# Improving Continuity of Care: A New Tool to Follow Inpatients with Radiology-Placed Catheters

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## Purpose

- Our body division rounds on all inpatients with radiology-placed catheters
- Residents rotate weekly through the body division making consistent follow-up difficult
- We implemented a new electronic handoff tool to facilitate communication between radiology residents and attendings covering inpatients with catheters
- We also created a linked reporting tool that allows long-term electronic cataloging of procedures and analysis of outcomes measures

## Methods

**Radiology Signout**: radiology template within hospital EMR (*LifeLinks, Siemens Invision*)

**Template includes**

*Automatically populated fields:*

1. **Patient demographics**
2. **Medications**
3. **Laboratory values**, including: *blood count, chemistries and 5-day lab trends*

*Free text fields for manual input:*

1. **Diagnosis**: *procedure and date performed*
2. **HPI**: *pertinent patient history, resultant microbiology or pathology*
3. **Events**: *daily catheter output*
4. **To-Do**: *specific follow-up recommendations (i.e., pending pathology) to communicate at handoff times between residents (weekends and service change)*

- Resident or fellow performing catheter placement completes initial Signout data entry
- Patients are seen and information is updated 6 days per week
- Patients are removed from Signout census manually after catheter removal or automatically after hospital discharge

**Radiology Report**: linked online cache

- Automatically populates with most recent Signout patient census and respective free text fields
- Date of admission, date of addition to Signout and date of discharge are imported from hospital EMR for each patient encounter
- Patients remain on Report after catheter removal and/or hospital discharge
- Data exportable to Microsoft Excel™
  - Overview of all procedures performed
  - Targeted analysis of documented outcomes

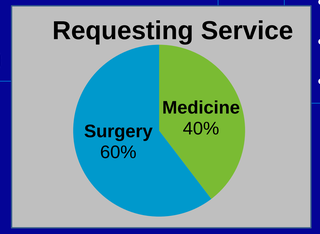
## Results

- Current pilot has been in place for 1 year and has been used by 37 residents and 11 attendings
- Signout and Report are both accessible anywhere within the hospital or remotely via a secure VPN

***Example of usage over 17 weeks***

**Patient demographics:**

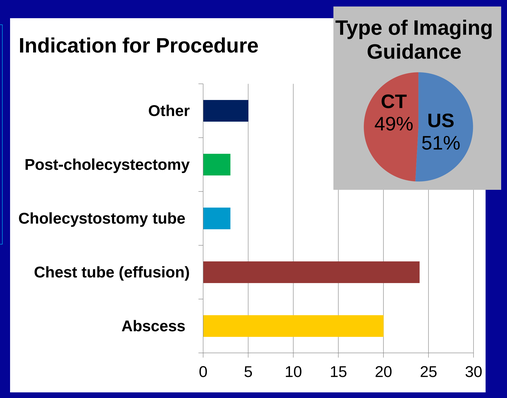
- Average age: 53.8 years (range 4-85 years), with 13.7% (7/51) under 18 years
- Male: 68.6% (35/51)
- Female: 31.3% (16/51)



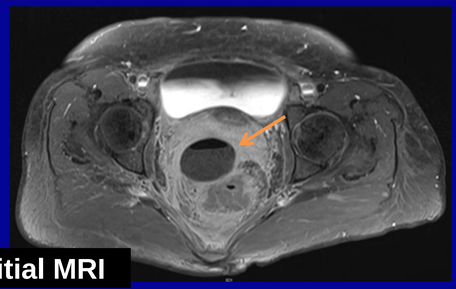

**Catheter Details:**

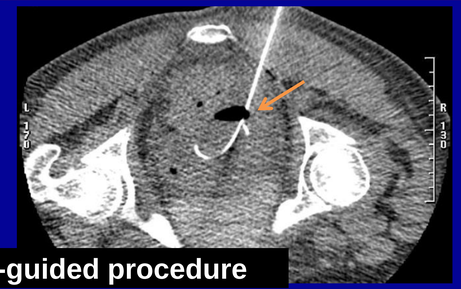
Number of catheters/tubes: 55 (for 51 unique hospitalizations)

