Supplementary materials

Supplementary Table 1. Case definitions for identifying cohorts of inflammatory arthritis

| Type of Inflammatory Arthritis | Administrative Data Case Definition |
|-------------------------------|-------------------------------------|
| Rheumatoid Arthritis (RA)     | 3 OHIP diagnosis codes for RA (714) in 2 years with at least 1 by a rheumatologist or internal medicine specialist |
| Ankylosing Spondylitis (AS)   | 3 OHIP diagnosis codes for AS (720) in 2 years with at least 1 by a rheumatologist or internal medicine specialist |
| Psoriatic Arthritis (PsA)     | 3 OHIP diagnosis codes for other seronegative spondyloarthropathies (721) ever with at least 1 by a rheumatologist or internal medicine specialist and 1 OHIP diagnosis code for psoriasis (696) ever by any physician |
Supplementary Table 2. OHIP codes (diagnosis / fee) for visits to physicians

| Diagnosis /Fee codes | Description |
|---------------------|-------------|
| **Visits to family physicians and specialists for non-specific MSK symptoms (diagnosis codes) before index date** |
| 274                 | gout        |
| 714*                | rheumatoid arthritis, Still’s disease |
| 715                 | osteoarthritis |
| 716                 | traumatic arthritis |
| 718                 | Joint derangement, recurrent dislocation, ankylosis, meniscus or cartilage tear, loose body in joint |
| 720*                | ankylosing spondylitis |
| 721*                | other seronegative spondyloarthopathies |
| 722                 | intervertebral disc disorder |
| 724                 | lumbar strain, lumbago, coccydynia, sciatica |
| 725                 | lumbar disc disease |
| 726                 | spur |
| 727                 | synovitis, tenosynovitis, bursitis, bunion, ganglion |
| 728                 | Dupuytren’s contracture |
| 729                 | fibrositis, myositis, muscular rheumatism |
| 734                 | flat foot, pes planus |
| 735                 | hallux valgus, hallux varus, hammer toe |
| 737                 | scoliosis, kyphosis, lordosis |
| 739                 | other disease of MSK system and connective tissue |
| 781                 | leg cramps, leg pain, muscle pain, joint pain, arthralgia, joint swelling, masses |
| 840                 | sprain of the shoulder, upper arm |
| 841                 | sprain of the elbow |
| 842                 | sprain of the wrist, hand, fingers |
| 843                 | sprain of the sacro-iliac, strain - hip |
| 844                 | Strain of the knee, leg |
| 845                 | Strain of the ankle, foot, toes |
| 847                 | Strain of the neck, low back, coccyx |
| 848                 | Other sprains and strains |
| **Visits to Emergency Departments for non-specific MSK symptoms (diagnosis codes) before index date** |
| M10.4-M10.9         | gout |
| M13.0-M13.9         | poly- mono-arthritis unspecified |
| M15.0-M15.9         | polyarthritis |
| M16.0-M16.9         | arthrosis of hip |
| M17.0–M17.9         | arthrosis of knee |
| M18.0-M18.9         | arthrosis of the first CMC |
| M19.0-M19.9         | other arthrosis |
| M20.0-M20.6         | deformities of the fingers/toes |
| M21.0-M21.9         | other deformities of limbs |
| M24.0-M24.9         | other joint derangement |
| Code     | Description                           |
|----------|---------------------------------------|
| M25.4-M25.9 | Effusion, pain and stiffness in joint |
| M40-M43   | Deforming dorsopathies                |
| M46-M48   | Spondylopathies                       |
| M54.1-M54.9 | Dorsalgia                            |
| M65.2-M65.9 | Tendon abnormalities                  |
| M67.0-M67.9 | Other disorders of synovium           |
| M70.0-M70.9 | Other soft tissue disorder            |
| M71.2-M71.9 | Bursa disorder                       |
| M75.0-M75.9 | Shoulder lesions                     |
| M76.0-M76.9 | Enthesopathies of lower limbs         |
| M77.0-M77.9 | Other enthesopathies                  |
| M79.0, M79.6-M79.9 | Other soft tissue disorder               |
| S13.4, S13.6 | Strain/sprain of cervical spine          |
| S23.1-S23.5 | Strain/sprain of joints/ligaments of thorax |
| S33.1-S33.7 | Strain/sprain of joints of the lumbar spine/pelvis |
| S43.4-S43.7 | Strain shoulder                       |
| S53.4     | Strain elbow                          |
| S63.5-S63.7 | Strain wrist/fingers                  |
| S73.1     | Strain hip                            |
| S83.2-S83.6 | Strain/sprain knee                    |
| S93.4-S93.6 | Sprain/strain ankle                   |

