# The impact of a dedicated acute care surgery service on team efficiency and resident education at a military level 1 trauma hospital

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# Disclaimer

*The views expressed are those of the [author(s)] [presenter(s)] and do not reflect the official views or policy of the Department of Defense or its Components*

*Dr. O'Shea has no disclosures to report.*

# Background

- Over 2 million patients with emergency general surgery conditions are admitted annually in the US

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- Dedicated acute care surgery (ACS) teams
  - Manage emergency general surgical consults
  - Offload workload from the trauma and general surgical teams

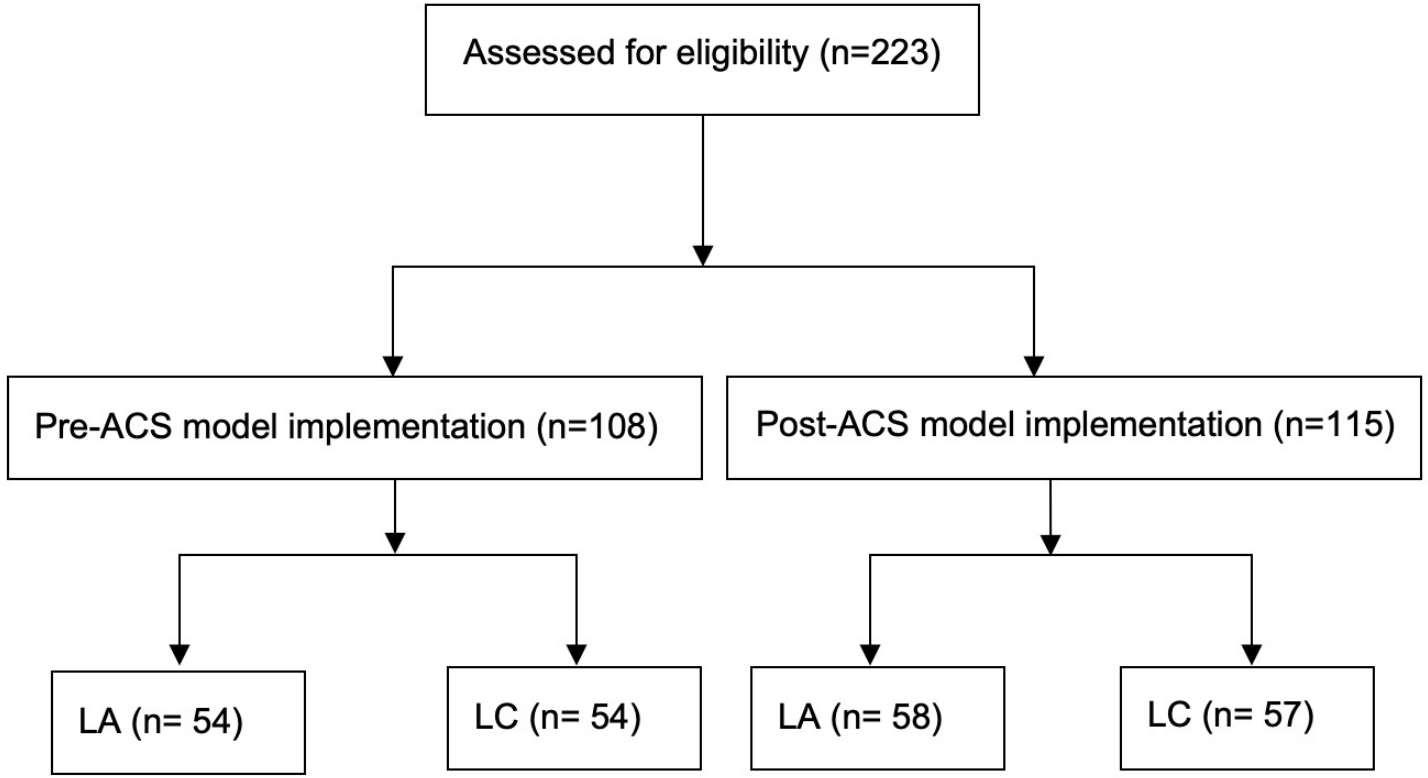
- Implementation of a new service can
  - Introduce system inefficiency
  - Impact resident education by redistributing case volume

