

# Radiology Extern Handbook

Last Updated February 2020

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## Overall Workflow and Responsibilities

When someone orders imaging in the hospital after hours, it needs to be protocolled by the Radiology resident on call before the technicians can perform the study. You will hold the on call pager (3205) and screen new imaging requests for certain criteria before letting the resident know which studies need to be done. You will also respond to basic questions from hospital staff so that the resident can read the studies that have already been performed.

- Shifts are from 5 PM - 10 PM on weekdays and 9 AM - 7 PM on weekends and holidays
- Report to the Radiology reading room on the 3rd floor, elevator F

At the beginning of your shift:

- Use Smartweb to identify the senior resident on for your shift. If you can't find the resident in the reading room, send a page. The senior resident is responsible for finding the 3205 pager for you.
- Get the on call pager from the senior Radiology resident
- Log in to Voalte: [voalte.healthcare.uiowa.edu](http://voalte.healthcare.uiowa.edu)
  - Username: short
  - Password: 11111
- Open Smart Web for paging: [smartweb.healthcare.uiowa.edu](http://smartweb.healthcare.uiowa.edu)
- Open Epic to look up patients
  - The ED context can be helpful to find patients that only specify imaging for "ED Bed #"

During your shift:

- Your main priorities during the shift are assisting your resident with the workflow of protocoling studies. As they are reading studies, imaging requests will come through a variety of channels: Pager, Voalte, Phone Calls.
- Your job is to take down the necessary information about each individual protocoling while the resident is reading studies.
- If the resident is in between studies (the PACs screen is black), that is usually a good time to unload your list of protocols. This allows residents to read without too many interruptions
  - That being said, if a protocol is urgent (Think things like Trauma, stroke, Cauda Equina, ruptured AAA, etc.) you should interrupt the resident to get this study protocolled. This includes urgent store and interprets.
- Answer phone calls as they come and direct to the appropriate channel. It is okay to interrupt the resident for a call.
- Answer any other pages promptly
- Ask residents about any questions you have
- Do any other work the resident asks of you

End of your shift:

- Log out of Epic and Voalte and Turn off Computer Monitors
- Throw any papers with patient info into the confidential bin located in the body area.
- Take senior pager down to resident in the ETC

## Division of Labor

### **Your resident (Short Call): 67016**

You will be working with the “short call” or senior resident, who reads all advanced studies (CTs w/contrast, all chest or body CTs, all MRIs, all ultrasounds, all nuclear medicine when radiology is covering nuclear medicine [check under SmartWeb->Radiology->Nuc Med Resident]). You may also interact with the “long call” or junior resident downstairs by the ETC. They can be reached at 68466 or via their personal pager.

### **Long Call Resident: 68466**

They read **ALL plain films** and **noncontrast neuro** and **musculoskeletal CTs** (e.g., noncontrast CTs of the head, spine, maxillofacial, extremities, bony pelvis, etc.) including external store and interprets. This “division of labor” is important for you to know as you will inevitably be called to “get a read on a study” and you need to know which resident to have the clinician call/page. If you get a page regarding a trauma external store and interpret which should be going downstairs to the long call resident, please give that resident a heads-up on the phone that trauma is requesting an External read (see Request for outside film read section).

## Resources

**Radiology Film Management:** The Radiology front desk (63350) has a staff person there from 7:00-21:00 on weekdays and from 7:00-17:30 on weekends. This person can help referring clinicians load outside CDs (though most clinicians already know how to do this). They can also move studies to our PACS system. If you get a request for a read on an outside study that comes in during the time that a film room person is here, confirm that the ordering clinician has uploaded the study. Then call the file room employee to request an Accession number You can also just walk back there.

**ACR Appropriateness Criteria:** Website detailing what studies are indicated for a variety of studies. Google ACR appropriateness criteria to find. This can further your discussion with providers. (Example, why did you order this study as compared to this study. Don't be critical- this is just a discussion to order the appropriate imaging. A lot of times there is a

specific reason they ordered the study they wanted.

**Operator-** Dial 0 on the phone. This is very helpful for calling floors to get into contact with providers you can't contact with pages, voalte, or phone.

