Slight social disability	
	Severe social disability and slight physical	A. None
	disability or decrease of mobility.	
3	Slight work impairment.	B. Slight
	Homemakers may perform house chores	
	except for the heavier ones.	C. High
	Work alternatives may be limited or present work	
	may be performed with many limitations.	D. Very High
4	Elderly and homemakers can only perform	
	light chores, but are able to go shopping.	
	Moderate decrease of mobility.	
	Unable to perform paid work or to continue	
	studying if student.	
	Elderly stays at home or go out for short walks	
5	accompanied.	
	Inability to go shopping.	
	Homemakers can only perform a few chores.	
	Severe decrease of mobility.	
	Confined to a chair or a wheel-chair.	
6	Only able to walk at home with an aid.	
	Almost dependent.	
7	In bed	
8	Unconscious	

Supplementary Table A.2: Data processing and variable creation: Number of visits until current visit since first visit in clinic, Difference in days from current visit to previous visit, Difference in days from current visit to first visit, episode follow-up time and total follow-up variables

Number of visits until current visit since first visit in clinic (Considering all visits)	Date	Difference in days from current visit to previous visit (Considering all visits)	Difference in days from current visit to first visit (Considering all visits)	Dx	T
1	1999-01-01	0	0	1	1
2	2001-01-01	731	731	1	1
3	2001-04-01	90	821	1	1
4	2001-07-01	91	912	0	1
5	2001-08-01	31	943	1	1
6	2003-08-01	730	1673	0	0
7	2003-09-01	31	1704	1	1
8	2003-10-01	30	1734	1	1
9	2003-11-01	31	1765	0	1
10	2003-12-01	30	1795	0	1
11	2006-11-01	1066	2861	1	1
12	2008-12-01	761	3622	0	1
13	2009-01-01	31	3653	0	0
14	2009-02-01	31	3684	0	0
15	2009-04-01	59	3743	1	1
16	2011-04-01	730	4473	1	1
17	2011-06-01	61	4534	1	1
18	2011-08-01	61	4595	1	1
19	2015-08-01	1461	6056	1	1

Initial patient's visits. In red are isolated visits which are excluded from the analysis. Note that the number of visits, difference in days from current visit to previous visit and difference in days from current visit to first visits variables consider all the visits including the isolated ones

Number of visits until current visit since first visit in clinic	Date	Difference in days from current visit to previous visit	Difference in days from current visit to first visit	Dx	T
1	2001-01-01	0	0	1	1
2	2001-04-01	90	90	1	1
3	2001-07-01	91	181	0	1
4	2001-08-01	31	212	1	1
5	2003-08-01	730	942	0	0
6	2003-09-01	31	973	1	1
7	2003-10-01	30	1003	1	1
8	2003-11-01	31	1034	0	1
9	2003-12-01	30	1064	0	1
10	2008-12-01	1827	2891	0	1
11	2009-01-01	31	2922	0	0
12	2009-02-01	31	2953	0	0
13	2009-04-01	59	3012	1	1
14	2011-04-01	730	3742	1	1
15	2011-06-01	61	3803	1	1
16	2011-08-01	61	3864	1	1

Isolated visits removal. The number of visits, the difference in days from current visit to previous visit and the difference in days from current visit to first visit is recalculated considering only included visits

Number of visits until current visit since first visit in clinic	Date	Difference in days from current visit to previous visit	Difference in days from current visit to first visit	Dx	T
1	2001-01-01	0	0	1	0
2	2001-04-01	90	90	1	1
3	2001-07-01	91	181	0	1
4	2001-08-01	31	212	1	1
5	2003-08-01	730	942	0	1
6	2003-09-01	31	973	1	0
7	2003-10-01	30	1003	1	1
8	2003-11-01	31	1034	0	1
9	2003-12-01	30	1064	0	1
10	2008-12-01	1827	2891	0	1
11	2009-01-01	31	2922	0	1
12	2009-02-01	31	2953	0	0
13	2009-04-01	59	3012	1	0
14	2011-04-01	730	3742	1	1
15	2011-06-01	61	3803	1	1
16	2011-08-01	61	3864	1	1