**Visits to rheumatologist (fee codes) after index date**

| Code     | Description                           |
|----------|---------------------------------------|
| A485     | Consultation                          |
| A590     | Comprehensive rheumatology consultation |
| A595     | Limited consultation                  |
| A486     | Repeat consultation                   |
| A483     | Medical specific assessment           |
| A484     | Medical specific re-assessment        |
| A481     | Complex medical specific re-assessment |
| A488     | Partial assessment                    |
| A480     | Complex rheumatology assessment       |
| K481     | Rheumatoid arthritis management by a specialist |

*These codes were excluded when calculating proportion of visits to rheumatologists for non-specific MSK symptoms before index date*
Supplementary Table 3. OHIP fee codes for musculoskeletal imaging and laboratory tests

| Fee codes for MSK Imaging | Description |
|--------------------------|-------------|
| **X-rays**               |             |
| X020, X025, X027, X028, X032, X034, X035, X202, X203, X204, X205, X206, X207, X208 | Spine |
| X036, X037, X038, X060   | Hip         |
| X065, X224, X225         | Knee        |
| X067, X227               | Ankle       |
| X069, X072, X229, X230   | Foot        |
| X046, X048, X210, X212   | Shoulder    |
| X050, X051, X214, X215, X216 | Elbow     |
| X052, X053, X217, X218   | Wrist       |
| X054, X055, X056, X219, X220, X221 | Hand |
| **CT scan**             |             |
| X127, X412, X413         | Extremities |
| X128, X415, X416         | Spine       |
| **MRI**                 |             |
| X471, X475, X488, X489   | Extremities |
| X490, X492, X493, X495, X496, X498 | Spine |
| **Ultrasound**          |             |
| J182                     | Joints      |

| Fee codes for Laboratory Tests | Description                                      |
|--------------------------------|--------------------------------------------------|
| L451                           | Erythrocyte Sedimentation Rate (ESR)              |
| L665                           | C-reactive protein (CRP)                         |
| L500                           | Rheumatoid factor (RF)                           |
| L393                           | Complete blood count (CBC)                       |
| L067                           | Serum Creatinine                                 |
| L251                           | Blood Urea                                       |
| L222                           | Alanine aminotransferase (ALT)                   |
| L223                           | Aspartate aminotransferase (AST)                 |
| L005                           | Albumin                                          |
| L191                           | Alkaline phosphatase                             |
| L445                           | Prothrombin time                                 |
| L151                           | Serum Lipid (total)                              |
| L117                           | High density lipoprotein – cholesterol (HDL-C)   |
| L243                           | Serum Triglycerides (TG)                         |
| L055                           | Serum Cholesterol                                |
Supplementary Table 4. Visits to Physicians in patients with Rheumatoid Arthritis, by age group and sex of the patients

