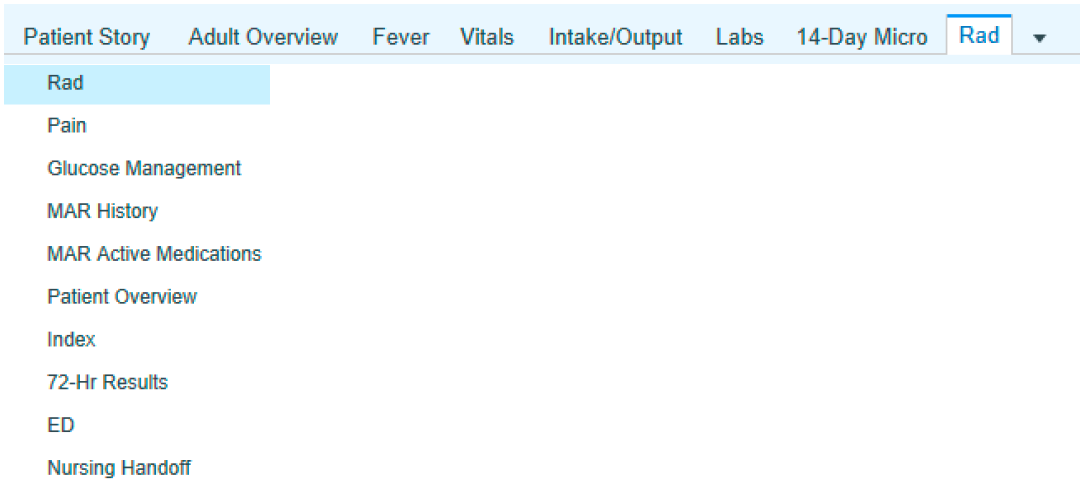
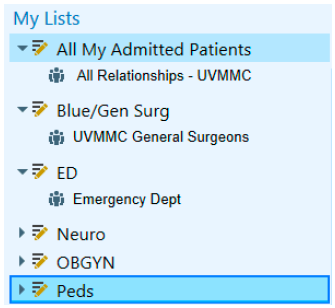
BEFORE STARTING

- Debbie McDonald will send an email several days before starting the rotation with the residents and attendings on your service, as well as objectives and expectations for the AI.
- Reach out to the chief resident to introduce yourself and ask where to meet and at what time for day one. You can also ask the chief which topics would be helpful to review prior to starting.
    - It will most likely be in the surgery resident lounge on Baird 3 at 5:45am, rounding generally starts at 6am.
- Ask the chief resident what their goals and expectations are for AI's, and let them know if you have any goals (i.e. asking for a letter from a specific attending to prioritize time with them, any specific learning goal, etc.)
- Each week, the chief resident will typically send out a schedule to the whole surgery team (attendings, residents, medical students) assigning everyone to cases and/or clinic so it will be clear which surgery cases you will participate in and when, as well as which days you will be in clinic. If you are not assigned to something on a given day, you will likely be helping the residents or APPs take care of the patients on the floor.
- Set up your Epic for efficient chart review so you can simply click through the tabs in order for all pertinent information about the patient every morning.
    - 

- Under "My Lists", create a personalized list for this rotation.
    - 

- Click "Edit List" to customize the top tabs.
    - Some recommendations:

- Go to System Lists → Surgery Provider Lists → Select your surgical service (UVMMC General Surgery, Cardiothoracic Surgery, etc.) and drag that list up to your customized tab under "My Lists".
- Copy and customize note templates from Epic Smartphrases
    - Search the name of the chief resident on your team and review their Smartphrases, then make copies of the ones that will be pertinent to you (progress note template, H&P, discharge summary, clinic note templates).

