University of California Davis Medical Center
Department of Neurological Surgery
Nurse Practitioner Orientation

Welcome

Welcome to the Department of Neurological Surgery. We look forward to a rich and rewarding work relationship with you. You will have many learning opportunities and can advance your skill set in the neurosurgery specialty arena. This orientation reference is designed to introduce you to our department and provide a guide to your orientation program and a brief introduction to basic neurosurgery concepts. If you have questions, please don't hesitate to use the resources outlined here.

Hours of Work

Your normal hours of work may vary based on the departments but NO holidays and NO evening or night shifts. Your shift will be a 10 hour shift. On Friday in the hospital, you will work with NP 1. Report to the neurosurgery work room (3rd floor, Pavilion, code 5-3-1) at 6:00 AM. **Hospital hours of work will be 6:00 – 4:30PM.** You will be working closely with Jeff or Christi for the first four weeks. We will give you increasing assignments as you build skill. You should take **no more than 10 patients** and only more than then we you feel you can manage the workload. There is no approved overtime. If overtime is required for the emergent care of patients, please discuss approval with your supervisor, **LIST PERSON.**

After-hours care for patients with active neurosurgical issues will be managed by the on-call neurosurgeon/resident. **You are not responsible for returning calls to the ICU nurses or ancillary staff when you are not available to evaluate the patient**. All calls from residents or attendings should be returned at your earliest convenience as a professional courtesy to your colleagues.

All requests for vacation or time off must be submitted to **Supervisor** and your supervising physician**.** In general, decisions are based on seniority and staffing needs. Notification and coordination of time off with your nurse practitioner peers is a professional courtesy expected among colleagues.

Key Contact Information

Contact	Title	Phone/Pager
Neurological Surgery	Main Office	734-3658
Neurological Surgery	Main Fax	703-5368
Radmila Bogdanich	Chief Administrative Officer	734-8365
Kimberly Devaghn	Department supervisor	734-6512
Rip Panchal	Assistant professor	2603
James Boggan	Professor/chair	5700
Kee Kim	Associate professor	4531
Ben Waldau	Assistant professor	4230
Kia Shahlaie	Assistant professor	8401
Marike Zwienenberg-Lee	Assistant professor	1366
Amir Goodarzi	Resident	8865
Krista Keachie	Resident	8246
Darrin Lee	Resident	0977
Jared Ament	Resident	1823
Charity Tan	NP	816-1951
Bridget Wilson	NP	734-3639/ 2814
Joan Holmes-Asamoah	NP	955-2450/ 1058
Christi DeLemos	NP- Supervisor	734-6513/ 2092
Linda Jagels	NP	612-1328/ 1887
Nancy Rudisill	RN	734-3491/ 8787
Sotiris Papamichael	PA	734-7056/ 1837
East 5	Floor	734-2864
Davis 14	Floor	703-3140
Davis 7	Floor	703-3070

NSICU (Pavilion 3)		43303
NSG Spine clinic		47463
Boggan Clinic back-line	ACC clinic	48519
Kristen (all neurosurgery)	Discharge Planner	8174
ID Pharmacist		34026
Inpatient pharmacy	Pharmacy	34084
8th floor inpatient pharmacy	Pharmacy	34072
Pavilion pharmacy	Pharmacy	36120
Door code to neurosurgery workroom Next to NSICU		531
NSG Call Room		
Neuroradiology reading room		45714
Dublin --Neuroradiology	Neuroradiology	6520
Brian Dahlin	Neuroradiology	9506
Trauma Blue		5300
Trauma Gold		7148
IR Pager		3907
PICC Nurse		5379
Radiology		43119
Vocera		40775
Lab		40500
Micro		42544
Peter Tham—OR lead RN		Voicera
Coumadin dosing pharmacy		36122
MRI tech		47959
Pain pharmacy consult		1457

Meetings

The following departmental conferences recur monthly:
You are encouraged to attend Morbidity and Mortality, Midlevel provider-Faculty joint meeting and Clinical Quality Improvement. Other meetings may be attended based on your professional development needs and workload.

