

## Thomas Jefferson University Jefferson Digital Commons

House Staff Quality Improvement and Patient Safety Posters

**Quality Improvement & Patient Safety Initiatives** 

5-31-2017

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

N. Sich Abington Jefferson Health

A. Rogers Abington Jefferson Health

D. Bertozzi Abington Jefferson Health

P. Sabapathi Abington Jefferson Health

L. Gartner *Abington Jefferson Health* 

See next page for additional authors

Follow this and additional works at: https://jdc.jefferson.edu/patientsafetyposters Part of the <u>Medicine and Health Sciences Commons</u> Let us know how access to this document benefits you

## Recommended Citation

Sich, N.; Rogers, A.; Bertozzi, D.; Sabapathi, P.; Gartner, L.; Alswealmeen, W.; Lim, P.; Sternlieb, J.; Yuschak, J.; Kirton, O.; and Shadis, R., "Filling the Void: A Low Cost, High-Yield Method to Addressing Incidental Findings in Trauma Patients" (2017). *House Staff Quality Improvement and Patient Safety Posters*. Poster 38. https://jdc.jefferson.edu/patientsafetyposters/38

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's Center for Teaching and Learning (CTL). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in House Staff Quality Improvement and Patient Safety Posters by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: JeffersonDigitalCommons@jefferson.edu.

## Authors

N. Sich, A. Rogers, D. Bertozzi, P. Sabapathi, L. Gartner, W. Alswealmeen, P. Lim, J. Sternlieb, J. Yuschak, O. Kirton, and R. Shadis

# Abington Jefferson Health.

# Background



## In this study we:

- Due to fear of a misse tendency to "Pan CT' dramatically increased
- This leads to a rise in findings, or findings of related to the original the study.
- There are few studies incidentals outside of populations and level centers.
- There are even fewer attempting to address reporting incidental fi patients, with some st rates as low as 10%.
- Report the incidence of incidental findings in a suburba treating primarily blunt and elderly trauma
- Propose simple solutions to increase the rate of disclosu

# 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.

<b>Required F/U</b>	# of	Example	<b>Specialist for F/U</b>	# of	Example
Modality	Patients			Patients	
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	<b>Biliary Dilation</b>
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	<b>RUQ/Carotid US</b>	Rad/Onc	1	New Metastasis
Endoscopy	7	GI Mass	Urology	12	Hydronephrosis
Other Proc	7	IR Bx, FNA	Vascular Surgery	9	Iliac Aneurysm, AAA

# Filling the Void: A Low Cost, High-Yield Method to **Addressing Incidental Findings in Trauma Patients** Sich N, Rogers A, Bertozzi D, Sabapathi P, Gartner L, Alswealmeen W, Lim P, Sternlieb J, Yuschak J, Kirton O, Shadis R Abington-Jefferson Health, Abington PA 19090

	Methods
ed injury, the " has ed. Incidental on imaging not al indication of	<ul> <li>Pre-Intervention: Retrospective chart review from Oct 1<sup>st</sup> 2</li> <li>All charts hand reviewed by investigators</li> <li>Age, # of CT scans, type of CTs, # of ind incidental finding, if radiology recommon patient was informed of the finding</li> </ul>
s assessing f urban l one trauma	<ul> <li>Category 1 and 2 Incidental Findings were (requiring follow up prior to discharge or Category 3 were clinically insignificant</li> <li>Implementation of Multi-Disciplinary System</li> </ul>
r studies s how to handle findings to studies having	<ul> <li>Radiology driven changes</li> <li>Informatics driven changes</li> <li>Standardized protocol for trauma reside</li> <li>Utilization of existing work-flows for page</li> <li>Post-Intervention:</li> </ul>
	Retrospective chart review from Sept 1 <sup>st</sup>
an trauma center ure to patients	<ul> <li>Data collected in same fashion as pre-in</li> <li>Additional stratification including follow reimbursement, if patient had known a and new diagnoses of malignancy per the</li> </ul>
	and new angliebee et matignane, per t