| Visits to Physicians | Male 20–65 year-age group | Female 20–65 year-age group | Male >65 year-age group | Female >65 year-age group | Adjusted Odds Ratio (95% CI) |
|----------------------|----------------------------|----------------------------|-------------------------|---------------------------|-----------------------------|
|                      | N (%)                      | N (%)                      | N (%)                   | N (%)                     |                             |
| Before diagnosis     |                            |                            |                         |                           |                             |
| Visits to Family Physicians for MSK reasons |                             |                            |                         |                           |                             |
| Year 3               | 3,060 (39.1)               | 8,365 (42.2)               | 1.02 (0.97, 1.08)       | 1,956 (40.2)              | 4,102 (46.9)               | 1.29 (1.20, 1.39)           |
| Year 2               | 3,397 (43.4)               | 9,167 (46.2)               | 1.01 (0.95, 1.06)       | 2,214 (45.5)              | 4,552 (52.1)               | 1.29 (1.20, 1.39)           |
| Year 1               | 6,201 (79.2)               | 15,828 (79.8)              | 1.00 (0.94, 1.07)       | 3,943 (81.0)              | 7,039 (80.5)               | 0.98 (0.89, 1.07)           |
| Visits to Rheumatologists for non-specific MSK causes |                             |                            |                         |                           |                             |
| Year 3               | 364 (4.6)                  | 1,382 (7.0)                | 1.47 (1.30, 1.66)       | 276 (5.7)                 | 813 (9.3)                  | 1.65 (1.43, 1.90)           |
| Year 2               | 504 (6.4)                  | 1,679 (8.5)                | 1.28 (1.15, 1.42)       | 400 (8.2)                 | 1,003 (11.5)               | 1.41 (1.25, 1.59)           |
| Year 1               | 2,070 (26.4)               | 5,682 (28.7)               | 1.07 (1.01, 1.14)       | 1,557 (32.0)              | 2,811 (32.1)               | 1.00 (0.92, 1.08)           |
| Visits to other MSK-specialists |                             |                            |                         |                           |                             |
| Year 3               | 727 (9.3)                  | 1,774 (8.9)                | 0.92 (0.83, 1.01)       | 643 (13.2)                | 1,318 (15.1)               | 1.15 (1.04, 1.28)           |
| Year 2               | 821 (10.5)                 | 2,064 (10.4)               | 0.95 (0.87, 1.04)       | 693 (14.2)                | 1,386 (15.8)               | 1.11 (1.01, 1.23)           |
| Year 1               | 1,233 (15.7)               | 2,892 (14.6)               | 0.89 (0.82, 0.96)       | 929 (19.1)                | 1,762 (20.1)               | 1.05 (0.96, 1.15)           |
| Visits to Emergency for MSK reasons |                             |                            |                         |                           |                             |
| Year 3               | 456 (5.8)                  | 1,132 (5.7)                | 0.85 (0.76, 0.96)       | 252 (5.2)                 | 497 (5.7)                  | 1.07 (0.91, 1.26)           |
| Year 2               | 586 (7.5)                  | 1,390 (7.0)                | 0.82 (0.74, 0.91)       | 335 (6.9)                 | 576 (6.6)                  | 0.95 (0.83, 1.10)           |
| Year 1               | 1,429 (18.2)               | 3,013 (15.2)               | 0.71 (0.66, 0.76)       | 898 (18.4)                | 1,420 (16.2)               | 0.84 (0.76, 0.92)           |

After diagnosis

| Visits to Rheumatologists | Male 20–65 year-age group | Female 20–65 year-age group | Male >65 year-age group | Female >65 year-age group | Adjusted Odds Ratio (95% CI) |
|---------------------------|----------------------------|----------------------------|-------------------------|---------------------------|-----------------------------|
| Year 1                    | 6,090 (78.4)               | 16,097 (81.4)              | 1.23 (1.15, 1.31)       | 3,691 (78.2)              | 6,885 (80.5)               | 1.17 (1.07, 1.28)           |
| Year 2                    | 5,091 (66.0)               | 14,013 (71.1)              | 1.33 (1.25, 1.41)       | 3,112 (68.6)              | 5,889 (70.9)               | 1.12 (1.04, 1.22)           |
| Year 3                    | 4,670 (61.0)               | 12,998 (66.2)              | 1.31 (1.24, 1.39)       | 2,703 (62.7)              | 5,286 (66.0)               | 1.17 (1.09, 1.27)           |

Note: CI, Confidence Interval; MSK, Musculoskeletal
### Supplementary Table 5. Visits to Physicians in patients with Ankylosing Spondylitis, by age group and sex of the patients