- BASIC SCIENCE/BOARD EXAM PREPARATION 1st & 3rd Tuesdays, 10:30 – 11:30 am Ambulatory Care Center, Suite 3740, Library, UCDMC Contact Staci , 734-3071
- BRAIN TUMOR BOARD 2nd and 4th Thursday of the month, 7:30 – 9 a.m. Ambulatory Care Center, Suite 3740, UCDMC Contact Robert Dillman, 734-6511
- BRAIN TUMOR SUPPORT GROUP 1st Thursday of the month, 6:30 – 8:30 pm Ambulatory Care Center, 3015B Contact Karen Smith, 734-5613
- **CLINICAL QUALITY IMPROVEMENT 4th Tuesday of the month, 9:00 – 10:30 am Ambulatory Care Center, Suite 3010A, UCDMC Contact Robert Dillman, 734-6511**
- EPILEPSY JOURNAL CLUB 2nd Mondays, 5:00 – 7:00 pm Ambulatory Care Center, 3030C Contact Neurology, 734-6280
- FACULTY MEETINGS Monthly on 1st Tuesday, 8:30 – 10:30 am Ambulatory Care Center, Suite 3740, Library, UCDMC Contact Radmila Bogdanich, 734-8365
- GRAND ROUNDS Monthly on 2nd Tuesday, 10:00 – 11:00 am Ambulatory Care Center, Suite 3015B, UCDMC Contact Robert Dillman, 734-6511
- INTER-DISCIPLINARY SPINE CONFERENCE 1st Tuesday of the Month, 7:00 – 8:00 am ACSU, G344 Main Hospital, UCDMC Contact Cheryl Williams, 734-3102
- JOURNAL CLUB 2nd and 4th Tuesday of the month, 12:30 – 1:30 pm Ambulatory Care Center, Suite 3740, Library, UCDMC Contact Staci, 734-3071
- **MORBIDITY & MORTALITY 4th Tuesday of the month, 9:00 – 10:30 am Ambulatory Care Center, Suite 3740, UCDMC Contact Robert Dillman, 734-6511**
- NEUROGANZA 1st and 3rd Tuesdays, 8:00 – 9:00 am TDCR, 1st Floor Main Hospital, UCDMC Contact Angela Zabel, 734-6541
- SPINE CONFERENCE 2nd and 4th Tuesday of the Month, 1:00 – 2:00 pm Ambulatory Care Center, Suite 3740, Library, UCDMC Contact Meagan Lundsford, 734-3102
- **MID LEVEL PROVIDER-FACULTY MEETING- 1st Tuesday of the month at 1:30 PM**

University of California Davis Medical Center
Nurse Practitioner Orientation for
New NP

Purpose

The purpose of this plan is to provide orientation for New NP, RN, MSN, FNP-BC over a 6-month period (full time equivalent if working part time).

Goal

To provide adequate introduction to and review of the role as a Nurse Practitioner on the Neurological Surgery Service to New NP in the in-patient setting and out-patient setting.

Objectives

To afford New NP the support and mentoring required to succeed in the Neurological Surgery Nurse Practitioner role at the University of California Davis Medical Center.

Process

- Orientation process is in effect from 9/12/16 – 3/12/17. Process will be overseen by Christi DeLemos, NP Supervisor
- Physician supervision will be provided by Lara Zimmerman, MD and Ryan Martin, MD
- Jeff Kasten, and other clinic NP's as assigned will provide orientation for New NP.

Standardized Procedures

- New NP shall practice under the standardized procedure for the "Nurse Practitioner in Neurological Surgery" VII-51, effective 12/12/11.
- New NP shall be responsible for obtaining the necessary documentation when procedures are supervised in preparation for certification to perform a standardized procedure (see attached table).

Neurosurgical Patient Scenarios for Review/Education

Goal of review is knowledge of:

- Indications for procedures
- Clinical findings
- Post-operative evaluations
- Possible complications/indications for further evaluation of the following topics:

1. Evaluation/medical & interventional management for patients with acute non traumatic neurological decline
2. Evaluation/medical & interventional management for patients with sepsis
3. Evaluation and medical management of ventilated patients including determining the indications for intubation and extubation
4. Pre/post-operative care of endoscopic endonasal approach for tumor resection
5. Pre/post-operative craniotomy for tumor resection
6. Pre/post-operative craniotomy for elective and non-elective surgical clipping of brain aneurysms
7. Non-operative management of cervical spine injury – halo, collar, or other immobilization device
8. Pre/post-operative procedure for thoracic traumatic injury
9. Non-operative management of thoracic spine injury – TLSO or other immobilization device
10. Pre/post-operative complex posterior lumbar fusion
11. Pre/post-operative complex anterior lumbar fusion
12. Pre/post-operative non-fusion lumbar procedure
13. Pre/post-operative procedure for lumbar traumatic injury
14. Non-operative management of lumbar spine injury – TLSO or other immobilization device
15. Pre-post-operative spinal tumor
16. Pre/post-operative craniotomy for ICH
17. Pre/post-operative craniotomy for posterior fossa ICH
18. Non-operative management for SAH/aneurysm coiling
19. Evaluation/medical & interventional management of vasospasm
20. Pre/post-operative craniotomy for infection/abscess
21. Pre/post-operative craniotomy for epilepsy focus resection/mapping
22. Pre/post-operative cranioplasty
23. Pre/post-operative craniotomy for evacuation of traumatic SDH
24. Pre/post-operative craniotomy for evacuation of traumatic EDH
25. Pre/post-operative craniotomy for evacuation of traumatic ICH
26. Pre/post-operative craniotomy for evacuation of traumatic contusion/lobectomy
27. Pre/post-operative craniectomy for trauma/stroke
28. Pre/post-operative burr hole drainage of SDH
29. Non-operative management of traumatic brain injury (mild – severe)
30. Evaluation/medical & interventional management of intracranial hypertension/insufficient cerebral perfusion
31. Pre/post-operative VP shunt placement
32. Pre/post-operative LP shunt placement (as available)
33. Pre/post-operative VA shunt placement (as available)
34. Pre/post-operative Ommaya reservoir placement
35. Pre/post-operative third ventriculostomy

