



# **San Juan Regional Medical Center Procedure Guide for Physicians**

- **Audiology**
- **Cardiopulmonary/EEG**
- **Dietary**
- **Endoscopy**
- **Rehabilitation Services  
and Wound Center**
- **Radiology**

# San Juan Regional Medical Center

## Procedure Guide for Physicians

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We've created this guide for you, to help when ordering common procedures, as well as understanding our protocols and exam preparation guidelines.

Any questions about topics that are not covered can be directed to the respected departments:

- Audiology: 505.609.6079
- Cardiopulmonary/EEG: 505.609.6276
- Dietary: 505.609.2863
- Endoscopy: 505.609.6276
- Outpatient Rehabilitation Services:
  - Physical Therapy (PT), Occupational Therapy (OT), and Speech and Language Therapy
  - Adult: 505.609.6575
  - Pediatric: 505.609.6013
- Outpatient Wound Care Center: 505.609.6610
- Radiology: 505.609.6228

Each section is dedicated to the departments referenced above. These sections will list locations, hours of operations, procedures and services offered, and phone numbers that your patient can use to schedule an appointment. **The contact number for each department manager is included for your purpose only, not for patients.** Also, each department section is unique and will touch on referrals, instructions for patients regarding arrival times and test preparations (if applicable).

Please note: Each test or procedure has its own unique prep or pre-procedure requirement. Please instruct the patient to bring a complete list of all medications that they are taking, both prescription and over the counter. If the test requires the patient to be NPO after midnight, instruct the patient to bring their morning medications with them.

If you have any questions or are in need of any additional information, please feel free to contact us.

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# Audiology

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**Location:** 816 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6079

**Fax Machine:** 505.609.6841

**Manager Contact:** 505.609.2397, Anna Buffington

**Hours of Operation:** Monday - Friday from 7:30 a.m. to 5:30 p.m.

## Procedures and Services

- Evaluate patient on referral using techniques appropriate for age and developmental level.
- Determine the level of function and provide recommendations and goals to facilitate improved outcomes.
- Develop a plan of treatment, including discharge planning as needed, in coordination with referral source and other staff for the patient, family, or legal guardian.
- Periodic monitoring of the quality and appropriateness of the care provided.
- Special procedures for determining the site and lesion and monitoring outcomes.
- Hearing aid evaluation, fitting, and orientation.
- Custom recreational ear plugs.
- Referral to other community agencies, professionals, departments, and rehabilitation facilities (as required).
- Patient and family counseling for individuals with hearing loss.
- Hearing aid consultation and hearing aid dispensing.
- Auditory brainstem response evaluations (ABR) with and without sedation.
  - Requires an order from physician.
- Videonystagmography (VNG) is a series of tests used to determine the causes of a patient's dizziness or balance disorders.
  - Requires an order from physician.

## Test Preparation and Patient Instructions

- Diagnostic hearing evaluation for all ages
  - Tympanometry - study of the eardrum mobility and acoustic reflexes (as needed).
  - Distortion Product Otoacoustic Evaluation (DPOAEs) - allows to test the integrity of the cochlear outer hair cell function.
  - Traditional audiometry in sound booth.
  - Condition Play Audiometry (CPA) - condition the patient to respond utilizing play when presented a stimulus.
  - Visual Reinforcement Audiology (VR) - reinforce utilizing visual stimulus.
  - Speech audiometry.
  - Need a referral from physician that contains diagnostic codes and allows for all follow-up appointments (as needed).
- Videonystagmography
  - Will need a current hearing evaluation which can be performed in our office.
  - Instructions will be given to patient prior to testing.
  - Testing takes place in the hospital near the emergency department.

- Need a referral from physician that contains diagnostic codes and allows for all follow-up appointments (as needed).
- Diagnoses Benign paroxysmal positional vertigo (BPPV)
  - Perform canalith repositioning in the audiology office in the hospital near the emergency department.
  - Need a referral from physician that contains diagnostic codes and allows for all follow-up appointments (as needed).
- Auditory brainstem response evaluations (ABR) with sleep deprived patient
  - Perform sleep deprived ABRs for children under six-months old.
  - Perform sleep deprived ABRs for children and adults who may have special needs and are unable to condition to traditional or condition play audiometry.
  - Need a referral from physician that contains diagnostic codes and allows for all follow-up appointments (as needed).
- Auditory brainstem response evaluation (ABR) with patient under anesthesia
  - Perform ABRs under anesthesia for children older than six months, who have special needs, who are not able to test their audiometry.
  - Need a referral from physician that contains diagnostic codes and allows for all follow-up appointments (as needed).
- Hearing aid consultation and hearing aid dispensing to all ages
  - Current hearing evaluation (can be from another facility as long as it is a diagnostic hearing evaluation and within the last 6 months).
  - Hearing aid consultation.
  - We offer all the major brands of hearing aids.
  - Need a referral from physician that contains diagnostic codes and for all follow-up appointments as needed.
- Dispense Bone Anchored Hearing Aids (BAHA)
  - Dispense Softband BAHA for children under five.
  - Work directly with an ear, nose, and throat doctor for follow-up and fitting of BAHA after surgery.
  - Need a referral from physician that contains diagnostic codes and allows for all follow-up appointments as needed.