- Review common topics, or topics to review recommended by your chief resident.
- Helpful resources:
    - AMBOSS
    - Surgical Recall: Brief summary of surgical topics. Reviewing the appropriate book chapter before each surgery can be helpful.
    - Lawrence's *Essentials of General Surgery*: Useful reference for specific topics to read about prior to observing a particular procedure.
    - Netter's *Atlas of Human Anatomy*, or another anatomy text. Always know the blood supply!
    - Zollinger's *Atlas of Surgical Operations*: Relevant anatomy for the case.
    - A great resource that will help you prepare for surgery cases, rounds, and clinic are the society guidelines for each specialty as they have FREE publications of each topic with the most up to date information. Ask your attendings which society guidelines they recommend reading.
    - For Colorectal surgery: The American Society of Colon & Rectal Surgeons
        - https://fascrs.org/healthcare-providers/education/clinical-practice-guidelines
    - YouTube honestly has a lot of videos describing common procedures and visuals of the anatomy.
- Accessing Helpful resources:
    - If you do not already have a hard copy, Dana Medical Library has online versions of books that you can access for free.
    - Go to https://dana.uvm.edu/ then "Research Guides" and select "Medical E-Books" and find "Surgery" https://accesssurgery-mhmedical-com.ezproxy.uvm.edu/
    - There may be free copies of books in the student lounge.

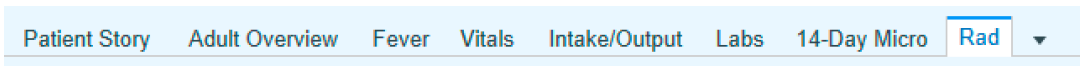
- If you are on the **general surgery AI**, topics to review are:
    - Bariatric surgery
        - Roux-en-Y gastric bypass
        - Sleeve gastrectomy
    - General surgery
        - Biliary colic
        - Inguinal/umbilical/ventral hernias
    - Colorectal surgery
        - Colon cancer and rectal cancer
        - Diverticulitis
        - Anal fissures/fistulas/hemorrhoids
        - Ostomies

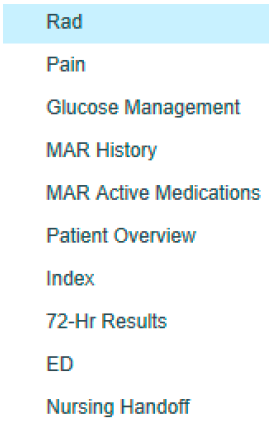
GENERAL DAILY SCHEDULE

- Please note that this may be different for each specialty, it is always best to ask the chief resident about expectations and schedule.
- Sign out: 5:45 AM
- Rounding: ~6:00 AM
- After rounds, you will either go to the OR, clinic, or work on the floor. It is also expected that you attend grand rounds and M&M's, dress in business casual for these sessions (some students wear white coats as well).
- Afternoon/evening rounds before sign out.
- Sign out: ~5:45 PM
    - You will often be asked to give supervised sign out to the overnight resident.
    - If you are in a surgery case that runs later, then you go home after the case.

- Work 6 days per week (one day off) but no 24-hour shifts.
- On the weekends, it is all hands on deck so you can help with consults for any service, any ACS surgeries, etc. You are helpful to the team because you know your patient list much better than the covering weekend team. You are NOT responsible for presenting patients on the other teams, only present the list of your service. However, you will help with tasks or surgeries for other services on weekends.

