IU Health Radiology Cloud

IUH Radiology Cloud –
The future is here with easier communication between physicians at different hospitals.

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IUH Radiology Cloud

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Why do we share exams in Radiology?

1. Avoid repeating exams.
2. Save time.
3. Keep cost to patients down.
4. Keep radiation doses down for CT (especially pediatric)

When do we share exams in Radiology?

Acute setting

1. Stat remote consultation
2. Acute patient transfer (Trauma/Stroke/Vascular/Pediatric/etc)

Non-acute setting

3. Remote consultation
4. Patient transfer
5. Out-patient visit at a different hospital

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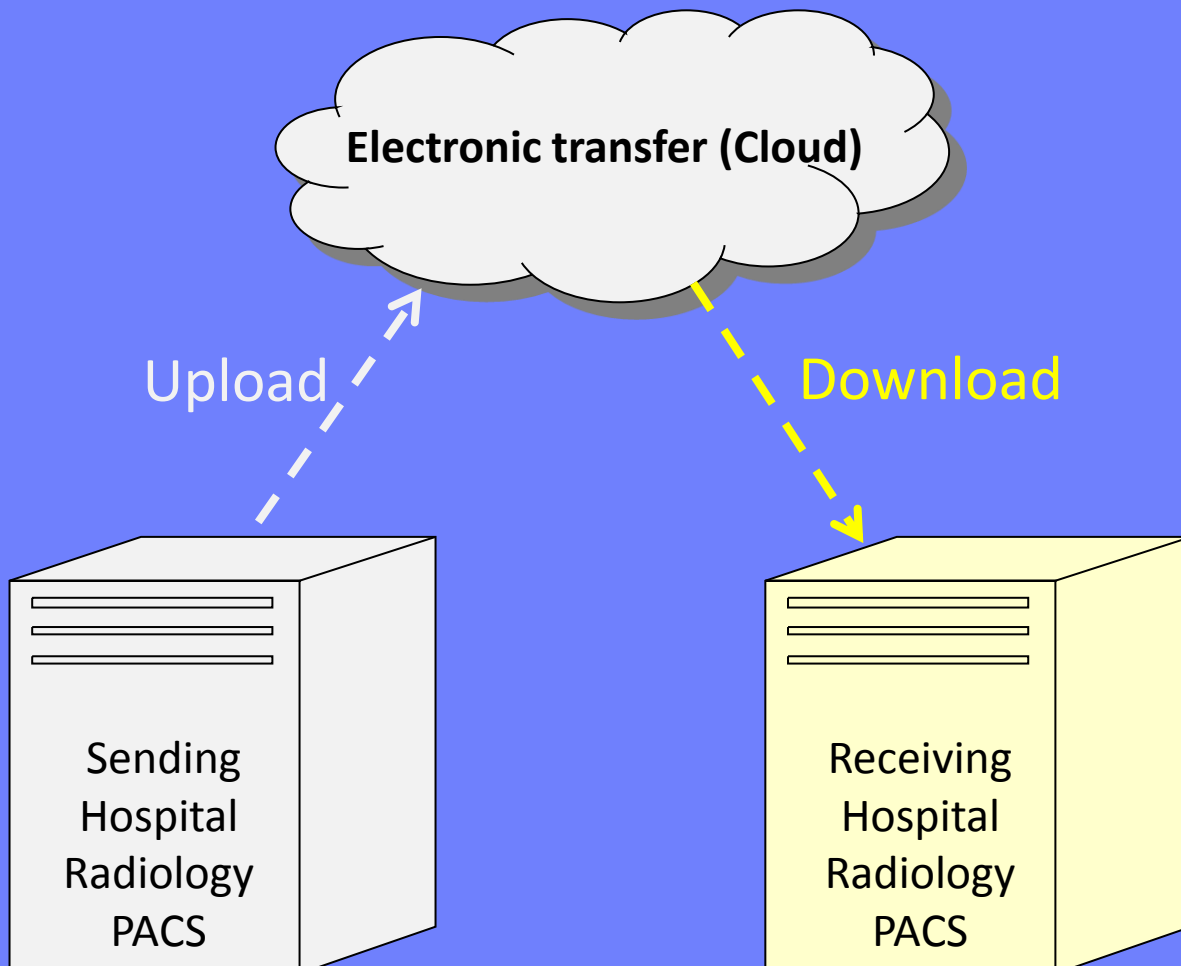
Using CD for image sharing has limitations?

