



**San Francisco General Hospital and Trauma Center  
Committee on Interdisciplinary Practice**

**STANDARDIZED PROCEDURE – NURSE PRACTITIONER / PHYSICIAN  
ASSISTANT**

**PREAMBLE**

**Title: Interventional Radiology Nurse Practitioner/Physician Assistant**

I. Policy Statement

- A. It is the policy of San Francisco General Hospital and Trauma Center that all standardized procedures are developed collaboratively and approved by the Committee on Interdisciplinary Practice (CIDP) whose membership consists of Nurse Practitioners, Nurse Midwives, Physician Assistants, Pharmacists, Registered Nurses, Physicians, and Administrators and must conform to all eleven steps of the standardized procedure guidelines as specified in Title16, CCR Section 1474.
- B. All standardized procedures are to be kept in a unit-based manual. A copy of these signed procedures will be kept in an operational manual in the Radiology Program Office (Room 1x55) and on file in the Medical Staff Office.

II. Functions To Be Performed

Each practice area will vary in the functions that will be performed, such as primary care in a clinical, specialty clinic care setting or inpatient care in a unit-based hospital setting.

A Nurse Practitioner (NP) is a Registered Nurse who has additional preparation and skills in physical diagnosis, psychosocial assessment, and management of health-illness; and who has met the requirements of Section 1482 of the Nurse Practice Act. Nurse Practitioners provide health care, which involves areas of overlapping practice between nursing and medicine. These overlapping activities require standardized procedures. These standardized procedures include guidelines stating specific conditions requiring the Nurse Practitioner to seek physician consultation.

Physician assistants (PA) are health care providers licensed to practice medicine with physician supervision and who have attended and successfully completed an intensive training program accredited by the Accreditation Review Commission on education for the Physician Assistant (ARC-PA). Upon graduation, physician assistants take a national certification examination developed by the National Commission on Certification of PAs in conjunction with the National Board of Medical Examiners. To maintain their national certification, PAs must log 100 hours of continuing medical education every two years and sit for a recertification examination every six years. Graduation from an accredited physician assistant program and passage of the national certifying exam are required for state licensure. While functioning as a member of the Community Health Network, PAs perform health care-related functions under physician oversight and with the utilization of standardized procedures and Delegation of Services Agreement (documents supervising agreement between supervising physician and PA).

The NP/PA conduct physical exams, diagnoses and treats illness, order and interpret tests, counsel on preventative health care, assists in surgery, performs invasive procedures and furnish medications/issue drug orders as established by state law.

### III. Circumstances Under Which NP/PA May Perform Function

#### A. Setting

1. Location of practice is the inpatient and outpatient settings at San Francisco General Hospital and Trauma Center (SFGH). Inpatient settings to include ICU and inpatient units. Outpatient settings to include the Radiology Department and Emergency Department.

#### B. Supervision

1. Overall Accountability:  
The NP/PA is responsible and accountable to: Chief of Interventional Radiology.
2. An attending consulting physician will be available to the NP/ PA, by phone, in person, or by other electronic means at all times.
3. Physician consultation is to be obtained as specified in the protocols and under the following circumstances:
  - a. Acute decompensation of patient situation
  - b. Unexplained historical, physical, or laboratory findings.
  - c. Upon request of patient, affiliated staff, or physician.

- d. Problem requiring hospital admission or potential hospital admission.
- e. Acute, severe respiratory distress.
- f. An adverse response to respiratory treatment, or a lack of therapeutic response.

IV. Scope of Practice

Protocol #1	Health Care Management: Interventional Radiology Service
Protocol #2	Furnishing Medications/Drug Orders
Protocol #3	Discharge of Patients
Protocol #4	eReferral
Protocol #5	Procedure: Surface Trauma and Wound Care
Protocol #6	Procedure: Lumbar Puncture/Lumbar Drain
Insertion	
Protocol #7	Procedure: Chest Tube Removal
Protocol #8	Procedure: Abdominal Paracentesis
Protocol #9	Interventional Radiology Procedural Assistant

V. Requirements for the Nurse Practitioner/Physician Assistant

A. Basic Training and Education

1. Active California Registered Nurse/Physician Assistant license.
2. Successful completion of a program, which conforms to the Board of Registered Nurses(BRN)/Accreditation Review Commission on education for the Physician Assistant(ARC)-PA standards.
3. Maintenance of Board Certification (NP)/National Commission on the Certification of Physician Assistants (NCCPA) certification.
4. Maintenance of certification of Basic Life Support (BLS) that must be from an American Heart Association provider. Must have certification of Advanced Cardiac Life Support (ACLS) training if requesting Procedural Sedation Protocol.
5. Possession of a Medicare/Medical Billable Provider Identifier or must have submitted an application.
6. Copies of licensure and certificates must be on file in the Medical Staff Office.
7. Furnishing Number and DEA Number if applicable.
8. Physician Assistants are required to sign and adhere to the San Francisco General Hospital and Trauma Center Delegation of Service Agreement (DSA). Copies of DSA must be kept at each practice site for each PA.