We considered that the treatment affecting a patient in a visit is the treatment prescribed in the previous visit, therefore all treatment information for a patient is shifted. In red are shown the changes

Number of visits until current visit since first visit in clinic	Date	Difference in days from current visit to previous visit	Difference in days from current visit to first visit	Dx	T
1	2001-01-01	0	0	1	0
2	2001-04-01	90	90	1	1
3	2001-07-01	91	181	0	1
4	2001-08-01	31	212	1	1
5	2003-08-01	730	942	0	0
6	2003-09-01	31	973	1	0
7	2003-10-01	30	1003	1	1
8	2003-11-01	31	1034	0	1
9	2003-12-01	30	1064	0	1
10	2008-12-01	1827	2891	0	0
11	2009-01-01	31	2922	0	1
12	2009-02-01	31	2953	0	0
13	2009-04-01	59	3012	1	0
14	2011-04-01	730	3742	1	0
15	2011-06-01	61	3803	1	1
16	2011-08-01	61	3864	1	1

Patient's treatment information is set to 0 when the last visit occurred >365 from current visit

Supplementary Table A.3: Number of visits in which the variables "mean/median Rosser Classification Index value in the previous 91/182/274/365 days" had to be imputed

Days	Total number of visits	No imputed visits	Total imputed visits	First visit imputed values (%)	Other visits imputed values (%)
91	95,960	49,634 (51.7)	46,326 (48.3)	18,187 (18.9)	28,139 (29.3)
182	95,960	67,476 (70.3)	28,484 (29.7)	18,187 (18.9)	10,297 (10.7)
274	95,960	73,218 (76.3)	22,742 (23.7)	18,187 (18.9)	4,555 (4.7)
365	95,960	75,725 (78.9)	20,235 (21.1)	18,187 (18,9)	2,048 (2.1)

Supplementary Table A.4: Demographic and clinical-related characteristics at first valid visit, including those characteristics not reported in 3.1

Variables	Number of patients (n = 18,187)
Diagnoses, n (%)	
Tendinitis (Lower Extremities)	1,201 (6.6)
Ostheoarthritis	755 (4.15)
Polyarthritis	732 (4.02)
Monoarthritis	703 (3.87)
Tendinitis	651 (3.58)
Neck Pain	618 (3.4)
Axial Neuropathy	592 (3.26)
Peripheral Neuropathy	574 (3.16)
Gout	465 (2.56)
Osteoporosis	462 (2.54)
Polymyalgia Rheumatica	456 (2.51)
Osteoarthritis of Hand	435 (2.39)
Osteoporosis Fracture	428 (2.35)
Other non-Inflammatory Diseases	389 (2.14)
Muscle Disorders	362 (1.99)
Rheumatoid Arthritis	340 (1.87)
Raynaud Syndrome	290 (1.59)
Ankylosing Spondylitis	233 (1.28)
Osteoarthritis of First Carpometacarpal Joint	222 (1.22)
Osteoarthritis of Hip	220 (1.21)
Crystal Arthropathies	211 (1.16)
Other Inflammatory Diseases	179 (0.98)
Fibromyalgia	151 (0.83)
Psoriatic Arthritis	139 (0.76)
Systemic Lupus Erythematosus	128 (0.7)
Vasculitis	118 (0.65)
Sjogren Syndrome	100 (0.55)
Mixed Connective Tissue Disease	63 (0.35)
Other Inflammatory Diseases_CT	53 (0.29)
Treatments, n (%)	
Analgesic 2nd level	1,225 (6.74)
Benzodiazepine	835 (4.59)
Colchicine	438 (2.41)
Gabapentine	419 (2.3)
NSAIDs Hard	394 (2.17)
Folic Acid	359 (1.97)
DMARDs Oral Methotrexate	308 (1.69)
Biphosphonates	302 (1.66)
DMARDs Antimalarial	238 (1.31)
Antidepressant	188 (1.03)
Other Drugs	180 (0.99)
SYSADOA	164 (0.9)
Anti-gout	164 (0.9)
Antibiotic	146 (0.8)

