



Atrium Health

Post-Operative Day One (POD1)
Laboratory Testing: A Routine Practice
Needing Re-examination

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Disclosures

- No Disclosures
- No conflict of interest

Reasons for Study

- US Healthcare spending continues to grow, including a 4.3% increase in 2016 reaching 3.3 Trillion Dollars (10,348 dollars per person)
- Though a large majority of healthcare cost are out of physician control, it is our duty to find ways we can ease this crisis through our daily practice.
- Our study was preformed in order to determine how frequently laboratory tests were being ordered and how often their results lead to an intervention.



Background

- According to H-CUP (Healthcare Cost and Utilization Project), the number of Appendectomies and Cholecystectomies preformed in 2012 were
 - 6. Cholecystectomy 406,300
 - 11. Appendectomy 293,000
- Since implementation of Electronic Health Records, there has been a measurable increase in the number of laboratory tests that have been ordered.
- Previous research has shown that residents are far more likely to order routine post-operative labs when compared to their supervising attendings.



Methods

- Prospective Study of 125 patients requiring one of the following procedures, from one of two emergency general surgery services at Atrium Health
 - Cholecystectomy
 - Appendectomy
 - Incision and Drainage
 - Combination of the above
- Patients were then followed post-operatively for interventions as a result of laboratory testing



Results

Type of Procedure	Number	Post Operative Labs Ordered
Laparoscopic Appendectomy	35	18 (51.4%)
Laparoscopic Cholecystectomy	53	41 (77.4%)
Laparoscopic Cholecystectomy w/IOC	6	4 (66.7%)
Open Cholecystectomy	1	1 (100%)
Laparoscopic Appendectomy and Cholecystectomy	1	0 (0%)
Incision and Drainage of Abscess	29	19 (65.5%)
Total	125	83 (66.4%)

Table 1.1: Frequency of each procedure preformed combined with the percentage of them that had postoperative labs ordered.



Results

Type of Intervention	Frequency	Range of Values
Potassium Replacement	8	3.2-3.8
HTN	2	
Blood Glucose	1	
ERCP	1	
Total	12	

Table 1.2: Interventions order from the data obtained from labs



Summary

- 83/125 (66.4%) of these cases we found to have POD 1 labs (CBC and BMP) ordered
- 12/83 (14.5%) received interventions that were from results of the labs
- 8 (Potassium Repletion) no potassium was below 3.2, no one with IV fluids in post operative fluids
- 2 (Magnesium Repletion), though no labs were checked
- 1 ERCP
- Additionally no patients required transfusion from their CBC results



Conclusions

- The routine practice of ordering post-operative labs is costly and rarely affects the treatment decision of the patients. We are evolving a standard practice with greater focus on clinical signs and patient examination to carefully select those who would benefit from laboratory studies.



Future Directions

- Resident education into cost saving measures
- Comparisons of frequency of post op day 1 labs at a institution with residents versus attendings.
- Investigation on of clinical findings that should prompt evaluation of patient with routine lab testing.



Sources

- Sahadi, Jeanne. "How Health Care Costs Are Eating the Economy." *CNNMoney*, Cable News Network, 30 Jan. 2018. money.cnn.com/2018/01/30/news/economy/health-care-costs-eating-the-economy/index.html.
- Fingar KR (Truven Health Analytics), Stocks C (AHRQ), Weiss AJ (Truven Health Analytics), Steiner CA (AHRQ). Most Frequent Operating Room Procedures Performed in U.S. Hospitals, 2003-2012. HCUP Statistical Brief #186. December 2014. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb186-Operating-Room-Procedures-United-States-2012.pdf>.
- Hakim I, Hathi S, Nair A, Narula T, Bhattacharya J. Electronic Health Records and the Frequency of Diagnostic Test Orders. *The American Journal of Managed Care*. January 2017; 23:1
- Ross S, Augenstein V, Sing K, et al. Going back to the basics: routine daily post-operative labs are wasteful and do not help guide clinical decision making. *Journal American College of Surgeons*, 2014. DOI <http://dx.doi.org/10.1016/j.jamcollsurg.2014.07.801>



Questions

