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Factors Influencing General Surgeons To Involve Urologists In Bladder Trauma Management

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Introduction

- Bladder trauma injuries, which are graded by severity, often require immediate care and surgical management by General Surgeons or Urologists
- Existing literature has demonstrated inconsistencies in the collaboration between General Surgeons and Urologists in the management of bladder trauma injuries[1]
- Additionally, some existing literature supports the consultation of Urologists in more complicated and severe cases while some existing literature suggests that there may not be a difference in outcome[1,2,3]

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Introduction

- This research project characterizes factors influencing General Surgeons to involve Urologists in order to help improve the understanding of bladder trauma management
- This research project will help to provide a framework to foster discussion to improve interdisciplinary collaboration in the management of bladder trauma injuries

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Objectives & Hypothesis

- Research Question
  - How do factors like the severity of bladder trauma, pre-operative diagnostic imaging, and time of presentation influence General Surgeons to involve Urologists in the management of patients with bladder trauma injuries?
- Hypothesis
  - The decision for General Surgeons to involve Urologists in bladder trauma management is a multifactorial decision with severity of bladder trauma being the primary influencing factor as opposed to other factors like pre-operative diagnostic imaging or time of presentation.

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Approach & Results

- Cross-sectional descriptive study
- Two similar online questionnaires were distributed to state and regional chapters of the American College of Surgeons (ACS) and American Urological Association (AUA) as well as through social media and email
- General Surgeons were surveyed and their responses were compared to responses provided by Urologists
- The likelihood that General Surgeons would involve Urologists in the management of bladder trauma was the primary outcome

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Approach & Results

- Rationale
  - Bladder trauma injuries are graded by severity and complexity. For the purposes of this study, we thought the best method was to present respondents with each type of bladder trauma injury as depicted by description and diagram so that the respondents could select the likelihood that they would involve Urologists in each type of scenario. The same scenarios were presented to Urologists so that they could indicate the likelihood that they thought General Surgeons would involve them allowing us to understand perspectives from both specialities. The ACS and AUA chapters allowed us to reach a broader group of General Surgeons and Urologists, respectively, and email and social media distribution was an adjunct.
- Analysis
  - The responses between the two specialties (General Surgeons and Urologists) were compared using a cumulative logistic regression model
  - Additionally, gross percentages were reported to help quantify the responses to bladder trauma scenarios
- Findings
  - Discussed in the following slides
  - Main take away:
    - As each bladder trauma injury scenario increased in severity and complexity so did the likelihood that Urologists would be involved in the management plan

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Approach & Results

Grade I - How likely are you to consult Urology for this specific injury?

Odds Ratio (95% CI)	Signif.
1.954 (1.173~3.254) ↑	✓0.010

Grade V - How likely are you to consult Urology for this specific injury?

Odds Ratio (cratio) (95% CI)	Signif.
5.210 (1.466~18.518) ↑	✓0.011

Take away: Since the OR > 1 for all bladder trauma injuries in the questionnaire (Grades I - V below), General Surgeons were less likely to involve Urologists in bladder trauma management than Urologists thought that they would be involved by General Surgeons.

Odds ratio breakdown (Urologists vs General Surgeons): The likelihood that General Surgeons would involve Urologists (as perceived by Urologists) was compared to the actual likelihood that General Surgeons reported on the questionnaire that they would involve Urologists.

Table 21

Bladder injury scale

Grade*	Injury type	Description of injury	ICD-9	AIS-90
I	Hematoma	Contusion, intramural hematoma	867.0/867.1	2
	Laceration	Partial thickness		3
II	Laceration	Extraperitoneal bladder wall laceration <2 cm	867.0/867.1	4
III	Laceration	Extraperitoneal (≥2cm) or intraperitoneal (<2cm) bladder wall laceration	867.0/867.1	4
IV	Laceration	Intraperitoneal bladder wall laceration ≥2cm	867.0/867.1	4
V	Laceration	Intraperitoneal or extraperitoneal bladder wall laceration extending into the bladder neck or ureteral orifice (trigone)	867.0/867.1	4

*Advance one grade for multiple lesions up to grade III

From Moore et al. [2]; with permission

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Approach & Results

Grade I - How likely are you to consult Urology for this specific injury?