Supervision to Perform Standardized Procedures

In order to be certified to perform a standardized procedure, the following supervision must occur:

To be performed during 6-month orientation period:

- Removal of neuro-monitoring device: one of each type supervised by a Neurological Surgery Service clinician.
  - Ventriculosotomy with suture close of the drain site
  - Parenchymal ICP monitor with suture closure of the site
  - Subdural (if available) with suture closure of the site
  - Subgaleal (if available)
  - Tissue oxygenation monitor (Licox) (if available)
- Tapping reservoir for cerebral spinal fluid specimen: one supervised by neurosurgery service clinician.
- Removal of subarachnoid lumbar catheter: one supervised by neurosurgery service clinician.
- Placement of a scalp vein needle in an implanted reservoir: one supervised by neurosurgery service clinician.
- Intraventricular medication via an implanted reservoir: one supervised by neurosurgery service clinician.
- Removal of a surgical wound drain: one supervised by neurosurgery service clinician.
- Arterial line placement: Two initial and one annual supervised by Jeff Kastens or NCC/neurosurgery physician.
- Central line placement: Two initial and one annual supervised by Jeff Kastens or NCC/neurosurgery physician.

Not required to be completed during 6-month orientation period:

- TCD competency: Five initial and one annual supervised by a certified NP or NCC/neurosurgery physician.

Minimal Practice Experiences to Accomplish During Orientation

New NP should minimally accomplish the following activities during his orientation period:

- Identify/be able to perform pertinent neurological assessment of patients:
  - After severe traumatic brain injury
  - After mild/moderate traumatic brain injury
  - After subarachnoid hemorrhage/stroke
  - With seizure disorders
  - With intracranial lesions/post-craniotomy
  - With cervical spine processes
  - With lumbosacral spine processes
  - With central nervous system infection
- Identify common neurosurgical disorders and their treatment
- Identify common post-operative complications, their evaluation and treatment
- One simple hospital discharge of craniotomy patient

- One complex hospital discharge of craniotomy patient
- One simple hospital discharge of spine patient
- Two complex hospital discharge of spine patient
- Two hospital discharge to skilled nursing facility
- One hospital discharge to PM&R
- One transfer summary to outside facility
- Two transfer orders from ICU
- Two transfer orders to another service
- Two transfer orders from another service
- Collaborate on two hospital consultations with another qualified neurosurgery clinician (NP or MD)
- Two pre-operative H&P's
- Two critical care notes
- Five procedure notes
- Scheduling follow up care (3)
- Recognition of radiographic findings on MRI brain and spinal axis imaging

Additional Practice Experiences to Try to Accomplish during orientation period but Not Required within the 6-month period:

- Admission from outpatient setting
  - One from ER
  - One from clinic
- Ventilator management
  - Orientation to
    i) Intubation criteria and initial vent settings
    ii) Extubation criteria
    iii) Weaning strategies
    iv) Management of acute respiratory distress
- Neurologic emergencies
  - General principals of:
    i) Initial examination
    ii) Stabilization measures
    iii) Diagnostic work up
- Documentation/Imaging orientation (must take classes as available from health system regarding)
  - EMR
  - Stentor

Orientation to Physical Locations with in UCDMC

Ms. Sitts will be introduced to staff and physical locations of pertinent patient care areas:

- East 5
- Davis 14
- NSICU (Pavilion 3)
- Operating Room locations
- Emergency Department
- Radiology
  - CT
  - MRI
  - X-ray

- Nuclear medicine
- Pediatric Ward (Davis 7)
- Pediatric ICU (Davis 10)
- Spine Center
- ACC academic offices

Physician Index Number

Ms. Sitts will be able to function in the role of a nurse practitioner only with supervision until a PI number is granted. The PI number should be granted on approval of IDPC review of application for privileges.

Furnishing

Ms. Sitts has already been granted a furnishing license. The license must remain current while employed as an NP.

Expectations

- Possess and read the Nurse Practice Act
- Display professional behavior and dress at all time
- Practice sound medical and nursing judgement in approach to the neurological surgery service patient
- Uphold the philosophies of the neurological surgery attending physicians
- Review neurological assessment of patients in order to be able to successfully perform pertinent neurological examination on patients.
- Identify common neurosurgical disorders and their treatment.
- Function with sound judgement and acknowledge patient safety at all times
- Have a thorough understanding of the protocols and standardized procedures which govern how she functions within the inpatient and outpatient setting
- Shall have all physical assessments witnessed directly or through immediate presentation to the supervising physician until otherwise agreed upon by the clinical supervising physician and Ms. Sitts
- Shall not write orders for medication independently until PI number is assigned and then in accordance with approved medication list.
- Shall make every reasonable effort to have all verbal orders co-signed by the responsible physician.
- Have any procedure and/or intervention not routinely performed reviewed and approved by the supervising clinical physician before performance. Only procedures for which an approved standardized procedure exists can be performed.
- Shall be aware of and follow all Standards of Patient Care as contained in the UCDHS Patient Care Standards Manual

Patient Management Scenarios

- In order to provide guidance and ensure appropriate clinical decision-making, a designated department nurse practitioner, or Ms. DeLemos will be contacted at least once daily to review issues surrounding a clinical

situation/scenario. Ms. Sitts will present the issue along with pertinent data and report his clinical decision or ask for advice/guidance in order to make a clinical decision.