PRE-ROUNDS

- AI's do NOT have to pre-round, i.e. you do not see the patient before rounds, just chart review and will not include a subjective or exam with your presentations when rounding with residents.
    - Third year medical students will pre-round and see patients beforehand. Check in with the third years to know which patients they are following and let them present their patients but have information on these patients as well in case an attending asks you about them later in the day.
- Give yourself plenty of time for chart review, especially in the first week as you adjust to the rotation.
- Before rounds, print the patient handoff to take notes for your presentation (it has more information than the patient list to save time writing, and more space to take notes).
- Print the patient list for a one-page summary sheet to quickly access patient rooms, attending, etc.
- The Baird 6 Fishbowl (right next to the nurse's station) is a quiet place to chart review before rounds. There is usually no one in there this early in the morning, so you will have plenty of open computers and a printer. If you are on CT Surgery or Vascular Surgery, Miller 3 has a similar workroom that is generally empty.
    - The surgery residents prefer if medical students do not work on the computers in the lounge before rounds as there are not enough computer workspaces for everyone and it gets crowded.
    - After rounds, you can absolutely work on the computers there and can spend time in the lounge with the residents.
    - Please remember to leave your backpacks, lunches, etc. in your lockers or another location as the lounge becomes too crowded if medical student possessions are left in there.
- Login to Epic (SVC General Surgery)
- Go to System Lists → Surgery Provider Lists → Select your surgical service (UVMMC General Surgery, Cardiothoracic Surgery, etc.)
- Chart review on every single patient on the list and be ready to present them.
    - Click through the recommended tabs for everything you need to know about each patient every morning.
    - If you participated in a patient's surgery the day prior, check in with their nurse and ask how the night went, if they have any concerns, etc.
    - Review any new notes.
        - Were there nursing notes overnight? It is helpful to read through these to see how your patient is doing.
            - Often post-void residual scans will be in nursing notes.
        - If other services were consulted, what were their recommendations?
    - 

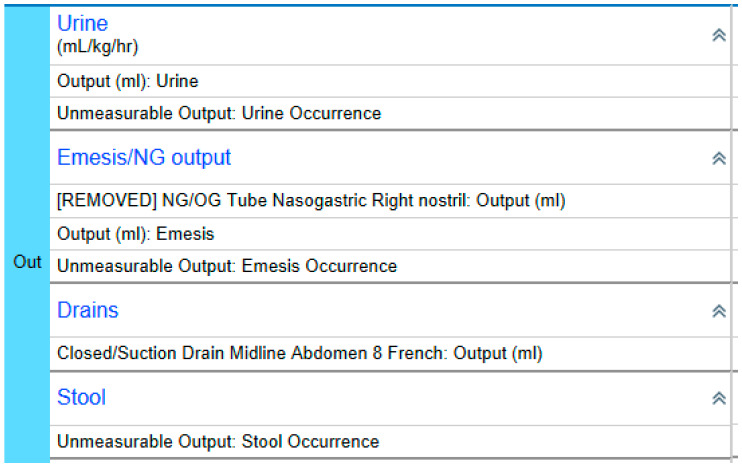


  - Write down the pertinent information front chart review on your handoff to be ready to present.
  - 24-hour events:
    - Any pertinent information from the night team
    - Changes to pain scale?
    - Changes to antibiotics?
    - New imaging?
    - New consults?
- Finish chart review by 5:45 AM.
- By 5:45 AM go to the surgery resident lounge on Baird 3 to get sign out from the night team. It is helpful to hear the overnight events.
- Rounding typically begins at 6:00 AM. Usually your chief will have a group text with you and the other residents on the team to let everyone what time and where rounding will start.

ROUNDS

- Rounds typically starts at 6:00 AM, but always check in with the chief resident to know what time and where to meet. Usually, you all meet in the surgery resident lounge on Baird 3 since you will have just received sign out.
- Typically, 6:00 AM rounds are with the residents and later in the morning you may round with the attending. Once you see the patient as a whole team, it is important to note the subjective and exam findings for each patient, so you can present this to the attending when you round with them later.
  - If you do not do the exam, ask whoever did for their findings so you can note them. This will also help share the note writing work for the whole team since you will be prepared for each patient.
- In the first week, if you participated in a surgery, you will be expected to present those patients. Later in the rotation you may be expected to present the entire list, but always know the most information about the patients you are following (i.e., have participated in their surgery).
- <u>Presentations</u>:
  - Think about the assessment and plan so when you tell the story, think about why you are reporting something.
    - For example, if you are concerned about sepsis:
      - Pertinent vitals are fever to X degree, HR has been in X-X range, most recently XYZ.
      - Now concerned that they are septic as evidenced by XYZ and therefore I want to do XYZ plan.