## **Registration, Referral, and Insurance Authorization**

Please remind your patients to pre-register by contacting our registration department at 505.609.6008.

Prior authorization is determined by the insurance companies. Please have your patient contact their insurance company about the necessity of prior authorization.

# Cardiopulmonary/EEG

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**Location:** 801 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6276

**Fax Machine:** 505.609.2426

**Manager Contact:** 505.609.2397, Anna Buffington

**Hours of Operation:** Monday - Friday from 6:30 a.m. until 5:00 p.m.

## Procedures and Services

- Transthoracic Echocardiogram (TTE)
- Stress Echocardiogram (exercise and Dobutamine)
- Nuclear Stress Test (Lexiscan, exercise, or Dobutamine)
- Exercise Stress Testing
- Tilt Table Stress Testing
- Transesophageal Echocardiogram (TEE)
- Elective Synchronized Cardioversion
- Holter Monitor
- Event Monitor
- Pulmonary Function Testing (PFT)
- EEG Testing
- EMG Testing

## Test Preparation and Patient Instructions (Please have patient bring a list of all medications that they are currently taking.)

- **Transthoracic Echocardiogram:** No special instructions.
- **Stress testing:** The types of stress tests offered are Stress Echocardiogram (exercise or Dobutamine), Nuclear Stress Test (Lexiscan, exercise, or Dobutamine), Exercise Stress Test, and Tilt Table Stress Test. For all stress tests, the patient should have nothing to eat after midnight, withhold all caffeinated products for at least 12 hours prior to the procedure or as soon as possible after the test is ordered. An IV is required except for an Exercise Stress Echocardiogram and an Exercise Stress Test. Patients undergoing **Nuclear Stress Testing** should either bring a snack or money to purchase a meal. They will be allowed to leave for a period of time and can eat at that point.
- **TEE and Cardioversion:** If the TEE is ordered by a physician other than a cardiologist, that provider must contact a cardiologist to discuss the reason for performing the procedure. NPO after midnight, the patient or designee must sign a consent form for the procedure. Because the patient will receive conscious sedation, they will not be able to drive or make important decisions during the remainder of the day.
- **Elective Synchronized Cardioversion:** Nothing to eat after midnight, the patient or designee must sign a consent form for the procedure. Because the patient will receive conscious sedation, they will not be able to drive or make important decisions during the remainder of the day.
- **Holter Monitor (24 or 48 hours), Event Monitor (7 to 30 days):** No special instructions. If the patient is discharged prior to the end of the monitoring period, they will have to bring the Holter

Monitor back to the Cardiopulmonary Department. The Event Monitor will be mailed back to a different address (a mailing envelope will be supplied).

- **Pulmonary Function Testing (PFT):** No bronchodilator, no caffeine, and no Symbicort for four hours prior to test. If it becomes necessary for the patient to use their bronchodilator, please let the CPSS staff know.
- **EEG:** No caffeine or alcohol for 24 hours prior to the test. Have the patient eat a meal within two hours of the test. If possible, have the patient stay up until 11:00 p.m. and wake at 4:00 a.m. The patient's hair needs to be clean and free of gel and other hair products.
- **EMG:** No special instructions.

## **Registration, Referral, and Insurance Authorization**

Please remind your patients to pre-register by contacting our registration department at 505.609.6008.

Prior authorization is determined by the insurance companies. Please have your patient contact their insurance company about the necessity of prior authorization.

# Dietary

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**Location:** 801 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.2863

**Fax Machine:** 505.609.6903

**Manager Contact:** 505.609.6157, Randy Warnken

**Hours of Operation:** Monday - Friday from 8:00 a.m. to 4:00 p.m.

## Procedures and Services

- Outpatient Medical Nutrition Therapy is available for the following conditions:
  - Type 1 well-controlled diabetes (A1c<6.5 at time of referral) and follow-ups
  - Type 2 well-controlled diabetes (A1c<6.5 at time of referral) and follow-ups
  - GDM follow-ups
  - Pre-diabetes (A1c 5.7 percent to 6.4 percent)
  - Hypoglycemia, no DM diagnosis
  - Celiac disease
  - Failure to thrive
  - Food allergies
  - General healthy eating and meal planning
  - Hyperlipidemia and Heart healthy eating
  - Irritable bowel syndrome and other GI disorders
  - Liver disease
  - Obesity
  - Polycystic ovary syndrome
  - Renal disease
  - Cancer
  - Obesity
  - Hypertension
  - Bariatric (weight-loss surgery) nutrition counseling
  - And more



## **Registration, Referral, and Insurance Authorization**

Referral form is available online at [sanjuanregional.com/nutrition](http://sanjuanregional.com/nutrition). Print, complete, and fax. Once a referral is received, our dietitians will contact the patient directly to schedule appointment.

