Hospitalist Comanagement of Neurosurgery Patients

I. Background & Purpose

A. Current Structure of the Neurosurgery Service

Neurosurgery patients at UCSF Medical Center are admitted to one of three services: Spine, Craniotomy (brain tumor), or Cerebrovascular. Approximately one-third of neurosurgery admissions are spine-related. The craniotomy service cares for half of all neurosurgery admission. It is mostly comprised of brain tumor patients, but also includes patients admitted for epilepsy and Parkinson’s disease-related operations, subdural hematoma drainage, and other intracranial operations. Spine procedures tend to be the most physiologically stressful, so these patients are at greater risk for medical (i.e., non-neurosurgical) complications. The cerebrovascular service’s patients have intracranial vascular abnormalities, such as aneurysms, often with associated subarachnoid hemorrhage. While in the ICU, patients with subarachnoid hemorrhage are comanaged by a neurologist-led neurovascular service.

Neurosurgery attendings specialize in one of these three areas, and generally only perform operations within their area of specialization. Neurosurgery residents rotate through these services (acting as “service residents”) and typically will only care for and be familiar with patients on their specific service. Each service also has non-physician providers that again will only care for and be familiar with patients on their specific service. In addition, a floor resident provides coverage for all neurosurgical patients.

B. Providers on Neurosurgery

**Floor Resident:**
Also known as the HEAD resident (named for the 719-HEAD pager), the floor resident is usually a PGY-2 or PGY-3 who works a 24-hour shift, starting at 7 a.m. In the morning, he takes sign-out from the preceding floor resident and the service residents before they go to the OR. In the evening, the service residents will again update the floor resident prior to going home. Sign-outs from service residents may occur in person or over the telephone.

The floor resident performs consults, carries the transfer pager, and cross-covers the entire neurosurgery service. The floor resident’s job is facilitated by the pharmacists, physician assistants, and nurse practitioners. For complicated issues, the floor resident confers with the service residents or attendings.

**Clinical Pharmacists:**
Presently, three pharmacists work Monday-Friday. Each service has a dedicated clinical pharmacist who rounds on every patient on that service. Pharmacists’ tasks include: ordering medications at admission and discharge (including medication reconciliation), adjusting medications to treat chronic conditions (e.g., diabetes), and pain management. They also field many medication-related calls from nurses. The pharmacists communicate informally with the service and floor residents and PA nurse practitioners, but do not round or meet with them routinely.

**Nurse Practitioners & Physician Assistants:**
Nurse practitioners (NP) and physician assistants work Monday-Friday, but only spend part of their time on the hospital floor. NPs have significant outpatient responsibilities and PAs also assist in the operating room. Each NP or PA works with just one or two specific attending surgeons. In the hospital, they follow their attendings’ patients, often serving as the liaison between the clinic and inpatient unit. They can write orders and sometimes will field calls from the nurses. Because their inpatient time is limited and unpredictable, though, they have less interaction with the floor resident, pharmacists, and PA.

C. Need for Hospitalist on Neurosurgery

While the system described above provides adequate care of medical issues and leads to good outcomes for most patients, it has several limitations:

- Medical care (often quite complex) provided by non-physicians is largely unsupervised
- Physicians providing back-up to other providers are often too busy with other responsibilities and sometimes lack the clinical knowledge and experience to deal with complicated medical issues
- Patients with major comorbidities would benefit from routine medical evaluation to prevent, detect and intervene on medical complications
- The general medicine consult service typically sees patients who have already developed complications.

The Comanagement with Neurosurgery Service (CNS) places a dedicated hospitalist on the neurosurgery service. The CNS hospitalist can overcome these limitations by providing oversight of medical care provided by residents and allied health professionals, consultation, and comanagement of high-risk patients.

II. Clinical Role of the CNS Hospitalist

A. Direct Clinical Responsibilities

**Medical Consultation:**
The CNS hospitalist will perform all medical consultations requested by the neurosurgery service, in lieu of the general medicine consult service. Typical reasons for consultation include preoperative medical evaluation and assessment
and treatment of significant acute medical problems. The close working relationship between the hospitalist and surgeons lowers the threshold to request a consultation, allowing appropriate medical interventions to occur earlier in the patient’s illness.

