Welcome to the Harborview Medical Intensive Care Unit Service!

This document provides an orientation to how the service runs—essentially the “nuts and bolts.” It complements the Goals and Objectives for the MICU which can be found on-line at the Department of Medicine Residency website: [http://depts.washington.edu/uwmedres](http://depts.washington.edu/uwmedres). Your MICU rotation will be intense and busy, but in the end you’ll find it to be an amazing learning opportunity. Physiology abounds, and you are learning in an environment where you are well supported by your team and by the multi-disciplinary structure of the ICU. Take advantage of the expertise that’s available, keep your patients’ needs and best interests in mind, and you’ll do great!

**Team Structure**
- Pulmonary and Critical Care Medicine Attending
- Pulmonary and Critical Care Medicine Fellow or Critical Care Fellow
- Four Internal Medicine R3s
- Four Internal Medicine R1s
- Occasionally there will be a Trauma Fellow from the Department of Surgery rotating on the service for a month.

**Rotation Specific Schedule**

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<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Sat/Sun</th>
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<tr>
<td>7:30 AM</td>
<td>X-ray rounds</td>
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<tr>
<td>8:00 AM</td>
<td>Attending rounds</td>
<td>Work rounds</td>
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<td>8:30 AM</td>
<td>Work rounds</td>
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<tr>
<td>11:00 AM</td>
<td>Med-Surg Journal Club</td>
<td>Intern’s Report (11:30 a.m.)</td>
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<tr>
<td>12:30 PM</td>
<td>Dept of Medicine Teaching Conference</td>
<td>Chief of Medicine Rounds or M&amp;M Conf.</td>
<td>Dept of Medicine Teaching Conference</td>
<td>SACGR (12:15 p.m.)</td>
<td>Dept of Medicine Teaching Conference</td>
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<td>1:30 PM</td>
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<td>Late afternoon</td>
<td>Afternoon “huddle”</td>
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1 Multidisciplinary Med-Surg Journal Club occurs with the Surgery & Neurosurgical ICU teams at 11a.m.
2 SACGR = Seattle Area Chest Grand Rounds
3 RCCC = Respiratory Critical Care Conference
4 Afternoon huddle to review plan for the night with fellow/attending and 2E charge nurse.
Types of Clinical Encounters
The MICU residents will initially evaluate critically ill patients in the ED or on the inpatient wards. The MICU attending, in concert with the Harborview Transfer Center, will generally handle requests for transfer from outside facilities. For patients in the ED, the senior medicine ED resident and ED attending generally determine who should be admitted to the MICU. For ward medicine patients, the MICU team, in conjunction with the patient’s primary team and the acute care and stat nurses, is responsible for determining the appropriateness and priority of admission to the MICU. The fellow will evaluate new admissions with the R3 and/or the R1 admitting that day and should be notified early (even while the patient is still in the ED) of unstable patients. On days when the fellow is off-duty, the attending will fill that role. If there is any disagreement with the ED or floor team/stat nurse about appropriateness of the MICU admission, call the fellow at that time.

Call and Days Off
Residents (R3s and R1s) take in-house call every fourth night. Total hours of duty will not exceed an average of 80 hours per week over the course of the rotation. Residents also will not work more than 24+6 hours at a time. This means leaving the hospital by 12:30 p.m. of their post-call day (if arrived at 6:30 a.m. the prior day). Each resident will receive at least one continuous 24-hour period without clinical responsibilities every week, on average, with five days off during the rotation. The R3 and R1 on one team should not take the same day off. The other R3s, the fellow, or the attending will assist the R1 with patient management issues and procedures when their designated R3 is off. The post-call team’s patients will be rounded on first, so after rounds the post-call team will be responsible for updating CORES for sign-out and making any calls (consults, family, PCP, etc) needed

Bedside Presentations and Expectations
You should plan on pre-rounding on your ICU patients. This time should include checking in with the nightshift nurse for any interval events, getting sign-out from the post-call resident for any events/interventions, and examining your patient. It’s important to know what the effect was of any interventions from the prior day (e.g. if lasix given, what effect did it have; if a PEEP trial was done, what was the result?). While the nurses will generally have the most up-to-date vital sign information available, it’s very important that you still review these data (e.g. via CORES) prior to rounds.