# Endoscopy

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**Location:** 801 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6276

**Fax Machine:** 505.609.2426

**Manager Contact:** 505.609.2390, Rachel Timmerman

**Hours of Operation:** Monday - Friday from 6:30 a.m. to 5:00 p.m.

## Procedures and Services

- Bronchoscopy
- Bedside Tracheotomy
- Upper Endoscopy (EGD, PEG Placements)
- Lower Endoscopy (Colonoscopy, Flexible Sigmoidoscopy)
- Fecal Microbiota Transplants for *C. difficile* Infection
- ERCP
- Small Bowel Capsule
- pH Capsule
- pH Probe
- Esophageal Manometry and Motility with Impedance studies

## Test Preparation and Patient Instructions

- Patient needs to arrive 30 minutes before their appointment to prepare for their endoscopy procedure by the endoscopy nurse (change clothing, IV placement, etc.). The patients may be given sedation so someone must accompany the patient, drive them home, and care for them after the exam.
- An endoscopy nurse will try and contact them 48 to 24 hours before their procedure to gather information on medications taken at home, health history, and to answer any questions the patient may have.
- Patients are to have no food or drinks after midnight unless the physician has requested that regularly scheduled medication can be taken before the procedure. This should be done with a sip of water only.
- Bowel preps are a top priority for the patient to have a successful procedure. A good sign is a clear, yellow liquid stool. If a patient is unable to complete the bowel prep, they should contact the physician who will be performing the procedure right away and seek guidance.

## Registration, Referral, and Insurance Authorization

Please remind your patients to pre-register by contacting our registration department at 505.609.6008.

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# Rehabilitation Services and Wound Care

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## **Pediatric Rehabilitation Outpatient Center**

**Location:** 810 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6013

**Fax Machine:** 505.609.2795

**Manager Contact:** 505.320.8525, Anne Price

**Hours of Operation:** Monday - Friday, closed holidays, 8:00 a.m. to 5:00 p.m., closed 12:00 to 1:00 p.m.

## **Rehabilitation Outpatient Center**

**Location:** 301 South Auburn, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6575

**Fax Machine:** 505.609.6576

**Manager Contact:** 505.320.8525, Anne Price

**Hours of Operation:** Monday - Friday, closed holidays, 7:00 a.m. to 5:30 p.m., closed 12:00 to 1:00 p.m.

## **San Juan Regional Medical Center**

**Location:** 801 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6154

**Fax Machine:** 505.609.6277

**Manager Contact:** 505.320.8525, Anne Price

### **Hours of Operation:**

**Physical Therapy:** 7 days a week, 8:00 a.m. to 4:30 p.m.

**Speech and Language Therapy:** Monday - Friday, on call Saturday and Sunday,  
8:00 a.m. to 4:30 p.m. on call. Call 505.215.9151

