



OARSI Initiative Report

Name of Initiative: Development of Classification Criteria for Symptomatic Knee Osteoarthritis at an Early Structural Stage (EsSKOA)

Initiative Leads: Methods Working Group Co-Chairs: Gillian Hawker (Canada) and Tuhina Neogi (USA); Steering Committee Chair: Ida Haugen (Norway); Advisory Committee Chair: Stefan Lohmander (Sweden)

Board Meeting Date: April 2026

Accomplishments since last Board Meeting

A brief summary of the initiative's progress prepared for **Poster Presentation at the upcoming OARSI Congress** is attached. The goal of the initiative is to develop, refine, and validate classification criteria to identify persons with symptomatic knee OA before major changes in joint structure have occurred, which will enable studies of disease-modifying therapies when they may be more likely to be successful.

Since the previous board meeting, **monthly Steering Committee and bi-weekly Methods Working Group meetings** have been arranged to ensure progress. A **meeting with the Advisory Committee** was arranged in November 2025.

In 2025, the initiative has focused on Phase 2 (Candidate Item Analysis), and analyses are ongoing. The aim of this phase is to gain information regarding the candidate items in people with 'EsSKOA' (cases), with 'mimic conditions' (controls), and with established radiographic knee OA (KL grade 2+). As part of this phase, we perform secondary analysis of existing datasets and primary data collection. Statistical analyses will assess the association of candidate items (independent variables) to case status (EsSKOA versus mimic condition).

For the secondary analysis of existing datasets, an **environmental scan identified 19 existing cohorts**. Examination of these cohorts identified there was little information on the candidate items in individuals *without* established knee OA or in *individuals with mimic conditions*. The OsteoArthritis Initiative (OAI) dataset was deemed most likely to be useful. **Data abstraction is ongoing in a pilot study to assess feasibility**. Given these findings, it was clear that primary data collection would be required.

Primary data collection was recently funded by the Canadian Institutes for Health Research (CIHR). We will recruit 600 adults aged 18+ with knee symptoms at any time in past 3 months (no TKA, no injury within 6 mos.). All recruits will undergo standardized assessment of the candidate items (patient questionnaire, physical exam, bilateral knee x-rays and laboratory

testing). Those without KL 2+ on x-ray will also undergo knee MRI. Candidate item information for each eligible knee without established radiographic knee OA will be summarized and reviewed by adjudicator panels. Panel members will each assign the 'gold standard case status' (EsSKOA or mimic condition), with a formal process for obtaining consensus if none at first review.

The primary data collection **protocol has been submitted to the Research Ethics Board and is pending approval. Recruitment will begin in May 2026.** We have **consulted extensively with international imaging experts** to develop our protocol for imaging, including x-ray and MRI sequences, and reporting forms. The study protocol will be published to encourage data collection at sites beyond Canada. We are also **developing a proposal for longitudinal follow-up** of this cohort to assess symptom and structural progression. This proposal includes the collection of blood samples for biomarker assessment and biobanking. New funding will be required for longitudinal follow-up, which will be the focus of discussion with potential industry sponsors at the upcoming OARSI 2026 Congress.

We are currently **identifying adjudicators to assess and determine "gold standard case status"** as described above. The adjudicator panels will consist of experienced clinicians across the globe representing the orthopaedic surgery, rheumatology, physiotherapy, sports medicine and primary care disciplines.

We plan a meeting at OARSI 2027 for gold standard adjudication.

Meetings

- April 25th, 2026 – hybrid meeting during OARSI Congress 12:15-1:45pm Room 1F
Zoom link:
<https://ca01web.zoom.us/j/69132952045?pwd=uaAd5Zb3sGHSp8R3ctfiQfqcWSKtbK.1>
Will be providing updates on progress and plans for future work. Potential industry sponsors invited; board and committee members welcome to attend.

Grants

- Canadian Institute of Health Research (CIHR) grant funding: (PJT-205841) total grant amount of \$877,455 over 5 years - April 1, 2026

Published Articles

- Mahmoudian A, King LK, Liew JW, Wang Q, Berenbaum F, Das S, Ding C, Emery CA, Filbay SR, Hochberg MC, Ishijima M, Kloppenburg M, Lane NE, Losina E, Mobasheri A, Appleton CT, Englund M, Lohmander LS, Runhaar J, Turkiewicz A, Hawker GA, Neogi T, Haugen IK; OARSI Early-stage Symptomatic Knee Osteoarthritis Initiative. Reframing Early-stage Symptomatic Knee Osteoarthritis (EsSKOA): A Strategic Lens for Trial Design. *Osteoarthritis Cartilage*. 2025 Dec 20:S1063-4584(25)01279-8. doi: 10.1016/j.joca.2025.12.016.