**Important Numbers:**

**Short Call Resident (Your Resident)- 67016**

**Long Call Resident (Downstairs Resident)- 68466**

**CT- 46536 pager 3345**

**MRI - 62236**

**Ultrasound- 62040 Pager- 6383**

**IR Pager 5390**

## **When You Receive an Imaging Order**

### **To order a study**

1. If they want a plain film, tell them to call the front desk at 63350. If it is after hours for the front desk, or if they need a stat plain film done, tell them to page the Xray tech directly at 3189.
2. Is the study within your 'Division of Labor?
  - a. **ALL plain films and noncontrast neuro and musculoskeletal CTs are for the long call resident downstairs.** e.g., noncontrast CTs of the head, spine, maxillofacial, extremities, bony pelvis, etc.):
  - b. Noncontrast head, noncontrast spine CTs, and CT perfusions do not need to be approved by the radiology resident. If one of these studies is called to you, call the CT tech at **46536** or pager **3345**. You Can also inform the caller than he/she can page the CT tech directly with future requests for noncontrast head and c-spine CTs.
  - c. MRI Axial T2 only, MRI Stealth and MRI Knee w/o are automatically approved by the MRI techs. If you are called about one of these three,tell the person they can call the MRI techs at **62236** to arrange their

study.

3. You have to know the following for all studies before you can have a helpful conversation with your senior resident. Pull up the study you got paged about in EPIC (Chart Review -> Imaging->find the study that was ordered->click Order Information) and check the info there. You may not even have to call anyone unless there is a question.

-A. Patient Name?

-B. MRN?

-C. is it STAT? (See #3) if yes, answer D-I as fast as possible and then tell the resident about it right away.

-D. Does the patient have a contrast allergy?

-E. Does the patient have a contraindication to the study? (e.g. a pacemaker for MRI)

-F. Do they want contrast and if so, is there a contraindication to giving contrast?

(check the Ulowa Comprehensive Contrast Policy-check patient's renal function)

-G. From the ETC or the inpatient unit?

-H. Who is ordering the study (Clinician Name) and callback information (e.g. pager / voalte number)

-I. U/S specific concerns: See the U/S section.

**The worksheet at the end of this handbook will organize this data for you.**

4. How soon do they need the study? They do not always need or want it right away.

Formal categories will show up on EPIC (top right under 'Priority' when you click on "Order Information") and also look closely at the comments for the study and read the page you got:

a. Emergency (**STAT**) - includes trauma, code stroke, r/o aortic dissection, PE protocol, r/o cauda equina... – something that could cause mortality / morbidity fast.

Most ETC studies qualify-ask your resident if something doesn't quite make sense to you about the ETC study (and see #5). Includes STAT outside film reads too!

b. **ASAP** – probably wanted ASAP (but sometimes not)

c. **Routine** – probably wanted same day (but sometimes not)

d. **Tomorrow** – tell them have their team call Radiology next AM to schedule their

Study

If not STAT and not ASAP, you can hold off a bit on it, in order to prioritize the STAT requests.

Don't forget the page though-it's a good idea not to delete any page on 3205 until you're sure everything for that patient has been taken care of on the list of A-I and on your worksheet.

e. As you will come to find, most studies are going to be labeled as STAT, and some studies that should be STAT will be labeled as Tomorrow. Use your judgment about whether this is a study that needs to be protocolled right away (see STAT indications). If unsure, you can always ask your resident. Better safe than sorry.

5. Figure out the name and pager of the person that needs to be called with results of the study. Importantly, it may not be the same person who is ordering the exam. For example, the Trauma Surgery intern will often place imaging orders, but we will usually want to talk to the Trauma senior resident. For traumas, a good callback is the Trauma Pager at 5249.

6. It is not your job to argue if the study is indicated or not. Just take the information and the resident will decide if it's indicated. You can assist the resident in this task, however, by gathering extra information for the resident to make a decision.