**Acute Wound:** Monday - Saturday, 8:00 a.m. to 4:30 p.m.

**Occupational Therapy:** Monday - Friday, 8:00 a.m. to 4:30 p.m.

## **San Juan Regional Rehabilitation Hospital**

**Location:** 525 South Schwartz, Farmington, New Mexico 87401

**Phone:** 505.609.6595

**Fax Machine:** 505.609.2662

**Manager Contact:** 505.320.8525, Anne Price

**Days and Hours of Operation:** Monday - Saturday, 8:00 a.m. to 4:30 p.m.

## **Wound Treatment Center**

**Location:** 4251 English Road, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6610

**Fax Machine:** 505.609.660

**Manager Contact:** 505.320.3302, Diane McCall

**Days and Hours of Operation:** Monday - Friday, closed holidays, 8:00 a.m. to 4:30 p.m.

## Procedures and Services

- **Physical Therapy (PT)** - Indicated for trauma, orthopedic surgeries, neurological surgeries, sports injuries, vestibular conditions, neurological conditions, workman's comp injuries, illness resulting in deconditioning or decrease mobility, and conditions resulting in decreased level of function. Treatments offered can include but are not limited to: neurological re-education, modalities including E-STIM (electrical stimulation), manual therapy to improve muscle restrictions, traction, dry needling, gait analysis and training, muscle strengthening, vestibular training, etc.
- **Occupational Therapy (OT)** - Indicated for conditions affecting the upper extremities and activities of daily living (self-care activities) including but are not limited to: trauma, orthopedic surgery, orthopedic hand surgeries, workman's comp injuries, neurological impairments, and sport injuries affecting the upper extremities. Treatments offered can include but are not limited to: Custom splinting for all traumatic diagnosis, treatments for neurological disorders, oculomotor retraining, vestibular and sensory training, self-care, ADL training, return to work training, strengthening, and activities to return patient to more functional use of upper extremities.
- **Speech and Language Therapy** - Indicated for conditions affecting voice, cognition, speech and fluency, swallowing, any failure to thrive or feeding issues in adults or pediatrics, cleft palate , progressive neurological disorder and processes including Parkinson's, ALS, MS, head and neck trauma, cancers of the head and neck. Treatments offered can include but are not limited to: video swallow studies, voice and fluency training, cognitive therapy, muscle strengthening of neck and tongue and mouth including NMES (neuromuscular electrical stimulation), ACD (alternative communication device) training, speech and language development. (speech-language pathologists: SLP)
- **Pediatric** - Provided services to infants and children birth to 10 years of age. All the above conditions and treatment options are available at the pediatric clinic. Older children and adolescents may be referred to the Adult Rehabilitation Outpatient Center for treatment based on the mechanism of injury or if the child's needs cannot be met in the pediatric clinic setting.
- **Wound Care** - Provided care is available in two settings (Acute hospital and outpatient wound care) and includes treatment for but not limited to: hyperbaric chamber, surgical and non-surgical debridement of wounds, diabetic wound care, arterial and venous insufficient wounds, burns, colostomy and urostomy care, and compression wraps.

### Inpatient Acute Hospital Consultative Process

Order entry via standard process (CPOE)

## Registration, Referral, and Insurance Authorization

A written prescription (Rx) is needed to provide services.

- **Outpatient Rx must contain following components**
  - Two forms of identification for patient
  - Diagnosis should be appropriate for chosen therapy
  - Specific discipline and service being requested (PT, OT, SLP). Example: PT evaluate and treat
  - Provider signature and date
  - Outpatient orders are valid for a full calendar year, but in order to ensure safety and recognize patient's current medical status, it is preferred that Rx is less than 60 days old

- **Additional requirements for request of SLP Video Swallow** (In addition to above)
  - Must have diagnosis of Dysphagia
  - Speech Therapy to perform video swallow study and modified barium swallow

Please note: all outpatient therapy orders will be followed up with written 'clarification orders' that the provider must sign. This clarification order is intended to comply with the Centers for Medicare and Medicaid Services (CMS) requirements requiring provider approval of the specific Therapy Plan of Care.

# Radiology

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## **San Juan Regional Diagnostic Services**

**Location:** 801 West Maple, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6228

**Fax Machine:** 505.609.6816

**Manager Contact:** 505.609.6918, Dawn Boyle

**Hours of Operation:** Open 24 hours a day, Seven days a week

**Location:** Outpatient Diagnostic Center 2300 East 30th Street Bldg. C, Farmington, New Mexico 87401

**Scheduling Contact:** 505.609.6228

**Fax Machine:** 505.609.6277

**Manager Contact:** 505.609.6918, Dawn Boyle

**Hours of Operation:** Monday to Friday, 6:30 a.m. to 5:30 p.m., X-ray Hours 7:00 a.m. to 5:30 p.m.

## **Procedures and Services**

- Computed Tomography (CT)
- Positron Emission Tomography-Computed Tomography (PET-CT)
- Interventional Radiology (Specials)
- Mammography
- Magnetic Resonance Imaging (MRI)
- Nuclear Medicine
- Radiology (X-Ray)
- Ultrasound

## **Registration, Referral, and Insurance Authorization**

Prior authorization is determined by the insurance companies. Please have your patient contact their insurance company about the necessity of prior authorization.

## CT Exams

- CT Abdomen and Pelvis
  - Typically performed with oral and IV contrast. Abdominal pain, mass, diverticulitis, etc.
  - There are specific protocols for specific clinical concerns.
  - *If abdomen only is ordered, the exam will stop at the iliac crest.*
- CT ABD/PEL Renal Stone protocol without Contrast
  - Renal stone, painful hematuria. No oral or IV contrast. From above kidneys through the bladder base.
- CT ABD (+/- pelvis)
  - Pancreas protocol with and without contrast. Pancreatic mass, jaundice.
  - For complex pancreatitis, looking for pancreatic necrosis or pseudoaneurysm concerns, CT ABD (+/- pelvis) would be best. The study performs thin section imaging with arterial and venous phase images. For uncomplicated pancreatitis, consider “routine CT abd/pel” because it would be less radiation.
- CT ABD/PEL Renal Mass protocol with and without Contrast
  - Painless hematuria, further characterize masses and atypical cysts.
  - Multiphase contrast imaging through the kidneys, delayed images through the pelvis. No oral contrast.
- CT ABD Multiphase Liver protocol with Contrast
  - Characterize isolated hepatic mass seen in US, carcinoid tumor, hepatoma, chronic hepatitis, or cirrhosis patient at risk for hepatoma.
  - Certain cancers only enhance during the arterial phase. Therefore “multiphase” imaging is indicated in these patients. If concern is for hepatic metastasis in tumors such as pancreatic islet cell, carcinoid, and other neuroendocrine tumors and melanoma, consider MRI liver protocol. MRI liver protocol is the most sensitive for hepatocellular carcinoma (HCC) screening, however, US is the most affordable basic screening option.
- CTA ABD/PEL AAA protocol with Contrast
  - No oral contrast. Arterial phase images from a diaphragm to groin, with reconstructions to evaluate AAA.
  - If a patient has an endoluminal stent, that is important information to convey. Pre-contrast and delayed venous phase imaging will be performed as well to assess for possible leak. Therefore order CTA ABD/PEL Post EVT protocol with and without contrast, or indicate such so that the proper study can be performed.
- CTA Aorta and Runoff with Contrast
  - No oral contrast. Diaphragm to ankles.
  - Not a screening study. To evaluate atherosclerosis and extent of disease in patients and surgical candidates.
- CTA ABD Renal Arteries with Contrast
  - No oral contrast.
  - Does not include the entire abd/pel. Not done for organ evaluation. Renal artery stenosis, FMD, RA aneurysm.
- CTA ABD Mesenteric Arteries with Contrast
  - No oral contrast.
  - Does not include the entire abd/pel unless pelvis when ordered. Not performed for organ evaluation. Performed for mesenteric stenosis.