Other Osteoporotics	135 (0.74)
Analgesic 3rd level	97 (0.53)
DMARDs Sulfasalazine	91 (0.5)
Antihypertensive	60 (0.33)
DMARDs Subcutaneous Methotrexate	49 (0.27)
DMARDs Azathioprine	43 (0.24)
Antiaggregant	40 (0.22)
DMARDs Leflunomide	31 (0.17)
Other DMARDs	27 (0.15)
Ferrum	22 (0.12)
AntiTNF	19 (0.1)
BIO Adalimumab	15 (0.08)
Statins	7 (0.04)
Other BIO	4 (0.02)
Comorbidities and concomitant treatments, n (%)	
Statins	2,946 (16.2)
Proton-pump inhibitor medication	1,658 (9.12)
Diuretic	1,612 (8.86)
Angiotensin-converting-enzyme inhibitor	1,419 (7.8)
Benzodiazepine	1,204 (6.62)
Angiotensin II receptor blocker	1,151 (6.33)
Thyroid hormone	1,127 (6.2)
Antiaggregant	1,123 (6.17)
Antidepressant medication	1,103 (6.06)
Oral antidiabetics	1,028 (5.65)
Calcium	888 (4.88)
Depression	828 (4.55)
Calcium antagonist	823 (4.53)
Beta-blocker	818 (4.5)
Smoking habit	701 (3.85)
Articular prosthesis	676 (3.72)
Other arrhythmias	639 (3.51)
Neurologic disease	629 (3.46)
Anticoagulant	626 (3.44)
Biliary diseases	607 (3.34)
Other stomach-esophagus-bowel diseases	592 (3.26)
Cholecystectomy	579 (3.18)
Other colon diseases	564 (3.1)
Obesity	552 (3.04)
Gynecology surgeries	538 (2.96)
Appendicitis	537 (2.95)
Osteoporosis	526 (2.89)
Ischemic heart disease	525 (2.89)
Paracetamol	500 (2.75)
Other virus infection	473 (2.6)
Other uterus diseases	461 (2.53)
Hiatal hernia	451 (2.48)
Asthma	443 (2.44)
Back pain	440 (2.42)
Central peripheral systems diseases	440 (2.42)
Other endocrine diseases	428 (2.35)

Atrial fibrillation	418 (2.3)
Biphosphonates	413 (2.27)
Other infection	405 (2.23)
Other non-specified antihypertensive drugs	405 (2.23)
Benign prostatic hypertrophy	401 (2.2)
Venous insufficiency peripheral	399 (2.19)
Bronchodilator	399 (2.19)
Cataract	383 (2.11)
Hematologic disease	381 (2.09)
Alcoholic habit	379 (2.08)
Articular surgery non-prosthesis	379 (2.08)
NSAIDs	378 (2.08)
Hyperuricemia	371 (2.04)
Thyroid others	371 (2.04)
Allergy	371 (2.04)
Pregnancy	365 (2.01)
Feet diseases	364 (2)
Other otorhinolaryngology diseases	361 (1.98)
Other musculoskeletal diseases	360 (1.98)
Non osteoporotic fracture	352 (1.94)
Helicobacter pylori infection	345 (1.9)
Connective tissue disease	344 (1.89)
Other hip knee diseases	336 (1.85)
Insulin	326 (1.79)
Chronic obstructive pulmonary disease	320 (1.76)
Other dermatological diseases	319 (1.75)
Gastroesophageal reflux disease	314 (1.73)
Osteoporotic fracture	312 (1.72)
Anxiety	308 (1.69)
Other eyes diseases	298 (1.64)
Lowering uric acid drugs	296 (1.63)
ORL surgeries	289 (1.59)
Column surgery	286 (1.57)
Psoriasis	283 (1.56)
Inhaled corticosteroid	283 (1.56)
Other respiratory diseases	282 (1.55)
Benign prostatic hyperplasia medication	277 (1.52)
Other spine diseases	276 (1.52)
Viral hepatitis	275 (1.51)
Gabapentin	266 (1.46)
Breast cancer	264 (1.45)
Tramadol	256 (1.41)
Connective tissue benign tumour	253 (1.39)
Cerebrovascular disease	250 (1.37)
Migraine	249 (1.37)
Internal derangement of knee	247 (1.36)
Kidney failure	242 (1.33)
Anemia	236 (1.3)
Urological obstruction	234 (1.29)
Non-specified valvulopathy	233 (1.28)
Other liver disease	231 (1.27)