**Comanagement of High Risk Patients:**
The CNS hospitalist will proactively identify and comanage patients who are deemed to have an elevated risk for medical complications. The present criteria for automatic evaluation includes:

- Significant co-morbidities (CAD, CHF, COPD, Chronic Kidney Disease, Dementia, or Diabetes requiring insulin)
- Other conditions felt by the hospitalist to increase the risk of medical complications or require complicated medical management
- At the request of the surgeon

New admissions will be screened by the hospitalist for appropriateness for comanagement as listed above. The hospitalist will round on comanaged patients and manage their chronic and acute medical problems in conjunction with the neurosurgery service.

**Back-up for Other Providers:**
The CNS hospitalist will be readily available to answer questions and address concerns from other providers on the neurosurgery service. The pharmacists, PA, and NPs will turn to the hospitalist for back-up on complicated medical issues rather than the floor resident. This process also allows the floor resident to dedicate more time to managing surgical problems. The neurosurgery residents can also discuss medical issues with the hospitalist rather than their senior surgeons. While many of these issues can be addressed informally (curbside), the hospitalist will do a formal consultation for complicated questions, if the patient is very ill, or at the request of the surgeon.

**Early Detection of Complications:**
A key goal of the CNS hospitalist will be to detect and intervene on medical complications as early as possible. The hospitalist typically rounds on one-third of the adult neurosurgery service, focusing on those who are the most medically complicated or unstable. The hospitalist will also be able to assist with early detection of problems in the remaining patients by leveraging the work of existing providers. The CNS hospitalist will meet regularly with physicians and other providers on the neurosurgery service. Regular meetings presently include:

- Multi-disciplinary rounds every weekday morning attended by floor nurses, pharmacists, rehabilitation specialists, case managers, and NPs.
- Once-weekly multidisciplinary rounds attended by the residents as well as the above group of providers.
• Weekday mid-afternoon meeting with pharmacists to review patients being followed by the hospitalist and to discuss any problems (such as clinical changes and abnormal laboratory results) on all other patients.
• In addition, ad hoc meetings to exchange updated clinical information are expected to occur frequently.

Furthermore, it is recognized that patients who require “code blue” intervention often display early warning signs, manifested by abnormal vital signs or mental status. At UCSF, nurses are asked to call a Rapid Response Team to evaluate patients with these abnormalities. For neurosurgery patients, the CNS hospitalist will also evaluate any patient requiring the Rapid Response Team.

B. Scope of Practice

The hospitalist’s scope of practice with regards to neurosurgery patients will be the same as for medicine patients. Thus, the hospitalist can and will order diagnostic tests and treatments, request subspecialty consultation, and discuss care with patients and their families. Furthermore, the CNS hospitalists should not see themselves as merely consultants, but rather as one of the managing attendings. Thus, the hospitalist will take personal responsibility for ensuring that patients receive needed medical care, either by writing orders directly or delegating tasks to other providers. Leaving written recommendations to be carried out by others will be avoided if possible.

The hospitalist will maintain a low threshold to discuss issues with the surgeons if there is uncertainty about the appropriateness of a considered intervention. Furthermore, the following interventions will require prior approval by the surgeon:

• Use of anticoagulants, aspirin, or other agents that increase bleeding risk
• Invasive procedures (e.g., thoracentesis, interventional radiology procedures, biopsies)
• Any tests that may conflict with operating room schedule or planned discharge
• Transfer to Medicine or Cardiology

C. Clarification and Understanding of other Clinical Roles

The CNS hospitalist is an attending physician and UCSF faculty member, whose roles and responsibilities should be appropriate to that position. In general, the hospitalist should not take on tasks that are traditionally and competently performed by residents or other providers. Examples of such tasks include writing transfer orders, dictating discharge summaries, and completing routine discharge paperwork. However, the hospitalist should also remain flexible and be
willing to go beyond their traditional responsibilities to provide good patient care if the situation dictates.