| Visits to Physicians | 20–65 year-age group | >65 year-age group |
|----------------------|-----------------------|-------------------|
|                      | Male N (%) | Female N (%) | Adjusted Odds Ratio (95% CI) | Male N (%) | Female N (%) | Adjusted Odds Ratio (95% CI) |
| **Before diagnosis** |            |              |                             |            |              |                             |
| Visits to Family Physicians for MSK reasons |            |              |                             |            |              |                             |
| Year 3               | 1,406 (40.6) | 1,668 (46.2) | 0.99 (0.90, 1.10) | 251 (47.4) | 300 (54.7) | 1.33 (1.04, 1.70) |
| Year 2               | 1,510 (43.6) | 1,828 (50.6) | 1.06 (0.96, 1.17) | 226 (42.7) | 293 (53.5) | 1.57 (1.22, 2.01) |
| Year 1               | 2,598 (75.1) | 2,608 (72.2) | 0.78 (0.69, 0.87) | 382 (72.2) | 374 (68.2) | 0.83 (0.64, 1.08) |
| **Visits to Rheumatologists for non-specific MSK causes** |            |              |                             |            |              |                             |
| Year 3               | 162 (4.7) | 358 (9.9) | 1.83 (1.50, 2.24) | 36 (6.8) | 112 (20.4) | 3.56 (2.38, 5.30) |
| Year 2               | 173 (5.0) | 412 (11.4) | 2.03 (1.68, 2.46) | 42 (7.9) | 123 (22.4) | 3.35 (2.30, 4.88) |
| Year 1               | 719 (20.8) | 1,128 (31.2) | 1.53 (1.37, 1.71) | 123 (23.3) | 172 (31.4) | 1.52 (1.16, 2.00) |
| **Visits to other MSK-specialists** |            |              |                             |            |              |                             |
| Year 3               | 225 (6.5) | 314 (8.7) | 1.06 (0.88, 1.27) | 68 (12.9) | 104 (19.0) | 1.53 (1.09, 2.15) |
| Year 2               | 255 (7.4) | 374 (10.4) | 1.15 (0.97, 1.37) | 55 (10.4) | 97 (17.7) | 1.79 (1.25, 2.57) |
| Year 1               | 413 (11.9) | 476 (13.2) | 0.91 (0.79, 1.06) | 85 (16.1) | 119 (21.7) | 1.43 (1.05, 1.96) |
| **Visits to Emergency for MSK reasons** |            |              |                             |            |              |                             |
| Year 3               | 171 (4.9) | 235 (6.5) | 1.08 (0.88, 1.34) | 27 (5.1) | 29 (5.3) | 1.00 (0.58, 1.74) |
| Year 2               | 177 (5.1) | 250 (6.9) | 1.10 (0.89, 1.35) | 29 (5.5) | 31 (5.7) | 1.04 (0.62, 1.76) |
| Year 1               | 431 (12.5) | 424 (11.7) | 0.76 (0.65, 0.88) | 53 (10.0) | 56 (10.2) | 0.97 (0.65, 1.46) |
| **After diagnosis** |            |              |                             |            |              |                             |
| Visits to Rheumatologists |            |              |                             |            |              |                             |
| Year 1               | 2,765 (80.0) | 2,776 (76.9) | 0.87 (0.77, 0.99) | 357 (68.8) | 338 (62.8) | 0.77 (0.59, 1.01) |
| Year 2               | 2,245 (65.2) | 2,428 (67.3) | 1.12 (1.01, 1.25) | 277 (55.0) | 334 (62.8) | 1.48 (1.14, 1.93) |
| Year 3               | 1,913 (55.7) | 2,123 (59.0) | 1.15 (1.04, 1.27) | 241 (50.3) | 311 (59.9) | 1.56 (1.20, 2.03) |

Note: CI, Confidence Interval; MSK, Musculoskeletal
Bolded results are statistically significant
Supplementary Table 6. Visits to Physicians in patients with Psoriatic Arthritis, by age group and sex of the patients