- CT Adrenal Glands without Contrast
  - Thin section images without contrast through the adrenal glands only to assess for fat in adrenal lesion (adenoma).
  - Occasionally, contrast with delayed images will need to be performed.
- CT Cervical Spine without Contrast
  - Trauma, fracture, osseous abnormality.
  - If a patient cannot have MRI, can be done to evaluate for neural foramen and disc. In general, for radiculopathy and pain, MRI without contrast would be better.
- CT Chest
  - In general, can do without contrast.
  - Images from thoracic inlet through the bases, includes adrenal glands. Most of the indications can be done without contrast such as pulmonary nodule, cough, COPD and emphysema, and abnormal chest x-ray (CXR).
  - *In general, perform with contrast for indications such as infection, trauma, and cancer patients.*
- Chest CT (low dose non-contrast)
  - Pulmonary nodule follow-up, annual lung cancer screening.
  - The American College of Radiology (ACR) and United States Preventive Services Task Force (USPSTF) recommend lung cancer screening for patients that meet the following criteria:
    - Current smokers or those who have quit smoking within 15 years, ages 55-80 years
    - $\geq 30$  pack year smoking history
    - No history of lung cancer
- CTA Chest
  - Pulmonary arteries with contrast for pulmonary embolism.
  - The aorta is usually, but not always, opacified. So the aorta may not be well evaluated.
- PE Evaluation
  - Non-pregnant patient: CXR then CTA chest with contrast. (PE protocol)
  - Pregnant patient: Two-view CXR. Lower extremity venous Doppler. VQ scan if CXR is negative or normal and no history of asthma. CTA chest (PE protocol) if CXR abnormal. In young females, consider VQ scan if CXR is normal and no history of asthma because of increased radiation to breast tissue with CTA, a two view CXR should always be performed prior to the VQ scan.
- CTA Chest/Abdomen Dissection
  - With contrast for acute aortic dissection.
  - Pre-contrast images through chest. Post contrast images from above the arch to the groin. The entire aorta is included, because if there is a dissection, the full extent needs to be delineated.
  - *MRA without contrast can be performed if absolute contraindication to iodinated contrast for CT, however, MRA is not the study of choice. CTA is recommended.*
- High Resolution CT Chest without Contrast
  - Pulmonary fibrosis, bronchiectasis, diffuse lung disease, interstitial lung disease (ILD). This is always done without contrast. Approximately eight thin section images performed in supine and prone position. Contiguous images are not performed; therefore sections of lung are not imaged. This study is done to evaluate lung architecture, not nodules.



- CT Enterography IV Contrast and Negative Oral Contrast
  - Predominately for evaluating extent and activity of Crohn's disease.
  - A special contrast is given to the patient by radiology to drink in the department.
- CT Head without Contrast
  - Virtually always without contrast. Trauma, bleeding, extra-axial fluid collections.
  - Order with and without contrast if the patient cannot have MRI, in cases of infection or tumor.
- CT Lumbar Spine without Contrast
  - Degenerative changes.
  - Not as good as MRI, but if the patient can't have MRI, then CT without contrast. Can complement MRI spine. In spine CT, contrast in general is not indicated. There are cases when it is given but it is the exception.
- CT Maxillofacial without Contrast
  - Trauma.
- CT Maxillofacial with Contrast
  - Mass infection. Images from above orbits through mandible.
- CT Neck Soft Tissue with Contrast
  - From ears to lung apex.
  - Always with contrast, unless concern is sialolithiasis (no contrast for that indication). Performed for soft tissue masses, adenopathy, and abscess.
- CTA Neck Carotid Artery with Contrast
  - Evaluate carotid stenosis, presumably following abnormal carotid US, carotid, or vertebral artery dissection.
  - *This does not include the circle of Willis.* Consider ordering at the same time if needed. Some neurosurgeons like both to be performed prior to surgery to evaluate for tandem lesions. Extends from great vessels off the arch to skull base.
- CT Orbits without Contrast
  - Trauma, graves ophthalmopathy.
- CT Orbits with Contrast
  - Cellulitis or tumor. Recommend MRI orbits with contrast for optic neuritis.
- CT Sinuses without Contrast
  - Sinusitis.
- CTA Circle of Willis with Contrast
  - Aneurysm.
  - Only includes the circle of Willis. If the concern is regarding vascular malformation outside of this region, please specify. Use CTA circle of Willis or MRA for family history of aneurysm screening.
- CT Temporal Bones without Contrast
  - Congenital hearing loss, cholesteatoma.
  - *MRI for acoustic schwannoma.* MRI IAC protocol with contrast.
- CT Thoracic Spine without Contrast
  - Trauma, osseous abnormality.