- Scenarios presented will not include critical or life-threatening situations unless a department NP, or NCC provider are immediately available.
- These contacts will be documented on the attached form by New NP, by a designated department NP or NCC provider and will be included in monthly reports.

Clinical Practice Supervision

Clinical practice supervision shall be provided by:

- Lara Zimmerman, MD
- Ryan Martin, MD

Orientation

Ms. Sitts shall spend 4 weeks with a designated department NP, and Ms. DeLemos shall provide written and oral assessment of New NP's performance during the orientation period.

Reports

Reports will be provided to James Boggan, MD at the end of the orientation period. The reports will include:

- Summary of observed clinical practice
- Summary of reviewed paperwork
- Summary of orientation time
- Summary of supervised procedures performed for standardized procedure certification
- Summary of any issues
- Summary of quality of practice from supervising physician

Meeting

A designated department NP shall meet routinely with New NP. Initially, these meetings will be scheduled weekly and be spaced out in line with progression of knowledge base. Open lines of communication will be fostered. Either party may initiate meetings.

Date completed	Procedure	Observed/ Reviewed by	Satisfactory/ Unsatisfactory	Comments
	Daily hospital ward progress note			
	Simple hospital discharge of craniotomy patient			
	Complex hospital discharge of craniotomy patient			
	Simple hospital discharge of spine patient			
	Complex hospital discharge of spine patient			
	Hospital discharge to skilled nursing facility			
	Hospital discharge to PM&R			
	Management of consults to other services			
	Transfer orders from ICU			
	Management of acute decline in hospital			
	Hospital consultation (collaborated) Critical care progress note			
	Ventilator daily management			
	Ordering extubation			
	Pre-Operative H&P			
	MRI/CT findings of TBI			
	MRI C spine trauma recognition			
	MRI L spine trauma recognition			
	MRI Brain tumor recognition			
	MRI vascular recognition			
	Tapping reservoir for CSF specimen supervised by neurosurgery service clinician.			
	Intraventricular medication or shunt function study supervised by neurosurgery service clinician.			
	Removal of subarachnoid lumbar catheter supervised by neurosurgery service clinician.			
	Placement of a scalp vein needle in an implanted reservoir supervised by neurosurgery service clinician.			
	Removal of ventriculosotomy supervised by neurosurgery service clinician.			
	Removal of subdural device supervised by neurosurgery service clinician.			
	Removal of subgaleal device supervised by neurosurgery service clinician.			
	Arterial line placement.			
	Central line as per Department of Continuing Clinical Nursing.			
	Transcranial Doppler			

University of California Davis Medical Center
Nurse Practitioner Chart Review and Monthly Proctoring Report

Nurse Practitioner name: New NP, RN, MS, ACNP

Department: Neurological Surgery

Evaluator: _____

General Role & Skills: The evaluator shall assess the general skills of the Nurse Practitioner by chart review or by direct observation.

	Satisfactory	Unsatisfactory	Not applicable
Elicit & document health history			
Perform & document physical examination			
Order & interpret diagnostic tests			
Monitor, evaluate, & document patient response to interventions			
Initiate & adjust plan of care in collaboration with MD			
Appropriately manage pre-operative care and clearance			
Facilitate admission & discharge of patients			

Comments (including areas of concern for which remedial action and/or more orientation is planned): _____

Signature: _____ Date: _____

Typical daily schedule/duties

1. Schedule
    - 6:00AM--meet in NSICU, work room (Hospital days)
        - Round on floor patients in the workroom with team
    - Responsibilities Hospital:
        - Conduct a cursory review of labs, vitals for your patient list
        - Put in orders and consults after rounds
        - Examine all patients assigned
        - Prioritize patients for transfer to a lower level of care
        - Review imaging studies, micro results, labs, consulting services recommendations
        - Review attendings addendum to notes from the day before
        - Perform procedures as requested
        - Modify plan of care as needed with collaborating NCC provider
        - Assist with progress notes as requested

    - Hospital sign out with resident/NCC provider at conclusion of shift- no overtime.
        - For each patient, you should be able to summarize the procedure performed and POD, (eg POD#....S/P….) If a VPS was placed, please be aware of what kind of shunt was placed and what the setting is.
        - If on Antibiotics, be able to summarize the indication, day # of treatment /end day#
        - Dose of Steroids and when we plan to taper
        - Coumadin dose ordered and current INR
        - HV/EVD/LD drainage over the day
        - DC plan, new consult input
        - Procedures you performed and any complications
        - Important clinical changes and modifications to the treatment plan

    - Prior to credentialing- YOU MUST HAVE ALL NOTES COSIGNED.