# Innovation

- At our institution, an ACS service was created in June 2020
  - Consisted of a dedicated team and weekday operating room
  - Fielded all ACS consults during daytime hours
  - Overnight consults were evaluated by the in-house trauma staff but admitted to the ACS service

# Study Design

- Single institution retrospective cohort study
- Laparoscopic appendectomies (LA) and cholecystectomies (LC)
- Pre-and post-ACS implementation
  - Pre: DEC 2019-MAR 2020
  - Post: JUL 2020-OCT 2020



# Objectives

- Primary
  - Impact of the new ACS service at our military institution on patient throughput
  - Impact of a new ACS service on resident education and training

- Secondary
  - Effect of a new ACS service on post-operative complications and patient safety

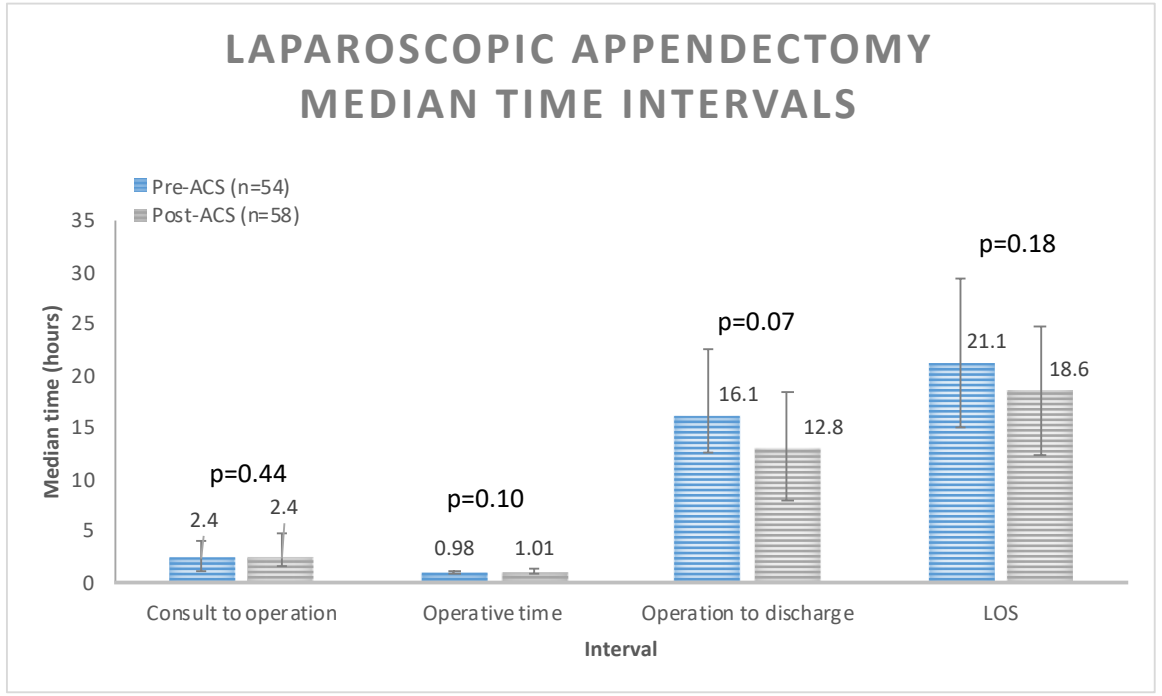
# Demographics

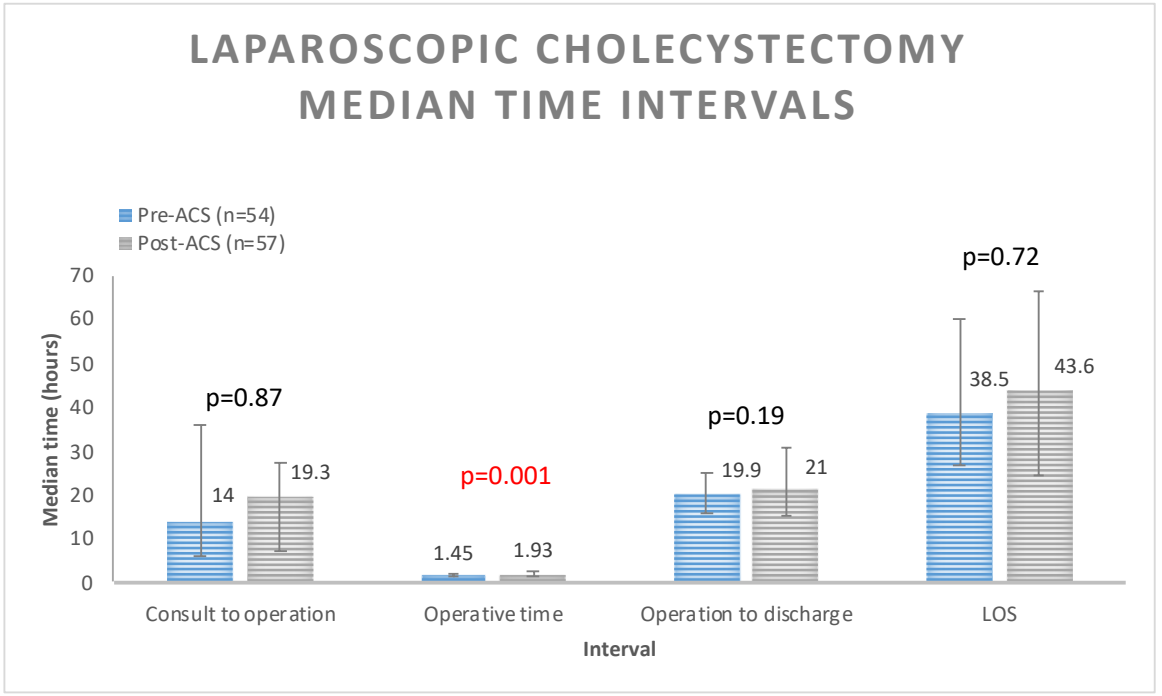
| Table 1: Demographics, Diagnosis, and Operative Intervention | | | | | |
|---|---|---|---|---|---|
| | | Pre-ACS (N=108) | Post-ACS (N=115) | Overall (N=223) | p-value* |