The nurses are now taking a larger role in rounds, including bedside presenting. For existing patients the R1 will start with a brief (few words) patient identification and interval events (e.g. main events since the prior day’s rounds, including overnight). The nurse will then present pertinent vital signs, labs, and exam findings by systems. The intern should then present an assessment and plan. For new admits, the R1 will present a standard presentation up to the assessment/plan, and then the nurse will provide an update on vital signs, labs and exam findings since admission. The R1 then finishes with the assessment/plan. In all these presentations, the assessment and plan is the time for the R1 to synthesize the situation and lay out a plan. Particularly for complicated patients and early in the year, it is recommended that the R3 and/or fellow review the assessment and plan with the R1 prior to rounds.

General presentation guidelines: After the nurse’s part, add any exam or lab findings that are significant but weren’t mentioned. Sometimes the nurse isn’t available so you need to be ready to present all the data. Be efficient—we only need to hear data once so avoid the temptation to just repeat data already presented. After the data have been presented (by the RN or you) by organ system, then present your assessment/plan by problem/diagnosis. At times, for instance for very complex patients
or depending on attending preference, the assessment/plan may be requested by system. In either case, come up with an assessment that includes some sense of the disease processes (i.e. “put it all together”). Your notes should reflect the same general structure.

We are now utilizing a blue Plan of the Day form which is a simple list of the top few plans for the day and includes a place to write the pager of the on-call intern as well as a checklist for key parameters (e.g. DVT and GI prophylaxis, removal of lines/tubes, etc). This will be completed by one of the team members not presenting. At the end of the R1’s presentation, the Plan of the Day should be briefly reviewed before moving on to the next patient.

Harborview supports a patient-family centered care approach which means we try to present at bedside (except in isolation rooms) and families will often be in the rooms during presentations. When you enter the room with the team, introduce yourself and the MICU attending and let them (and/or patient) know we’ll be reviewing the data and talking about how the patient is doing and that we’ll be happy to answer any questions and receive input at the end. If the patient or family has a lot of questions, the fellow or one of the residents may stay behind to address them as the rest of the team goes on, or we’ll tell the family we’ll come back after rounds to talk more. In general, you do not need to alter your presentation due to family presence, but there are some times when the patient may have requested some information withheld so please be sensitive to that. Discuss the patient as a person, not a disease, and avoid any commentary on social habits (e.g. drinking or drugs), and the presentation will be well received.

While CORES is a useful tool, it’s critical for you to review the primary data (i.e. ORCA) to confirm what is electronically printed for you. This is particularly important to identify trends in vital signs or lab results. Microbiology results are read out late morning so be sure to check back later in the day or sign it out if there’s something pending. Only cultures from sterile sites are called to the nurses, and those only when first positive (not when updated) so if you have a patient with pending results, it’s important to include that in your sign-out. Similarly, drug levels (especially vanco) are important to review and report on rounds.

**Note writing**

R1s are responsible for writing an admission history and physical, daily orders, and progress notes on their primary patients. On days the R1 is off, patient responsibility and documentation fall to the R3. Admission H&Ps should be in the chart by the start of rounds in the morning.

Post-call, the R1s are responsible for having an admit note on the chart but do not have to write a progress note on new or existing patients. Progress notes for all the post-call patients will be written by the rest of the team (non-post R3s, fellow, etc). It has worked well for this to be done by one of the R3s at the bedside during rounds. The post-call team may need to be more involved with note-writing if a patient is transferring out of the ICU on his/her post-call day.

