



Emergency General Surgery Transfers to Definitive Care

An assessment of patient and systemic factors in appendicitis referrals



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Background:

- Fewer than 50% of hospitals are equipped to manage patients presenting with Emergency General Surgery (EGS) complaints
- Issues that impact EGS mirror the same issues Trauma Surgery faced ~50 years ago, prior to implementation of current trauma guidelines
- There is currently little data discussing system resource utilization for EGS transfers

Objective:

Analyze the cost, time, transport resource utilization, and outcomes of EGS patients with acute appendicitis when transferred from network hospitals to a single tertiary care center

Methods:

- IRB approved retrospective study
- Adult patients who presented with acute appendicitis and were transferred from in network referral EDs to single tertiary care facility between May 20, 2015 - Sept 30, 2020
- Primary outcome: Time from initial presentation to OR in transferred patients
- Secondary outcomes: cost to patient, cost to system, resource allocation of transfer, length of stay in transfer patients
- Statistics descriptive, no comparison group, analyzed in R ver 1.0.2

Results:

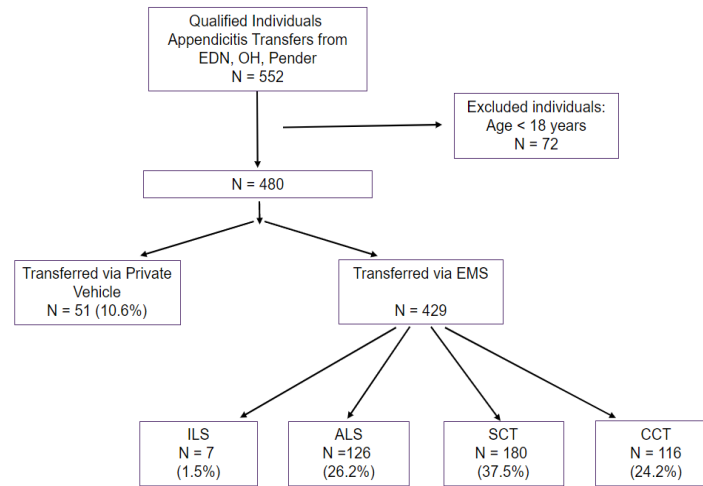


Figure 1: Utilization of transport resources. ILS intermediate life support; ALS advanced life support; SCT specialty care teams; CCT critical care teams

Pre-Hospital Interventions	Percentage
Point of Care Labs	4%
IV Fluids	44%
Analgesia	30%
Antiemetic	22%
Antibiotics	11%
Oxygen	7%
Vasopressor	0.20%

Table 1: Pre-hospital interventions performed

	Median Time Elapse (min)	Transport Destination			Mode of Transport	
		ED	OR	Floor	Ambulance	Private Vehicle
		N = 136	N = 252	N = 89	N = 429	N = 51
Emergency Department Length of Stay	255 [207, 322]				255 [210, 324]	233 [175, 290]
Duration of Transport	27 [17, 32]					
Decision to transfer to arrival at Main Hospital	89 [66, 121]	102 [74, 132]	87 [68, 111]	116 [74, 172]		
Arrival to incision at Main Hospital	159 [75, 350]					
Decision to Transfer to Incision	254 [166, 456]	370 [254, 575]	182 [138, 261]	476 [305, 600]		
Length of Stay at Main Hospital	581 [283, 1203]	696 [441, 1263]	304 [204, 810]	1917 [680, 10049]	586 [285, 1222]	557 [276, 959]

Table 2: Time elapsed for different transport destinations and mode of transport

Conclusions:

- No life-saving interventions were performed by transport teams during this study period, and all transport interventions were within the scope of practice for BLS/ILS/ALS transport teams
- Extended transfer time delays patient care and increases dead-bed time in EDs that do not have access to general surgeons. It utilizes ED beds and floor rooms that could be occupied by other patients in need of care
- The mean gross transport charge was \$1,596
- Ambulance transport did not shorten hospital length of stay compared to transport via private vehicle. However transport via private vehicle was associated with a shorter ED LOS (233min v 255min)
- There needs to be a focus on decreasing transfer time, making the process from arrival at the tertiary hospital to OR more efficient, and decreasing resource utilization of specialty and critical care transport
- Having a dedicated EGS operating room may improve the transfer process and should be studied
- Developing a protocol for routine appendicitis to be transported directly to the OR via private vehicle or BLS/ILS transport services could decrease cost and length of stay