# Interventional Radiology Exams

## **Procedures and Services**

### **Lab procedure orders:**

- Arteriograms - PT, INR, CBC, PRO7
- IVC filters - PT, INR, CBC
- Nephrostomy tube placement and removals - PT, INR, CBC
- Perm catheter placements and removals - PT, INR, CBC
- Port removals - Labs prior to exam including ProTime INR and CBC
- Runoffs - PT, INR, CBC, PRO7
- Shuntograms and Fistulagrams with angioplasty - PT, INR, CBC
- Stent placement - PT, INR, CBC

# Mammography Exams

## Procedures and Services

- All routine mammogram screenings are performed at the Outpatient Diagnostic Center, 2300 East 30th Street Bldg. C, Farmington, New Mexico 87401.
- All diagnostic mammograms are scheduled at the hospital for anyone with a symptom. i.e. lump, discharge, etc.
- If patient was diagnosed with breast cancer within the last three years, the patient should have their mammogram performed at the hospital.
- If the patient was diagnosed more than three years ago and has no symptoms, the patient should have their exams performed at the Outpatient Diagnostic Center, 2300 East 30th Street Bldg. C, Farmington, New Mexico 87401.
- *All six month follow-up exams must be done at the hospital.* All diagnostic six month follow-up mammograms and breast ultrasounds require an order from a doctor.
- Needle localizations are scheduled at 8:00 a.m. by mammography staff only.
- Stereotactic biopsies are scheduled at 8:00 a.m. or according to doctor's request. These are scheduled by the lead mammographer only.
- When scheduling patients for any mammography exam, the following questions need to be answered:
  - Has it been more than one year since your last mammogram?
  - Where was your last mammogram done?
  - Do you have breast implants?
    - If so, schedule in an implant slot.
  - Do you need assistance standing?
    - If so, schedule in the implant slot so that more time may be given to assist the patient.

## Test Preparation and Patient Instructions

Prep for Screening and Diagnostic Mammograms:

- Please do not wear anybody powder or deodorant for the exam.

## MRI Exams

- MRI Adrenal without Contrast
  - The question of met vs. adenoma. Pheochromocytoma. Consider non-contrast CT adrenals.
- MRI Brain without Contrast
  - CVA.
- MRI Brain with Contrast
  - Cancer, infection, active MS, abscess, mass.
- Seizure Protocol
  - Typically non-contrast. Unexplained first time seizure in adult, concern for mass, therefore with contrast.
- MRI Body
  - In general, MRI abdomen or MRI pelvis is not a total body screen like CT. MRI body imaging needs to be directed to a specific organ, because specific sequences (types of images obtained) are performed and directed to a clinical question.
- MRI Breast
  - American Cancer Society recommendations. Indicated yearly, along with mammograms for women who have a lifetime risk of breast cancer >20 percent, according to risk assessment tools that are mainly based on family history (such as the Claus model – see below).
    - Known BRCA1 or BRCA2 mutation.
    - First degree relative with a BRCA1 or BRCA2 mutation.
    - Radiation therapy to chest when they were between the ages of 10 and 30 years.
- MRI Cervical Spine without Contrast
  - Cancer history: yes contrast.
  - Post-op: no contrast.
- MRI IAC Protocol with Contrast
  - Acoustic schwannoma, vertigo, sensorineural hearing loss.
  - Focus is on the internal auditory canal region, only one sequence through the entire brain.
- MRI Kidneys
  - These exams are done with contrast. Majority of the time, CT is done.
- MRI Liver with and without Contrast
  - Mass evaluation, cirrhosis, HCC screening.
  - MRI preferred for HCC over CT. *If concern is regarding Focal Nodular Hyperplasia (FNH) a “special” type of contrast is given: MultiHance. Delayed images are performed. If FNH is a concern, staff needs to know when scheduling.*
- MRI Lumbar Spine without Contrast
  - Most patients.
- MRI Lumbar Spine with Contrast
  - Post-op patient or cancer history.
- MRI MSK Extremity with and without Contrast
  - For mass or infection.

