Versus Arthritis MSK Decision Aids – Rapid Evidence summaries – Overall prognosis (at first presentation)

I: Low back pain

Sources	Cohort/setting	Outcome definition (recovery / improvement)	Results	Statement for decision aid
Dunn et al. 2017	Primary Care, UK Two cohorts, N=622 in total, patients presenting with low back pain in primary care (GP)	Visual trajectories question (8 options – graphical presentation of pain trajectories over time, and monthly pain measurements over 12 months	At 12 months: 50.1% report an improving trajectory: single episode, a few episodes (mostly pain free); only the odd day with pain 24.1% report severe back pain all the time, multiple episodes of severe pain, or deteriorating pain.	Back problems and sciatica vary a lot among people. Most people can manage with simple treatments including exercise or medication. About 5 out of every 10 people with back pain will get better in less than 6 months. Afterward, 2 out of every 10 people will have mild back pain sometimes. 3 out of every 10 people will have more severe problems that need more treatments.
Traeger et al. 2016	Primary care, Australia N=1230 patients presenting with **acute** LBP (GP, PT, ChiroP)	Pain intensity (6-point likert scale): score 0,1,or 2 Disability (5-point likert scale: score 0 or 1	At three months: 82% report low levels of pain; 69% report low levels of disability	
Itz et al. 2013	Systematic review of studies in people presenting with non-specific **acute** low back pain in primary care (11 cohort studies)	Proportions of people reporting persistent pain vs recovery	Recovery estimated: - At 3 months: 33% - At 12 months: 29% (complete recovery) or 43% (improvement)	
Hayden et al. 2010	Non-systematic review of studies on prognosis of acute and chronic back pain	Patient perceived recovery	Recovery reported as: - Acute LBP: 75-90 within 4-6 weeks; but recurrences are reported: 66-75% report recovery at 12 months - Chronic LBP: 20-33% at 12 months	
Cruz et al. 2020	Primary care, Portugal N= 115 presenting with LBP (GP)	Condition not persistent or disabling	Recovery reported by - At 6 months: 46.2%	
Campbell et al. 2013	Primary care, UK N=810 (with 6 months follow-up) presenting with LBP in GP	Chronic pain grade with Grades 0 and 1 indicating no or low levels of pain or disability	At 6 months, 52.3% had no or low levels of pain and disability	
Kongsted et al. 2015	Primary care, Denmark N=1082 patients presenting for the first time for an episode of nonspecific LBP to GPs and chiropractors		On average, LBP declined over the first 10 weeks and remained almost unchanged thereafter. Being pain free was reported by - At 3 months: 56% - At 6 months: 60% - At 1 year 66% However, widely fluctuating trajectory at individual level.	

II. Sciatica

Sources	Cohort/setting	Outcome definition (recovery / improvement)	Results	Statement for decision aid
Ogolla et al. 2018	Primary care, UK N= 609 patients presenting back and leg pain (GP)	Monthly data on leg pain intensity collected over 12 months for 609	Pain trajectory over 12 months: - **Improving mild: 58%** - Persistent moderate: 26% - Persistent severe: 13% - Improving severe: 3%	About 6 out of every 10 people with sciatica will get better in less than 6 months. A few people get sciatica pain that is still severe after 4 to 6 weeks, and may need a referral for specialist care.
Konstantinou et al. 218	Primary care, UK N= 609 patients presenting back and leg pain (GP)	Improvement defined as 30% or more decrease in an individual's RMDQ score between baseline and follow-up	Improvement found for 55% at 12 months both in sciatica and referred leg pain subgroups	
Hill et al. 2011	Primary care, UK N= 474 (2 cohorts): patients presenting with back pain and leg pain radiating below the knee (GP)	Improved ('much better' or and 'better') on 5-point Likert scale	Improvement reported by n=228 (48.6%) at 6 months	
Luijsterburg et al 2008	Primary care, Netherlands RCT, N=135 patients with sciatica (back pain and leg pain radiating below the knee) N=68 received GP care	Improved ('completely recovered' or and 'much improved') on 7-point Likert scale	Improvement (GP care) reported by 32% at 3 weeks 44% at 6 weeks 62% at 12 weeks 56% at 52 weeks	

II: Shoulder pain

(Excluding acute trauma, systematic inflammatory conditions, and post-stroke shoulder pain)

Systematic reviews of the prognosis of shoulder pain were identified, but often not concerned patients presenting in primary care settings, and often did not report on the overall prognosis or course of symptoms after first presentation in health care (most reviews reported on prognostic factors / predictors of outcome and only reported associations with outcome).