Published Abstracts

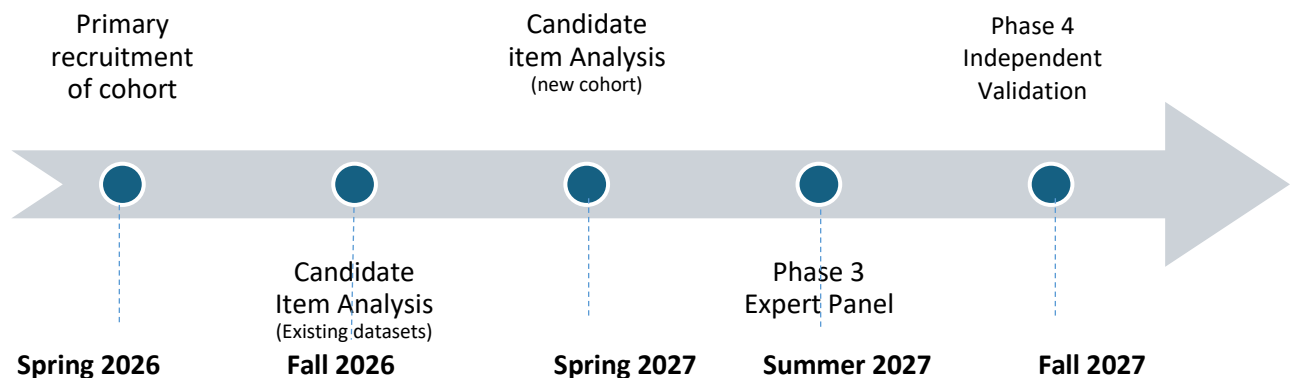
- King L, Liew J, Mahmoudian A, Wang Q, Appleton T, Englund M, Haugen I, Lohmander S, Runhaar J, Turkiewicz A, Neogi T, Hawker G. Classification criteria for

symptomatic knee osteoarthritis at an early structural stage: where are we now? OARSI Congress 2026. Poster presentation. *upcoming*

Presentations

- 18 Mar 2026; 19th Annual Clinical Research Methodology Course; NYU Grossman School of Medicine Continuing Medical Education; Classification criteria for knee OA at an early structural stage: The challenges and the opportunities. Invited Lecturer. (Gillian Hawker)
- 13 Oct 2025; International Cartilage Regeneration & Joint Preservation Society (ICRS) World Congress; Boston, MA, USA; ICRS Meets OARSI: Update of the Early-Stage Symptomatic Knee OA Classification Criteria Initiative. Invited Speakers (Armaghan Mahmoudian, Jean Liew)
- 30 Sep 2025; OARSI Live Webinar (Virtual); EsSKOA Update. Invited Speakers. (Armaghan Mahmoudian, Jean Liew, Lauren King)
- 12 Sep 2025; Symposium on Latest Innovations in Osteoarthritis; Toronto, Canada; Early Osteoarthritis Classification Criteria. Invited Speaker (Lauren King)

Initiative Timeline



Problems/challenges since last committee report:

We are delighted to report that there are no new challenges to report. We continue to experience amazing support as required from the OARSI community and the Board/Advisory Committee.

Classification Criteria for Symptomatic Knee Osteoarthritis at an Early Structural Stage: Where are we now?

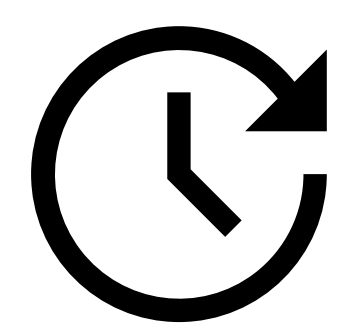
L.K. King, J.W. Liew, A. Mahmoudian, Q. Wang, C.T. Appleton, M. Englund, I.K. Haugen, L.S. Lohmander, J. Runhaar, A. Turkiewicz, T. Neogi, G.A. Hawker, on behalf of the OARSI Early-stage Symptomatic Knee Osteoarthritis Initiative

