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Filling the Void: A Low Cost, High-Yield Method to Addressing Incidental Findings in Trauma Patients

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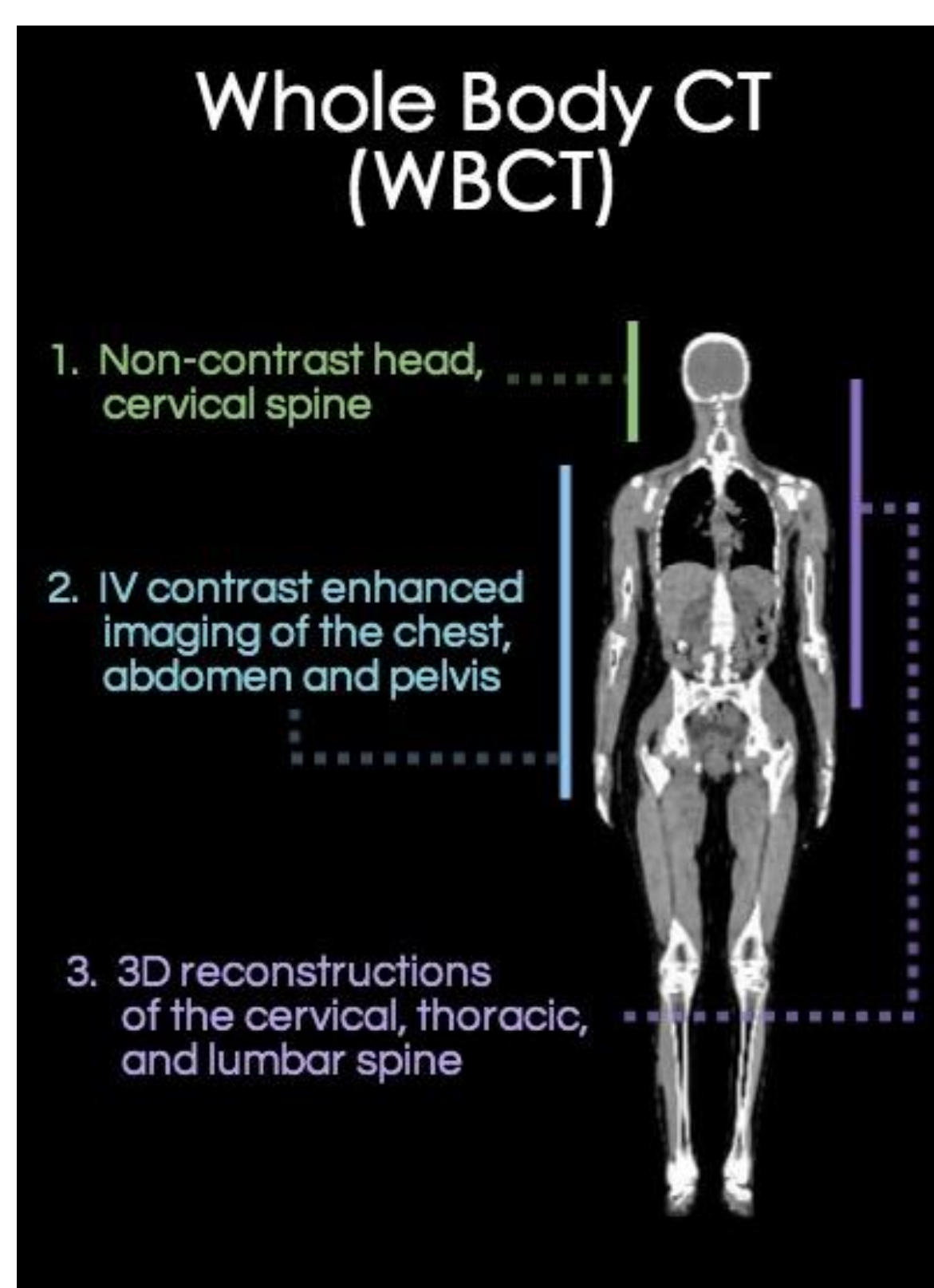
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Background



- Due to fear of a missed injury, the tendency to “Pan CT” has dramatically increased.
- This leads to a rise in incidental findings, or findings on imaging not related to the original indication of the study.
- There are few studies assessing incidentals outside of urban populations and level one trauma centers.
- There are even fewer studies attempting to address how to handle reporting incidental findings to patients, with some studies having rates as low as 10%.