- B. Specialty Training
  - 1. Specialty requirements
    - a. NP specialty certification as an ANP, FNP, ACNP.
    - b. Current ACLS certification if requesting Procedural Sedation protocol.
    - c. Pass National Certification as a Physician Assistant.
    - d. Specialty training will be provided by the Radiology/Interventional Radiology attendings as part of the orientation process.
    - e. For Minor Procedure Protocol training please refer to each Procedure Protocol.
  - 2. Amount of previous experience in specialty area expected for this position.
    - a. Two years experience as a Registered Nurse or Nurse Practitioner in an emergency department, acute care or intensive care unit in an acute care hospital within 6 months of hire.
    - b. Two years experience as a PA in an emergency department, acute care or intensive care unit in an acute care hospital within 6 months of hire.
- C. Evaluation of NP/PA Competence in performance of standardized procedures. For procedures please refer to specific Procedure Protocol.
  - 1. Initial: at the conclusion of the standardized procedure training, the Medical Director and/or designated physician and/or other supervisors, as applicable will assess the NP/PA's ability to practice.
    - a. Clinical Practice
      - Length of proctoring period will be three months. The term may be shortened or lengthened at the discretion of the supervising physician. This proctoring will include direct observation of NP/PA clinic encounters of 10 cases by the designated attending physician. This proctoring will also include 30 chart reviews (15 neuro IR and 15 body IR) direct observation of the cases will be performed.
      - The evaluator will be the Chief of Interventional Radiology or Clinical Supervising Physician Designee.
      - The method of evaluation in clinical practice will be those needed to demonstrate clinical competence
        - a. All cases are presented to the evaluator
        - b. Evaluator reviews co-signs orders and progress notes

- c. Co-signatures by a licensed physician must be concurrent to patient care
  - d. Medical record review is conducted for in-patient medication ordering and out-patient discharge medication
  - e. Medical Record review may be conducted retrospectively by the Clinical Supervising Physician
  - f. Thirty cases must be evaluated to complete proctoring.
  - g. Procedural skills are incorporated into the competency assessment orientation
2. Follow-up: areas requiring increased proficiency as determined by the initial or biennial evaluation will be re-evaluated by the Medical Director, and/or designated physician and/or supervisor at appropriate intervals until acceptable skill level is achieved.
3. Ongoing Professional Performance Evaluation (OPPE): Every six months, affiliated staff will be monitored for compliance to departmental specific indicators and reports sent to the Medical Staff office.
4. Biennial Reappointment: Medical Director, designated physician or designated same discipline peer must evaluate the NP/PA Clinical competence. Case numbers will be found in each procedure.
5. Ongoing:
  - a. Physician Assistants have 3 forms of supervision. Their Delegation of Service Agreement will note which form of supervision that will be used.

These methods are:

1. Examination of the patient by Supervising Physician the same day as care is given by the PA.
2. Supervising Physician shall review, audit and countersign every medical record written by PA within thirty (30) days of the encounter.
3. Supervising Physician shall review, sign and date the medical records of at least five percent (5%) of the patients managed by the PA within 30 days of the date of treatment under protocols which shall be adopted by Supervising Physician and PA, pursuant to section 1399.545 (e) (3) of the

Physician Assistant Regulations.  
Protocols are intended to govern the performance of a Physician Assistant for some or all tasks. Protocols shall be developed by the supervising physician, adopted from, or referenced to, text or other sources. Supervising Physicians shall select for review those cases, which by diagnosis, problem, treatment or procedure represent in his/her judgment, the most significant risk to the patient.

## VI. Development and Approval of Standardized Procedure

### A. Method of Development

1. Standardized procedures are developed collaboratively by the Nurse Practitioners/Physician Assistants, Nurse Midwives, Pharmacists, Physicians, and Administrators and must conform to the eleven steps of the standardized procedure guidelines as specified in Title 16, CCR Section 1474.

### B. Approval

1. The CIDP, Credentials, Medical Executive and Joint Conference Committees must approve all standardized procedures prior to their implementation.

### C. Review Schedule

1. The standardized procedure will be reviewed every three years by the NP/PA and the Medical Director and as practice changes.

### D. Revisions

1. All changes or additions to the standardized procedures are to be approved by the CIDP accompanied by the dated and signed approval sheet.

## Protocol #1: Health Care Management – Interventional Radiology Services

### A. DEFINITION

This protocol covers the procedure for health care management in specialty clinics and inpatient units. Scope of care includes health care maintenance and promotion, management of common acute illness and chronic stable illnesses. Settings to include; Emergency Department, Radiology Department, Outpatient Clinics, ICU and Inpatient Units.

B. DATA BASE

1. Subjective Data

- a. History and review of symptoms relevant to the presenting complaint and/or disease process.
- b. Pertinent past medical history, surgical history, family history, psychosocial and occupational history, hospitalizations/injuries, current medications, allergies, treatments and review of systems.
- c. Pain history to include onset, location and intensity.

2. Objective Data

- a. Physical exam appropriate to presenting symptoms.
- b. Laboratory and imaging evaluation, as indicated, relevant to history and exam.
- c. All Point of Care Testing (POCT) will be performed according to the SFGH POCT policy and procedure 16.20.

C. DIAGNOSIS

Assessment of data from the subjective and objective findings to identify disease processes. May include statement of current status of disease.

D. PLAN

1. Therapeutic Treatment Plan

- a. Diagnostic tests for purposes of disease identification.
- b. Initiation or adjustment of medication per Furnishing/Drug Orders protocol.
- c. Referral to physician, specialty clinics, and supportive services, as needed.
- d. Patient consent obtained consistent with hospital policy before procedure is performed and according to Department of Radiology Guidelines.

2. Patient conditions requiring Attending Consultation

- a. Acute decompensation of patient situation
- b. Unexplained historical, physical or laboratory findings
- c. Upon request of patient, NP, PA, or physician
- d. Initiation or change of medication other than those in the formularies.
- e. Any Problem requiring hospital admission or potential hospital admission.
- f. Acute, severe respiratory distress
- g. An adverse response to respiratory treatment, or a lack of therapeutic response.

3. Education

- a. Patient education appropriate to diagnosis and should include treatment modalities and lifestyle counseling (e.g. diet and exercise).
- b. Discharge information and instructions.

4. Follow-up

As appropriate regarding patient health status and diagnosis.

E. RECORD KEEPING

All information from patient visits will be recorded in the medical record. (e.g.: admission notes, progress notes, procedure notes) For physician assistants, using protocols for supervision, the supervising physician shall review, countersign and date a minimum sample of five (5%) sample of medical records of patients treated by the physician assistant within thirty (30) days. The physician shall select for review those cases, which by diagnosis, problem, treatment or procedure represent in his/her judgment, the most significant risk to the patient.