- Use SOAP format. Keep the presentation brief and really think about only reporting pertinent information. Have all information written down in case they ask you for more details but only report the pertinent.
    - This is a skill that takes time to learn, but it is helpful to already practice reporting what you think is pertinent, and your assessment and plan should be the summary for WHY.
- 24-hour events
- Subjective: not relevant for AI's as described above, but if night team or night nurse reported something you can say it here. "Per night team…."
    - Pain scale and where is the pain, fever, chest pain, shortness of breath, passing flatus, bowel movements or ostomy output, walking or up and out of bed, diet (NPO, clears, full?).
- Objective:
    - Vitals
        - Keep it brief, "All vitals normal" Or "All vitals within normal limits, with the exception of…"
        - Avoid saying that all vitals are stable when you mean that the patient is stable. All vitals being stable could meet stably bad or stably good. Use 'normal' or 'abnormal' to describe vitals and labs.
    - In's & Out's
        - Know the 24-hour shift total for presenting with the residents, but also know the breakdown of important I&Os per shift. For example, that chest tube output was 500cc in the last 24 hours, but the trend was 300 yesterday morning, 150 for evening shift, and only 50 overnight.
        - Use the 24-hour total if presenting to the attending.
            - They only see the patient once per day, so they want to know 24-hour information.
        - Click on the down arrow next to each item to see more detailed information. They will record unmeasured urinations or bowel movements that only show up when the arrow has been pressed.



        - For intake, only report PO intake if recorded, unless IVF intake is especially relevant to their plan.
        - For output:
            - Report urine output total (shift vs. 24-hour depending on who you are presenting to) and if any unmeasurable occurrences say "1x or 2x unmeasured). Know the cc/kg/hr breakdown for the last shift/24 hours.
            - If NG tube, drains, or ostomy bags are present report output in the same way.

        - It is also important to note color and/or consistency of the output, but this is an EXAM finding, so report this observation in the exam section.
    - A note on ostomies:
        - It is very important to know if your patient has an ileostomy versus a colostomy as the output expectation is different.
        - Ileostomies tend to have higher outputs and are more liquid or paste consistency than colostomies.
            - Right after surgery ileostomy output may be more watery and will thicken to paste consistency over time.
        - Normal ileostomy output is ~800-1,200 mL
        - Normal colostomy output is ~200-700 mL
- <u>Exam</u>
    - Keep it brief "Normal except for …. pertinent finding"
    - Heart
    - Lungs
    - Abdominal exam
        - If they've just had surgery, we expect there to be some pain around incision sites, you can say "appropriate tenderness to palpation" if normal/expected pain is present.
        - Comment on the number of incision sites, how do they look, what are they covered with (Dermabond vs gauze vs staples?) any erythema? Are dressings clean, dry and intact?
        - If ostomy is present, what color? "Pink and well perfused" or, "Dusky". Is there edema? Is there gas in the ostomy bag? Comment on the ostomy output color and consistency as well, i.e. "bilous output."
        - When in doubt, ask the residents how to describe these exam findings.
    - Drains: Where is the drain located? What color is the output?
    - Foley catheter present? What color is the output? How many cc's in the bag?
    - Edema
- <u>Labs</u>
    - Values in isolation are less helpful, it is better to report the lab trend. For example, WBC is down to X today from Y yesterday.
    - Okay to say "Normal except for…" or if following specific labs, then report those values.
        - If you aren't following labs anymore or don't need to be, add that to your plan to discontinue it!
- Microbiology
- Cardiology: EKG, TTE
- Imaging

- <u>Assessment</u>
    - Keep it brief and pertinent, this should change daily as it is an update for how the patient is doing today.
    - One liner: Patient is a 60 y.o. with a pertinent history of XYZ, who is now POD # from XYZ surgery for XYZ.
    - How is the patient doing? Recovering well, all vital signs are within normal limits; Or course is complicated by XYZ…
    - Discharge expectation