In this study we:

- Report the incidence of incidental findings in a suburban trauma center treating primarily blunt and elderly trauma
- Propose simple solutions to increase the rate of disclosure to patients

Results

Table 1 – Patients, CTs, and Incidental Findings in the Pre-Intervention Arm Stratified by Age.

	# of Patients	# of CTs	# of Incidental Findings	# of Patients with Incidental Findings	Mean # of Incidentals per Patient	# of Patients with Significant Incidental
Total	674	2533	1273	456 (70%)	1.9/patient	246 (36%)
<65	292 (43%)	1104	304	156 (53%)	1.0/patient	70 (24%)
>65	382 (57%)	1429	969	300 (79%)	2.5/patient	176 (46%)

Table 3 – Follow Up Recs and Documented Disclosure Pre- and Post- Intervention (p<0.00001).

	# of Patients with SIF	# of SIF	Radiologist Provided F/U Recommendations	Documented that SIF was Disclosed	Radiologist Provided F/U and Documented Disclosure
Pre-	246	396	86 (22%)	105 (27%)	28 (7%)
Post-	225	352	225 (68%)	281 (85%)	133 (59%)

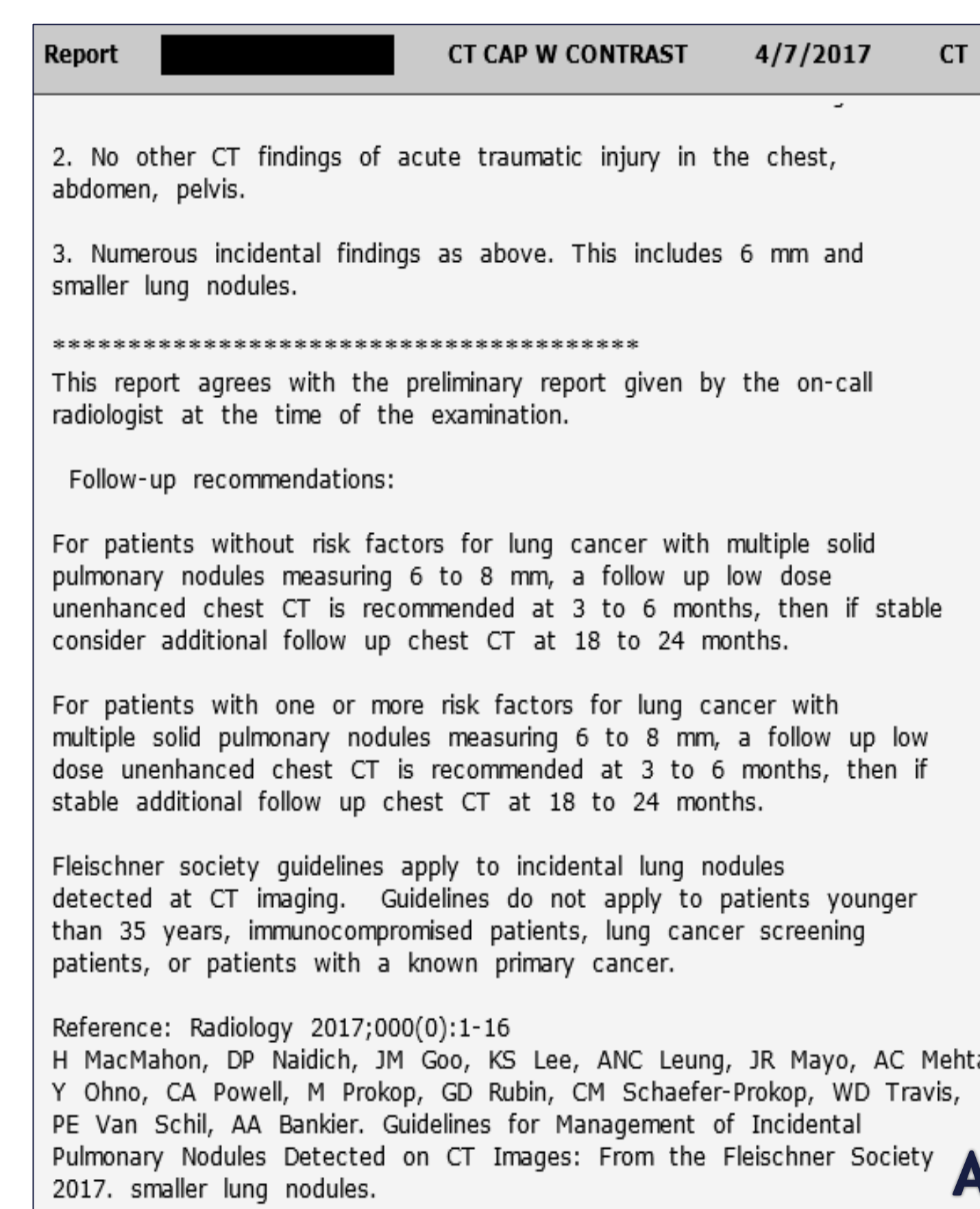
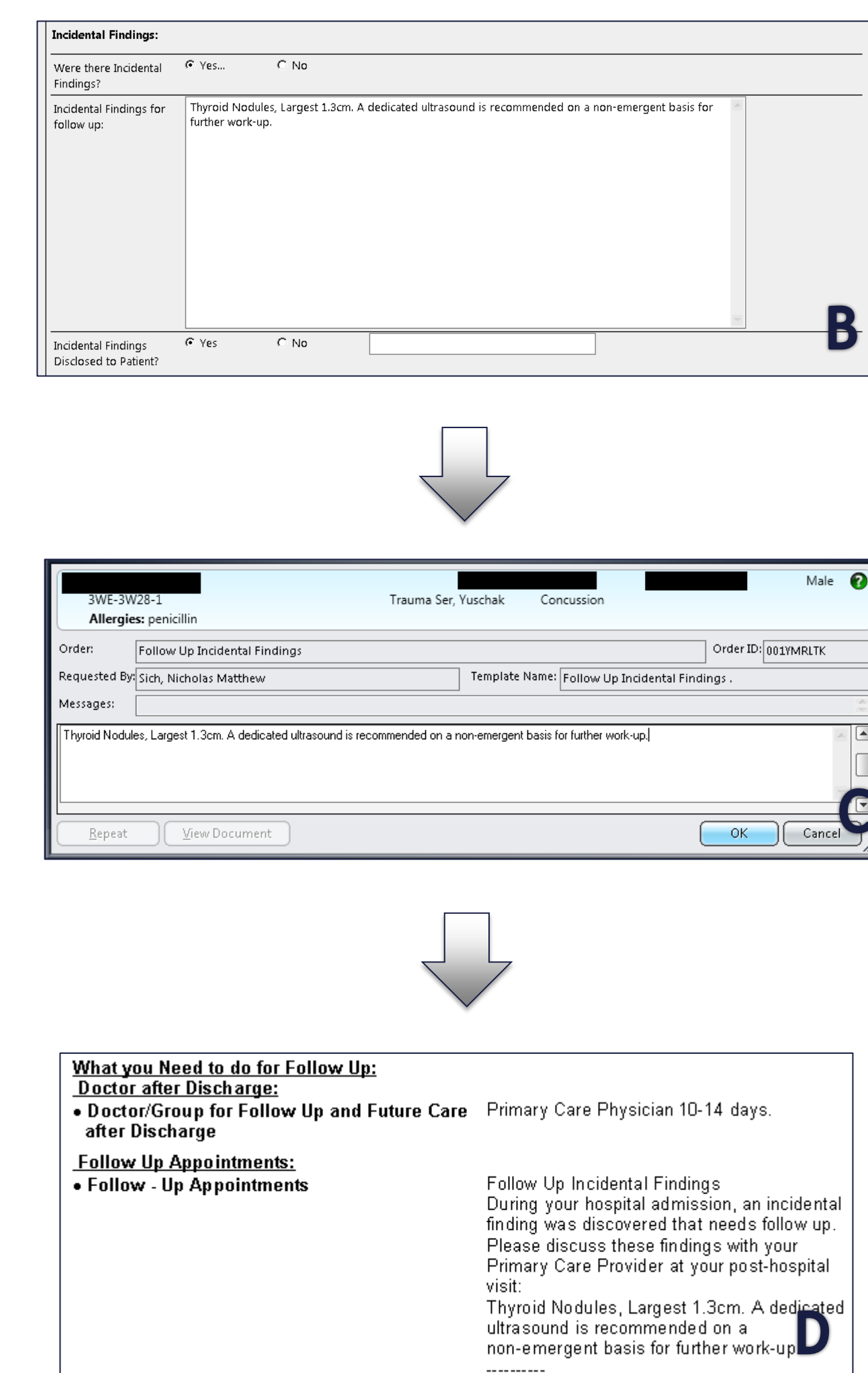
Table 4 – Follow Up Imaging, Specialists, Procedures for SIFs.

