

Rev. 7/2022

Fluoroscopy

Reading Hospital School of Health Sciences
Medical Imaging Program
MI 263: Clinical Seminar V

Mrs. Christina Wehr

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What is Fluoro?

- Live imaging
- Shows function of body parts, not just structure

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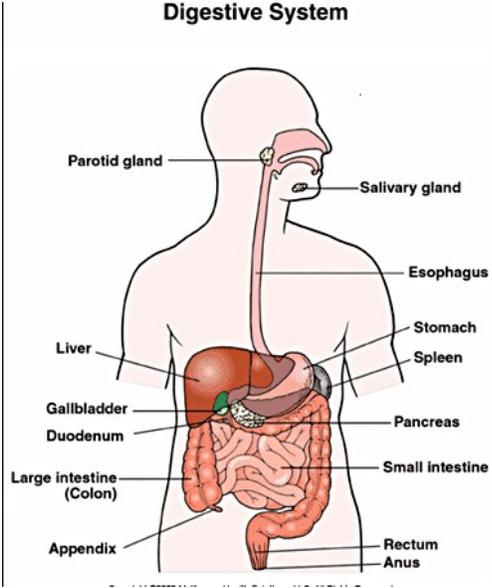


Other terms
equipment to know...

- Fluoro tower
- Fluoro carriage
- Sterile trays
- Food Study chair

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Digestive System



GI Tract organs

- Esophagus
- Stomach
- Small intestine
- Large intestine (includes colon)

Labels in diagram: Parotid gland, Salivary gland, Esophagus, Stomach, Spleen, Liver, Gallbladder, Duodenum, Pancreas, Small intestine, Large intestine (Colon), Appendix, Rectum, Anus.

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Digestive System

Labels: Parotid gland, Salivary gland, Esophagus, Stomach, Spleen, Liver, Gallbladder, Duodenum, Pancreas, Small intestine, Large intestine (Colon), Appendix, Rectum, Anus.

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Accessory glands

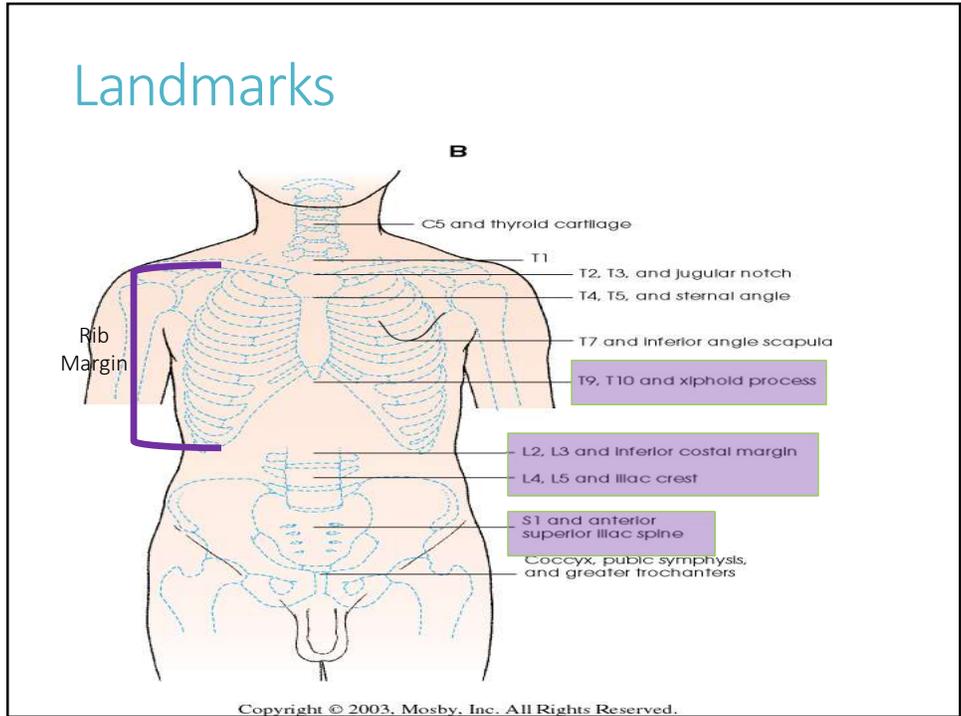
- Salivary glands
- Liver
- Gallbladder
- Pancreas