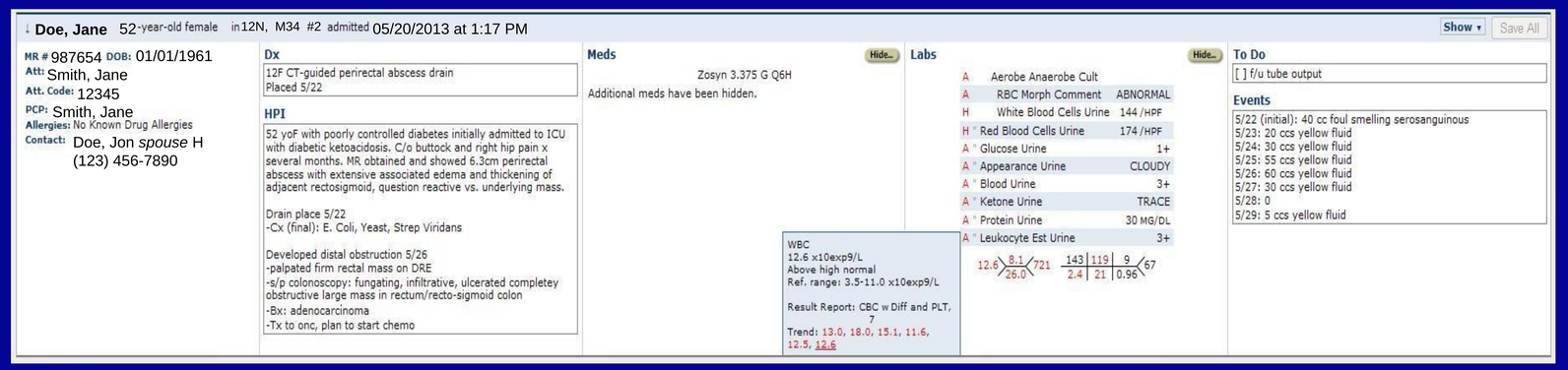
- >1 catheter: 4/51 patients (7.8%)
- Required replacement: 2/55 catheters (3.6%)
- Required upsizing: 5/55 catheters (9.1%)




***Example:** CT-Guided Drainage*



↓ **Doe, Jane** 52-year-old female in12N, M34 #2 admitted 05/20/2013 at 1:17 PM

Show ▾ Save All

MR # 987654 DOB: 01/01/1961
Att: Smith, Jane
Att. Code: 12345
PCP: Smith, Jane
Allergies: No Known Drug Allergies
Contact: Doe, Jon *spouse* H (123) 456-7890

**Dx**
12F CT-guided perirectal abscess drain
Placed 5/22

**HPI**
52 yoF with poorly controlled diabetes initially admitted to ICU with diabetic ketoacidosis. C/o buttock and right hip pain x several months. MR obtained and showed 6.3cm perirectal abscess with extensive associated edema and thickening of adjacent rectosigmoid, question reactive vs. underlying mass.

Drain place 5/22
-Cx (final): E. Coli, Yeast, Strep Viridans

Developed distal obstruction 5/26
-palpated firm rectal mass on DRE
-s/p colonoscopy: fungating, infiltrative, ulcerated completey obstructive large mass in rectum/recto-sigmoid colon
-Bx: adenocarcinoma
-Tx to onc, plan to start chemo

**Meds** Hide...
Zosyn 3.375 G Q6H
Additional meds have been hidden.

**Labs** Hide...

| | | | |
|---|---|---|---|
| A | Aerobe Anaerobe Cult | | |
| A | RBC Morph Comment | ABNORMAL | |
| H | White Blood Cells Urine | 144 | /HPF |
| H | Red Blood Cells Urine | 174 | /HPF |
| A | Glucose Urine | 1+ | |
| A | Appearance Urine | CLOUDY | |
| A | Blood Urine | 3+ | |
| A | Ketone Urine | TRACE | |
| A | Protein Urine | 30 | MG/DL |
| A | Leukocyte Est Urine | 3+ | |

WBC
12.6 x10exp9/L
Above high normal
Ref. range: 3.5-11.0 x10exp9/L

Result Report: CBC w Diff and PLT, 7
Trend: 13.0, 18.0, 15.1, 11.6, 12.5, 12.6

12.6 | 8.1 / 26.0 | 721 | 143 | 119 | 9 / 2.4 | 21 | 0.96 | 67

**To Do**
[ ] f/u tube output

**Events**
5/22 (initial): 40 cc foul smelling serosanguinous
5/23: 20 ccs yellow fluid
5/24: 30 ccs yellow fluid
5/25: 55 ccs yellow fluid
5/26: 60 ccs yellow fluid
5/27: 30 ccs yellow fluid
5/28: 0
5/29: 5 ccs yellow fluid

## Conclusion

- Radiology Signout is easy to use and provides an efficient mechanism to improve continuity of care for inpatients with radiology-placed catheters
- Implementation of Radiology Report has allowed for a centralized and organized format to review all procedures performed and analyze outcomes achieved
- Radiology Signout and Radiology Report have been easily integrated into the workflow of our body division