## Protocol #2: Furnishing Medications/Drug Orders

### A. DEFINITION

“Furnishing “of drugs and devices by nurse practitioners is defined to mean the act of making a pharmaceutical agent/s available to the patient in accordance with a standardized procedure. A “drug order” is a medication order issued and signed by a physician assistant. Physician assistants may issue drug orders for controlled substances Schedule II -V with possession of an appropriate DEA license. All drug orders for controlled substances shall be approved by the supervising physician for the specific patient prior to being issued or carried out. Alternatively, PAs may prescribe controlled substances without patient specific approval if they have completed education standards as defined by the Physician Assistant Committee. A copy of the Certificate must be attached to the physician assistants Delegation of Service document. Nurse practitioners and midwives may order Schedule II - V controlled substances when in possession of an appropriate DEA license. Schedule II - III medications for management of acute and chronic illness need a patient specific protocol. The practice site (clinic or inpatient), scope of practice of the NP/PA, as well as Service Chief or Medical Director, determine what formulary/ies will be listed for the protocol. The formulary/ies that will be used are: San Francisco General Hospital and Trauma Center/Community Health Network, Community Behavioral Health Services, Laguna Honda Hospital, Jail Health Services, San Francisco Health Plan, Medi-Cal and AIDS Drug Assistance Program. This protocol follows CHN policy on Furnishing Medications (policy no. 13.2) and the writing of Drug Orders. (Policy no. 13.5).

### B. DATA BASE

#### 1. Subjective Data

- a. Age appropriate history and review of symptoms relevant to the presenting complaint or disease process to include current medication, allergies, current treatments, and substance abuse history.
- b. Pain history to include onset, location, and intensity.

#### 2. Objective Data

- a. Physical exam consistent with history and clinical assessment of the patient.
- b. Describe physical findings that support use for CSII-III medications.

- c. Laboratory and imaging evaluation, as indicated, relevant to history and exam.
- d. All Point of Care Testing (POCT) will be performed according to the SFGH POCT policy and procedure 16.20.

C. DIAGNOSIS

Assessment of data from the subjective and objective findings identifying disease processes, results of treatments, and degree of pain and/or pain relief.

D. PLAN

1. Treatment

- a. Initiate, adjust, discontinue, and/or renew drugs and devices.
- b. Respiratory medications and treatments will be written based on the assessment from the history and physical examination findings and patient response to prior or current treatment.
- c. Nurse Practitioners may order Schedule II - III controlled substances for patients with the following patient specific protocols. These protocols may be listed in the patient chart, in the medications sections of the LCR, or in the Medication Administration Record (MAR). The protocol will include the following:
  - 1. location of practice
  - 2. diagnoses, illnesses, or conditions for which medication is ordered
  - 3. name of medications, dosage, frequency, and route, and quantity, amount of refills authorized and time period for follow-up.
- d. To facilitate patient receiving medications from a pharmacist provide the following:
  - 1. name of medication
  - 2. strength
  - 3. directions for use
  - 4. name of patient
  - 5. name of prescriber and title
  - 6. date of issue
  - 7. quantity to be dispensed
  - 8. license no., furnishing no., and DEA no. if applicable

2. Patient conditions requiring Consultation

- a. Initiation or change of medication other than those in the formulary.
- b. Unexplained historical, physical or laboratory findings.

- c. Upon request of patient, NP, PA, or physician.
- d. Failure to improve pain and symptom management.

3. Education

- a. Instruction on directions regarding the taking of the medications in patient's own language.
- b. Education on why medication was chosen, expected outcomes, side effects, and precautions.

4. Follow-up

- a. As indicated by patient health status, diagnosis, and periodic review of treatment course.

E. RECORD KEEPING

All medications furnished by NPs and all drug orders written by PAs will be recorded in the medical record\LCR\MAR as appropriate. The medical record of any patient cared for by a PA for whom the supervising physician and surgeon's schedule II drug order has been issued or carried out shall be reviewed and countersigned and dated by a supervising physician and surgeon within seven (7) days.

## Protocol #3: Discharge of Patients

### A. DEFINITION

This protocol covers the discharge of patients from San Francisco General Hospital and Trauma Center. The direction to discharge a patient will come from the attending physician. This protocol covers patients who are admitted by the Radiology/Interventional Radiology Service to the inpatient Wards, patients in the Radiology Department and those sent to PACU, 4C, Dialysis Unit 4B and Ward 17 to recover from interventional procedures and treatment.

### B. DATA BASE

#### 1. Subjective Data

- a. Review: health history and current health status

#### 2. Objective Data

- a. Physical exam consistent with history and clinical assessment of the patient.
- b. Review medical record: in-hospital progress notes, consultations to assure follow-through.
- c. Review recent laboratory and imaging studies and other diagnostic tests noting any abnormalities requiring follow-up.
- d. Review current medication regimen, as noted in the MAR (Medication Administration Record).

### C. DIAGNOSIS

Review of subjective and objective data and medical diagnoses, problems that still require follow-up and that appropriate follow-up appointments and studies have been arranged.

### D. PLAN

#### 1. Treatment

- a. Review treatment plan with patient and/or family.
- b. Initiation or adjustment of medications per Furnishing/Drug Orders protocol.
- c. Assure that appropriate follow-up arrangements (appointments/studies) have been made.
- d. Referral to specialty clinics and supportive services, as needed.

#### 2. Patient conditions requiring Attending Consultation

- a. Acute decompensation of patient situation.
- b. Unexplained historical, physical or laboratory findings.
- c. Upon request of patient, NP, PA or physician.
- d. Initiation or change of medication other than those in the

formulary.

f. Referral to specialty services not provided by DPH.

3. Education

a. Review patient course and what will need follow-up.

b. Provide instructions on:

- follow-up clinic appointments
- outpatient laboratory/diagnostic tests
- discharge medications
- signs and symptoms of possible complications
- who to call if have symptoms of complications

4. Follow-up

a. Follow-up appointments

b. Copies of relevant paperwork will be provided to patient.