EsSKOA
INITIATIVE

Symptomatic
Knee OA at an
Early Structural Stage

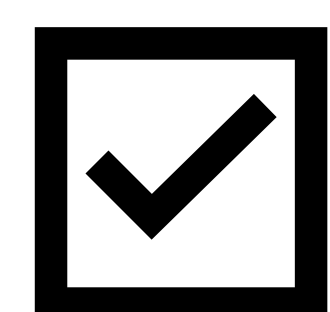
OARSI
OSTEOARTHRITIS
RESEARCH SOCIETY
INTERNATIONAL

Background



Our aim is to develop **classification criteria for symptomatic knee osteoarthritis (OA) at an early structural stage (EsSKOA)** to enable enrollment of people into clinical trials at a stage where interventions may be more effective.

Work completed (Phase 1)



Candidate Item Generation

Generate a list of candidate items that should be considered in criteria development.

Conducted:

- International survey of OA experts
- Scoping review of how early-stage knee OA is defined in research
- Qualitative study of patient perspectives on early OA experience
- Delphi study in OA clinicians and researcher
- International survey of individuals living with knee OA

Identified 82 candidate items

Determine Mimic Conditions

Determine the differential diagnosis of knee symptoms.

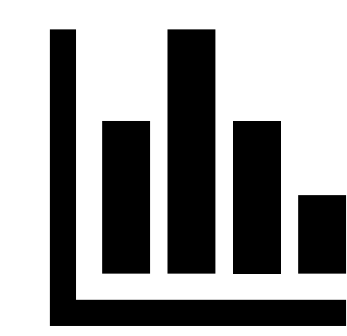
Conducted survey to identify conditions to consider as mimickers:

- Knee ligament & tendon injuries/strain
- Meniscal tear
- Immune-mediated inflammatory arthritis
- Crystal-induced arthritis
- Bursitis

Scan the QR code for more about the OARSI – EsSKOA Initiative, including updates and publications.



Current Work (Phase 2)



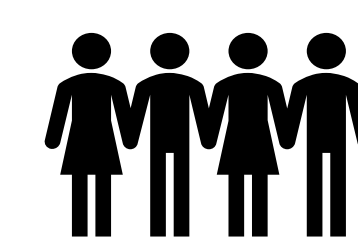
Generating the evidence

Data collection & analysis to examine ability of candidate items to discriminate people with EsSKOA (cases) from mimic conditions (controls) and from individuals with established knee OA (KL grade 2+).

Data Sources

- **Existing Datasets:** Environmental scan identified 19 cohorts:
 - Little information on candidate items in individuals without established knee OA or in individuals with mimic conditions.
 - Pilot study underway in OsteoArthritis Initiative (OAI) dataset.

- **New Primary Data Collection:**



Recruit 600 adults aged 18+ with knee symptoms at any time in the past 3 months (no TKA, no injury or surgery within 6 mo).

Standardized Candidate item Assessments

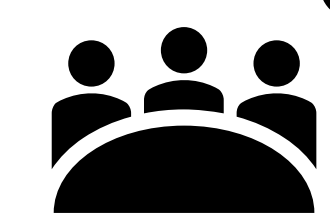


- Patient questionnaire
- Physical exam
- Bilateral knee x-ray
- Knee MRI (if no established OA on x-ray)
- Labs

Established OA changes on x-ray?

No

Yes



Gold standard case status adjudication by expert clinicians

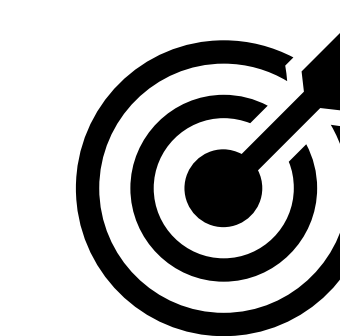
EsSKOA

Mimicker

Candidate item statistical analysis



Future work (Phases 3 & 4)



Phase 3: Criteria assembly

Informed by the evidence, a consensus-based decision analysis process in an Expert Panel of clinicians to identify those factors (and their relative weights) that influence the probability that the individual has EsSKOA.