Other ear diseases	226 (1.24)
Other benign tumours	224 (1.23)
Other gastritis	216 (1.19)
Shoulder elbow diseases	215 (1.18)
Other urological diseases	213 (1.17)
Colon abdomen surgeries	209 (1.15)
Knee surgery prosthesis	201 (1.11)
Thyroidectomy	201 (1.11)
Ocular hypertension medication	197 (1.08)
Glaucoma	188 (1.03)
Other ovary diseases	187 (1.03)
Allergy medication	184 (1.01)
Metamizole	179 (0.98)
Neck pain	176 (0.97)
Urological surgery	176 (0.97)
Benign breast tumor	175 (0.96)
Family history	172 (0.95)
Constipation medication	163 (0.9)
Other psychiatric conditions	162 (0.89)
Antiepileptics	160 (0.88)
Vitamins	158 (0.87)
Aneurysm	157 (0.86)
Other heart diseases	156 (0.86)
Iron	156 (0.86)
Disease modifying antirheumatic drugs	149 (0.82)
Fall	148 (0.81)
Oral corticosteroids	139 (0.76)
Tuberculosis infection	125 (0.69)
Chronic arthritis	96 (0.53)

NSAIDs: Nonsteroidal anti-inflammatory drugs; CT: Connective Tissue; DMARDs: Disease Modifying Antirheumatic Drugs; ORL: Otorhinolaryngology

Supplementary Table A.5: Rosser Classification Index median (Q1 and Q3 quartiles) for each cluster, based on the number of clusters and inclusion of averaged previous quality of life related variables in the model

	Including QoL related variables					
Clusters	1	2	3	4	5	6
4 N obs	173	35,405	809	59,573	-	-
RCI	0.00 (0.00, 68.00)	98.60 (97.20, 99.50)	70.00 (68.00, 93.50)	98.60 (98.60, 99.50)	-	-
5 N obs	59,535	873	35,354	30	168	-
RCI	98.60 (98.60, 99.50)	70.00 (68.00, 94.20)	98.60 (97.20, 99.50)	0.00 (0.00, 68.00)	0.00 (0.00, 68.00)	-
6 N obs	30023	730	39,480	25,525	164	38
RCI	98.60 (97.20, 99.50)	70.00 (68.00, 90.00)	98.60 (98.60, 99.50)	98.60 (97.30, 99.50)	0.00 (0.00, 17.00)	90.00 (68.00, 95.60)
	Excluding QoL related variables					
Clusters	1	2	3	4	5	6
4 N obs	52,905	155	41,420	1480	-	-
RCI	98.60 (98.60, 99.50)	98.60 (96.40, 100.00)	98.60 (97.20, 99.50)	98.60 (97.20, 99.50)	-	-
5 N obs	42,619	33,324	1390	137	18,490	-
RCI	98.60 (98.60, 99.50)	98.60 (97.20, 99.50)	98.60 (97.20, 99.50)	98.60 (95.60, 100.00)	98.60 (98.60, 99.50)	-
6 N obs	17,915	39995	972	32727	4288	63
RCI	98.60 (98.60, 99.50)	98.60 (98.60, 99.50)	98.60 (97.20, 98.70)	98.60 (97.20, 99.50)	98.60 (97.20, 99.50)	98.60 (97.95, 100.00)