The radiology exams are only accessible at another site if the CD is physically transported to the other site. This takes time and effort.

Burning and administrating CD handling between hospitals demands a labor effort that is not insignificant.

Also – the process fails in 5 – 20 % of cases:
- Someone forgot to burn the CD
- Not the right exams were burned to CD
- Someone forgot to send CD with patient
- CD got lost during transportation
- CD cannot be read at receiving hospital

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The concept of electronic transfer of radiology exams via Internet

Electronic transfer (Cloud)

Upload

Download

Sending Hospital Radiology PACS

Receiving Hospital Radiology PACS

Electronic transfer is:
- Faster
- More robust
- More secure
- HIPAA compliant

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Comparison:
Transfer of radiology exams via Cloud vs. CD

	Cloud	CD
1. Data security level in image management	High	Moderate
2. HIPAA compliant	Yes	Yes - if CD not lost
3. Ability to audit who has viewed an exam	Yes	No
4. Ability to prevent repeat radiology exams	High	Moderate
5. Ability to perform acute remote consultation	Yes	No
6. Ability to evaluate acute exam while patient in transfer	Yes	No
7. Competition neutral	Yes	Yes
8. Ability to save $ on manual labor "burning CDs"	Yes	No
9. Total value in an accountable health care organization	High	Moderate

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What is "IU Health Radiology Cloud"?

A large number of patients are referred to IU Health hospitals each year, both acute referrals and elective referrals.

To eliminate the handling of CDs for associated radiology exams these exams can instead be electronically transferred ahead of the patients.

Hospital 1 PACS   Hospital 2 PACS   Hospital 3 PACS   Hospital N PACS

Electronic transfer (Cloud)
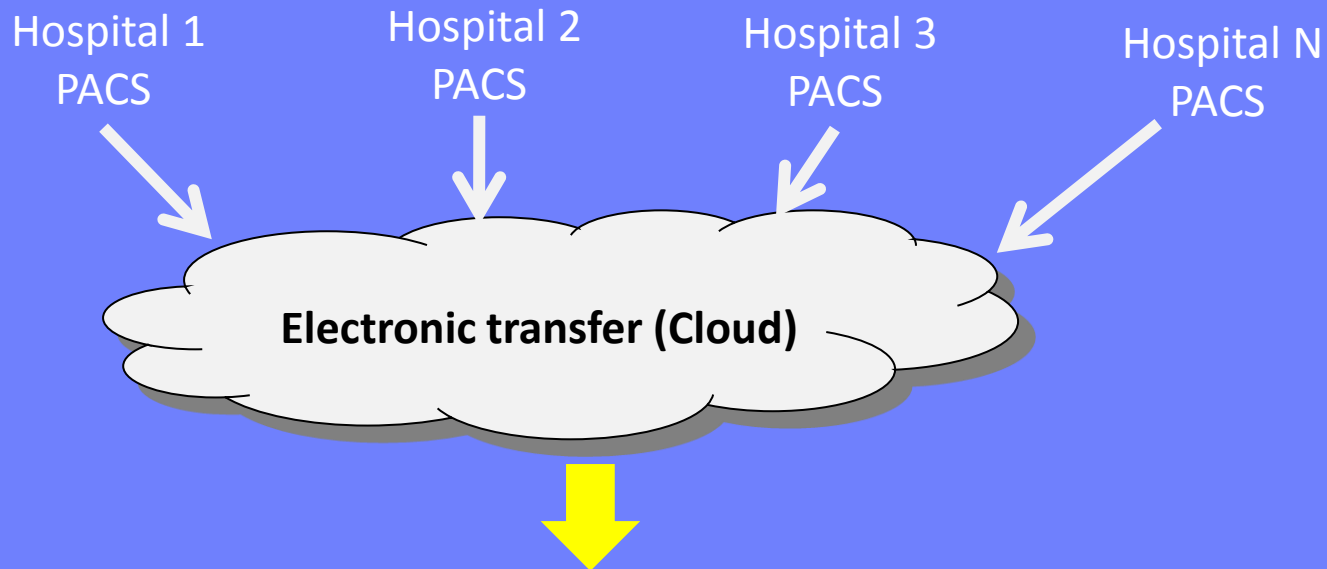
IUH Radiology Synapse PACS
(Methodist Hospital, Riley Hospital, University Hospital and others)