Sources	**Cohort/setting**	**Outcome definition (recovery / improvement)**	**Results**	**Statement for decision aid**
Laslett et al. 2014	Primary care, New Zealand N= 161 presenting with a new episode of shoulder pain (GP, PT)	Shoulder Pain and Disability Index (SPADI): excellent result: score 0 or improvement > 90% better: % reduction larger than the MCID but less than 90%	Largest improvement observed in first 3 weeks - At 3 weeks: 32.9% better, 31.1% excellent result - At 6 months: better 28.6%, excellent result: 31.7%	Shoulder pain varies a lot among people. Most people can manage their shoulder problems with simple treatments. These include exercise or medication. About 6 out of every 10 people recover from their shoulder pain in less than 6 months. Shoulder problems take longer to get better for about 4 out of every 10 people. These people may need more treatments.
Miedema et al. 2016	Primary care, Netherlands N= 798 presenting with a new episode of neck, shoulder, arm problems (GP)	Trajectories of disability based on the DASH	Fast recovery trajectory found in 67% of participants (large improvement within 6 months)	
Masters et al. 2007	Primary care, Australia N=100 presenting with acute shoulder pain (GP)	SPADI ≤10	Largest improvement observed in first month. Recovery reported by - At 1 month: 30% - At 6 months 57%	
Kuijpers et al. 2005	Primary care, Netherlands N= 443 presenting with a new episode of shoulder/neck pain (GP)	Patient perceived recovery: completely recovered or much improved	Largest improvement observed in first 6 weeks. Recovery reported by - At 6 weeks: 30% - At 6 months: 54%	
Bot et al. 2005	Primary care, Netherlands N= 443 presenting with a new episode of shoulder/neck pain (GP)	Symptoms no longer both patients	Full recovery reported by - At 3 months: 24% - At 12 months: 32%	

III: Knee pain / hip pain in older people: number of people treated with surgery (of those presenting with hip/knee pain in primary care)

Based on a quick search of systematic reviews and cohort studies, I ended up with this one study, but it is very large and based on UK primary care data – seems most suitable…

Source	Cohort/setting	Outcome definition (recovery / improvement)	Results	Statement for decision aid
Knee				
Yu et al. 2019	Primary care, UK N=416,030 patients newly presenting with knee pain / knee OA in UK general practice. Data from the Clinical Practice Research Datalink (CPRD)	Total knee replacement: identified within CPRD using the Read code list developed and applied in CPRD by Culliford et al. 2012 and validated by Hawley et al. 2016	10-year probability of total knee replacement: n=18,289 (4.40%) – *considered underestimation by authors*	Knee pain varies a lot among people. Most people can manage their knee problems with simple treatments. These include exercise or medication. About 1 out of every 10 people will have surgery to replace a knee in the first 10 years after they see their doctor, nurse or therapist. About 9 out of every 10 people will not.
Burn et al. 2019	Primary care, Spain N=48,311 patients with a new diagnosis of knee OA	Total knee replacement (ICD-9 code 8154) identified using linked hospital records	9-year cumulative incidence of total knee replacement: 9.4% (95% CI 8.9 to 9.9%) Average lifetime probability of total knee replacement: 30% (95% CI 25 to 36%)	
Hip				
Yu et al. 2019	Primary care, UK N=301,052 patients newly presenting with hip pain/ hip OA in UK general practice. Data from the Clinical Practice Research Datalink (CPRD)	Total hip replacement: identified within CPRD using the Read code list developed and applied in CPRD by Culliford et al. 2012 and validated by Hawley et al. 2016	10-year probability of total hip replacement: n=15,509 (5.15%) – *considered underestimation by authors*	Hip pain varies among people. Most people can manage their hip problems with simple treatments. These include exercise or medication. About 1 out of every 10 people will have surgery to replace a hip in the first 10 years after they see their doctor, nurse or therapist. About 9 out of every 10 people will not.
Burn et al. 2019	Primary care, Spain N=15.505 patients with a new diagnosis of hip OA	Total hip replacement (ICD-9 code 8151) identified using linked hospital records	9-year cumulative incidence of total hip replacement: 11.6% (95% CI 10.9 to 12.3%) Average lifetime probability of total hip replacement: 14% (95% CI 10 to 19%).	

References

Back pain

Campbell P, Foster NE, Thomas E, Dunn KM. Prognostic indicators of low back pain in primary care: five-year prospective study. J Pain. 2013 Aug;14(8):873-83. doi: 10.1016/j.jpain.2013.03.013.

Dunn KM, Campbell P, Jordan KP. Validity of the Visual Trajectories Questionnaire for Pain. J Pain. 2017 Dec;18(12):1451-1458. doi: 10.1016/j.jpain.2017.07.011.

Hayden JA, Dunn KM, van der Windt DA, Shaw WS. What is the prognosis of back pain? Best Pract Res Clin Rheumatol. 2010 Apr;24(2):167-79. doi: 10.1016/j.berh.2009.12.005.