All patients who have had a unit length of stay > 4 days (i.e. more than 1 call cycle) should have an interim summary typed or dictated by the R3 at the time of transfer. It is also encouraged that patients who are in the ICU for a shorter period but have a complicated course also have an interim summary completed. There should be an interim summary or progress note on the day of transfer. If the latter, the progress note for the day of transfer should be thorough regarding major events and the plan of care. Verbal communication (MD to MD) to the receiving team is also of great importance.
There is an ICU template for admit and daily notes and procedure notes. See accompanying guidelines “ICU Note Writing Guidelines” for specifics about what does and does not go into an ICU note. It is also available on-line: http://depts.washington.edu/uwmedres.

Order Writing
Do not automatically write for all of the patient’s outpatient meds, especially if he/she is hemodynamically unstable. Write “first dose now” for all new antibiotic orders; otherwise, the built-in timing of q12h drugs, for example, could delay the first dose for hours. Notify the nurse of any orders—he/she may not see them if just left in the chart. Remember, direct communication is the key to smooth execution of any plan.

Procedures
Procedures are generally done by the R1, if appropriate for their training and experience, with direct supervision and/or assistance by the R3, the MICU Fellow, or the MICU Attending. These procedures include but are not limited to central venous catheterization, pulmonary artery catheterization, arterial catheterization, thoracentesis, paracentesis, lumbar puncture, and balloon tamponade of bleeding esophageal varices. Even if “signed off” on a procedure, the acuity of patients in the ICU is high such that R1s must be supervised (by an R3 experienced in the procedure, fellow, or attending) for all procedures. Housestaff should seek assistance if the procedure is not going as planned or if more than 3 attempts have occurred and should never attempt a procedure by themselves that they are not confident in performing. The fellow and attending are here to support these procedures. For all procedures, the attending (when in-house) should be notified prior to performing in order to allow for on-site supervision and billing.

Ultrasound use is increasingly available and expected with invasive procedures and is the standard of care with Internal Jugular lines. However, ultrasound is an adjunct to the procedure and should not be the sole guide for the procedure. Position the patient, identify landmarks, and double-check with ultrasound. Then prep and use ultrasound, remembering landmarks. Do not just go where the vessel is the biggest as this is often right at the level of the clavicle, increasing the risk of pneumothorax. Stay 2-3 finger-breadths above clavicle. Always do an IJ procedure from the head of the bed. All central lines can pull through the blue clamp and need to have an additional point of suture to secure the line.

Invasive procedures will not be done by the post-call team but rather by the on-call or non-call residents/interns, the fellow, or the attending.

When to call the fellow/attending
• All new admissions (call early, even when in the ED if patient unstable)
• Unexpected, significant deterioration in clinical status; for example, new end-organ failure (e.g. unexpected intubation, oliguria, unexpected pressor requirement or increase in dose, substantial increase in FiO2)
• Plan for uncommon interventions or procedures (PA catheterization, initiation of Xigris, or rescue strategies such as proning, nitric oxide, or flolan)
• When the number or acuity of patients or admissions makes it difficult for you to provide safe care.
• Disagreement with ED or stat nurse regarding admission or transfer of patient.
• Patient going to OR for emergent surgery or transfer to another service
• Complication of procedure
• Difficulty putting in a line (> 3 tries, patient unstable)
• Change in code status
• Brain Death Determination or Organ donation
• Cardiac arrest (code) or Death
• Whenever in doubt, call!  We’re here to support you, and we don’t like surprises!

When the fellow has the day off, or cannot be reached, the R3 should notify the attending directly. On weekends when the MICU fellow is off, the Pulmonary and Critical Care Medicine Consult Service fellow will provide on-call coverage and assistance with the MICU team. Bottom line, if in doubt, call. You will NEVER be chastised for calling, no matter the time of day/night or type of question.

**Code Sepsis**
In the event a patient arrives in the ED with evidence of sepsis and is not responsive to fluids, a “Code Sepsis” will be called by pager. The MICU R3 and R1 are expected to immediately go to the ED and evaluate the patient. If for any reason you are unable to go to the ED right away, call and let them know. If you are further detained, call the fellow to help with the work load. Most of these patients will require ICU admission, but on occasion they respond quickly and in a sustained fashion and may be appropriate for the floor. If there is any disagreement, call the fellow.

