

Critical Laboratory Values for Lumbar Puncture/Myelography			
Lab Test	PLT	INR	PTT
Lab Value	>50,000	<1.5	Within normal range
<b>When to check labs?</b>			
<b>Inpatients/ER:</b>			
<ul style="list-style-type: none"> <li>Check INR, PLT, PTT day of lumbar puncture or myelogram (or within 24 hours if on chemotherapy and platelets are low)</li> </ul>			
<b>Outpatients:</b>			
<ul style="list-style-type: none"> <li>If the patient has a history of cancer, bleeding disorder or liver disease, follow the inpatient/ER patient guidelines.</li> <li>If the patient is on coumadin, see below for specific recommendations.</li> <li>Otherwise, outpatients need labs within <b>5 days</b> of the procedure.</li> </ul>			
Pregnancy: Women of child bearing age should confirm negative pregnancy status			

Medication Guidelines for LPs/Myelograms		
Medication	Recommendation	Comments
Plavix, Ticlid, other antiplatelet medications	Stop <b>5 days</b> prior to procedure	<b>MUST</b> be coordinated with referring MD. Each patient is coordinated individually.
Warfarin (Coumadin)	Stop <b>3 days</b> prior to procedure Check INR day of procedure	<b>MUST</b> be coordinated with referring MD. May need to be bridged with heparin. Each patient is coordinated individually.
Dabigatran (Pradaxa)	Stop <b>5 days</b> prior to procedure	<b>MUST</b> be coordinated with referring MD. INR is not sensitive; dependent on creatine clearance.
Rivaroxaban, Edoxaban, Fondaparinux, Cilostazol, Bivalrudin, Argatroban, Abciximab, Eptifibatide, Tirofiban	<b>MUST</b> be coordinated with referring MD.	<b>MUST</b> be coordinated with referring MD. Each patient/medication coordinated individually.
IV Heparin	Stop <b>6 hours</b> prior to procedure	Restart 1 hour after procedure
Low Molecular Weight Heparin	Stop <b>12 hours</b> prior to procedure	Restart 24 hours after procedure
SQ Heparin	May continue if dose < 10,000 u. If dose is > 10,000 u , follow IV heparin guidelines	

Aspirin	May continue	
NSAIDs	May continue	
For myelography only: Medications that may lower seizure threshold (such as antiasthmatics, antibiotics, antidepressants, narcotics, psychostimulants, neuroleptics among others)	<b>MAY</b> be coordinated with referring MD.	<b>MAY</b> be coordinated with referring MD. Each patient/medication coordinated individually.

Spinal Procedures. AJNR Mar 2006 27:467-71; ACR – ASNR – SPR Practice Guideline for the Performance of Myelography and Lumbar Punctures

Guidelines for Brain Imaging prior to LP
<p>Recommend Head CT in patients with signs/symptoms of increased intracranial pressure:</p> <ul style="list-style-type: none"> <li>• New onset seizure</li> <li>• Papilledema</li> <li>• Focal neurologic findings</li> <li>• Altered mental status</li> </ul>

American College of Physicians: Practice Guidelines Lumbar Puncture. Physician Information and Education Resource. 2010.

NPO: Patients should be NPO 4-6 hours (except for medication and sips of water) prior to myelography, intrathecal chemotherapy or if conscious sedation is required.

Pre-Medication for Allergy to Iodine:

1. Follow standard pre-med guidelines as for any other iodine injection (such as for contrast-enhanced CT exams)
  2. Refer to contrast policies:
    - UCSD:**  
<http://radres.ucsd.edu/Policies/Contrast%20Media%20Guidelines%20UPDATED%2018Jun2014.pdf>
    - VA:**  
<http://radres.ucsd.edu/documents/VISN%2022%20Contrast%20Policy-12-4-13.pdf>
- Updated versions may be found via VA SharePoint before updates are available on RadRes.  
<http://vaww.sandiego.va.gov> -> Click SharePoint (bottom left column of buttons) -> Radiology Service (right hand column) -> Service Policies (top left column) -> Contrast Policy

Conscious Sedation:

1. If patients require conscious sedation for the procedure, the patient should be NPO 4-6 hours prior to the procedure except for medication and sips of water.
2. Patients with mental status changes should be assessed to determine if conscious sedation would be appropriate.

## Eligibility for Image-Guided LP/Myelography

1. Neuroradiology performs myelograms and lumbar punctures (LP) requiring image guidance in adult patients only before 11 pm. **No image-guided lumbar punctures or myelograms will be performed between 11 pm-8 am.**
  - a. Fluoroscopic guidance for lumbar punctures exposes the patient and operators to ionizing radiation and adds substantial cost. It cannot be justified by convenience or staffing concerns alone.
  - b. An attempt at lumbar puncture at the bedside is expected before requesting imaging guidance. Documentation of the name of the attending physician and/or the trainee(s) from the referring service who attempted the procedure is required. Issues affecting a bedside LP such as coagulopathy, immune compromise, or an anxious/combatative patient, also apply under fluoroscopy as well. Additionally, the patient will need to be able to tolerate prone or lateral decubitus positioning. If the patient is unable to tolerate prone positioning, neuroradiology needs specific advanced notice to schedule the procedure in a room with a C-arm.
  - c. If there is a relative contraindication to a bedside attempt (i.e. severe scoliosis, extensive posterior fusion, unhealed surgical wound limiting level options), please call the Neuroradiology fellow covering LPs to discuss the case (Monday – Friday, 8 am – 5 pm). After hours before 11 pm and on weekends, please contact the Neuroradiology fellow on-call for spine procedures: web-paging -> Radiology – Neuro, Spine Procedures.
2. Pediatric patients (patients younger than 18 years old) – Neuroradiology does not perform lumbar punctures or myelograms on pediatric patients. These may need to be referred to the dedicated pediatric radiologists at Rady Children’s Hospital.