Itz CJ, Geurts JW, van Kleef M, Nelemans P. Clinical course of non-specific low back pain: a systematic review of prospective cohort studies set in primary care. Eur J Pain. 2013 Jan;17(1):5-15. doi: 10.1002/j.1532-2149.2012.00170.x.

Cruz EB, Canhão H, Fernandes R, Caeiro C, Branco JC, Rodrigues AM, Pimentel-Santos F, Gomes LA, Paiva S, Pinto I, Moniz R4, Nunes C. Prognostic indicators for poor outcomes in low back pain patients consulted in primary care. PLoS One. 2020 Mar 27;15(3):e0229265. doi: 10.1371/journal.pone.0229265.

Kongsted A, Kent P, Hestbaek L, Vach W. Patients with low back pain had distinct clinical course patterns that were typically neither complete recovery nor constant pain. A latent class analysis of longitudinal data. Spine J. 2015 May 1;15(5):885-94. doi: 10.1016/j.spinee.2015.02.012.

Traeger AC, Henschke N, Hübscher M, Williams CM, Kamper SJ, Maher CG, Moseley GL, McAuley JH. Estimating the Risk of Chronic Pain: Development and Validation of a Prognostic Model (PICKUP) for Patients with Acute Low Back Pain. PLoS Med. 2016 May 17;13(5):e1002019. doi: 10.1371/journal.pmed.1002019.

Sciatica

Hill JC, Konstantinou K, Egbewale BE, Dunn KM, Lewis M, van der Windt D. Clinical outcomes among low back pain consulters with referred leg pain in primary care. Spine (Phila Pa 1976). 2011 Dec 1;36(25):2168-75. doi: 10.1097/BRS.0b013e31820712bb.

Konstantinou K, Dunn KM, Ogollah R, Lewis M, van der Windt D, Hay EM; ATLAS Study Team. Prognosis of sciatica and back-related leg pain in primary care: the ATLAS cohort. Spine J. 2018 Jun;18(6):1030-1040. doi: 10.1016/j.spinee.2017.10.071.

Luijsterburg PA, Verhagen AP, Ostelo RW, van den Hoogen HJ, Peul WC, Avezaat CJ, Koes BW. Physical therapy plus general practitioners' care versus general practitioners' care alone for sciatica: a randomised clinical trial with a 12-month follow-up. Eur Spine J. 2008 Apr;17(4):509-17. doi: 10.1007/s00586-007-0569-6.

Ogollah RO, Konstantinou K, Stynes S, Dunn KM. Determining One-Year Trajectories of Low-Back-Related Leg Pain in Primary Care Patients: Growth Mixture Modeling of a Prospective Cohort Study. Arthritis Care Res (Hoboken). 2018 Dec;70(12):1840-1848. doi: 10.1002/acr.23556.

Shoulder pain

Bot SDM, Van der Waal JM, Terwee CB, Van der Windt DAWM, Scholten RJPM, Bouter LM, Dekker J. Predictors of outcome in neck and shoulder symptoms: a cohort study in general practice. Spine 2005;30:459-70

Kuijpers T, Van der Windt DAWM, Boeke AJP, Twisk JWR, Vergouwe Y, Bouter LM, Van der Heijden GJMG. Clinical prediction rules for the prognosis of shoulder pain in general practice. Pain 2006;120:276-85.

Laslett M, Steele M, Hing W, McNair P, Cadogan A. Shoulder pain patients in primary care - Part 1: Clinical outcomes over 12 months following standardized diagnostic workup, corticosteroid injections, and community-based care. J Rehabil Med 2014 30;46(9):898-907.

Masters S, O'Doherty L, Mitchell GK, Yelland M. Acute shoulder pain in primary care - an observational study. Aust Fam Physician 2007;36(6):473-6.

Miedema HS, Feleus A, Bierma-Zeinstra SM, Hoekstra T, Burdorf A, Koes BW. Disability trajectories in patients with Complaints of Arm, Neck, and Shoulder (CANS) in primary care: Prospective cohort study. Phys Ther. 2016 Jul;96(7):972-84. doi: 10.2522/ptj.20150226.

Knee and hip pain

Burn E, Murray DW, Hawker GA, Pinedo-Villanueva R, Prieto-Alhambra D. Lifetime risk of knee and hip replacement following a GP diagnosis of osteoarthritis: a real-world cohort study. Osteoarthritis Cartilage. 2019 Nov;27(11):1627-1635. doi: 10.1016/j.joca.2019.06.004.

Yu D, Jordan KP, Snell KIE, Riley RD, Bedson J, Edwards JJ, Mallen CD, Tan V, Ukachukwu V, Prieto-Alhambra D, Walker C, Peat G. Development and validation of prediction models to estimate risk of primary total hip and knee replacements using data from the UK: two prospective open cohorts using the UK Clinical Practice Research Datalink. Ann Rheum Dis. 2019 Jan;78(1):91-99. doi: 10.1136/annrheumdis-2018-213894.