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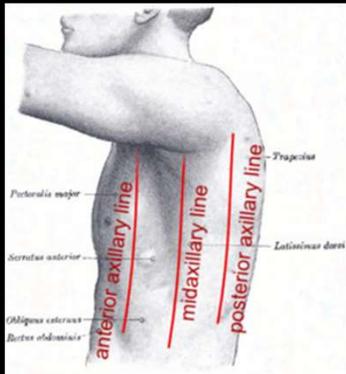
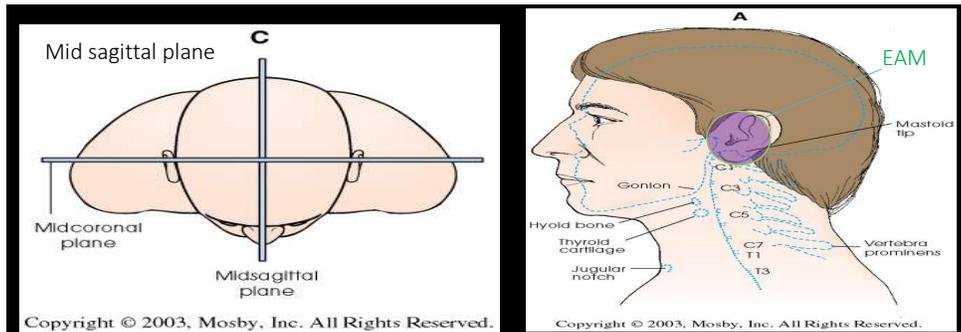
Additional Anatomy

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Landmarks



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Planes and Landmarks

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Protection during Fluoroscopy

Tube below patient: Shield under patient during fluoro

Tube above patient: Shield on top patient during fluoro.

***Remember to always have shield on top for overheads**



Lead Curtain: Minimum of 0.25 mm lead equivalent

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Bucky slot shield – reduces scatter radiation from escaping from the table (units with tube below)

Minimum of 0.25 mm of lead equivalent



Lead Aprons / shields – must have at minimum 0.25 mm of lead equivalency

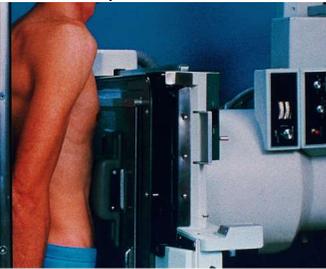
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What is the safest spot for a technologist to stand during a procedure in Fluoro?

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Ancillary Equipment used in Fluoro

Compression Cone



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Compression paddle



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Lead gloves



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Contrast Materials used in Fluoro

Positive

Barium Sulfate

Iodinated Contrast

Omnipaque or Gastrografin



Negative

CO₂

O₂

Nitrous Oxide

"Fizzies"



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What's the purpose of contrast agents?

Diagnostic agents are administered into body orifices or injected into vascular system, joints, or ducts to enhance subject contrast in areas where it is low.

Advantages:

Better anatomic definition

Can assess function

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Let's learn more about Barium...

- **THIN Ba** (Liquid EZPaque)

Best to visualize
motility and
function of the
part

- **THICK Ba** (EZHD)

Best to visualize
the **details** of the
mucosa

Not used on children under 12

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Barium Based Contrast

- Barium drinks
- Barium pills
- Barium paste
- Barium soaked food



Barium soaked cotton balls!

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Contraindications for Barium Uses

- Recent surgery in GI tract (Pre or Post surgery)
- Uncooperative patient
- Vomiting
- Elderly
- Known blockage in GI tract
- Possible fistula



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Allergy Contraindication

Allergies to the Barium mix:

Have you had barium before?

- Did you have a reaction to it?