All transferred exams can be viewed from any IUH PC within the IUH network allowing any credentialed MD to view the exams. Remote viewing is also available via a thin client system.

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Cost to connect to the IUH Radiology Cloud is low

Cost to set up connection: $ 0-1,500

Breakdown of costs:

- $ 0 – 1,500 Estimated cost for local IS to build a virtual gateway server
- $ 0   No fee to set up connection

Cost to stay connected: $ 0

- No subscription fee for service
- No fees for exam transfer

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Two send options to IU Health Indianapolis Hospitals via the Cloud depending on the urgency of the situation

The staff in sending hospital radiology will be instructed to chose one of two menu choices by the referring physician:

1. "IUH Routine"

    1. Non-acute patient transfer
    2. Out-patient visit
    3. Remote consultation (acute and elective)

---

2. "IUH Acute Patient Transfer"

    1. Acutely ill patient transfer
       (Trauma/Stroke/Vascular/Pediatric/etc)

The transfer process in this scenario is monitored by the IU Health Transfer Center as well as the Acute Team that has been contacted. No phone calls have to be made from sending hospital.
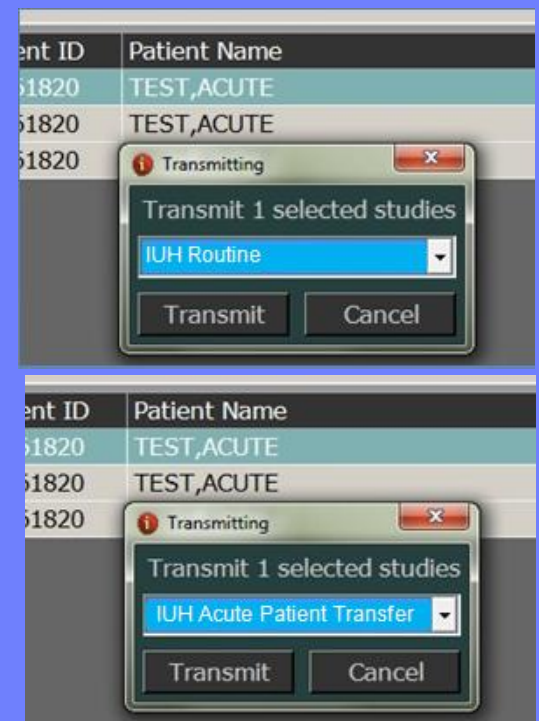
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What it looks like when sending an exam from a connected hospital PACS to IUH Synapse PACS
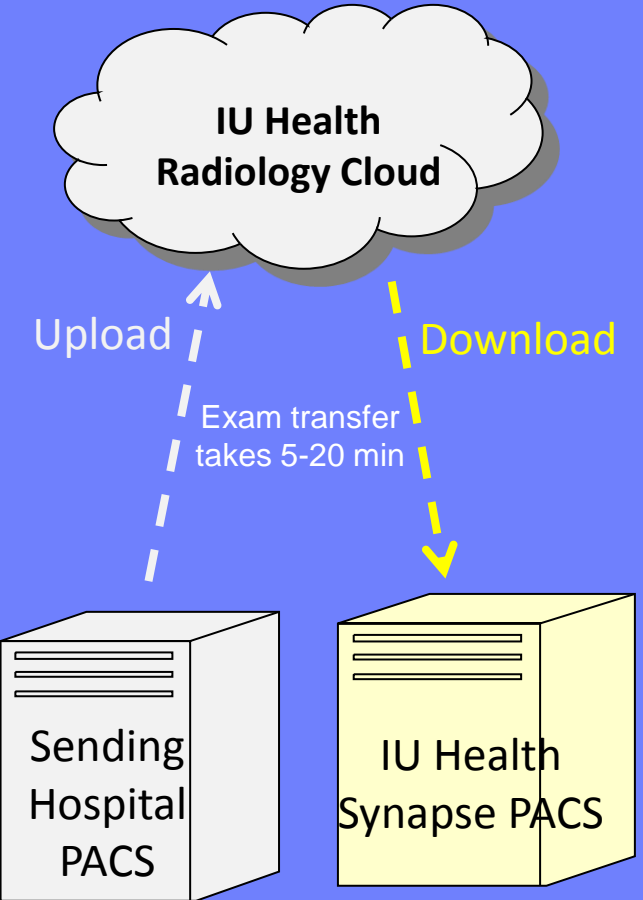
1. Select patient and select exam(-s) on local PACS
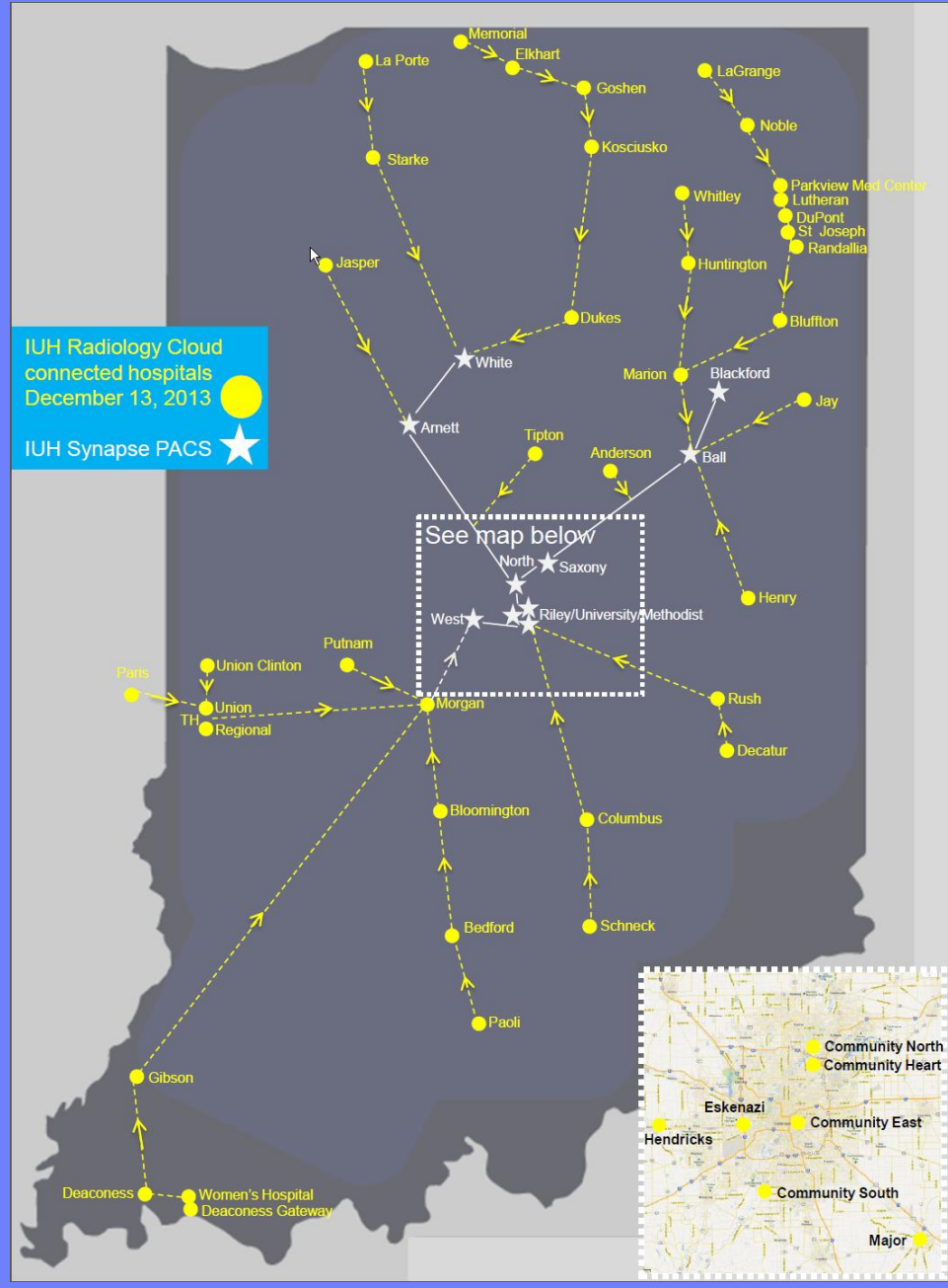