E. RECORD KEEPING

All information from patient hospital stay will be recorded in the medical record for physician assistants; using protocols for supervision, the supervising physician shall review, countersign and date a minimum of five (5%) sample of medical records of patients treated by the physician assistant within thirty (30) days. The physician shall select for review those cases which by diagnosis, problem, treatment or procedure represent in his/her judgment the most significant risk to patients.

## PROTOCOL #4: eReferral Review

### A. DEFINITION

eReferral review is defined as the review of outpatient imaging consultation requests via the online eReferral system. An imaging request is defined as a request for advanced imaging study, such as MRI, CT or Ultrasound, submitted by a health care provider to the radiology department. A review of imaging request is defined as determination of appropriateness and urgency (priority) of a requested imaging study, based on the provided subjective and objective data.

#### 1. Prerequisites:

- a. Providers reviewing eReferrals will have six months experience with patients in the specific specialty area provided at San Francisco General Hospital and Trauma Center or elsewhere before allowed to do eReferrals independently.
- b. Providers reviewing eReferrals will be licensed as stated in the Standardized Procedure-Nurse Practitioner/PA Preamble.
- c. Providers reviewing eReferrals will consistently provide care to patients in the specialty clinic for which they are reviewing.
- d. Providers reviewing eReferrals will have expertise in the specialty practice for which they are reviewing.

2. Educational Component: Providers will demonstrate competence in understanding of the algorithms or referral guidelines developed and approved by the Chief of Service which will be used to facilitate screening, triaging and prioritizing of patients in the eReferral system.

3. Proctoring: A review of 5% of the eReferral consultation decisions will be performed by the Chief of Service or designee concurrently for the first three months.

### B. DATA BASE

#### 1. Subjective Data

- a. eReferral imaging request review will include the review of medical and surgical history, which is relevant to determination of appropriateness and priority of the imaging study. The scope of the review will be limited to the data provided by the referring provider on the electronic referral. The reviewer will request further information from the referring provider if information provided is not complete or does not allow for an adequate assessment of urgency and appropriateness of the referral.

- b. The review will include the review of allergy history to anticipate contrast reactions.
- c. The review will include the review of special patient data that may affect the imaging study. This data may include, but is not limited to patient's language requirements, mobility issues, anxiety and need for sedation. Review of these special patient data will help anticipate problems during performance of the study, and thereby improve efficiency of the department.

2. Objective Data

- a. The review will include the review of physical exam findings, which are relevant to the determination of appropriateness and priority of the imaging study. The review will be limited in scope to the data provided by the referring provider.
- b. The record of prior radiological exams will be reviewed, to exclude (duplicate entries of the same study), and to help assess appropriateness of imaging. The record of prior radiological exams will be retrieved by the eReferral system automatically, however in some cases the reviewer may need to consult the electronic medical record.
- c. The record of laboratory findings, which are relevant to imaging, such as Creatinine and eGFR, will be automatically retrieved by the eReferral system. However, in some cases the reviewer may need to consult the electronic medical record to retrieve further information.

C. DIAGNOSIS

Establishing the correct diagnosis is the goal of radiological imaging, therefore the eReferral review is not aimed at establishing the final diagnosis. However, it is essential to know the preliminary or provisional diagnosis in order to assess the appropriateness and priority of the imaging study. A correct ICD9 code of the preliminary diagnosis is also crucial to successful billing of the radiological procedures. eReferral review will include the preliminary diagnosis as provided by the referring physician through the eReferral system.

D. PLAN

1. Review of eReferral

- a. All data provided via the eReferral consultation request will be reviewed and assessed for appropriateness of the imaging request and priority (urgency) of the study. The review will be based on the published appropriateness guidelines of the American College of Radiology. The reviewer will also consider factors, which are local to SFGH, such as availability

constraints and wait times in assigning priority to the imaging requests.

- b. Any missing data that is needed for the initial assessment of the patient will be requested from the referring provider.

2. Patient conditions requiring Radiologist Review

- a. Upon request of the referring NP, PA or physician
- b. Complex imaging questions, not clearly addressed by the American College of Radiology guidelines.
- c. Problems requiring emergent imaging studies.
- d. Problems requiring relatively counter-indicated imaging studies, when the benefits outweigh the risks.
- e. Problems requiring emergent/urgent surgical intervention.

3. Education

Provider education appropriate to the referring problem including usefulness, indications, counter-indications of imaging studies. The reviewer will also advise the referring clinicians regarding the limitations of availability of certain studies at SFGH.

4. Scheduling of Appointments

Dependant upon the urgency of the referral, the eReferral will be forwarded to the scheduler for the next available imaging appointment.

5. Patient Notification

- a. Notification of the patient will be done by the referring provider if the appointment is scheduled as next available. If the appointment is scheduled as an over book within two weeks of the eReferral, the consulting scheduler is responsible for notifying the patient.

E. RECORD KEEPING

All information contained within the electronic referral including the initial referral and any electronic dialogue between providers will be recorded in the lifetime clinic record (LCR) upon scheduling or after a period of six months.

During the proctoring period, the eReferral consultation request will be printed and the provider recommendations will be written on the print out. These will be cosigned by the proctor and filed in the provider's educational file. The recommendations will then be entered into the LCR and forwarded to the scheduler.



## Procedure: Protocol #5: Surface Trauma and Wound Care

### A. DEFINITION

This protocol covers the initial assessment and management of wounds.

