Levels of Evidence for Primary Research Question

	Types of Studies			
	Therapeutic Studies-- Investigating the Results of Treatment	Prognostic Studies-- Investigating the Effect of a Patient Characteristic on the Outcome of Disease	Diagnostic Studies-- Investigating a Diagnostic Test	Economic and Decision Analyses-- Developing an Economic or Decision Model
Level 1	• High-quality randomized controlled trial with statistically significant difference or no statistically significant difference but narrow confidence intervals • Systematic review[2] of Level-1 randomized controlled trials (studies were homogeneous)	• High-quality prospective study[4] (all patients were enrolled at the same point in their disease with ≥80% follow-up of enrolled patients) • Systematic review[2] of Level-1 studies	• Testing of previously developed diagnostic criteria in series of consecutive patients (with universally applied reference "gold" standard) • Systematic review[2] of Level-1 studies	• Sensible costs and alternatives; values obtained from many studies; multiway sensitivity analyses • Systematic review[2] of Level-1 studies
Level 2	• Lesser-quality randomized controlled trial (e.g. <80% follow-up, no blinding, or improper randomization) • Prospective[4] comparative study[5] • Systematic review[2] of Level-2 studies or Level-1 studies with inconsistent results	• Retrospective[6] study • Untreated controls from a randomized controlled trial • Lesser-quality prospective study (e.g., patients enrolled at different points in their disease or <80% follow-up) • Systematic review[2] of Level-2 studies	• Development of diagnostic criteria on basis of consecutive patients (with universally applied reference "gold" standard) • Systematic review[2] of Level-2 studies	• Sensible costs and alternatives; values obtained from limited studies; multiway sensitivity analyses • Systematic review[2] of Level-2 studies
Level 3	• Case-control study[7] • Retrospective[6] comparative study[5] • Systematic review[2] of Level-3 studies	• Case-control study[7]	• Study of nonconsecutive patients (without consistently applied reference "gold" standard) • Systematic review[2] of Level-3 studies	• Analyses based on limited alternatives and costs; poor estimates • Systematic review[2] of Level-3 studies
Level 4	Case series[8]	Case series	• Case-control study • Poor reference standard	• No sensitivity analyses
Level 5	Expert opinion	Expert opinion	Expert opinion	Expert opinion

1. A complete assessment of the quality of individual studies requires critical appraisal of all aspects of the study design.
2. A combination of results from two or more prior studies.
3. Studies provided consistent results.
4. Study was started before the first patient enrolled.
5. Patients treated one way (e.g., with arthrodesis) compared with patients treated another way (e.g., with arthroplasty) at the same institution.
6. Study was started after the first patient enrolled.
7. Patients identified for the study on the basis of their outcome (e.g., failed arthrodesis), called "cases", are compared with those who did not have the outcome (e.g., had a successful arthrodesis), called "controls".
8. Patients treated one way with no comparison group of patients treated another way.

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