Expert Panel:

16-20 clinicians from different disciplines will:

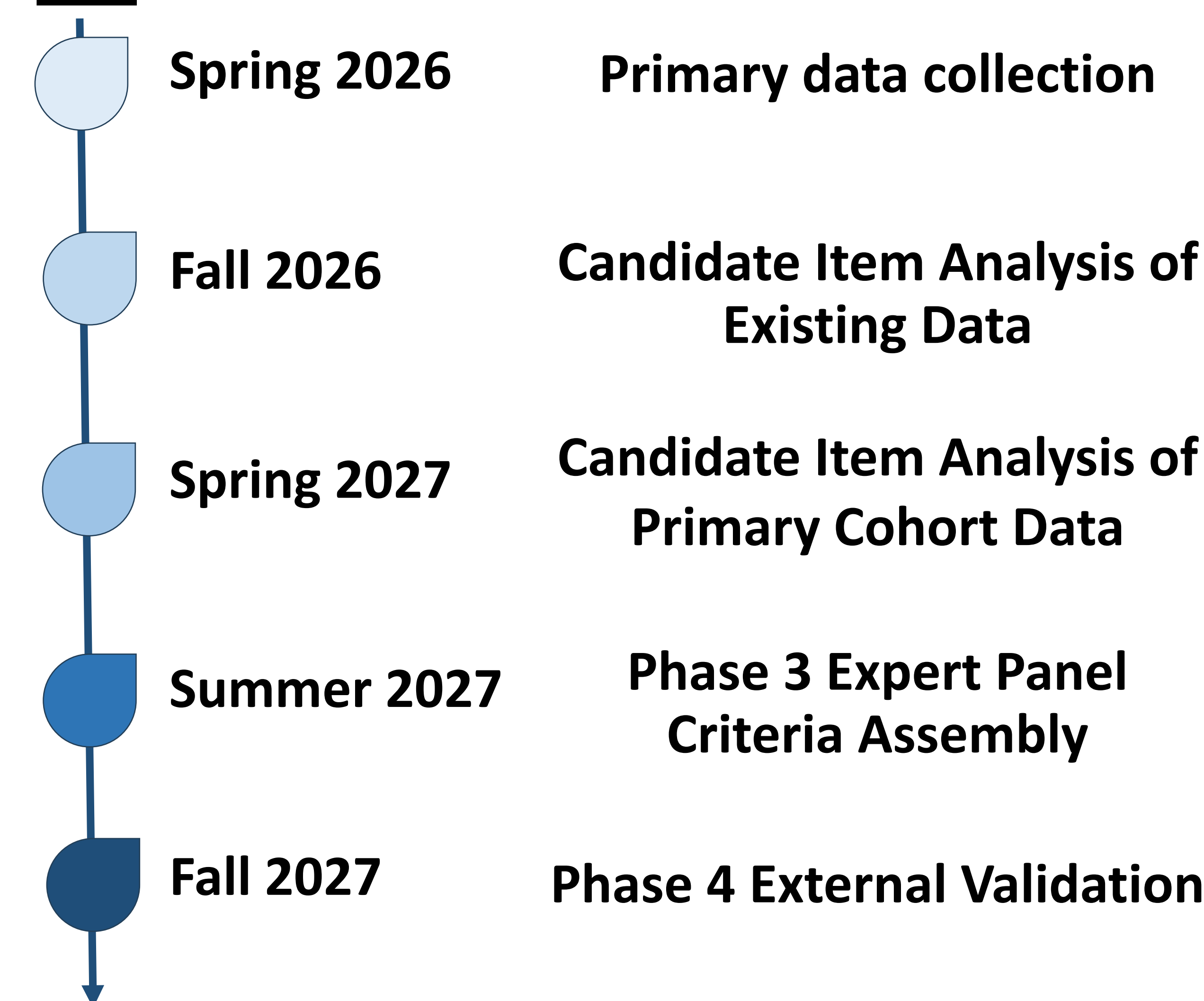
- Rank order case scenarios of individuals with knee symptoms based on probability of EsSKOA.
- Discuss rankings to identify key features for/against EsSKOA (preliminary criteria).
- Participate in multicriteria decision analysis exercises to derive criteria weights.
- Refine criteria for usability & determine threshold score to classify as EsSKOA.

Phase 4: Validation

Assess the sensitivity and specificity of the criteria in an independent sample.



Timeline



We thank the OARSI EsSKOA Initiative Advisory Committee members, the EsSKOA Patient Partner Panel members, and Imaging and Biobanking experts (Drs. Roemer, Omoumi, Kapoor, and Kraus).

We would like to acknowledge funders OARSI (Grunenthal, Viatris) and CIHR (PJT-208541).