| Age (Years) | n | | | | 0.6 |
| | Mean (SD) | 39.2 (19.61) | 39.0 (18.09) | 39.1 (18.80) | |
| Sex, n (%) | | | | | 0.85 |
| | Female | 54 (50.0) | 59 (51.3) | 113 (50.7) | |
| | Male | 54 (50.0) | 56 (48.7) | 110 (49.3) | |
| Diagnosis, n (%) | | | | | 0.63 |
| | non-perforated appendicitis | 47 (43.5) | 51 (44.3) | 98 (43.9) | |
| | perforated appendicitis | 7 (6.5) | 7 (6.1) | 14 (6.3) | |
| | biliary colic | 3 (2.8) | 9 (7.8) | 12 (5.4) | |
| | acute cholecystitis | 37 (34.3) | 30 (26.1) | 67 (30.0) | |
| | choledocolithiasis | 6 (5.6) | 9 (7.8) | 15 (6.7) | |
| | gallstone pancreatitis | 7 (6.5) | 8 (7.0) | 15 (6.7) | |
| | cholangitis | 1 (0.9) | 1 (0.9) | 2 (0.9) | |
| Operation, n (%) | | | | | 0.52 |
| | LA | 54 (50.0) | 58 (50.4) | 112 (50.2) | |
| | LC | 36 (33.3) | 32 (27.8) | 68 (30.5) | |
| | LC+IOC | 18 (16.7) | 25 (21.7) | 43 (19.3) | |

- No significant difference between pre- and post-ACS model groups
  - Demographics
  - Final diagnosis
  - Operative intervention