| Visits to Physicians | 20–65 year-age group | >65 year-age group |
|----------------------|-----------------------|-------------------|
|                      | Male                  | Female            | Adjusted Odds Ratio (95% CI) | Male                  | Female            | Adjusted Odds Ratio (95% CI) |
|                      | N (%)                 | N (%)             |                           | N (%)                 | N (%)             |                           |
| Before diagnosis     |                       |                   |                           |                       |                   |                           |
| Visits to Family Physicians for MSK reasons |                       |                   |                           |                       |                   |                           |
| Year 3               | 864 (34.8)            | 1,191 (41.9)      | 1.11 (0.99, 1.25)         | 189 (39.5)            | 309 (48.4)        | 1.37 (1.07, 1.75)         |
| Year 2               | 995 (40.0)            | 1,265 (44.5)      | 1.00 (0.89, 1.12)         | 204 (42.7)            | 334 (52.4)        | 1.33 (1.04, 1.70)         |
| Year 1               | 1,639 (66.0)          | 1,931 (67.9)      | 0.95 (0.84, 1.07)         | 327 (68.4)            | 429 (67.2)        | 0.86 (0.66, 1.12)         |
| Visits to Rheumatologists for non-specific MSK causes |                       |                   |                           |                       |                   |                           |
| Year 3               | 105 (4.2)             | 206 (7.2)         | 1.52 (1.19, 1.95)         | 24 (5.0)              | 78 (12.2)         | 2.42 (1.50, 3.90)         |
| Year 2               | 118 (4.7)             | 244 (8.6)         | 1.65 (1.31, 2.07)         | 42 (8.8)              | 92 (14.4)         | 1.64 (1.11, 2.42)         |
| Year 1               | 457 (18.4)            | 673 (23.7)        | 1.22 (1.06, 1.40)         | 127 (26.6)            | 200 (31.3)        | 1.18 (0.91, 1.55)         |
| Visits to other MSK-specialists |                       |                   |                           |                       |                   |                           |
| Year 3               | 209 (8.4)             | 285 (10.0)        | 0.98 (0.81, 1.19)         | 74 (15.5)             | 104 (16.3)        | 1.00 (0.72, 1.39)         |
| Year 2               | 234 (9.4)             | 321 (11.3)        | 1.00 (0.83, 1.21)         | 66 (13.8)             | 110 (17.2)        | 1.20 (0.86, 1.68)         |
| Year 1               | 352 (14.2)            | 404 (14.2)        | 0.86 (0.73, 1.01)         | 83 (17.4)             | 135 (21.2)        | 1.17 (0.86, 1.59)         |
| Visits to Emergency for MSK reasons |                       |                   |                           |                       |                   |                           |
| Year 3               | 103 (4.1)             | 140 (4.9)         | 0.95 (0.73, 1.25)         | 28 (5.9)              | 30 (4.7)          | 0.74 (0.43, 1.27)         |
| Year 2               | 108 (4.3)             | 174 (6.1)         | 1.17 (0.91, 1.50)         | 27 (5.6)              | 45 (7.1)          | 1.15 (0.70, 1.88)         |
| Year 1               | 267 (10.7)            | 292 (10.3)        | 0.80 (0.67, 0.96)         | 45 (9.4)              | 70 (11.0)         | 1.09 (0.73, 1.63)         |
| Visits to Dermatologists for psoriasis |                       |                   |                           |                       |                   |                           |
| Year 3               | 431 (17.3)            | 444 (15.6)        | 0.82 (0.71, 0.95)         | 75 (15.7)             | 96 (15.0)         | 0.89 (0.64, 1.25)         |
| Year 2               | 483 (19.4)            | 453 (15.9)        | 0.71 (0.62, 0.82)         | 85 (17.8)             | 91 (14.3)         | 0.75 (0.54, 1.04)         |
| Year 1               | 742 (29.9)            | 773 (27.2)        | 0.82 (0.73, 0.93)         | 103 (21.5)            | 140 (21.9)        | 1.00 (0.74, 1.34)         |
| After diagnosis      |                       |                   |                           |                       |                   |                           |
| Visits to Rheumatologists | 2,145 (86.5)          | 2,465 (86.7)      | 1.03 (0.88, 1.22)         | 399 (83.8)            | 536 (84.4)        | 1.01 (0.72, 1.40)         |
| Year 2               | 1,643 (66.4)          | 1,990 (70.1)      | 1.20 (1.06, 1.35)         | 341 (73.0)            | 457 (73.2)        | 0.98 (0.74, 1.29)         |
| Year 3               | 1,561 (63.3)          | 1,887 (66.6)      | 1.16 (1.03, 1.30)         | 307 (67.8)            | 412 (67.9)        | 0.95 (0.73, 1.24)         |
| Visits to Dermatologists for psoriasis | 775 (31.2)             | 823 (28.9)        | 0.89 (0.79, 1.00)         | 109 (22.9)            | 136 (21.4)        | 0.88 (0.66, 1.18)         |
| Year 2               | 581 (23.5)            | 635 (22.4)        | 0.91 (0.80, 1.04)         | 84 (18.0)             | 104 (16.7)        | 0.89 (0.64, 1.22)         |
| Year 3               | 576 (23.4)            | 596 (21.0)        | 0.84 (0.74, 0.97)         | 75 (16.6)             | 93 (15.3)         | 0.86 (0.61, 1.20)         |

Note: CI, Confidence Interval; MSK, Musculoskeletal
Bolded results are statistically significant
Supplementary Figure 1. Adjusted odds ratios (95% confidence intervals) for musculoskeletal radiographs for female patients compared with male patients by IA and age group. Error bars represent 95% confidence intervals. ORs > 1 indicate higher odds in females and ORs < 1 indicate higher odds in males.