Grade I	General Surgeons N = 94	Urologists N = 102
Extremely Unlikely	37 (39%)	17 (17%)
Somewhat Unlikely	18 (19%)	25 (25%)
Neither Likely nor Unlikely	7 (7%)	13 (13%)
Somewhat likely	17 (18%)	32 (31%)
Extremely likely	15 (16%)	15 (15%)

Grade V - How likely are you to consult Urology for this specific injury?

Grade V	General Surgeons N = 90	Urologists N = 100
Extremely Unlikely	4 (4%)	2 (2%)
Somewhat Unlikely	0 (0%)	0 (0%)
Neither Likely nor Unlikely	2 (2%)	0 (0%)
Somewhat likely	7 (8%)	1 (1%)
Extremely likely	77 (86%)	97 (97%)

Take away: As grade of bladder trauma injury increased, likelihood that General Surgeons would involve Urologists in bladder trauma management increased (34% in Grade I vs 94% in Grade V)

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Approach & Results

Are General Surgeons more or less likely to consult Urology if presentation was outside of normal working hours?

Presentation Time	General Surgeons N = 87	Urologists N = 98
Less Likely	14 (16%)	40 (41%)
No Difference	66 (76%)	44 (45%)
More Likely	7 (8%)	14 (14%)

Are General Surgeons more or less likely to consult Urology if the was pre-operative CT imaging of the bladder injury? If the diagnosis was made intraoperatively?

Preoperative CT Imaging	General Surgeons N = 87	Urologists N = 97
Less Likely	3 (3%)	6 (6%)
No Difference	49 (56%)	15 (15%)
More Likely	35 (40%)	76 (78%)

Intraoperative Diagnosis	General Surgeons N = 87	Urologists N = 98
Less Likely	14 (16%)	40 (41%)
No Difference	66 (76%)	44 (45%)
More Likely	7 (8%)	14 (14%)

Take away: The majority of General Surgeons in our study (76%) indicated that neither patient presentation outside of normal working hours nor intraoperative diagnosis made a difference in their likelihood to consult Urology. Meanwhile, 40% of General Surgeons indicated that pre-operative CT imaging would increase the likelihood that they would consult Urology.

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Conclusions

- Our findings show that General Surgeons are more likely to consult Urology as the severity of bladder trauma injury increases. For all bladder trauma injuries in the questionnaire, General Surgeons were less likely to involve Urologists in management than Urologists thought that they would be. Additionally, the majority of General Surgeons (76%) indicated that time of patient presentation and intraoperative diagnosis were not major influencing factors.
- Our findings fit with current literature as our results showed that complexity and severity of bladder trauma injury made it more likely that General Surgeons will involve Urology.

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Conclusions

- Our research has significant clinical impact as it helps foster the discussion for interdiscplinary collaboration between General Surgeons and Urologists, this is especially important with the changing of the Urology landscape towards more urban practices[4]
- More severe, complex bladder trauma injuries or bladder injuries with pre-operative CT imaging may increase the likelihood that General Surgeons would involve Urology while time of presentation and intraoperative diagnosis did not seem to make a difference to the majority of General Surgeons so these findings may help guide clinical decision making in the occurrence of bladder trauma injury and management

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Future Directions

- Our next steps for this research are to have additional analysis run on the data to better understand the impact that demographic factors like fellowship training, years in practice, and number of annual cases influence General Surgeons to involve Urologists.
- Future directions would also include to expand the study from bladder trauma to genitourinary trauma in general to help further the interdisciplinary collaboration between General Surgeons and Urologists
- Additionally, bolstering the sample size will help improve future studies and provide more of an understanding to practices in bladder trauma management

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