Practical tips

- Do not call any of our attendings unless you have first used the chain of command to review your concerns with your colleagues and our resident team. You should know the following:
    - Patient history
    - POD day and procedure performed
    - Last 24 hours of clinical data: current labs, vital signs, examination findings (examine the patient yourself, DO NOT RELY ON SOMEONE ELSES' WORK.
    - A concise question and your proposed plan of action

- Do NOT refill narcotics over the phone- ALL of our patients are on a pain contract which limits narcotic refills to 3 months post op. We DO NOT provide pre-op narcotics. We DO NOT replace lost or stolen medications. We DO NOT allow the patient to receive scripts from multiple providers.
- Remember to remove sutures from people who are in the suture book
- Remember to write down patients who need sutures removed into the suture book if they are going to stay in the hospital for a few weeks. This is especially important for the consult patients who fall off the list--the suture book is the only way of finding them again. No one else will remind you to do this, so stay on top of all the post-ops, lumbar drains or EVD's pulled--whether they are ICU, floor, or consult patients.
- Remember to pull hemovac's from patients when output is <100cc/day (this varies by attending/case)

Hematocrit goals (general guidelines- please follow the advice of yout NCC supervisor

- Stroke, vasospasm, cardiac hx: >30
- TBI >25
- Otherwise >21

Platelets

- Pre-op: goal >100k

Electrolyte goals

- Target Na>= 140 to help prevent cerebral swelling and raise seizure threshold. All medications should be in normal saline. May replete with salt tabs/ 3% at 50 cc hr.
- Target Mg>= 2.0 to raise seizure threshold
- Target K >= 4.0

Vasospasm:
Pravastatin for 14 days
Nimodipine for 21 days or day of discharge

Discharges

Ensure patient is medically stable for discharge home (taking po, voiding, pain controlled, wound with good hemostasis)

1. Ask the patient what pharmacy they want to use
2. Verbally review discharge instructions. For written instructions to the patient, start by using standard dot-phrases for discharge instructions—check with Christi!
3. Get paper Rx's for schedule 3 narcotics--can only write one narcotic per paper script, provide enough to get to the post-op check and document amount given in the discharge summary
4. Schedule follow up care per attending preference
5. Schedule appointment for suture removal or remind them in discharge instructions.
6. Patients who take aspirin at home prophylactically, instruct them to not take it for 5-7 days after surgery

Follow-up pattern by attending:

Panchal	2, week wound check with RN, 4-6 weeks with the surgeon
Waldau	2 weeks
Girgis	2 weeks
Shahlaie	2 weeks
Lee	2 weeks
Kim	7-10 days with nurse for sutures 6 weeks All others
Boggan	2 weeks

All fusions: get AP/ Lateral post-op x-rays
Cervical fusion all 3 levels--wear aspen collar 12 weeks (check physician specific preferences)
Lumbar fusions—wear Baurerfield brace when OOB for 12 weeks. (check physician specific preferences)

Suture removal

Craniotomy/cranioplasty	7-10 days

Back	7-10 days
Face	5-7 days
EVD stitch	7-10 days
VPS	7-10 days

Discharge tab

- Orders
  - Reconcile medications
  - Stop NSAIDS (for fusions), can continue ASA if for a cardiac indication
  - General discharge order set
  - New orders for discharge (make sure they are outpatient orders, not inpatient, which has a bed icon)

Pre-op

- Perform general medical survey (PE, Clinical hx) If concerns for operative safety, consult Gen Med
- Labs: UA, Type and Screen, CBC, BMP, coags
- Notify the attending of any lab abnormality that would affect operative safety
- Repeat labs or order additional labs as required
- If you even suspect UTI, treat it empirically w/abx (we have a low threshold for pre-operative treatment)
- Make sure they stop warfarin or other direct thrombin inhibitors, aspirin and Plavix and all antiplatelet agents and NSAIDS (7 days before), fractionated heparin (day before), etc.

Post-op

The resident/intern does post-op checks on *every* patient

Your exam should focus on inspection of the surgical site and re-evaluation of their known baseline function, (evaluate for any post-operative change). If decline in neurologic function noted, contact supervising NP/resident immediately.

Post-op orders

- Some fusions will require a PCA, review their out patient meds and consult pain pharmacy as necessary. Convert to PO regimen usually POD1 or 2.
- Microdiscectomies typically go home the same day, if not, ensure DC home next day
- The small surgeries with low EBL's don't need any post-op labs
- Typical post op pain regimen Dilaudid or Morphine IV, Oral (percocet, vicodin, or norco), and a muscle relaxer like valium- always ensure bowel care while on narcotics!
- Make any ALIF 360 is NPO until trauma clears them to eat, will need PCA since unable to take PO.Otherwise, you can ADAT
- Order pain pharmacist consult for people who have established excessive narcotic use at home
- For anyone who was prone during surgery, check their eyes
- If they have sutures and are going to stay in-house for a while, put their name in the suture book
- Some patients will get post-op x-rays or CT's, or require post-op orthotics. Find out what's typical from the resident or NP.

Lumbar Drains

Some attendings want antibiotics--they'll let you know
Avoid draining more than 20cc's per hour.
Check w/resident about how high to set the drain

Typical order for titrating drain:
"Lumbar Drain"
Set at level of 5cm above level of external auditory canal. Call 5599 if draining more than 20cc/hr for 2 consecutive hours, or if 0 cc's per hour for 2 consecutive hours.

