

## **Appendix: Data Sources, Image Assessment Protocols, and Clinical Data Reported**

### ***Data Sources***

All data from the Osteoarthritis Initiative (OAI) that were utilized in this study are publicly available at <https://data-archive.nimh.nih.gov/oai>. Specific data sets used were the baseline clinical data set (version 0.2.2, released May 8, 2009), baseline magnetic resonance imaging (MRI) data set (Eckstein group) (version 0.6, released June 4, 2015), and outcomes data set (version 9, released December 2, 2016).

### ***Assessment of Kellgren-Lawrence OA Grade***

Baseline bilateral knee radiographs were standard fixed-flexion posteroanterior views. A Kellgren-Lawrence (KL) grade<sup>12</sup> of OA severity was assigned by 2 independent reviewers, with an established adjudication process for discrepant scores.

### ***MRI Assessment***

Articular cartilage segmenting of all knee MRI was performed using either a coronal fast low-angle shot (FLASH) water excitation (WE) sequence (1.5-mm slice thickness) or a sagittal double-echo steady state (DESS) WE sequence (0.7-mm slice thickness)<sup>41</sup>. The tibiofemoral subchondral surface ratio (SSR) is defined as the weight-bearing femoral subchondral surface area divided by the tibial subchondral surface area of the corresponding compartment<sup>8</sup>. The tibiofemoral SSR is a previously identified risk factor for incident symptoms and OA progression<sup>8</sup>. It is calculated for both medial and lateral compartments and is a valid and reliable measure for knees with KL grade-3 or lower OA<sup>8</sup>. A detailed measurement protocol is described in another report<sup>8</sup>. On a sagittal MRI sequence, the weight-bearing femoral condylar region is defined as 60% of the surface between the trochlear notch (anteriorly) and the posterior end of the femoral condyles<sup>8</sup>.

### ***Clinical Assessments***

The Knee injury and Osteoarthritis Outcome Score (KOOS)<sup>21</sup> activities of daily living (KOOS-ADL) subscale was not included in the OAI clinical data set and was, therefore, not included in this study. For knee-specific symptom scores (right versus left knee), the score for the knee that underwent MRI assessment was utilized. For patients with bilateral MRI assessments, the side with the higher KL grade or with the presence of a full-thickness cartilage defect was included in our analysis.