1. Location to be performed: For purposes of this procedure, the protocol will be completed in the inpatient and outpatient unit(s) at San Francisco General Hospital and Trauma Center.
2. Performance of procedure:
  - a. Indications  
Patient's presenting for assessment and treatment of lacerations, abrasions and avulsions.
  - b. Precautions (require physician consultation)  
Coagulopathy  
Potential for Foreign Bodies within wound  
Malnutrition  
Diabetes  
Immunocompromized State  
Peripheral Vascular Disease
3. Contraindications
  - a. Vascular compromise or cases where direct pressure does not stop bleeding
  - b. Wounds requiring large area of debridement or excision prior to closure
  - c. Wounds with bone fragments or fracture
  - d. Wounds with tendon, ligament, vessel or nerve involvement
  - e. Head laceration with galea disruption
  - f. Facial lacerations with cosmetic consideration (e.g. eyelids and vermillion borders)
  - g. Lacerations penetrating into joints
  - h. Patients requiring conscious sedation
  - i. Children under the age of 10
  - j. Lacerations greater than 12 hours old or lacerations to the hand greater than 6 hours old
  - k. Wounds requiring repair of cartilage
  - l. Through and through lip lacerations

### B. DATA BASE

1. Subjective Data
  - a. History and review of symptoms relevant to the presenting complaint or procedure to be performed.

- b. Pertinent past medical history, surgical history, family history, hospitalizations, habits, current medications, allergies.

2. Objective Data

- a. Physical exam appropriate to the procedure to be performed. Physical exam of the wound including a description of its location, extent, depth and appearance of discharge, erythema, swelling or ecchymosis
- b. The procedure is performed following standard medical technique according to the departmental resources (i.e. specialty guidelines).
- c. Laboratory and imaging evaluation, as indicated, relevant to history and exam.
- d. All Point of Care Testing (POCT) will be performed according to SFGHMC POCT policy and procedure 16.20.

C. DIAGNOSIS

Assessment of subjective and objective data to identify disease processes.

D. PLAN

1. Therapeutic Treatment Plan

- a. Patient consent obtained consistent with hospital policy before procedure is performed.
- b. Time out performed per hospital policy.
- c. Diagnostic tests for purposes of disease identification.
- d. Laboratory studies for the purpose of disease identification
- e. Screening tests performed as part of health maintenance.
- f. Initiation or adjustment of medication per Furnishing/Drug Orders protocol.
- g. Referral to physician, clinic, and supportive services, as needed.

2. Patient conditions requiring Attending Consultation

- a. Acute decompensation of patient situation.
- b. Unexplained historical, physical or laboratory findings
- c. Uncommon, unfamiliar, unstable, and complex patient conditions
- d. Inability to approximate wound edges
- e. Persistent or uncontrolled bleeding
- f. Scalp wounds involving the galea
- g. Upon request of patient, NP, PA, or physician
- h. Initiation or adjustment of medication other than those in the formularies.

i. Problem requiring hospital admission or potential hospital admission.

3. Education

Discharge information and instructions.

4. Follow-up

As appropriate for procedure performed.

E. RECORD KEEPING

Patient visit, consent forms, and other procedure specific documents will be recorded in the medical record and LCR as appropriate. For physician assistants, using protocols for supervision, the supervising physician shall review, countersign and date a minimum of five (5%) sample of medical records of patients treated by the physician assistant within thirty (30) days. The physician shall select for review those cases which by diagnosis, problem, treatment or procedure represent in his/her judgment the most significant risk to patients.

F. Summary of Prerequisites, Proctoring and Reappointment Competency

<p>Prerequisite:</p> <ul style="list-style-type: none"><li>a. Specialty training will be provided by the Interventional Radiology attendings as part of the orientation process.</li><li>b. Observe 2 wound care and surface trauma care procedures with MD.</li></ul>
<p>Proctoring Period:</p> <ul style="list-style-type: none"><li>a. New practitioner to procedure, a minimum of 3 successful observed demonstrations.</li><li>b. Experience practitioner to procedure, a minimum of 2 successful observed demonstrations.</li><li>c. Three medical record reviews/audits by the Chief of Interventional Radiology or Clinical Supervising Physician designee.</li><li>d. Proctoring will be performed by the Chief of Interventional Radiology and/or his or her designee.</li></ul>
<p>Evaluation of Reappointment Competency</p> <ul style="list-style-type: none"><li>a. Evaluation will be performed by Supervising Physician and/or his or her designee.</li><li>b. Demonstration of 3 procedures completed every 2 years.</li><li>c. Three chart reviews needed every 2 years</li></ul>

## Procedure: Protocol #6: Lumbar Puncture/Lumbar Drain Insertion

### A. DEFINITION

Lumbar catheter insertion is defined as placement of a lumbar Cerebral Spinal Fluid (CSF) drainage catheter located within the subarachnoid space as decided upon by the Interventional Radiology team and in accordance with the Neuro-Interventional Radiology Attending Physician.

1. Locations to be performed: For purposes of this procedure, the protocol will be completed in the Radiology Department or inpatient units at San Francisco General Hospital and Trauma Center.
2. Performance of procedure:
  - a. Indications
    1. Lumbar puncture should be performed primarily on patients with severe headache with or without fever of unknown origin, especially if an alteration of consciousness is present. Aspiration of the spinal fluid with subsequent analysis may be necessary to the diagnosis of CSF infection, bleeding or embolus (e.g. meningitis, syphilis, subarachnoid hemorrhage, MS).
    2. A lumbar drain should be placed primarily for the purposes of CSF diversion. This procedure should be considered in the presence of a persistent CSF leak, operative cases requiring temporary decompression/diversion during the postoperative period, in cases of documented mental status improvement following serial high volume LP taps, in lieu of or until a definitive mode of diversion is achieved i.e. EVD or VP shunt.
  - b. Precautions (Requires a physician consultation)
    1. Obtain a head CT to rule out mass effect, subarachnoid hemorrhage or obstructive hydrocephalus
    2. Aseptic technique to avoid chemical meningitis, abscess
    3. Platelets should be greater than or equal to 100,000
    4. Patients on anticoagulants or who have bleeding tendencies (Atrial fibrillation, Von Willebrand's, Hemophilia, Liver disease)
    5. ASA/NSAIDS/Cox II Inhibitors
    6. Withdraw CSF slowly and only the amount that is needed (1 ml/tube)