7. If you are on the phone gathering the necessary info for A-I, you can end your conversation with the ordering clinician by saying thanks and that the resident will call them back if he/she has any questions. Try and be polite even if something sounds wrong or if the person seems rude. Every resident is busy and everyone has a bad day now and then.

8. All other studies need to be approved by the radiology residents. Once these studies have been approved, the resident will protocol the study in EPIC.

a. The one exception to this rule may be ultrasounds. Many residents will allow you to use discretion to page the ultrasound techs if the study seems reasonable. Always ask at the beginning of shift if this is what they want you to do.

**CT- 46536, pager 3345**

**MRI- 62236, pager 341-6818 or home/cell phone**

**Ultrasound- pager 6383 – give them the patient name, MRN, study request**

**Nuclear medicine- if Radiology is on call for Nuc Med – page the nuc med tech:**

**find in smart web under Radiology->Technologist Nuclear Medicine**

10. Interventional procedures (other than paracentesis, thoracentesis, lumbar puncture, or joint aspiration) go to **interventional radiology**. Give them the IR pager number (5390).

If they call back and cannot reach the IR resident, refer to Smartweb for the person on call for these services and give them their personal pager number.

### **Request for result on a study**

1. Plain film and noncontrast neuro and musculoskeletal CTs (e.g., CTs of the head, spine, maxillofacial, orbits), have them call 68466 (long call resident).

2. Ask them when the study was done.

3. If the study was completed during the day, ask them if they checked EPIC for the read.

4. On weekends, if asking about a study done the night before, tell them the staff will likely be dictating it.

5. If from the ETC, ask them to check within their note, as prelim “wet reads” are now being placed here or to check on EPIC. You can go see if you can find it yourself on EPIC to confirm if it’s there with them.

6. All other studies, take patient name and number and physician name and pager number and tell them we will call them back with the results. Give the resident this information.

7. If it’s a request for an urgent phone read (surgery calling about a patient going to the OR), put the senior resident on the line.

### **Request for external store and interpret/outside film read and in person reads:**

1. Ask if study has been uploaded and confirm an order to “store and interpret” has been placed. **Ask what they want us to take a look at.**

2. Outside studies are transferred to EPIC by the film management room. This is typically

done by the film room staff when present (til 2100 on M-F, til 17:30 on weekends). If

it's been 5-10 minutes, and accession number still isn't coming up on EPIC, go check with the film room tech, as there are occasional technical difficulties. **If it is after film room**

**hours, call down to CT at 46536** and tell them you have a Store and Interpret request and that you need images uploaded to EPIC. You'll need to give them an MRN.

3. Take patient name and number and physician name and pager number. Ask if there is a known outside read or impression-take this down, it's often helpful.

4. If you can find the outside study or impression in Care Everywhere/Media tab-print this out for the resident.

5. For outside studies, tell them the resident will look at it as soon as possible and call them back.

6. **Treat trauma externals, other emergent "Store and Interpret" requests with urgency.** This is important because the residents will **not** see the request come up on their work lists. **YOU HAVE TO LET THEM KNOW.** The store and interpret division of labor is the same, so **call the non-contrast or plain film externals down to 68466.**

6. To discuss studies in person, let them know if the resident is particularly busy/reading an emergent exam. Most clinicians will just stop by and it is okay to let them know where the resident is working. If they don't know where you are, you can give the general directions to go to the 3rd floor between elevator E and H, and enter Radiology by the painting of dad and daughter in the hammock looking at the sky.

## **Call from a tech or other radiology resident**

1. Tell them you'll put them on hold and give them to the resident. If the resident has gone downstairs or is doing a procedure, you can send the senior a page that they've got a call from the techs or the other resident, etc.



## VA study requests

Please take the patient's information and study request information just like you would for UIHC patients. Give this information to the resident and they will take care of the protocol if needed. They may have you call the VA CT tech and you do this by calling 158-0 and telling them you need to be connected to the CT tech.

Ultrasound and nuclear medicine are not available at the VA at night or on weekends.

If one of these studies is needed, the patient will need to be transferred to UIHC and admitted to the ETC or an inpatient service. Once the patient is admitted at UIHC, the admitting service can call us and request a study.