Summary of drains by type

Always know where the drain terminates before removal!!

Subgaleal drain
Located in the subgaleal region for evaluation of blood in the surgical site. Subgaleal drains **may be sutured in placed** and can often be removed without suturing the site.

External ventricular drain
Terminates in the ventricle and is used to divert CSF, treat hydrocephalus and control intracranial pressure. Cultures, cell counts and gram stains should be ordered three times per week for surveillance while drains are in place. Removal of the drain is always preceded by a clamping trial to determine tolerance and guided by the surgeon. You will have less CSF drainage if you open to drain for 2-3 minutes before pulling the drain. EVD sites are always **sutured in placed** and must be **sutured closed**.

Lumbar drain
Terminates in the subarachnoid space and drains CSF. This drain is often used for diversion of spinal fluid following dural tear, treatment of shunt infections and for evaluation of operative candidates who suffer from normal pressure hydrocephalus. Drains are maintained in a closed sterile system based on surgeons' defined time frame. They should **NEVER** be reconnected if the system is disrupted. Drain sites are often **sutured in paced** and must be **sutured closed**.

Hemovac drain
Placed in the surgical bed for evacuation of blood and fluids. Kept in place POD#1-3 and removed based on surgeons' preference and declining wound drainage**. Release suction.** The drain is removed by applying gentle continuous backward pressure. No suture is required.

Jackson pratt drain
Placed in the surgical bed for evacuation of blood and fluids. Kept in place POD#1-3 and removed based on surgeons' preference and declining wound drainage. **Release suction.** The drain is removed by applying gentle continuous backward pressure. No suture is required.

Documentation:

Electronic Medical Record
To begin seeing patients, you will need access to:
- EMR (in-patient and out-patient tools), Sis Eboard (surgical services), Images, Esign and Outside Images (call 4-HELP to request access if you don't have it when you begin work)

To set up your EMR:
- Ask a resident from your team to add you to your shared patient list.
- Open a patient's chart.
- Under Patient Summary (left sided category), there is a toolbar at the top. Click the wrench on the top right. You want your first three categories to be:
- Surgical ICU View (provides a nice summary of care over time)
- UCD Micro Misc Reports 2 yrs (lists all Micro reports, very helpful)
- Active LDA's Patient Summary (lines, EVD, hemovac, foley etc)
    - Under Flowsheets (left sided category), click the wrench on the top right. You want to "Override Template Order" and make your own order as follows:
    - Adult PCS (can look up details of drain outputs, changes in pupils or GCS, weight, other specific details)

Under Rounding (left- sided category), click Order Sets (bottom of secondary left- sided column). Search for your specialty. Once you accept an order set, you can right click on it and add it as a favorite.
Order sets to make favorites:
- Your specialty order sets
- Pre-op
- Pediatric Surgery Admit Orders (for peds dosing of meds)

- PICC
- PCA
- Blood Transfusion
- Adult Electrolyte Replacement
- Adult Insulin NPO
- Adult Insulin Eating
- Adult Heparin (Treatment VTE/PE) IV Infusion (You must read these orders carefully and delete BOLUSES from the protocol. We rarely give boluses of heparin.)

Connect to EMR from Off Campus
Https://hsapps.ucdmc.ucdavis.edu

Dot phrases
Using "Dot phrases" can shorten your time typing by providing a template of typed information that you would normally include in a note.

To use dot phrases developed by other providers:

- Click on Epic in top left. Then smart phrase manager. Delete your name from user and type in the name of the person who developed the dot phrase. Click "Go."
- Scroll through the phrases, click on the one you want so it's highlighted blue. Then click on Share at the top toolbar. Then click Accept.

To edit dot phrases:
- Click on Epic in top left. Then "My Smart Phrases."

BANNED ABBREVIATIONS LIST Abbreviation		Potential Problem	Preferred Term
1.	**U (for unit)**	**Mistaken as zero, four or cc**	**Write "unit"**
2.	**IU (for International unit)**	**Mistaken as IV (intravenous) or 10 (ten)**	**Write "International unit" or "unit"**
3. **4.**	**Q.D.,** **Q.O.D.** **(Latin abbreviation for once daily and every other day)**	**Mistaken for each other. The period after the Q can be mistaken for an "I" and the "O" can be mistaken for an "I"**	**Write "daily" and "every other day"**
5.	**Trailing Zero (X.0 mg)**	**Decimal point is missed e.g. 2.0 mg (two) is mistaken as 20 mg (twenty)**	**Never write a zero by itself after a decimal point (X mg)**
6.	**Lack of Leading Zero (.X mg)**	**Decimal point is missed e.g. .2mg mistaken as 2mg**	**Always use a zero before a decimal point (0.X mg)**
7. **8.** **9.**	**MS,** **MSO_4** **or $MgSO_4$**	**Confused for one another. Can mean morphine sulfate or magnesium sulfate**	**Write "morphine sulfate" or "magnesium sulfate**