- c. Contraindications
  - 1. Infection in the tissues near the puncture site.
  - 2. Increased intracranial pressure, if suspected rule out with head CT
  - 3. Coagulopathy

B. DATA BASE

- 1. Subjective Data
  - a. History and review of symptoms relevant to the presenting complaint or procedure to be performed.
    - 1. Presence of motor or sensory deficits
    - 2. Presence of headache or meningitic symptoms
    - 3. Presence of continued or new CSF leak.
  - b. Pertinent past medical history, surgical history, family history, hospitalizations, habits, current medications, allergies.
- 2. Objective Data
  - a. Physical exam appropriate to the procedure to be performed.
  - b. The procedure is performed following standard medical technique according to the departmental resources (i.e. specialty guidelines).
  - c. Laboratory and imaging evaluation, as indicated, relevant to history and exam.
  - d. All Point of Care Testing (POCT) will be performed according to SFGHMC POCT policy and procedure 16.20.

C. DIAGNOSIS

Assessment of subjective and objective data to identify disease processes.

D. PLAN

- 1. Therapeutic Treatment Plan
  - a. Patient consent obtained consistent with hospital policy before procedure is performed.
  - b. Time out performed per hospital policy.
  - c. Initiation or adjustment of medication per Furnishing/Drug Orders protocol.
- 2. Patient conditions requiring Attending Consultation
  - a. Acute decompensation of patient situation.
  - b. Resistance met on drain insertion
  - c. Patient complaint of nerve root pain
  - d. Failure to obtain CSF drainage or flow
  - e. Upon request of patient, NP, PA, or physician

f. Initiation or adjustment of medication other than those in the formularies.

3. Education

Discharge information and instructions.

4. Follow-up

As appropriate for procedure performed.

a. Assess for signs and symptoms of insertion site infection

b. Assess for signs of CSF leak

c. Assess for complaints of headache in the upright position

E. RECORD KEEPING

Patient visit, consent forms, and other procedure specific documents will be recorded in the medical record and LCR as appropriate. For physician assistants, using protocols for supervision, the supervising physician shall review, countersign and date a minimum of five (5%) sample of medical records of patients treated by the physician assistant within thirty (30) days. The physician shall select for review those cases which by diagnosis, problem, treatment or procedure represent in his/her judgment the most significant risk to patients.

F. Summary of Prerequisites, Proctoring and Reappointment Competency

Prerequisite:

- a. Specialty training will be provided by the Interventional Radiology attendings as part of the orientation process.
- c. Observe 2 lumbar punctures/drain insertions with MD.

Proctoring Period:

- a. New practitioner to procedure, a minimum of 5 successful observed demonstrations.
- b. Experience practitioner to procedure, a minimum of 3 successful observed demonstrations.
- c. Three medical record reviews/audits by the Chief of Interventional Radiology or Clinical Supervising Physician designee.
- d. Proctoring will be performed by the Chief of Interventional Radiology and/or his or her designee.
- e. Successful completion of these requirements as determined by the Chief of Interventional Radiology or Clinical Supervising Physician designee is needed prior to independent practice.

Evaluation of Reappointment Competency:

- a. Evaluation will be performed by Supervising Physician and/or his or her designee.
- b. Demonstration of 3 procedures every 2 years.
- c. Three chart reviews every 2 years.

## Procedure: Protocol #7: Chest Tube Removal

### A. DEFINITION

For the purposes of this protocol, a chest tube is defined as an indwelling catheter placed in the thoracic cavity for therapeutic removal of fluid or air, or a catheter placed by the Interventional Radiology service for similar processes, such as abdominal drains.

1. Location to be performed: The removal of a chest tube will be performed in the Radiology Department setting.
2. Indications
  - a. Patient symptoms related to intrapleural air/fluid have diminished
  - b. Patients current chest radiograph/ laboratory studies support procedure
3. Precautions/Contraindications
  - a. Relevant diagnostic modalities indicate continued presence of air/fluid.

### B. DATA BASE

1. Subjective Data
  - a. Comfort, c/o shortness of breath, exercise tolerance.
  - b. Pertinent past medical history, surgical history, family history, hospitalizations, habits, current medications
  - c. Relevant history and review of symptoms including but not limited to: results respiratory, allergies.
2. Objective Data
  - a. Appropriate physical exam including but not limited to: results of previous chest imaging, quantity and quality of output from the CT, evaluation for air leak, oxygen saturation, and breath sounds, to confirm appropriateness of procedure.
  - b. The procedure is performed following standard medical technique according to the departmental guidelines/ standard.
  - c. Evaluation of the chest tube insertion site for signs of infection including but not limited to purulence, erythema, induration, fluctuance, foul odor.
  - d. Review of current medication regiment including recent analgesia administration.
  - e. Laboratory and imaging evaluation, as indicated, relevant to history and exam.
  - f. All Point of Care Testing (POCT) will be performed according to SFGHMC POCT policy and procedure 16.20.



## C. DIAGNOSIS

Resolution of pneumothorax, hemothorax, effusion, suspected malfunction of the chest tube to function adequately (e.g. suspected clotted tube, proximal hole external to chest wall cavity). Prior to chest tube removal, the Interventional Radiology Service will complete an assessment of the subjective and objective data- see above.

## D. PLAN

### 1. Therapeutic Treatment Plan

- a. Explain procedure to the patient, if possible. If patient unable to understand, advise bedside nurse of procedure and plan.
- b. Patient consent obtained before procedure is performed and obtained according to hospital policy.
- c. Time out performed per hospital policy.
- d. Diagnostic tests to confirm appropriateness of procedure.
- e. This procedure is performed following standard medical technique according to the departmental guidelines/ standards.
- f. Observe patient for signs of respiratory compromise immediately following procedure including (as indicated) respiratory rate, pattern, oxygen saturation and resolution of pain symptoms (if any). For ventilated patients, observe the measured airway pressures post removal.