Required F/U Modality	# of Patients	Example	Specialist for F/U	# of Patients	Example
CT Thorax	42	Pulmonary Nodule	CT Surgery	10	Thoracic Aneurysm
CT Abd/Pelvis	8	Adrenal Nodule	ENT	1	Thyroglossal Cyst
US Thyroid	32	Thyroid Nodule	Gastroenterology	11	Biliary Dilatation
US Pelvis	16	Adnexal Cyst	Gen Surgery	2	Incarcerated Hernia
US Retroperit	12	Renal Mass	Gynecology	4	Adnexal Mass
MRI Abd	34	Pancreatic Cyst	Neurosurgery	3	NPH
MRI Brain	4	Brain Mass	Neurovascular	1	Berry Aneurysm
MRI Spine	5	Sclerotic Lesion	Oncology	8	New Metastasis
Pet CT	8	Pulmonary Nodule	Ophthalmology	1	Orbital Mass
Other Imaging	10	RUQ/Carotid US	Rad/Onc	1	New Metastasis
Endoscopy	7	GI Mass	Urology	12	Hydronephrosis
Other Proc	7	IR Bx, FNA	Vascular Surgery	9	Iliac Aneurysm, AAA

Methods

- **Pre-Intervention:** Retrospective chart review from Oct 1st 2015 to March 31st 2016
- All charts hand reviewed by investigators
 - Age, # of CT scans, type of CTs, # of incidental findings, category of incidental finding, if radiology recommended follow up, and if the patient was informed of the finding
- Category 1 and 2 Incidental Findings were considered significant (requiring follow up prior to discharge or interval follow up); Category 3 were clinically insignificant
- **Implementation of Multi-Disciplinary Systems Changes**
 - Radiology driven changes
 - Informatics driven changes
 - Standardized protocol for trauma residents/front-line providers
 - Utilization of existing work-flows for patient & primary communication
- **Post-Intervention:** Retrospective chart review from Sept 1st 2016 to Nov 30st 2016
 - Data collected in same fashion as pre-intervention
 - Additional stratification including follow up revenue from CMS reimbursement, if patient had known about significant incidentals, and new diagnoses of malignancy per three month period

Figures - A) Example of new Radiology Report. B) Modified Trauma H&P. C) Follow-Up Order. D) Discharge Instructions.

Conclusion

- Previous studies in urban trauma populations demonstrated a rate of incidental findings from 15-50%. This study shows that this is a significant underestimation and is not likely reflective of the vast majority of trauma centers that treat primarily blunt/elderly trauma.
- Simple systems based changes can be implemented with minimum amount of resources and effort. These changes will not only have a profound impact on improving reporting of incidentals to patients, but also generate additional hospital revenue, protect providers from medico-legal ramifications of failing to disclose, and most importantly **improve patient care**. This method is not limited to trauma surgery and can be applied to any service.
- Further iterations and innovations are needed to refine this process and define the most cost-efficient method of ensuring patients are aware of incidental findings in their imaging studies.

Acknowledgements / Select References

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- Baugh KA, Weireter LJ, Collins JN. The trauma pan scan: what else do you find? *Am Surg.* 2014;80(9):855-859.
- Munk M-D, Peitzman AB, Hostler DP, Wolfson AB. Frequency and Follow-up of Incidental Findings on Trauma Computed Tomography Scans: Experience at a Level One Trauma Center. *J Emerg Med.* 2010;38(3):346-350.
- Yeh DD, Imam AM, Truong SH, et al. Incidental Findings in Trauma Patients: Dedicated Communication with the Primary Care Physician Ensures Adequate Follow-Up. *World J Surg.* 2013;37(9):2081-2085.
- Sperry JL, Massaro MS, Collage RD, et al. Incidental radiographic findings after injury: Dedicated attention results in improved capture, documentation, and management. *Surgery.* 2010;148(4):618-624.
- Berland, LL. Overview of White Papers of the ACR Incidental Findings Committee II on Adnexal, Vascular, Splenic, Nodal, Gallbladder, and Biliary Findings. *J Am Coll Radiol.* 2013;10:672-674.

Revenue Generated in F/U Imaging:
\$37,119 for three months, or approximately \$150,000/yr for Trauma

New Malignancies Detected:
20 new malignancies and 5 new metastasis, or approximately 100 patients/yr (4%)