Antibiotics at UCDMC
For specific guidance on selection of antimicrobial therapy, call the Infectious Disease team.The pager numbers are listed on the "On Call" calendar
Top Ten Organisms Isolated from Inpatient Cultures taken > 48 Hours after Admission (all sources)
1 Staphylococcus aureus (1600), MSSA/MRSA (633/967)
2 Staphylococcus, coagulase negative (1073)
3 Escherichia coli (846)
4 Enterococcus faecalis (403)
5 Pseudomonas aeruginosa (307)
6 Yeast, not further identified (306)

7 Klebsiella pneumoniae (266)
8 Streptococcus viridans Group (263)
9 Streptococcus agalactiae (210)
10 Corynebacterium species (204)

Top Ten Organisms Isolated from Blood Cultures
1 Staphylococcus, coagulase negative (753)
2 Staphylococcus aureus (222)
3 Escherichia coli (179)
4 Strep. viridans Group (94)
5 Enterococcus faecalis (90)
6 Staphylococcus aureus-MRSA (86)
7 Corynebacterium species (61)
8 Klebsiella pneumoniae (49)
9 Enterococcus species (46)
10 Streptococcus pneumoniae (38)

Anticoagulation at UCDMC
Inpatient Anticoagulation Pharmacist
The pharmacy department provides assistance with the management of anticoagulation therapy 24 hours daily. Routine monitoring of anticoagulation regimens is done daily by pharmacists assigned to either the nursing floor or the clinical service managing the patient. A specialty pharmacist is available between 0700 and 1800 weekdays, and 0700-1530 weekends on pager 816-CLOT (816-2568) for assistance in anticoagulation therapy including Warfarin, Heparin, Low Molecular Weight Heparin, Direct Thrombin Inhibitors and approaches to reversal of their effects is necessary.

DICTATION INSTRUCTIONS AND CONTENT REQUIREMENTS

Dictation phone number = 4-1000
Issues/questions with dictations = 4-2851
Issues with E-sign access to sign your dictations = 4-HELP

5-digit provider ID # = PI #

Patient Location Codes:
01- Hospital
14 - Clinic

Work Type Codes:
08 - Discharge Summary/Death Summary
05 - Procedure
23 - Neurosurgery Clinic Note
16 – Stat Discharge Summary (for DC to SNF)

History and Physical

Inpatient H&P (Date of Service = Date admitted).
Pre/TBA H&P (Date of Service = Date to be admitted).

1. **CHIEF COMPLAINT** (Reason for encounter).
2. **HISTORY OF PRESENT ILLNESS**: Include nature of presenting problem, pertinent pre-admission labs, x-ray and/or consult dates.
3. **PAST MEDICAL HISTORY**: Allergies, previous medications, operations, injuries, illnesses. Describe new/unchanged status.
4. **SOCIAL HISTORY**: Marital history, occupational history, alcohol, drug and smoking habits.
5. **FAMILY HISTORY**: Describe pertinent family history.
6. **REVIEW OF SYSTEMS**: Describe new/unchanged status, pertinent positive or negative findings.
7. **PHYSICAL EXAMINATION**: Specific abnormal and relevant findings of: general appearance, vital signs, (temp, BP, pulse, respirations); HEENT: shin; neck; lymphatics; cardiovascular/pulse; chest; lungs; breasts;
8. **ASSESSMENT**: Conclusions or impressions, noting reason for admission and admitting