2. Select transfer options

(see previous slide)

3. Click "Transmit"

4. Typical transfer time: 10-20 min

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IU Health Radiology Cloud

Upload

Download

Exam transfer takes 5-20 min

Sending Hospital PACS

IU Health Synapse PACS

Synapse PACS can be viewed at:
1. Methodist
2. University
3. Riley
4. Beltways
5. West
6. North
7. Saxony
8. Ball
9. Blackford
10. RHI
11. Arnett
12. White Memorial

Connected hospitals per December 13, 2013

IUH Radiology Cloud connected hospitals December 13, 2013 ●

IUH Synapse PACS ★

See map below

Memorial, La Porte, Elkhart, Goshen, LaGrange, Noble, Starke, Kosciusko, Whitley, Parkview Med Center, Lutheran, DuPont, St Joseph, Randallia, Jasper, Huntington, Dukes, Bluffton, White, Marion, Blackford, Jay, Arnett, Tipton, Anderson, Ball, Henry, North, Saxony, West, Riley/University/Methodist, Paris, Union Clinton, Putnam, TH Union, Regional, Morgan, Rush, Decatur, Bloomington, Columbus, Bedford, Schneck, Gibson, Paoli, Deaconess, Women's Hospital Deaconess Gateway

Community North, Community Heart, Eskenazi, Hendricks, Community East, Community South, Major

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24/7/365 access to exams downloaded via the IUH Radiology Cloud

IU Health Synapse PACS

An IUH physician can access downloaded exams at any computer on the network e.g. in the ED, OR, ICU or Outpatient clinic.

Remote viewing when needed:

iPhone, iPod, Android

Mac/PC

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Positive fall-out effects from the IUH Radiology Cloud:

1. **Simple 24/7/365 process** – "One-click" to send exams

2. **Quick transfer** – 400 image CT study requires 10-15 min

3. **Inexpensive** – No fees for hospital to send exams

4. **Treatment decisions sooner** – even while patient may be in transfer

5. **Lower radiation doses to patients** – by minimizing need for re-imaging

6. **Prevent duplicated imaging** – eliminates billing competition

7. **Non-competitive between the referring hospital and IU Health**

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"IUH Acute Patient Transfer"

IU Health Radiology Cloud for acutely transferred Trauma, Stroke, Acute Vascular or Pediatric patients

Referring Hospital

Methodist/Riley/University Hospital

IUH Transfer Center

Request to transfer a patient is confirmed with IUH Transfer Center

E D

1. ED Physician

IUH Transfer Center

Registering with pre-account (MRN + FIN)

7.

2. ED contacts Radiology and requests electronic transfer of exam(-s) + burn of CD. (This is for back-up.)

6.

Automatic e-mail to Transfer Center + triggering of RN pager

When exam is downloaded paging of surgeon, radiologist etc.

R a d i o l o g y

3. Radiology staff sends exam from local PACS to IU Health PACS

"The Cloud" (= remote server)

Local PACS

Gateway

Upload

5.

Download

Gateway

IU Health Synapse PACS (Temporary)

+

8.