- If concern is osteomyelitis, please have recent x-ray of area of concern for review.  
*Contrast can help in osteomyelitis for sinus tract, abscess, or osteonecrosis.*
- MRCP without Contrast
  - Choledocholithiasis, unexplained biliary dilatation.
- MRI Musculoskeletal
  - No contrast in general. Joint evaluations.
  - Current X-ray of joint is helpful.
- MRI Orbits with and without Contrast
  - Only the orbits are imaged, not the brain.
  - Add brain MRI with contrast as desired.
- MRI Pituitary with Contrast
  - Only images of the pituitary region.
- MRI Pancreas
  - These exams are done with contrast. Majority of the time, CT is done.
- MRI Pelvis
  - *What is the specific clinical concern? Specific protocols for area of clinical concern:*
    - Uterus: Developmental abnormality vs. endometrium vs. mass.
    - Hips: Sacrum not included. No contrast. AVN, trauma, degenerative changes.
    - Sacrum: Trauma, insufficiency fracture. No contrast.
    - Pelvis: Overview with contrast.
- MRI Rectal Cancer staging without Contrast
  - Pre-op staging evaluation.
- MRA Renal Arteries with Contrast
  - In general, CTA is better if renal function is good.
- MRA Renal Arteries without Contrast
  - For renal insufficiency patients.
- MRI Soft Tissue Mass
  - This study can often be performed without contrast.
  - Contrast may be given depending on images during the course of an exam. Consider MRI instead of CT, if US has not been useful.
- MRI Soft Neck Tissue with Contrast
  - Usually, CT is done.
- MRI Thoracic Spine without Contrast
  - Cancer history: yes contrast.
  - Post-op: no contrast.

*\*Additional specialty MRI protocols can be made for special situations or clinical questions. Please call for any questions.*

## Nuclear Medicine Exams

- Gastric Emptying Study for Solids.
  - To evaluate for suspected gastroparesis.
- HIDA/Pipida
  - Exam to evaluate for acute cholecystitis if US is equivocal.
  - Can be used to assess for possible bile leak.
- HIDA and CCK/Pipida
  - Evaluate for acute and chronic cholecystitis.
  - Calculate gallbladder ejection fraction.
- Three Phase Bone Scan
  - Concern regarding radiographically occult fracture, osteomyelitis, or reflex sympathetic dystrophy.
- Thyroid Scan and Uptake
  - Used in hyperthyroidism work up and suspected Grave's disease.
  - *Prefer thyroid ultrasound and FNA for evaluation of nodules.*
- VQ Scan
  - PE evaluation.
  - Alternative to CTA in patients with diminished renal function or younger patients to reduce radiation exposure. Always order a two view CXR to go with this study. *See CTA PE discussion in CT discussion under CTA Chest Pulmonary arteries.*
- Whole Body Bone Scan
  - Suspected metastatic disease, occult fracture.
  - *This study is not sensitive for pure lytic mets such as multiple myeloma, renal cell carcinoma, and thyroid.* Plain radiographic bone survey is better for those cancers.

## Radiology Exams

- Barium enema Air contrast - to assess for mucosal abnormalities.
  - Single contrast may be used depending on patient condition. If concern is regarding obstruction, fistula, or leak, please specify concerns so that water-soluble contrast can be used.
- Esophagram - Evaluates esophagus.
  - Assesses motility, any narrowing, or mucosal abnormality. Will assess for hiatal hernia and reflux, if occurs during the exam.
- Small Bowel follow through - Intermittent fluoroscopy and films after ingestion of Enterovue contrast.
  - Assesses transit time, mucosal pattern, dilation of loops, transition points, etc. in cases of small bowel disease.
- Upper GI - Includes the esophagus and evaluates the stomach and duodenum.
  - A small bowel follow through does NOT need to be ordered on pediatric patients to assess the ligament of Trietz.

### **Test Preparation and Patient Instructions**

- BE (barium enema)
  - Patient will be required to come to the hospital, or to the Outpatient Diagnostic Center to pick up a prep guide, and follow the instructions in the enclosed packet. If a patient has had an incomplete colonoscopy, the BE needs to be scheduled five days after colonoscopy per radiologists. No barium enema will be done on the same day, if there is an incomplete colonoscopy. No exceptions, per radiologists.
- Barium enema for children two and under
  - NPO for three hours. Children NPO after midnight. No prep if clinical indication is possible Hirschsprung's disease.
- Upper GI series and small bowel follow-through (UGI and SBFT)
  - Patient will not be able to have anything to eat or drink after midnight (NPO), no gum chewing, or smoking. Meds ok with a small sip of water. Children under two must fast for three hours prior to exam, all others are NPO after midnight. Esophagram or Barium should swallow nothing after midnight (NPO); no eating, no drinking, no chewing gum, no smoking, etc. Meds okay with a small sip of water.

