**LUMBAR PUNCTURE : A teaching model**

Dan Onion, MD (of Maine-Dartmouth Family Medicine Residency) developed this model for teaching lumbar puncture using commonly found equipment in any residency.

**Equipment needed:**

Foley urinary catheter or red “fem cath” (stiffer than a Foley)



Sterile gloves (any size)

60 cc syringe

Modeling clay (find this at a crafts store)

Plastic wrap



Rubber bands (the smaller the better)

Kelly clamp

Lumbar Puncture kits (and extra LP needles)

Model hanging skeleton

**How to set up the model:**

1. Lay the skeleton on its side on a table as if it were a patient
2. Cut a finger off a sterile glove and place this over the tip of the urinary catheter (Foley or “fem cath”)
3. Wrap the base of the glove finger with the rubber band to seal it over the catheter
4. Test your seal by gently “flushing” the catheter with water using the 60 cc syringe inserted into the other end of the catheter (This simulates the dural sack full of cerebral spinal fluid.) After this test of the rubber band, glove finger, catheter model; pull the water back out.
5. Insert the empty glove finger-covered catheter tip into the spinal canal. Fill the tip with water again. (You can use a Kelly clamp to pinch the catheter and hold the water in.)
6. Mold a piece of modeling clay over the L-4/5 spinal bodies to mimic all the soft tissue that is superficial to the bony anatomy. (We found wrapping this clay with plastic wrap made for easier cleaning later…)
7. Now you’re ready to try the lumbar puncture model! Simply insert a spinal needle through the modeling clay and finally between the spinous processes and into the simulated dural sack.
8. After feeling/hearing the “pop” the syringe plunger can be pressed down to simulate increased intracranial pressures or to simply cause an appropriate drip rate out of the end of the needle so students can fill the CSF sample tubes, measure an opening pressure, etc

RESOURCES fmi: <http://apps.med.buffalo.edu/procedures/lumbarpuncture.asp?p=13>

Straus, et al. “How do I perform a lumbar puncture and analyze the results?” JAMA, Vol 296 # 16