### 2. Patient conditions requiring Attending Consultation

- a. Acute decompensation of patient situation including but not limited to acute shortness of breath, persistent desaturation post removal.
- b. Evidence of, or suspicion of air intra-thoracic air entrapment at the time of or immediately after removal (e.g. audible leaking from the chest wound site at the time of removal, increased intrathoracic pressures on ventilated patients).
- c. Inability to remove the chest tube fractured or retained catheter.
- d. Given evidence of increasing or unstable pneumothorax on post-pull imaging.
- e. Upon request of patient, NP, PA, or physician

### 3. Education

Provide patient education related to the procedure. If patient is unable to comprehend instructions due to decreased mental status, provide nursing instruction prior to performance. If patient is on a ventilator or positive pressure ventilation advise respiratory therapist prior to performance.

4. Follow-up
  - a. Reassess the patient frequently following the procedure.
  - b. As appropriate, obtain a follow up chest radiograph 4-6 hours after the completion of the procedure.
  - c. Advise the patient and the nurse not to disrupt the occlusive dressing for at least 72 hours post removal.

**E. RECORD KEEPING**

1. A comprehensive procedural note and post procedure assessments will be documented in the medical record. Any sutures not removed at the time of the chest tube removal shall be described in this note.
2. For Physician Assistants, a minimum of five (5) percent of the patient chart entries will be reviewed, signed and dated by the Supervising Physician within thirty (30) days of the patient encounter.

**F. Summary of Prerequisites, Proctoring and Reappointment Competency**

<p><b>Prerequisite:</b></p> <ol style="list-style-type: none"> <li>a. Specialty training will be provided by Interventional Radiology attendings as part of the orientation process.</li> <li>b. Observe 2 chest tube removals with MD.</li> </ol>
<p><b>Proctoring Period:</b></p> <ol style="list-style-type: none"> <li>a. New practitioner to procedure, a minimum of 5 successful observed demonstrations.</li> <li>b. Experience practitioner to procedure, a minimum of 3 successful observed demonstrations.</li> <li>c. Three medical record reviews/audits by the Chief of Interventional Radiology or Clinical Supervising Physician designee.</li> <li>d. Proctoring will be performed by the Chief of Interventional Radiology and/or his or her designee.</li> <li>e. Successful completion of these requirements as determined by the Chief of Interventional Radiology or Clinical Supervising Physician designee is needed prior to independent practice.</li> </ol>
<p><b>Evaluation of Reappointment Competency:</b></p> <ol style="list-style-type: none"> <li>a. Evaluation will be performed by Supervising Physician and/or his or her designee.</li> <li>b. Demonstration of 3 procedures every 2 years.</li> <li>c. 3 chart reviews every 2 years.</li> </ol>

## Procedure: Protocol #8: Abdominal Paracentesis

- A. Definition - Abdominal paracentesis entails inserting a needle through the abdominal wall into the peritoneal cavity under local anesthetic for aspiration of peritoneal fluid (ascites). The term ascites denotes the accumulation of fluid in the peritoneal cavity.
1. Locations to be performed: Emergency Department, inpatient units, Radiology Department.
  2. Performance of Procedure: (When possible paracentesis should be performed bedside with ultrasound guidance; an alternative is to have fluid localized and transport patient on same bed used for marking, i.e. patient is not moved).
    - i. Indications:
      - a. New onset ascites, i.e. to identify the etiology (infectious, malignant, cirrhotic).
      - b. Pt with ascites, fever, abdominal pain, i.e. to evaluate for spontaneous bacterial peritonitis.
      - c. Symptomatic treatment of tense ascites.
    - ii. Precautions:
      - a. INR greater than 4.0, Platelets less than 30K.
      - b. Intra-abdominal adhesions or suspicion for loculated fluid.
      - c. Pregnancy
      - d. Necessity for ultrasound guided paracentesis if any conditions listed above are present.
    - iii. Contraindications:
      - a. Fibrinolysis or DIC.
      - b. Cellulitis at puncture site.
- B. Data Base
1. Subjective Data
    - a. History and review of symptoms relevant to the presenting complaint and/or disease process.
    - b. Pertinent past medical history, surgical history, family history, psychosocial and occupational history, hospitalizations/injuries, current medications, allergies, and treatments.
  2. Objective Data
    - a. Physical exam appropriate to presenting symptoms.
    - b. Laboratory, Point of Care Testing (POCT), and imaging studies, as indicated, relevant to history and exam.

D. Plan

1. Therapeutic Treatment Plan.
  - a. Informed consent obtained prior to procedure and according to hospital policy.
  - b. Time out performed according to hospital policy.
  - c. Diagnostic tests for purpose of identifying disease etiology. Sent for cytology as relevant.
  - d. Initiation or adjustment of medication per Furnishing/Drug Orders Protocol.
  - e. Referral to specialty clinic, supportive services for provider as needed.
2. Patient conditions requiring attending consultation
  - a. All patients with conditions listed in precaution section.
  - b. Acute decompensation of patient.
  - c. Upon the request of the patient, PA, NP or physician.
3. Education
  - a. Appropriate and relevant patient and family education in written and/or verbal format.
  - b. Contact information for follow up should needle puncture site result in leaking ascitic fluid.
4. Follow-up
  - a. As indicated and appropriate for procedure performed.

E. Record Keeping

Patient visit, consent forms, and other transfusion-specific documents (completed transfusion report and "blood sticker") will be included in the medical record, Care Vue, LCR and other patient data bases, as appropriate. For physician assistants, using protocols for supervision, the supervising physician shall review, countersign and date a minimum sample of five (5%) sample of medical records of patients treated by the physician assistant within thirty (30) days. The physician shall select for review those cases which by diagnosis, problem, treatment or procedure represent in his/her judgment, the most significant risk to the patient.

