

Knee Aspiration and Injection Procedure for Home-Based Primary Care Providers

Purpose	This resource is intended for home-based primary care (HBPC) providers and practice staff to describe step-by-step instructions for performing knee aspirations and injections in the home setting. This resource was developed utilizing Centers for Medicare & Medicaid Services (CMS) guidelines and requirements and can be referenced for further details.
Equipment (Figure 1)	☐ Clean table or other surface ☐ Gloves ☐ Clean surface barrier ☐ Two (2) 10-ml syringes ☐ Hemostat for stabilizing needle when exchanging medication syringe for aspiration syringe ☐ Povidone-Iodine for Chlorhexidine swabs (3) ☐ Alcohol wipes: 70% isopropyl alcohol to clean vial diaphragms and wipe off Povidone-Iodine ☐ 2 x 2 gauze ☐ Needle ➤ 18-20-gauge, 1.5 inch (for aspiration and drawing up medication) ➤ 25-gauge, 1.5 inch for injection only ☐ 5-cc syringe with 25-gauge needle for local anesthetic, if desired ☐ Anesthetic ➤ Lidocaine 1%: 4-6 ml (rapid onset [1-2 min], duration 30 min) ➤ Bupivacaine 0.25% or 0.5%: 4-6 ml (slower onset [30 min]. duration 8 hours) ☐ Corticosteroid ➤ Betamethasone (e.g., Celestone Solu span) 6 mg/ml: 1-2ml ➤ Methylprednisolone (e.g., Depo-Medrol) 20 mg/ml; 40 mg/ml: 1-2 ml ➤ Triamcinolone (e.g., Kenalog): 10 mg/ml; 40 mg/ml: 1 ml Figure 1. Equipment

Equipment (continued)	☐ Fluid collection containers (check with your lab for what they specifically require) ➤ Green-top (sodium heparin) tube or lavender-top (EDTA) tube for RBC, WBC with differential, and crystal examination ➤ Sterile cup or fluid left in syringe for culture/gram stain ☐ Adhesive bandage ☐ Labels and specimen bag; specimens should be transported to lab as soon as possible ☐ Sharps container	
Procedure Knee Aspiration and Injection Instructions	1. Counsel patient and caregiver(s) on the risk/benefits of the procedure, providing the HCCI resource, "Patient Instructions for Pre- and Post-Steroid Injection." 2. Verbal or written consent for the procedure obtained and entered into the medical record. 3. Safety time-out to verify patient identity, the correct injection site, and allergies. 4. Wash hands and apply gloves (sterile or non-sterile). 5. Patient should be in supine position with the knee in slightly flexed position (can use a pillow or rolled-up towel placed under the knee covered by a disposable underpad). 6. Mark injection site 1 cm above and 1 cm lateral or medial to the patella. (see Figure 2) 7. Clean injection site with three Povidone-Iodine or Chlorhexidine swabs applying each swab in a circular manner starting at injection site and circling out, wait a minimum of two minutes. (see Figure 3) 8. Wipe medication vial diaphragms with alcohol. 9. Draw up a syringe of corticosteroid and 4-6 ml of anesthetic agent. 10. If local anesthetic desired, can apply 3-4 ml of an anesthetic agent to the injection site and along the anticipated needle trajectory; alternatively, Ethyl Chloride spray can be applied from 6 inches away for 5-6 seconds.	 Figure 2. Mark injection site 1 cm above and 1 cm lateral or medial to the patella  Figure 3. Clean injection site with three Povidone-Iodine or Chlorhexidine swabs applying each swab in a circular manner starting at injection site and circling out

Procedure

Knee Aspiration and Injection Instructions (continued)

11. For aspiration, a 10-ml empty syringe (20-30-ml can be used for larger effusions) is used with 18 to 20- gauge, 1.5-inch needle. (see Figure 4)
12. Needle is inserted bevel up at a 45 degree angle distally and inferiorly under the patella and effusion aspirated (compression of the opposite side of the joint may aid arthrocentesis).



Figure 4. Needle is inserted bevel up at a 45 angle distally and inferiorly under the patella and effusion aspirated

13. Once the syringe is filled, a hemostat can be placed on the hub of the needle to disconnect the aspiration syringe and then connect the corticosteroid syringe and inject into the synovial space. (see Figure 5)
14. If no effusion is present needing aspiration, then use the corticosteroid filled syringe with a 25-gauge, 1.5-inch needle using the same technique as above; usually there is no need to anesthetize the skin.
15. When the aspiration/injection is completed, withdraw the needle and apply pressure to the site with 2 x 2 gauze, clean prep area with an alcohol wipe, and cover site with an adhesive bandage.
16. Depending on the cause of the knee pain, the local anesthetic should immediately relieve pain. Relief of pain shows the steroid was placed in the correct area.
17. Review post-injection instructions with the patient and caregiver(s).



Figure 5. Once the syringe is filled, a hemostat can be placed on the hub of the needle to disconnect the aspiration syringe

Other Anatomical Approaches

- Lateral and medial mid-patella
- Anterolateral and anteromedial (flexed knee)

Other Considerations	• Injection contraindications ➢ Infection: Bacteremia, septic effusion, overlying cellulitis, osteomyelitis ➢ Severe coagulopathy (therapeutic INR is not a contraindication) ➢ Osteochondral fracture ➢ Impending joint replacement surgery (scheduled within days) ➢ Joint prosthesis ➢ Poorly controlled diabetes ➢ More than three injections per year • Complications ➢ Iatrogenic infection (one in 14,000 to 77,000 injections) ➢ Local trauma ➢ Steroid flare (2-10%; female>male) (steroid crystals can induce an inflammatory synovitis) ■ Apply ice for 15 minutes every 3-4 hours ■ Acetaminophen or Ibuprofen for pain ■ Resolves within 1-2 days ➢ Hyperglycemia (especially if on insulin): monitor sugars closely in diabetics for 1-week ➢ Facial flushing (studies vary: 1-30%)
Billing	• CPT 20610: Aspiration (removal of fluid) from, or injection into a major joint (shoulder, hip, knee) ➢ wRVU 0.77; CMS National Payment Amount: \$69.15 • Billing for supplies: ➢ Triamcinolone (e.g., Kenalog) 10 mg/ml J3301; (40 mg/ml bill 4-units) ➢ Betamethasone (e.g., Celestone Soluspan) 6 mg/ml: 1 ml J0702 ➢ Methylprednisolone (e.g., Depo-Medrol) 1 mg per billing unit J1010 (40mg =40 units)



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