Do you have any food allergies?

- Preservatives in barium mix

*May need to use iodinated contrast instead if cannot use barium



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List of Barium Additives	
Revised 10/1/20 JM	
LIQUID EZPAQUE flavor	Natural & Artificial Strawberry Lemon Cream flavor Saccharin, Sodium, Sorbitol, Citric Acid
E-Z-HD (Thick)	Artificial Strawberry flavor Saccharin, Sorbitol, Citric Acid Artificial Cherry flavor
<u>Varibar</u> Nectar	Natural and Artificial Apple flavor Saccharin, Citric Acid
<u>Varibar</u> Honey	Natural and Artificial Apple flavor Saccharin, Citric Acid, Starch (from corn)
<u>Varibar</u> Pudding	Artificial Vanilla flavor Saccharin, Citric Acid
Liquid <u>Polibar</u> Plus	Natural and Artificial Vanilla flavor Saccharin, Sorbitol, Citric Acid
Liquid <u>Polibar</u>	Natural and Artificial Orange flavor Saccharin, Sorbitol
E-Z-Paste	Citric Acid Saccharin, Sorbitol
E-Z- Disk Tablets	Confectioner's sugar, Cornstarch
E-Z-Gas II Fizzies	Natural Orange flavor Saccharin, Citric Acid
<u>Omnipaque</u>	No Flavoring or Sweetener

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Let's learn about Iodinated Contrast

Oil based
Water based

- Ionic
- Nonionic



- Can be used in place of barium
- Used routinely for studies outside of GI tract (ex. spines, joint spaces)

Any iodine –containing media may cause allergic-like reactions

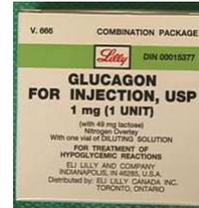
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Medication which may be used in Fluoro

Glucagon – Usually injected.

Used to “paralyze” the GI tract.

Helps Radiologist / Radiologist Assistant get better pics (no motion).



Reglan – Can be in pill form; sometimes injected. Used to “Speed up” GI tract, and make barium move through system.



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When using contrast, you can have a Single or Double Study

Single:

- One type of contrast used only. Usually Barium.

Double:

- Two types of contrast material used. Usually Barium(positive) with air (negative).

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Single contrast will show overall _____ of body part, as opposed to the details.

Double contrast is preferable since you will see _____

May do different overhead images for a single contrast study vs. a double contrast study.

Air/ fluid levels - double

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Contrast for Fluoro Exams						
Exam	Contrast					
	Liquid EZ Paque	EZ HD	EZ Gas	EZ Disk	Liquid Polibar Plus	Omnipaque (per RA or Patient condition)
Esophagus (single)	X			X		X
Esophagus (double)	X	X	X	X		
UGI (single)	X					X
UGI (double)	X	X	X			
Small Bowel	X					
BE (single)					X	X
BE (double)					X	

EZHD - not used on children under 12

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Types of Patient Prep

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Just fasting “NPO” (usually 8 hours prior)

Fasting *and* bowel cleansing

- Light meals day before exam
- Pills
- Enemas / suppositories
- Total fast 8 hours prior to exam

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Why are Preps necessary?

Bowel gas/contents will overlay anatomy of interest

Is a Prep needed for:

Esophagus?

Stomach?

Intestines?

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Prep is done, now what?

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Changing the patient for exams

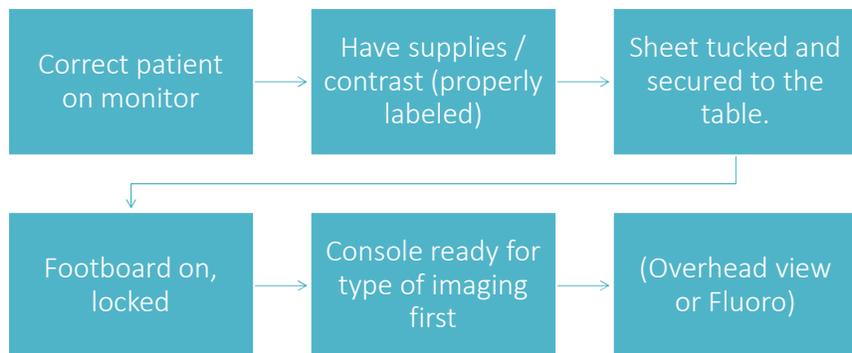
Change patient according to what area we will be examining:

Esophagus?