# Results

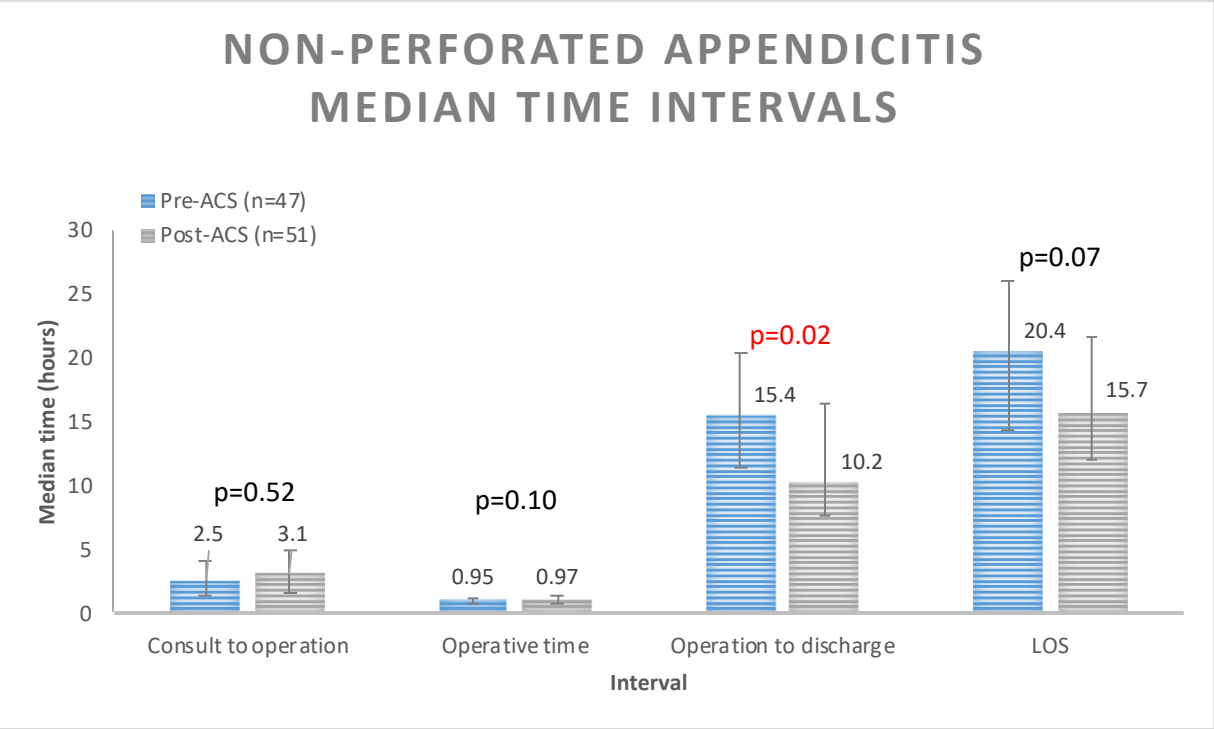
- Pre- and post-ACS model no significant differences in median:
  - Time from consult to operation
  - Time from operation to discharge
  - LOS
- Slightly shorter operative times noted for LC pre-ACS
  - 1.45hr vs 1.93hr, p<0.01



# Results cont.

- On subgroup analysis of non-perforated appendicitis, median time from operation to discharge was significantly shorter
- No significant difference in case distribution between teams
  - Day team: (59% pre-ACS vs 57% post-ACS; p=0.70)
  - Overnight team: (39% pre-ACS vs 44% post-ACS; p=0.41)
- No significant difference in proportion of post-op complications
  - 2.8% pre-ACS vs 0.9% post-ACS, p=0.36



# Conclusion

- Despite this transition occurring at a time when nearly all hospital activity was affected by necessary but time-consuming coronavirus protocols, implementation of the ACS service:
  - Resulted in minimal disruption
  - Preserved case volume for both the day and overnight call teams
  - Reduced the burden on the trauma and elective surgical services

- An ACS service reduced post-operative length of stay for patients undergoing LA for non-perforated appendicitis.

- Limitations: single institution study, relatively small sample size

- Further Investigation:
  - Bowel obstruction management
  - Open vs. laparoscopic vs. robotic procedures
  - ACS and surgical critical care fellow involvement in cases

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