Patients with sepsis are, in most cases, treated with an Early Goal Directed Therapy (EGDT) approach, targeting therapies based on MAP, urine output, and ScvO2. This will be discussed in attending rounds, but in the meantime call your fellow/attending for guidance. There is also a set of Sepsis Orders for the ICU that supplements the regular Medicine ICU admit orders.

**Rapid Response Team**
Starting in 2005 Harborview Medical Center initiated a Rapid Response Team (RRT) to assess patients on the acute care floors who have had a significant change in their clinical status. The floor nurses have specific criteria for which they should initiate a Rapid Response call. The primary members of the RRT are a stat nurse and lead respiratory therapist. The patient’s primary team will also be notified at the same time. In the event that the RRT needs an assessment by a critical care physician, the stat nurse will call the MICU fellow, or at night the MICU R3. As the R3, if you are called, you are being asked to assist the RRT in patient assessment, triage, and management. Those patients may or may not come to the MICU team. If there is any disagreement between you and the stat nurse regarding transfer, please call the fellow at that time to become involved.

**Lung Protective Ventilation**
Acute Lung Injury will be discussed in attending rounds, but in general is a combination of a CXR with bilateral infiltrates consistent with edema, PaO2/FiO2 ≤ 300, and no evidence of heart failure. Lung protective ventilation (low tidal volumes and control of static pressures) is the main therapeutic intervention. However, if the patient is severely hypoxic and in shock, that may not be the time to initiate LPV orders—discuss with your fellow or attending.

**Multi-disciplinary team approach**
A hallmark of the ICU is its multi-disciplinary approach. The care of these patients is complex, and no one person, regardless of level of training, is able to address all aspects of the patient’s care. Members of our team include the nurses, pharmacists, dieticians, respiratory therapists, and social workers. They will either take part on rounds or be checking in with the team frequently. They are a vital part of the team with a great deal of experience--take advantage of their expertise and treat them well! We also work very closely with consult services, including palliative care. Remember that in all cases, the ICU team is primary, and any recommendations should come back to the team and be considered in the context of the entire patient before being automatically activated.

**Teamwork**

While each team will have its own primary patients, it’s critical for each intern and resident to keep abreast of what’s happening with the other patients. This will aid with nighttime coverage and improve the sense of teamwork that is essential to patient care in the ICU. Responding to a question from a nurse, your fellow, or attending with “I’m just covering” doesn’t work well in the ICU. ICU patients need attention and their needs addressed around-the-clock, regardless of who is on call.

When the service is very busy, or another team member has a day off, it may be necessary for other team members (R3s, other R1s, MICU fellow, MICU attending) to help with the primary care of MICU patients including writing orders and progress notes and performing procedures. If housestaff finish early and plan to leave the hospital before 5:00 PM, they should check with their colleagues to ensure the workload is manageable, and then sign out to their on-call peer. In other words, R1 to R1 sign-out as well as R3 to R3 sign-out.

In the late afternoon, the fellow and/or attending will run through patients quickly with the 2E charge nurse. If possible, the on-call team should join them. If that’s not possible, review the nightly plan with the fellow.

**Communication**

Please make an effort to identify and contact the patient’s primary care provider within the first 24 hours of admission and keep them informed of changes in clinical status and discharge plans. This is a good time to confirm medical history and current home medications.

Families are often in attendance on rounds, but for families not on site, please arrange for frequent updates by phone (at least every 2-3 days depending on the patient’s status). If there is difficulty reaching someone, Social Work should be notified so that they can help locate and contact next of kin. Next of kin must be notified if the patient has a significant change in clinical status or dies. If you have not contacted the PCP or family before you go home post-call and you’re off the next day, be sure someone else on the team will follow through with communication the next day.