Table 2 – Categorized Significant Incidental Findings

Type of SIF	# of Incidentals	% of Total	# of Incidentals	% of Total
	Pre	<b>Incidentals Pre</b>	Post	<b>Incidentals Post</b>
Lung Nodules, Lesions,	90	23%	72	22%
Masses				
Thyroid Nodules,	53	13%	52	16%
Thyromegaly				
Lymphadenopathy	39	10%	16	5%
(Cervical, Chest, Abd)				
Aortic Aneurysms	31	8%	18	5%
(Thoracic, Abdominal)				
Renal Nodules,	25	6%	25	8%
Lesions, Masses				
Adrenal Nodules,	22	6%	20	6%
Lesions, Masses				
Liver Nodules, Lesions,	18	5%	20	6%
Masses				
Other Suspicious	18	5%	13	4%
Masses				
Adnexal Cyst, Lesions,	12	3%	15	5%
Masses				
Pancreatic Lesions,	12	3%	15	5%
Mass, Dilation, Cyst				
Brain Lesions	11	3%	13	4%
(Meningioma, NPH)				
Bone Lesions	10	3%	13	4%
(Destructive, Sclerotic)				
Bladder Thickening,	9	2%	8	2%
Mass, Hydronephrosis				
Other (Breast, Soft	54	14%	49	15%
Tissue, Misc. Facial)				

## 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%)

2015 to March 31<sup>st</sup> 2016

cidental findings, category of nended follow up, and if the

re considered significant interval follow up);

ystems Changes

lents/front-line providers atient & primary communication

2016 to Nov 30<sup>st</sup> 2016 intervention w up revenue from CMS about significant incidentals, hree month period

Figures - A) Example of new Radiole B) Modified Trauma H&P. C) Follow-D) Discharge Instructions.

# CT CAP W CONTRAST

2. No other CT findings of acute traumatic injury abdomen, pelvis

3. Numerous incidental findings as above. This includes maller lung nodules

Follow-up recommendations:

For patients without risk factors for lung cancer with ulmonary nodules measuring 6 to 8 mm, a follow up nenhanced chest CT is recommended at 3 to 6 mont

table additional follow up chest CT at 18 to 24 mon

Fleischner society quidelines apply to incidental lung no letected at CT imaging. Guidelines do not apply to r han 35 years, immunocompromised patients, lung cance patients, or patients with a known primary cancer.

Reference: Radiology 2017;000(0):1-16

I MacMahon, DP Naidich, JM Goo, KS Lee, ANC Leur Ohno, CA Powell, M Prokop, GD Rubin, CM Schaefe 'an Schil, AA Bankier. Guidelines for Managemen Pulmonary Nodules Detected on CT Images: From the 2017. smaller lung nodules

# Conclusion

- can be applied to any service.
- incidental findings in their imaging studies.

# Acknowledgements / Select References

Special thanks to Maureen Small, our Trauma Program Manager who assisted with data collection. We would also like to thank Drs. Josloff, Noonan, and the entire General Surgery Safety/Quality Committee who helped turn this idea from a project into a reality.

- 859.

ogy Report.	Incidental Findings:			
Un Order	Were there Incidental @ Yes C No			
op order.	Findings? Incidental Findings for follow up: Thyroid Nodules, Largest 1.3cm. A dedicated ultrasound further work-up.	is recommended on a non-emergent basis for		
4/7/2017 CT				
e chest,	Incidental Findings © Yes C No Disclosed to Patient?	B		
5 mm and				
the on-call	3WE-3W28-1 Trauma Ser, Yus Allergies: penicillin Order: Follow Up Incidental Findings	schak Concussion Order ID: 001YMRLTK		
	Requested By: Sich, Nicholas Matthew	emplate Name: Follow Up Incidental Findings .		
ultiple solid w dose s, then if stable ths.	Messages:			
er with follow up low months, then if s.		2		
iles tients younger screening	What you Need to do for Follow Up: Doctor after Discharge: • Doctor/Group for Follow Up and Future Care	Primary Care Physician 10-14 days.		
	after Discharge <u>Follow Up Appointments:</u> • Follow - Up Appointments	Follow Up Incidental Findings During your hospital admission, an incidental		
JR Mayo, AC Mehta, rokop, WD Travis, Incidental ischner Society		finding was discovered that needs follow up. Please discuss these findings with your Primary Care Provider at your post-hospital visit: Thyroid Nodules, Largest 1.3cm. A dedicated ultrasound is recommended on a non-emergent basis for further work-up		

 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

• Further iterations and innovations are needed to refine this process and define the most cost-efficient method of ensuring patients are aware of

• Baugh KA, Weireter LJ, Collins JN. The trauma pan scan: what else do you find? Am Surg. 2014;80(9):855-

• 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.