        - Typically for surgical patients before they can go home they need to have flatus, void independently (unless they cannot at baseline), tolerate PO diet, ambulating, and be on PO meds (especially pain well controlled on PO meds).
    - <u>Plan</u>
        - Every patient needs a plan, and you must be able to justify your plan.
        - The plan is usually about managing medical problems, post-op complications, and getting them to a state where they're safe to be discharged.
        - If on the colorectal service, most patients are on the ERAS (Enhanced Recovery After Surgery) pathway.
            - They are either on the pathway or have fallen off the pathway due to complications and we want to get them back on.
            - Include in your plan: Pain management, diet/fluids/bowel meds, BP/respiratory meds (if pertinent), tubes/lines (i.e. Foley, epidural), PTA medications, PT/OT plans (if pertinent), and discharge plans.
- To spend more time with attendings, ask what time they are seeing their patients and if you can round with them. Be prepared to present!
- If you are scheduled for a morning case, go with the resident down to meet the patient in pre-op. Try to always meet your patient BEFORE they go to the OR.
- If you are in afternoon cases or clinic, you will spend your morning writing notes, start or update discharge summaries, and update hand-offs. You may also carry the intern service pager and answer pages (do not take the pager if you're going to the OR or clinic).
    - For hand-offs, think about contingency planning.

OPERATING ROOM

- Preparing for the OR:
    - Always know your patient! Okay…but what does that actually mean?
        - Know what surgery they are having.
        - Know the indication for surgery; why are they having it? What have they tried before?
        - Most essential information about the patient will be in the H&P, ALWAYS read the pre-op H&P. Know pertinent medical and surgical history (very important to know if they've had a prior abdominal surgery and you are doing an abdominal operation). Medications, and allergies to medications.
        - Know risks of surgery, usually bleeding, infection, etc. and what patient history or current problems may impact wound healing or general post-op recovery.
            - For example, factors that increase risk of anastomotic leaks in colorectal surgery are diabetes, immunosuppression (chemotherapy, recent use of steroids, immunotherapy, cancer etc.), prior radiation to the area.
        - If you have time, it is helpful to go back and read prior clinic notes in addition to the H&P.
        - Review recent imaging, procedure reports (endoscopy and/or colonoscopy), prior operative notes.
            - Look at the images in e-Unity and then read the report to try to improve reading images.
            - Ask the residents or attendings to review images with you, they are excellent teachers and would be happy to do so!
        - Review relevant anatomy for the case and focus on blood supply. Many questions will involve blood supply, sometimes innervation as well or risk of injury to a specific nerve.
            - This is when the surgical anatomy textbooks are helpful to review.