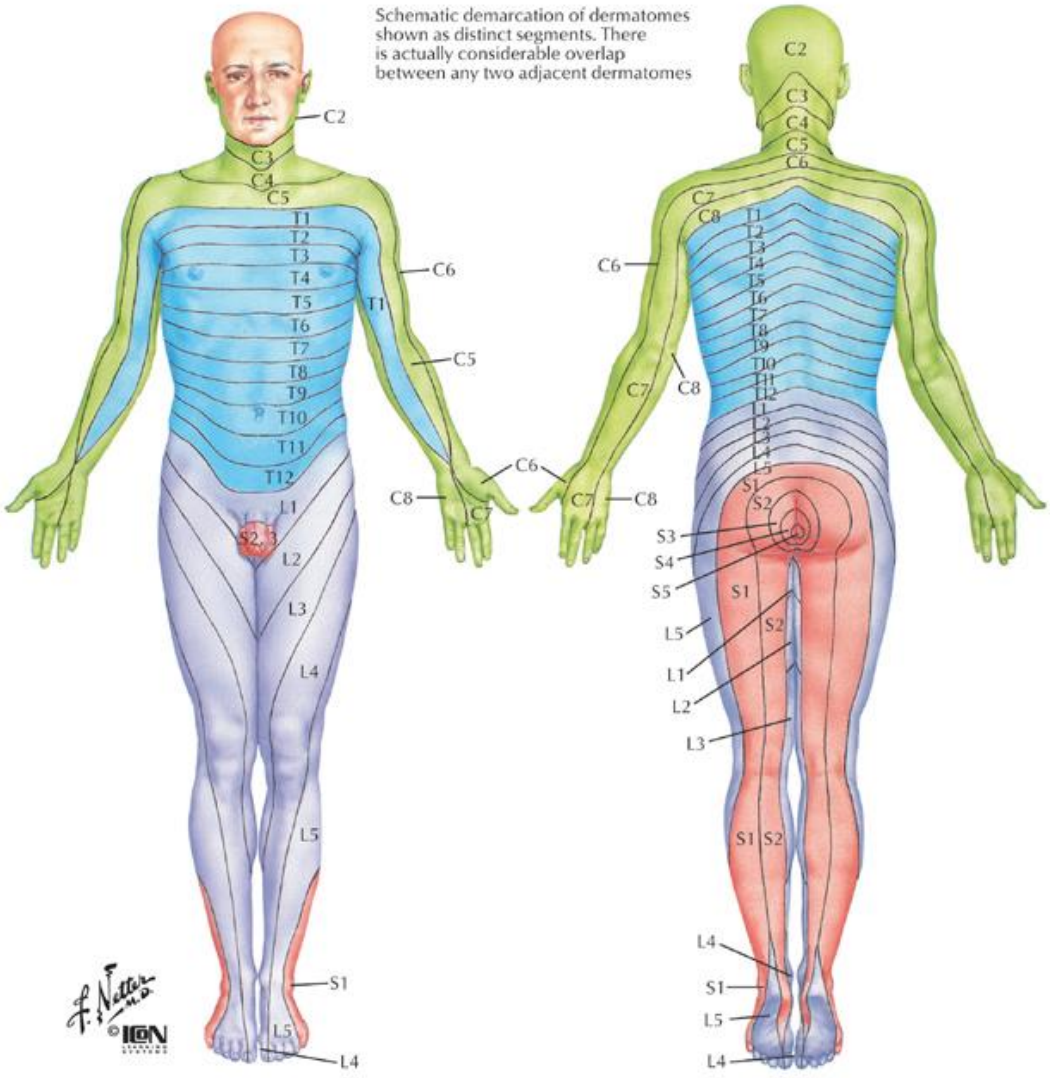
diagnosis.
9. **TREATMENT PLAN**.

Discharge Summary

Required for all patients hospitalized for > 48 hours, except normal newborns with uncomplicated deliveries, and all deaths regardless of length of stay (LOS).

1. **ADMISSION AND DISCHARGE DATES** (or date of expiration).
2. **DISCHARGE DIAGNOSIS** (no abbreviations).
3. **REASON** for admission and SUMMARY of present illness.
4. **SIGNIFICANT FINDINGS OF PHYSICAL EXAM, LAB AND X-RAY**.
5. **CONSULTATIONS**: Any consults obtained during hospital stay.
6. **PROCEDURES PERFORMED/TREATMENT RENDERED**: Operations or invasive procedures performed during hospital stay and dates.
7. **HOSPITAL COURSE**: Note progress of case by chronology or systems.
8. **COMPLICATIONS**: Including hospital-acquired infections, unfavorable reactions to drugs or anesthesia. If no complications, state "None".
9. **DISPOSITOIN OF PATIENT**: Including condition at discharge.
10. **FOLLOWUP CARE**
11. **INSTRUCTIONS TO PATIENT/FAMILY**: Including diet, activity, medications.

Dermatome man



Levels of principal dermatomes

C5	Clavicles
C5, 6, 7	Lateral parts of upper limbs
C8, T1	Medial sides of upper limbs
C6	Thumb
C6, 7, 8	Hand
C8	Ring and little fingers
T4	Level of nipples
T10	Level of umbilicus
T12	Inguinal or groin regions
L1, 2, 3, 4	Anterior and inner surfaces of lower limbs
L4, 5, S1	Foot
L4	Medial side of great toe
S1, 2, L5	Posterior and outer surfaces of lower limbs
S1	Lateral margin of foot and little toe
S2, 3, 4	Perineum

Glasgow Coma Scale

Eye Opening	Points
Eyes open spontaneously	4
Eyes open to verbal command	3
Eyes open only with painful stimuli	2
No eye opening	1

Verbal Response	
Oriented and converses	5
Disorented and converses	4
Inappropriate words	3
Incomprehensible sounds	2
No verbal response	1

Motor Response	
Obeys verbal commands	6
Response to painful stimuli (UE)	
Localizes pain	5
Withdraws from pain	4
Flexor posturing	3
Extensor posturing	2
No motor response	1

Total score = eye opening + verbal + motor
- GCS<5: 80% die or remain vegitative
- GCS>11: 90% complete recovery

From Teasdale G, Jennett B: Acta Neurochirurg 34:45, 1976.

Pediatric GCS

Assessed Response	Score
Best eye response	
Spontaneously	4
To verbal stimulation or to touch	3
To pain	2
No response	1
Best verbal response	
Smiles, oriented to sounds, follows objects, interacts	5
Cries but is consolable, inappropriate interactions	4
Inconsistently consolable, moaning	3
Inconsolable, agitated	2
No vocal response	1
Motor	
Normal spontaneous movement	6
Withdraws to touch	5
Withdraws to pain	4
Flexion abnormal	3
Extension, either spontaneous or to painful stimuli	2
Flaccid	1

Helpful References:

- Download the “Neurosurgery Survival Guide” for iPhone
- Greenberg Handbook to Neurosurgery