**Transfers**

Beds are always tight. Please notify the ward teams as soon as possible of a potential transfer. All medicine transfers should be called in before noon. Exceptions do occur, though, and must first be discussed with the chief medical resident. If you receive a call for an inter-service transfer (e.g. from another ICU team), please refer this to the fellow as he/she will balance the need for transfer with the census of the ICU team.

**Non-medical patients**
Orthopedics, OMFS, and Urology do not have admitting privileges to the ICU. The MICU team commonly cares for these patients as long as they have critical care needs, but the surgical service is expected to follow closely. Once they can leave the ICU, the surgical service generally resumes care with medical consultation if necessary. Occasionally these patients are transferred to a Medicine ward team. The Chief Medical Resident can help with this triage if necessary.

In addition, the Neurology team may look to the MICU R3 for assistance with lines and management during nights or times when the Pulmonary consult service is not available. If too busy or if the patient is very sick and may benefit from a transfer to the MICU service, the R3 should notify the MICU fellow who will triage the situation.

Finally, in rare cases a pediatric patient (14-18 years old) may be admitted to the MICU service—these are usually drowning victims. Be sure to call your fellow/attending for guidance in these cases.

**Prophylaxis and Infection Control**
Critical to patient outcomes is minimizing the risk of ICU complications. This philosophy drives much of our discussions on rounds about ways to help the patient make progress and avoid injury. Included in this should always be attention to the following issues:

1. Head of bed elevation to avoid ventilator associated pneumonia (should be >30 degrees unless clinically unable)
2. Whether there is an ongoing need for the central line and Foley catheter.
3. GI Prophylaxis: If on a ventilator---usually an H2 blocker or PPI until taking po or tube feeds.
4. VTE Prophylaxis: Important to consider for EVERY ICU patient---consider daily to determine if a patient is appropriately protected. See the following for guidelines on DVT prophylaxis: [http://vte.son.washington.edu/docs/VTE_prophylaxis_guideline.pdf](http://vte.son.washington.edu/docs/VTE_prophylaxis_guideline.pdf).
5. Nutrition needs met? IVF still appropriate (type and rate)?
6. Spontaneous breathing trial and sedation vacation performed or considered?
7. Most importantly, you MUST gel or wash your hands upon entering and leaving each room (“gel in, gel out”) even if you don’t touch anything in the room. This is the simplest but most effective intervention we have!

**Code Status**
Although attempts should be made to determine any prior wishes regarding resuscitation, trying to obtain a new code status from a patient or family during the rush of admission generally does not provide the appropriate time or setting.

- All patients/families need to be asked IF the patient already has a living will, POLST form, or has expressed preferences in the event of cardiac arrest or respiratory distress
  - If not, stop. Patient is full code. The code discussion should be held in conjunction with senior members of the team and in a setting that allows assessment of the patient’s overall goals of care.
  - If yes, honor wishes.
- Any change to code status must be communicated by the resident to the fellow/attending at that time (i.e., don’t wait until the morning).
Autopsies, Brain Death Determination, & Organ Donation
If a patient dies, you should make an effort to obtain consent for an autopsy from the patient’s family/guardian. The purpose is to answer any unanswered questions that might help the family, to learn more about the patient’s disease, and to identify problems we may not have been aware of---ultimately adding to our overall care of future patients.

All patients who meet certain pre-determined criteria (low GCS, plan for withdrawal of life support, etc.) have an automatic referral by the nurse to Lifecenter Northwest (LCNW), our regional organ procurement organization. The coordinator from LCNW might contact you to ask you about your patient if it appears that the patient is progressing towards brain death or withdrawal of life support. Information about brain death determination and the organ donation process are available on the HMC intranet (https://hmcweb.washington.edu/ADMIN/APOP/MedicalStaff/) and in Organ Donation binders on each unit. Ask your attending for help with these issues: declaration of brain death, organ donation in brain dead patients, and organ donation in patients undergoing withdrawal of life support (Death after Cardiac Donation, or DCD).

[This orientation information is also available online at http://depts.washington.edu/uwmedres.]