F. Summary of Prerequisites, Proctoring and Reappointment Competency

Prerequisite:

- a. Specialty training will be provided by Interventional Radiology attendings as part of the orientation process.
- b. Observe 3 Abdominal Paracentesis procedures with MD.

**Proctoring Period:**

- a. New practitioner to procedure, a minimum of 5 successful observed demonstrations.
- b. Experience practitioner to procedure, a minimum of 3 successful observed demonstrations.
- c. Three medical record reviews/audits by the Chief of Interventional Radiology or Clinical Supervising Physician designee.
- d. Proctoring will be performed by the Chief of Interventional Radiology and/or his or her designee.

**Evaluation of Reappointment Competency:**

- a. Evaluation will be performed by Supervising Physician and/or his or her designee.
- b. Demonstration of 3 procedures every 2 years.
- c. Three chart reviews every 2 years.

## Protocol #9 Procedure: Interventional Radiology Procedural Assistant

### A. DEFINITION

This protocol covers the participation of the Nurse Practitioner who provides assistance to Interventional Radiology Attendings during interventional radiology procedures, where an Interventional Radiology Attending or Neuro-Interventional Radiology Attending is the primary operator and is present in the interventional radiology suite or at the patient bedside during procedures performed outside of the IR suite. The assisted procedures will be angiography, venography, angioplasty, venoplasty, vascular embolization procedures, image guided biopsies, drainage procedures, drainage catheter placements, transjugular intrahepatic portosystemic shunts, inferior vena cava filter placements, gastrostomy tube placements, liver biopsies, chest tube placements, thoracentesis, chest port placements, chest port removals, tunneled central venous catheter removal, central venous catheter removal procedures, and venous access procedures. Assistance refers to the process where under an attending's direct supervision and direction, the Nurse Practitioner assists the attending operator in the technical steps of the interventional radiology procedure, but does not independently perform them. Where technical steps of the procedure are the administration of medications, obtaining vascular access, suturing, preparation of instruments, tissue dilation, tissue dissection, tissue cutting, manipulation of intra-corporeal instruments, manipulation of intra-corporeal needles, manipulation of intra-corporeal catheters, and drain insertions.

1. Location to be performed: Radiology Department, inpatient units, and Emergency Department.
2. Performance of procedure:
  - a. Indications  
This protocol addresses patients presenting to the Radiology Department, or patients undergoing interventional radiology procedures on the inpatient units, or in the Emergency Department.
  - b. Precautions  
None
  - c. Contraindications  
None.

### B. DATA BASE

1. Subjective Data
  - a. History of chief complaint and review of symptoms relevant to the suggested procedure, possible organ systems

affected by the procedure, mechanism of injury and type of injury

- b. Pertinent past medical history including current medications, allergies, clotting disorders, previous wound history, previous vascular disease history, previous history of infection.

## 2. Objective Data

- a. Physical exam of the system prescribed for procedure, i.e. for neurovascular procedures performing neurologic exam, for vascular procedures providing an examination of associated tissues perfused.
- b. When a drain is implemented, data will include quantity and quality of drainage, level of set negative pressure, and assessment of the site.
- c. Appropriate motor, sensory and vascular exam of the involved area.
- d. The procedure is performed following standard procedural technique according to departmental guidelines.
- e. Laboratory and imaging evaluation, as indicated, relevant to history and exam. Appropriate laboratory values to be considered include (but are not limited to): complete blood count and coagulation studies, nutritional status and electrolytes.
- f. All Point of Care Testing (POCT) will be performed according to SFGH POCT Policy and Procedure 16.2.

## C. DIAGNOSIS

Assessment of subjective and objective data to identify disease process requiring intervention.

## D. PLAN

### 1. Therapeutic Treatment Plan

- a. Patient consent obtained before procedure is performed and obtained according to hospital policy.
- b. Explain procedure to the patient (if patient unable to receive information due to mental status, explain to surrogate and/or bedside RN) Explain the procedure to the family.
- c. Diagnostic tests for purposes of disease identification.
- d. Time out per hospital policy.
- e. Biopsy tissue is sent to pathology if specimen collected.
- f. Initiation or adjustment of medication per Furnishing/Drug Orders protocol.
- g. Referral to physician, specialty clinics, and supportive services, as needed.

2. Patient conditions requiring Attending
  - a. All assisted interventional radiology procedures shall be performed in direct consultation with an Interventional Radiology Attending or Neuro-Interventional Radiology Attending, who will be in the IR suite during assisted procedures.
3. Education:  
Discharge information and instructions.
4. Follow-up:  
As appropriate for procedure performed.

**E. RECORD KEEPING**

1. Documentation of a detailed procedure note will be recorded in the medical record. Required follow up of the wound (e.g. suggested suture removal dates, ongoing care to be delivered by nursing/wound care orders, or future drain change) will be indicated in the procedure note and in daily progress notes.
2. All procedural dictations are reviewed and cosigned by an Attending Physician for quality assurance purposes.

**F. Summary of Prerequisites, Proctoring and Reappointment Competency**

<p><b>Prerequisite:</b></p> <ol style="list-style-type: none"> <li>a. Completion of 10 observed cases.</li> <li>b. Specialty Training Provided by Interventional Radiology Attendings.</li> </ol>
<p><b>Proctoring Period:</b></p> <ol style="list-style-type: none"> <li>a. All procedures will have direct supervision from a consulting Attending Interventional Radiologist or Neuro-Interventional Radiologist. Review will be done after each case.</li> <li>b. Proctoring period will be three months in length.</li> </ol>
<p><b>Reappointment Competency Documentation:</b></p> <ol style="list-style-type: none"> <li>a. Minimum number of 10 procedures must be completed every two years.</li> <li>b. 10 chart reviews needed every two years.</li> <li>c. Direct observation of 2 procedures needed every 2 years.</li> </ol>