        - Watch a YouTube video of the surgery if you can find one.
        - Google dictation note of the surgery and read an operative report if you can find one, this will have all the relevant steps in the surgery as well as anatomy/structures pertinent to the case.
- In the OR:
    - You have already met your patient.
    - Now is a good time to use the bathroom, have a sip of water or coffee (not too much to avoid needing to use the bathroom in the case), and eat a snack (you don't know how long you will be there).
    - Arrive early and always before the patient is in the OR (go to the OR when the schedule board to dark orange). If the OR schedule board turns green, it means the patient is already in the OR.
    - Introduce yourself to the OR staff and write your name on the white board.
    - In the tall metal cabinets usually in the back of the room, you will find gloves, gowns, tape, etc.
        - If a patient needs to be shaved, get wide silk tape from this cabinet to help.
    - Find gloves in your size (two different colors) and give them to the scrub nurse, ask if they need gowns for you as well.
        - You want two different colored gloves to wear so if one tears it is easy to see it.
        - They usually already have gloves for the attending or resident, but if they don't and you know their glove sizes you can give them to the scrub nurse as well.
    - OR staff is busy prepping the room so unless you are helping them with a specific task, step to the side. It is okay to just let them do their thing.
    - Ask the nurses for gloving and gowning techniques, they will appreciate this and will be helpful for you to learn and minimize contamination risk. We can learn a lot from the OR staff so ask them questions! If you don't know how to do something, or where something is, just ask!
    - Do not touch or get too close to anything BLUE.
    - When the patient arrives, help the team with getting the patient to the OR table, place SCDs (and make sure the machine is on!), putting in a catheter, etc.
    - Attendings all have different preferences for prepping and draping, so just follow their lead and step away from the table to make space if they do not ask you to be involved.
    - They will cue you to scrub in, or go scrub in when you see the attending or resident leave to scrub in.
        - For the first case of the day, do a wet scrub with the sponges, after that you can use the dry scrub in the OR.
    - Be active in the surgery and try to anticipate their needs.
        - If you see that they are suturing something, ask the scrub nurse for suture scissors because they will ask you to cut next. This type of anticipation shows that you are paying attention to the surgery and learning. It also makes things more efficient and increases your involvement.
        - One of the main roles of assisting in surgery is about providing a clear view for the surgeon. Think about this as you are retracting and positioning yourself. Move with the surgeon so they can always have a clear view. The same goes for providing traction and countertraction to make their operating field easier.
    - Have situational awareness; step out of the way if the room is busy and you are not helping with a task. If you sense that there is a tense moment that requires concentration, that is not a good time to ask a question. You can always ask questions before and after the cases if you felt like there was not a good opportunity to ask during.
    - In general, be respectful to everyone and try to be helpful while also reading the room.
    - You will often be the one to close incisions, have the residents practice with you. If it has been a long time since you have done knot-tying and suturing, just say so! The residents are happy to

teach you wherever you are at in your learning, always ask for a refresher if you need it or want it.
    - When you are suturing, find the most comfortable position for YOU and remember that it is okay to adjust the operating table for your appropriate height or ask for a stool, and position your body in a way that will be most comfortable and successful for you.
    - Dermabond takes time to dry, do not put towels or anything on top of it while drying.
    - When the patient is waking up from anesthesia, it is helpful to apply pressure on the incisions while they are coughing….only after the Dermabond has dried.
    - Help OR staff get the patient bed and transfer them and throw away drapes.
    - If you want, ask the resident to help with the Brief Op note or show you how to write it.
    - Try to practice telling PACU pertinent information (you can practice this with the resident).
        - What suture was used to closed, how many incision sites there are, if the Foley must be removed, estimated blood loss, pain control plan, etc.
    - 4-6 hours later, perform post-op checks on your patients and write a brief SOAP note.

CLINIC

- Chart review all patients on the schedule BEFORE arriving to clinic. Visits go quickly and there is not time in between to chart review.
- Review prior clinic notes. This will have helpful information such as attempted prior treatments.
- Know medical history, problem list, surgical history, social history (mostly tobacco, alcohol, drug use, occupation is also helpful for understanding potential post-op limitations), family history (mostly cancer focus or autoimmune diseases), medications, and allergies to medications.
- Know if they've had a complicated hospital course, any recent admissions or if they recently presented to the ED.
- Review recent imaging or pertinent imaging and procedures.
- Review recent labs or surgical pathology reports.
- If they are a new patient, look under "scans" or "referrals" to see if there is a note from the PCP with pertinent information. Do a complete but focused H&P for these patients.
- When you do chart review, you can already start thinking about what questions you want to ask the patient and even form a draft of assessment and plan to save you time.
- If there are common problems that you will be seeing in clinic that day (i.e. hemorrhoids or hernias), review the topics before you go to clinic.
- Look up the attending's name under Smartphrases, and copy their clinic note template so that your note is in the format they prefer.
- When you arrive to clinic, introduce yourself to someone at the front desk and tell them the name of the attending you are working with. They will show you where they typically sit and which rooms they use.