## Outside Phone Calls

1. Teleradiology –this page is generally to tell us a study was done.

a. Ask the patient name and type of study.

b. Then inform the appropriate resident to let them know an outside study is coming

2. 62000 (operator) – call the operator back then refer to above. For everything else,

(including a call from a patient), take information and ask for name and phone number to

be reached at. Then contact the resident on call to talk with the patient.

3. To dial outside numbers, enter 91, followed by the number. If you need to call long-distance, you will need a long distance code. A code is located by the fax machine in the chest reading room or you can ask the resident.

## Types of Studies

### Neuro

#### Head CT

Most of the time noncontrast: mental status changes, r/o stroke, r/o bleed, r/o hydrocephalus, etc. Contrast only for r/o abscess, known primary cancer to r/o mass. CTA Perfusion is

occasionally ordered for stroke patients and will be read by the senior resident as it has contrast.

### **Spine CT**

Usually noncontrast

C spine – standard protocol is occipital to T3

T or L spine – need to know what level they are most worried about

### **Maxillofacial CT / Sinus CT / Orbits CT**

Usually noncontrast (particularly if following trauma). If non-contrast it goes downstairs.

Studies may be performed with contrast to r/o infection

### **Temporal Bone CT**

Always noncontrast, usually status post trauma

### **Neck CT**

Usually with contrast – r/o abscess is the most common indication on call

### **Body**

#### **Abdomen/Pelvis CT**

If they ask for abdomen CT, ask if they want a pelvis CT also.

Appendicitis – oral, rectal, and IV contrast can be considered

Stone protocol – noncontrast

All other studies – generally oral and IV contrast, assuming the patient can tolerate them.

### **Chest**

#### **PE protocol**

Status of D-dimer?

Cr if above 65 years old

If also concerned about dissection, they must decide which is more important to them as the study will be optimized for the most likely pathology.

### **Routine**

Generally with contrast

Without contrast – bone marrow transplant patients on lots of renal toxic drugs

### **R/o dissection**

With contrast from top of arch through bifurcation

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### **AAA protocol**

Abdomen/Pelvis CT with IV contrast

### **Nuclear Medicine**

Check if radiology is covering call – refer to Smartweb.

If it says nuclear medicine is covering, give them the pager number of the nuclear medicine resident.

If it says “radiology on call”, ask how urgent it is and if it can wait till morning.

Take information if it cannot wait.

### **Ortho**

Pelvis, extremities (one side or both). Usually w/o contrast.

How soon do they need it done?

### **MRI**

Find out how urgent the study is.

Any contraindications to MRI? i.e. pacemaker, shrapnel, other metal

Ask about the most recent creatinine and GFR (within 30 days) if the patient is over 65yo, has h/o renal insufficiency, or is diabetic. If GFR <30, study must be emergent and have radiologist's approval due to increased risk of Nephrogenic Systemic Fibrosis (NSF). If on dialysis, study probably shouldn't be done with contrast, and if it is then the patient must have dialysis the day they receive contrast.

### **US**

Find out how urgent the study is.

Most commonly requested study is a RUQ U/S. Ask how long the patient has been NPO (6

hours minimum) and confirm they have a gallbladder.

Other U/S exams generally do not need to be NPO except the rare mesenteric Doppler.

If they are asking for an invasive procedure such as paracentesis, ask for coags and if patient is consentable.

We do not do OB/Gyn ultrasounds (TVUS); they will need to call the OB/Gyn resident on call.

We do not do lower extremity dopplers (bilateral); they will need to call the Vascular Lab.

Occasionally our U/S techs will do single leg dopplers, you can ask the ultrasound tech if you get a request for them.

**Fluoro Procedures:** e.g., swallow study to r/o leak after esophageal dilatation

Find out how urgent the study is as body staff generally has to be called in. Can it wait till morning?

Take down as much information as possible. The resident usually will have to call them back.

For Fluoro-guided lumbar puncture: One attempt needs to have been made by the service requesting the LP. Confirm that this is the case. If so, ask about the nature of the problem (patient body habitus, bad luck, etc). Get pt weight.