Stomach?

Intestines?

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Setting up the fluoro room for any exam

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Questions to Ask????

RH - Make sure medication list completed
RH - Ask for any allergies, to update the system



Ask allergy questions according to exam type

Barium Study
Iodinated Contrast Study



Verify Prep was completed, if necessary



Get history



Ask if any surgeries to area of interest



Ask if they've had the study before



Briefly explain procedure

Most of the questions are asked as you complete the screening form

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Scout Image

Always done when patient had to prep their body for the exam.

May be done for viewing gross anatomy prior to exam (joint injections, spines, stones, etc.)



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Your responsibilities during fluoro exams

Assist the patient & staff

Keep supplies handy

Technical considerations

Overheads

Examples: PA, AP, RAO/LPO, Right Lateral

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End of Fluoro Exam

If the patient had Barium:

- Drink a lot of liquids afterwards
- Maybe a mild laxative
- They should increase their fiber intake.

After walking the patient out:

- All documentation completed
- All images sent properly
- All forms scanned, if necessary
- Room ready for next patient

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So here is a
routine you can
build off of.....

Let's look at your Fluoro Guidebook.....

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Some Forms You May See

Also located In your fluoro guidebook

- RA Form
- Post Barium Instruction
- Medication Form
- Informed Consent

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Universal Protocol

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Universal Protocol	
<p>Pre-Procedure Verification</p> <p>Airway Assessment Documented?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> N/A <input type="checkbox"/> Emergent <input type="checkbox"/></p> <p>Pre-Procedure Verification performed with patient involved, awake and aware, if possible.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Patient identification confirmed using at least two unique identifiers.</p> <p><input type="checkbox"/> YES <input type="checkbox"/></p> <p>Accurately completed, and signed, procedure consent form.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Correct anesthesia consent verified, signed and witnessed?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Agreement on procedure to be performed.</p> <p><input type="checkbox"/> YES <input type="checkbox"/></p> <p>Side/Site Verified</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Relevant documentation (e.g. history & physical, nursing assessment, pre-anesthesia assessment)</p> <p><input type="checkbox"/> YES <input type="checkbox"/></p> <p>Correct diagnostic and radiology test results (e.g. films/ images, scans, pathology/ biopsy reports) that are properly labeled.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Required blood products, implants, devices and/or special equipment available for the procedure.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p>	<p>Site Marking</p> <p>Side/ Site Marked as Necessary.</p> <p><input type="checkbox"/> Marked with "Yes" <input type="checkbox"/> Alternative Process used <input type="checkbox"/> Exempt from site marking <input type="checkbox"/></p> <p>"Time Out" (Final Pre-Procedure Pause)</p> <p>Patient identification confirmed using at least two unique identifiers</p> <p><input type="checkbox"/> Yes <input type="checkbox"/></p> <p>Accurately completed, and signed, procedure consent form.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Correct anesthesia consent verified, signed and witnessed</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Agreement of procedure to be performed.</p> <p><input type="checkbox"/> Yes <input type="checkbox"/></p> <p>Side/ Site verified and marked or alternative process used.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Correct patient position.</p> <p><input type="checkbox"/> YES <input type="checkbox"/></p> <p>Relevant images and results are properly labeled and appropriately displayed.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Need to administer antibiotics or fluids for irrigation purposes addressed.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>Safety precautions based on patient history or medication use.</p> <p><input type="checkbox"/> YES <input type="checkbox"/> N/A <input type="checkbox"/></p> <p>All team members present are in agreement.</p> <p><input type="checkbox"/> YES <input type="checkbox"/></p>

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