Nurses should continue to call their usual contacts on neurosurgery with most questions or problems. However, they may also call the hospitalist for medical issues, especially if these are felt to be beyond the scope of other providers. Again, the hospitalist should strive to be a readily accessible resource for anyone taking care of neurosurgical patients. At times, it may be appropriate for the person receiving the call to redirect the caller to another provider, depending on the issue at hand.

III. Other CNS Hospitalist Roles

A. Education:

Another goal of the clinical collaboration between hospitalists and neurosurgeons is to improve educational opportunities for both groups. The hospitalists will try to provide bedside and impromptu teaching to neurosurgery service providers. The director of the CNS will also periodically lecture on perioperative medicine and will arrange for speakers from the Department of Medicine to present other topics relevant to both services. Neurosurgeons will similarly be invited to present at medicine didactic conferences. In addition, the CNS director will try to foster closer links between residents in the Departments of Medicine and Neurosurgery.

B. Quality Assurance and Quality Improvement:

Through familiarity with the service and participation in neurosurgery quality assurance conferences (such as M & M Conference), the CNS hospitalists will play an important role in identifying and addressing patient safety issues on the neurosurgery service. The director of the CNS hospitalist service will be accountable (along with the clinical director of the neurosurgery service) for the neurosurgery service’s performance on publicly reported quality measures related to non-surgical care (e.g., appropriate use of preventative interventions such as prophylaxis against venous thromboembolism). In addition, the CNS hospitalist service director will work with the neurosurgery service and the medical center to develop new service-specific quality and safety measures that reflect the complexity of the patient population cared for at UCSF.

IV. Operational Details

A. Schedule

The CNS hospitalist will be available every day, from 7:30 a.m. to 7:30 p.m. The hospitalist will also remain available by pager 24-hours a day. Hospitalists will
work in 5-day blocks to maintain continuity of care. They should not schedule other significant clinical or academic activity during these blocks.

B. Overnight Coverage

The moonlighter on the Cancer Research Institute (CRI) will augment the existing overnight in-hospital coverage provided by the single floor resident on the neurosurgery service. This physician will back-up the floor resident, and should expect to be called by the resident for urgent medicine consultation as well as curbside questions. Nurses have been instructed to call the on-call neurosurgery floor resident for most matters, but they may call the moonlighter directly if they feel it is their patients’ best interest. The CRI moonlighter has the same scope of practice as the CNS hospitalist.

The CNS hospitalist will discuss any active patient care issues with the CRI moonlighter in the evening, and may also sign-out specific tasks to the moonlighter, such as following up on test results or re-evaluating a patient. In turn, the moonlighter will sign-out to the hospitalist in the morning. The CRI moonlighter should immediately call the CNS hospitalist if there are questions he or she cannot answer, or if a patient has had a significant clinical deterioration. The CNS hospitalist will remain available by pager at all times.

C. Communication

Charting:
All charting by the hospitalist will be done in UCare and should be filed under the heading of “consults”. CNS-specific note templates are available in NoteWriter. When performing a formal medical consultation, the hospitalist will write an Initial Consultation report and then Follow-up notes on subsequent days as needed. Patients being comanaged without a specific consultation request by the surgeons do not require the full initial consultation note on the first encounter. Instead, the first note left by the CNS service should use the Follow-up template. Comanaged patients do not require a daily note by the hospitalist if there are no active clinical issues. The hospitalist will be permitted to edit the Synopsis feature of UCare to leave important clinical information for other providers. See “Billing” section below for further details.

Conflicts & Disagreement:
The hospitalists and neurosurgery attendings will ensure that disagreements are handled fairly and collegially. Disagreements will be discussed on an attending-to-attending basis, and the director of the CNS should be notified of any conflicts.

D. Billing
For patients seen in formal consultation, the hospitalist will bill for the initial encounter as a consultation (CPT codes 99251-99255). For all subsequent visits and for the initial visit for patients seen as part of comanagement, where there is no formal consultation request by a neurosurgery attending, the encounter will be billed as subsequent inpatient care (CPT codes 99231-99233). A distinct billing area will track comanagement activities.