

| Knee Injection      |  |   |
|---------------------|--|---|
| Category            | Clinical Checklist<br>Steps to Complete  | Assessment Checklist<br>Check errors performed or needed correction to avoid  |
| Confirm Indication  | <ol style="list-style-type: none"> <li>1. Knee osteoarthritis (unable to tolerate or refractory to PT and NSAID's)</li> <li>2. Aseptic inflammatory arthritis</li> </ol>   | <input type="checkbox"/> Unable to identify a valid indication.<br><input type="checkbox"/> Proposed indication not supported by proper historical or exam features.  |
| Contra-indications  | <ol style="list-style-type: none"> <li>1. Hardware in the joint</li> <li>2. Infection in joint or overlying skin</li> <li>3. Periarticular fracture, injury, or instability</li> <li>4. Potential knee surgery in &lt;3 months</li> </ol>  | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Unable to confirm absence of contraindications (*multiple points possible)   |
| Obtain Consent      | <b>Explain &amp; and confirm patient's understanding:</b> <ol style="list-style-type: none"> <li>1. Procedural process</li> <li>2. Risks &amp; techniques to mitigate them</li> <li>3. Potential benefits</li> <li>4. Risks of not performing and alternatives.</li> </ol>   | <input type="checkbox"/> Did not obtain consent<br><input type="checkbox"/> Uses complicated terminology<br><input type="checkbox"/> Fails to provide all 4 steps of the consent process  |
| Supplies            | See reverse side for full list   | <input type="checkbox"/> Fails to obtain all necessary supplies before starting   |
| Positioning         | <b>Superior lateral approach:</b> Supine with knee fully extended or slightly hyper-extended, quadricep relaxed, patella mobile.   | <input type="checkbox"/> Fails to appropriately position patient as described in either the superior-lateral or anterior approaches   |
|                     | <b>Anterior (medial or lateral) approach:</b> Sitting position with knee relaxed and flexed at nearly 90 degrees   |   |
| Identify Entry Site | <b>Superior lateral approach:</b> Identify the superior margin of the patella and the posterior aspect of the lateral patella. Then mark an insertion point, just posterior to the superior margin of the patella.   | <input type="checkbox"/> Misidentified superior edge of patella<br><input type="checkbox"/> Misidentified posterior margin of lateral patella<br><input type="checkbox"/> Misidentified superior-lateral point with palpable recess under the patella                 |
|                     | <b>Anterior (medial or lateral) approach:</b> Identify the margins of the patella, patella tendon and tibial plateau. Mark the insertion point ~1cm above the tibial plateau either 1cm lateral to the patella or 1cm medial to the patella.   | <input type="checkbox"/> Misidentified inferolateral edge of patella<br><input type="checkbox"/> Misidentified patellar tendon<br><input type="checkbox"/> Misidentified tibial plateau<br><input type="checkbox"/> Fails to identify an appropriate insertion point. |
|                     | Verification of entry site by preceptor  | <input type="checkbox"/> Does not ask for verification  |
| Draw-up solutions   | <ol style="list-style-type: none"> <li>1. Clean each vial with 1 alcohol swab</li> <li>2. Using the larger needle aspirate 1-4 cc of lidocaine, then 1cc of triamcinolone or methylprednisolone</li> </ol>   | <input type="checkbox"/> Fails to clean top of vial<br><input type="checkbox"/> Uses incorrect needle<br><input type="checkbox"/> Fails to aspirate most of steroid<br><input type="checkbox"/> Fails to recap and remove needle safely                               |
| Timeout             | Confirm name, DOB, Procedure, Location, Allergies  | <input type="checkbox"/> Fails to perform   |
| Sterile Prep        | Scrub chlorhexidine over insertion site >30 seconds, or apply providone-iodine around insertion site and allow to dry  | <input type="checkbox"/> Does not sufficiently sterilize the site<br><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Contaminate site (*multiple points possible)  |
|                     | Maintain sterile site with no touch technique  |   |
| Local anesthetic    | Apply ethyl chloride spray for 5-10 seconds or until skin turns white (optional).  |   |
| Needle Insertion    | Insert quickly through the skin at the marked insertion point  | <input type="checkbox"/> Concern for instability of grip  |
|                     | <b>Superior lateral approach:</b> Advance needle under the patella, parallel to the floor, and directed towards the center of the joint (typically horizontally and slightly inferior).<br><b>Anterior approach:</b> Advance needle under the patella, parallel to the floor, and directed towards the center of the joint (typically 45 degrees). | <input type="checkbox"/> Advances needle in incorrect direction   |
|                     | Advance to a depth of 2-4 cm   | <input type="checkbox"/> Insertion depth less than 2cm or more than 4 cm  |
|                     | Aspiration prior to injection of medication  | <input type="checkbox"/> NO attempt aspiration prior to injection   |
|                     | If difficulty advancing, then partially withdraw the needle close to the skin surface and redirect.  | <input type="checkbox"/> Pivots fully inserted needle rather than withdrawing and redirecting   |
| Extraction          | Obtain hemostasis and apply band aid   |   |

**Supplies**

|   |                                    |
|---|------------------------------------|
| Marker  | 18-22g needle (for drawing up)     |
| Lidocaine 1% (4cc)                                | 21-25g 1.5" needle (for injection) |
| Triamcinolone or Methylprednisolone 40mg/mL (1cc) | 5-10cc syringe                     |
| Alcohol swab                                      | 2x2 gauze                          |
| Chlorhexidine or providone-iodine swab            | Band-aid                           |
|   | Ethyl chloride spray (optional)    |