

Case Number:	CM14-0213049		
Date Assigned:	12/30/2014	Date of Injury:	09/25/2012
Decision Date:	02/20/2015	UR Denial Date:	12/08/2014
Priority:	Standard	Application Received:	12/19/2014

HOW THE IMR FINAL DETERMINATION WAS MADE

MAXIMUS Federal Services sent the complete case file to an expert reviewer. He/she has no affiliation with the employer, employee, providers or the claims administrator. He/she has been in active clinical practice for more than five years and is currently working at least 24 hours a week in active practice. The expert reviewer was selected based on his/her clinical experience, education, background, and expertise in the same or similar specialties that evaluate and/or treat the medical condition and disputed items/Service. He/she is familiar with governing laws and regulations, including the strength of evidence hierarchy that applies to Independent Medical Review determinations.

The Expert Reviewer has the following credentials:
 State(s) of Licensure: North Carolina, New York, Missouri
 Certification(s)/Specialty: Internal Medicine, Nephrology

CLINICAL CASE SUMMARY

The expert reviewer developed the following clinical case summary based on a review of the case file, including all medical records:

The patient is a 64-year-old female who has submitted a claim for right knee osteoarthritis status post surgery and patellar clunk syndrome associated with an industrial injury date of September 25, 2012. Medical records from 2014 were reviewed. The patient complained of right knee pain described as constant and sharp. She reported swelling, popping, locking and giving way sensations. Aggravating factors included squatting, kneeling, prolonged walking and prolonged standing. Physical examination showed absence of erythema and swelling. There was no specific area for tenderness. Motor strength was 5/5. Range of motion of the right knee towards flexion was 110 degrees and - 5 degrees into hyperextension. The knee was stable to varus and valgus testing. Crepitus was noted with active arise from a chair. There was normal tracking of the patella. The x-ray of the right knee from November 26, 2014 showed satisfactory total knee prosthesis. The MRI of the right knee from October 9, 2012 showed a chronic maceration of the lateral meniscus extending from its posterior horn to the anterior horn with partial peripheral displacement of the remnant. There was partial medial meniscectomy with the granulation scar tissue along the margins of the previously decompressed tear of the anterior horn of the medial meniscus, moderate knee joint effusion and moderate to severe tricompartmental osteoarthritic changes with segmental denuding of the articular and patchy zones of subchondral marrow spaces signal alteration indicating chronic stress responses. Treatment to date has included partial medial meniscectomy in 1970, right knee total arthroplasty on December 18, 2012, physical therapy, orthosis, cortisone injections, TENS unit and medications. The utilization review from December 8, 2014 denied the request for dynamic fluoroscopy because of no evidence

concerning failure of identification of the right knee pathology through standard post-operative imaging studies.

IMR ISSUES, DECISIONS AND RATIONALES

The Final Determination was based on decisions for the disputed items/services set forth below:

1 Dynamic fluoroscopy: Upheld

Claims Administrator guideline: Decision based on MTUS ACOEM Chapter 13 Knee Complaints. Decision based on Non-MTUS Citation Official Disability Guidelines (ODG), Knee and Leg (Acute and Chronic), Radiography (X-rays)

MAXIMUS guideline: The Expert Reviewer did not base their decision on the MTUS. Decision based on Non-MTUS Citation Theoretical Accuracy of Model-Based Shape Matching for Measuring Natural Knee Kinematics with Single-Plane Fluoroscopy, J Biomech Eng. 2005 Aug; 127(4):692-9.

Decision rationale: The CA MTUS does not specifically address this topic. Per the Strength of Evidence hierarchy established by the California Department of Industrial Relations, Division of Workers Compensation, an article from the Journal of Biomechanical Engineering was used instead. Quantification of knee motion under dynamic, in vivo loaded conditions is necessary to understand how knee kinematics influence joint injury, disease, and rehabilitation. Though recent studies have measured three-dimensional knee kinematics by matching geometric bone models to single-plane fluoroscopic images, factors limiting the accuracy of this approach have not been thoroughly investigated. This study used a three-step computational approach to evaluate theoretical accuracy limitations due to the shape matching process alone. First, cortical bone models of the femur tibia/fibula, and patella were created from CT data. Next, synthetic (i.e., computer generated) fluoroscopic images were created by ray tracing the bone models in known poses. Finally, an automated matching algorithm utilizing edge detection methods was developed to align flat-shaded bone models to the synthetic images. However, statistically significant bias was found in most relative pose parameters. Bias disappeared and precision improved by a factor of two when the synthetic images were regenerated using flat shading (i.e., sharp bone edges) instead of ray tracing (i.e., attenuated bone edges). Analysis of absolute pose parameter errors revealed that the automated matching algorithm systematically pushed the flat-shaded bone models too far into the image plane to match the attenuated edges of the synthetic ray-traced images. These results suggest that biased edge detection is the primary factor limiting the theoretical accuracy of this single-plane shape matching procedure. In this case, the patient complained of right knee pain described as constant and sharp. She reported swelling, popping, locking and giving way sensations. Aggravating factors included squatting, kneeling, prolonged walking and prolonged standing. Symptoms persisted despite partial medial meniscectomy in 1970, right knee total arthroplasty on December 18, 2012, physical therapy, orthosis, cortisone injections, TENS unit and medications. Physical examination showed absence of erythema and swelling. There was no specific area for tenderness. Motor strength was 5/5. Range of motion of the right knee towards flexion was 110 degrees and - 5 degrees into hyperextension. The knee was stable to varus and valgus testing. Crepitus was noted with active arise from a chair. There was normal tracking of the patella. The x-ray of the right knee from November 26, 2014 showed

satisfactory total knee prosthesis. The MRI of the right knee from October 9, 2012 showed a chronic maceration of the lateral meniscus extending from its posterior horn to the anterior horn with partial peripheral displacement of the remnant. There was partial medial meniscectomy with the granulation scar tissue along the margins of the previously decompressed tear of the anterior horn of the medial meniscus, moderate knee joint effusion and moderate to severe tricompartmental osteoarthritic changes with segmental denuding of the articular and patchy zones of subchondral marrow spaces signal alteration indicating chronic stress responses. However, review of medical records submitted failed to provide a rationale for requesting dynamic fluoroscopy. It is unclear why standard-imaging procedures cannot suffice at this time. The medical necessity cannot be established due to insufficient information. Therefore, the request for dynamic fluoroscopy is not medically necessary.