4. ...and burn a CD for backup purposes and send with patient (This is recommended during the start-up period)
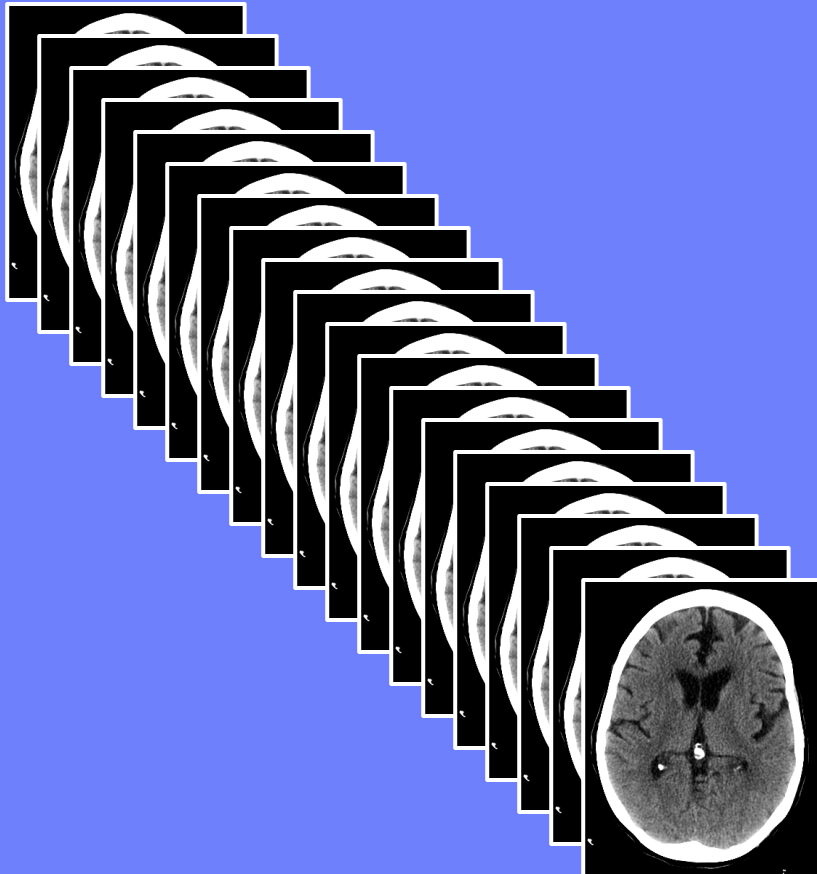
View exam from: PC, PACS WS, laptop, iPad etc.

AMBULANCE

2 clinical examples:

A. Acute patient transfer

B. Remote consultation

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60 year old female

Monday 8/27
Fall from SUV.

Wednesday 8/29 early AM
Found in bathroom by husband after syncope episode.
Nausea, vomiting and increasing abdominal pain.

Taken to Columbus Hospital ED for evaluation including CT scan.

CT findings: Liver and spleen injuries.

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A. Acute patient transfer

Patient timeline

The value of
"Patient – Images separation"
when the CT scan was completed.

Exam timeline

Patient	05:47 CT Scan at Columbus Hospital	Images

06XX IU Health Transfer Center Contacted

07:05 Send to IU Health Radiology Cloud
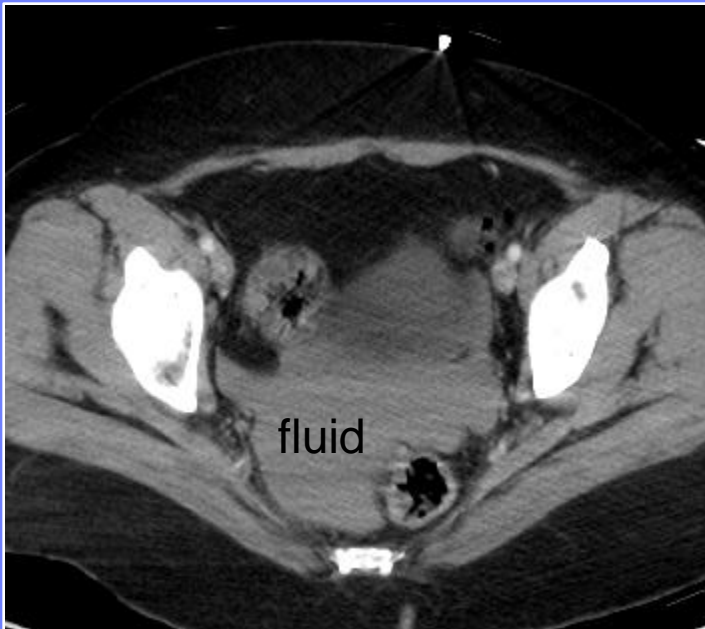
07:30 Ambulance leaves Columbus