# Ultrasound Exams

- Abdominal Ultrasound (US)
  - Liver, pancreas, gallbladder, bile duct, right and left kidney, spleen, abdominal aorta. Exam evaluates size of organs and parenchyma. Intrarenal resistive indices not performed.
- RUQ US
  - Liver, pancreas, gallbladder, right kidney, bile duct.
  - Exam evaluates size of organs and parenchyma. Intrarenal resistive indices not performed.
- Abdominal Aortic US
  - Size of abdominal aorta (proximal, mid, and distal), assess flow, and size of common iliac arteries.
  - The aorta is more fully evaluated on this study when compared with the abdominal US. Consider CTA Abd Aorta for documenting aneurysm size once after initial ultrasound.
- Appendix US
  - Evaluates the RLQ to evaluate the appendix.
  - Consider in children and thin young adults. A non-visualized appendix cannot exclude the clinical diagnosis of acute appendicitis.
- Breast US
  - For a palpable breast mass.
  - Women 30 years and older: Mammography first, US may be indicated second.
  - Women <30 years old: US first. Mammography may be indicated second.
  - When referring a patient for palpable breast mass, please state which breast, size of lesion, location (ie 2:00), and how far from the nipple.
- Carotid US
  - Evaluate CCA, ICA, ECA at neck, assess for stenosis.
  - Assesses vertebral artery flow. Screening exam, if positive, consider CTA neck carotid artery.
- Cranial US in Infants
  - Clinical concern of neonatal hemorrhage or increased ventricular size.
  - Images obtained through the anterior fontanel, which needs to be open.
- Extremity, Non-Vascular
  - For soft tissue mass evaluation.
  - This exam may be used to evaluate for abdominal wall hernia, groin, palpable mass, Baker cyst, and axillary nodes.
- Hip US Bilateral
  - Performed for dysplasia.
  - Order as a bilateral exam. Performed on infants between the ages of six weeks to four months. Indications are positive findings on physical exam, females born breech.
- Intussusception US
  - Evaluates for intussusception if no gas is seen in the cecum on abdominal films. For possible intussusception, start with single-view CXR, supine, and left lateral decubitus abdominal films at the initial evaluation.
  - Two-view abdominal films are required prior to any attempt to reduce an intussusception.



- Liver or Spleen US
  - Liver and spleen size and parenchyma evaluation.
- Lower Extremity Venous Duplex (for DVT)
  - Evaluates common femoral, superficial femoral, and popliteal veins.
  - Also evaluates the tibioperoneal trunk and calf veins if able to be visualized.
- Lower Extremity Arterial Duplex Waveform
  - Evaluation and velocities of the common femoral, superficial femoral, popliteal arteries and tibioperoneal trunk, posterior tibial, peroneal, anterior tibial, and dorsalis pedis arteries.
  - ABI is not calculated. This is a screening exam, if positive consider CTA abdominal aorta and runoff.
- Pseudoaneurysm Groin
  - Order vascular extremity ultrasound.
- Pelvic US (Transabdominal and Endovaginal)
  - Evaluates the uterus, endometrium, and ovaries. Assesses for adnexal mass and fluid. Document presence of flow to ovaries.
  - *Transabdominal and endovaginal are complementary. Transabdominal imaging gives a broad overview and can image areas that endovaginal can't reach. Endovaginal imaging often gives a more detailed look at the uterus, endometrium, and ovaries, but it can miss masses in the adnexa given small field of view. Therefore, both should be performed.*
  - *Pelvis US is of low yield in patients s/p hysterectomy/oophorectomy, consider CT.*
- Pyloric US
  - In infants to evaluate for pyloric stenosis.
  - A normal exam will need repeating or UGI follow-up if symptoms persist and concern continues.
- Renal US
  - Size, parenchyma, and intrarenal resistive indices for right and left kidney.
  - Urinary bladder evaluation depends upon volume, with pre and post-void volumes obtained.
- Renal Artery Doppler
  - For renal artery stenosis, right and left kidney artery evaluation. Not for parenchymal evaluation. Documents venous flow. Exam will be limited for an obese patient or if patient cannot hold breath. Consider CTA or MRA.
- Scrotal US
  - R/O torsion, mass, infection, varicocele, trauma, hydrocele.
  - Evaluates testicle size, parenchyma, and arterial flow. Assesses for varicocele, hydrocele, and skin thickening. Evaluate epididymis.
- Spinal US in Infants
  - To evaluate sacral dimple, tethered cord, and dysraphism.
- Thyroid US
  - Evaluate size and parenchyma of the thyroid gland.
  - Assesses any nodules, lymph nodes.
- Upper Extremity Venous
  - Evaluate the IJ, subclavian, axillary, basilic, brachial, cephalic, median cubital, and radial and ulnar veins for thrombus.