08:00 Exam reviewed at Methodist by trauma surgeon while patient in transfer. Upgraded to Trauma 1.

08:27 Trauma team calls IR team
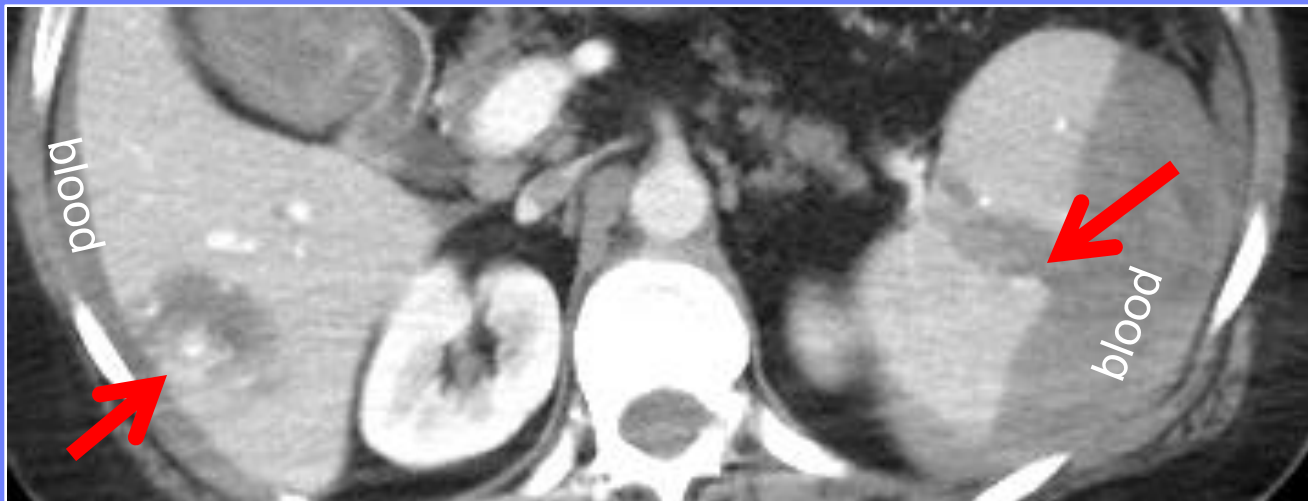
08:35 IR suite being prepared

08:43 Ambulance arrives Methodist

09:00 Transport to Interventional Radiology

09:05 Treatment of active bleeding in IR

Labels on images: Liver, Spleen, fluid, fluid

= active bleeding

= Spleen split in two halves

blood

blood

blood

blood

Treatment of active bleeding in liver and spleen, Interventional Radiology, Methodist Hospital

B. Remote consultation

- C1-C2 fusion one week earlier by Dr Horn.
- Admitted to Columbus Hospital with neck pain. CT scan performed.

CT exam transferred via IU Health Radiology Cloud.
Dr Horn could review at Methodist Hospital and communicate via phone with Columbus Hospital physician.

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"The IU Health Radiology cloud worked great."

"I was just able to view a CT of a patient of mine that was admitted to Columbus Regional for some neck pain. They did a CT of her neck and where unsure how to interpret it considering I had just done a C1-2 fusion on her one week ago."

"Just being able to easily view the films saved everyone a lot of time and trouble."

"Hopefully we can use this technology for all outside films."

Dr Eric Horn, Goodman-Campbell Brain and Spine

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