

LSU Health Science Center

LSU Health Digital Scholar

Medical Research Day

2022 Medical Research Day Posters

Oct 13th, 12:00 AM

An Algorithm to Prevent Missed Bowel Injuries in Blunt and Penetrating Abdominal Trauma Patients

Ashley Clement

LSU Health Sciences Center- New Orleans

Logan Gold

Lance Stuke

Patrick Greiffenstein

Jonathan Schoen

See next page for additional authors

Follow this and additional works at: <https://digitalscholar.lsuhscc.edu/sommrd>



Part of the [Surgery Commons](#)

Recommended Citation

Clement, Ashley; Gold, Logan; Stuke, Lance; Greiffenstein, Patrick; Schoen, Jonathan; Hunt, John; Marr, Alan; St. Romain, Monique; and Smith, Alison, "An Algorithm to Prevent Missed Bowel Injuries in Blunt and Penetrating Abdominal Trauma Patients" (2022). *Medical Research Day*. 17.

<https://digitalscholar.lsuhscc.edu/sommrd/2022MRD/Posters/17>

This Event is brought to you for free and open access by the School of Medicine at LSU Health Digital Scholar. It has been accepted for inclusion in Medical Research Day by an authorized administrator of LSU Health Digital Scholar. For more information, please contact aolini@lsuhsc.edu.

Presenter Information

Ashley Clement, Logan Gold, Lance Stuke, Patrick Greiffenstein, Jonathan Schoen, John Hunt, Alan Marr, Monique St. Romain, and Alison Smith

An Algorithm to Prevent Missed Bowel Injuries in Blunt and Penetrating Abdominal Trauma Patients

Ashley Clement; Logan Gold; L. Stuke, MD, MPH; P. Greiffenstein, MD; J. Schoen, MD, MPH; J. Hunt, MD, MPH; A. Marr, MD; M. St. Romain, BSN, RN, TCRN; A. Smith, MD, PhD
Department of Trauma/Critical Care Surgery; LSU Health Sciences Center New Orleans



Background

- Missed diagnoses and delayed treatment of bowel injuries in trauma patients are associated with increased morbidity and mortality.
- Current guidelines for managing patients with a possible bowel injury following abdominal trauma are variable.
- Clinical expertise is limited due to the infrequency of these injuries.

Objective:

To develop a decision-making algorithm for the management of patients with penetrating and blunt abdominal trauma to decrease delayed and missed diagnoses of bowel injuries.

Methods

- Retrospective chart review:
 - 124 abdominal trauma patient charts from July 2012-March 2022 with a resulting bowel injury
 - 16 patients (13.0%) with delayed or missed diagnosis 9 of which suffered complications
 - Average HLOS = 22.3 days (range: 3 - 114 days)

Patient	Blunt Trauma	Penetrating Trauma	Hours to Diagnosis
1	X		151
2	X		41
3	X		187
4	X		11
5		X	18
6	X		96
7		X	16
8	X		13
9		X	4.5
10	X		25
11	X		10
12	X		4
13		X	17
14	X		36
15	X		14
16	X		6

Algorithm

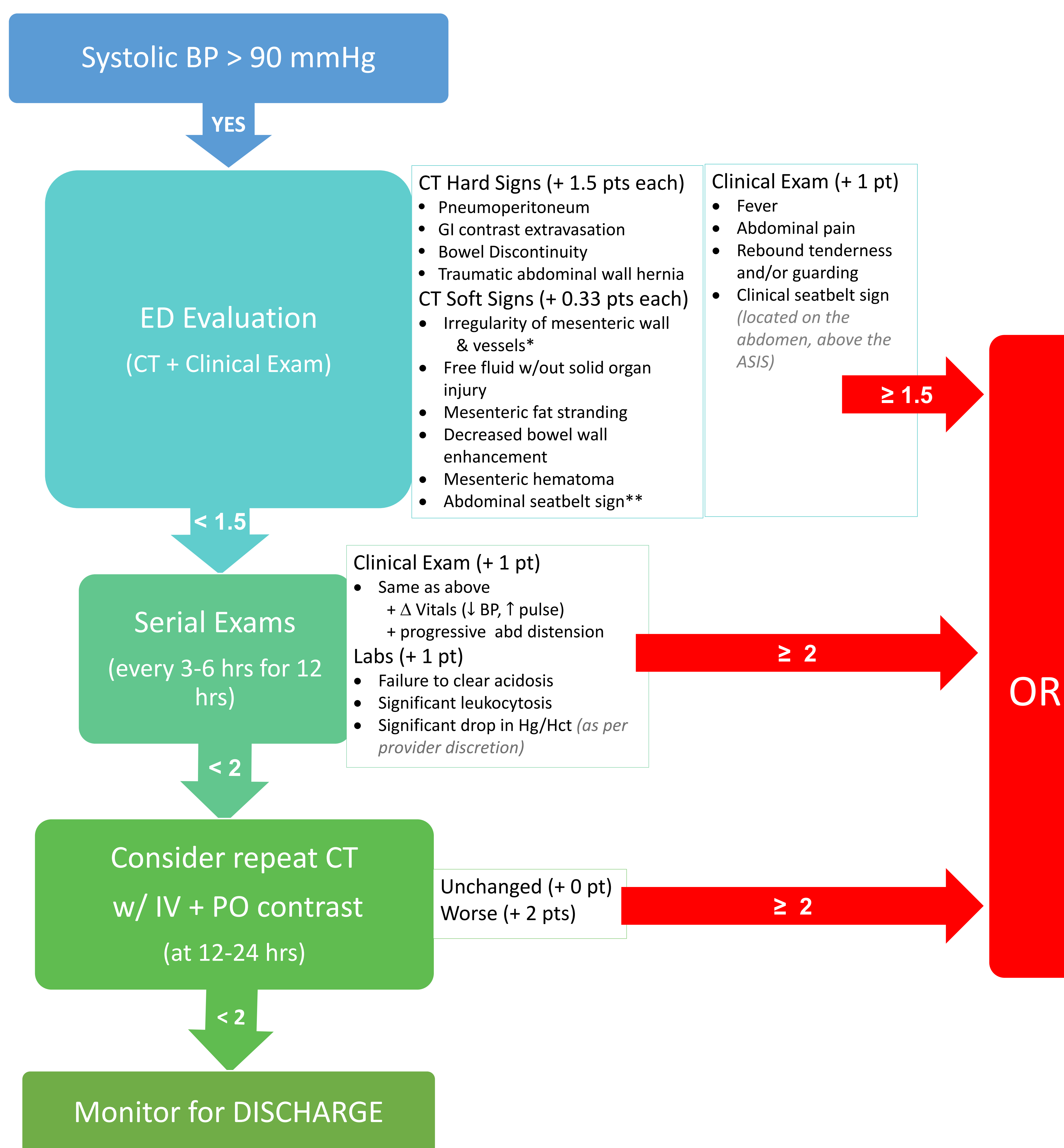


Figure 1, above: Proposed decision-making algorithm for management of blunt abdominal trauma patients.

Figure 2, below: QR code for calculation of algorithm scores for the management of blunt and penetrating abdominal trauma patients.



Results

- An average of two days to surgical management could have been saved with use of the algorithms.

Statistics:

Sensitivity: 86.4%
Specificity: 87.5%
PPV: 90.5%
NPV: 82.4%

- In a retrospective application of the algorithm to 88 patient charts with a negative laparotomy, the sensitivity, specificity, positive predictive value, and negative predictive value were calculated.

Conclusion

- Inadequate decision-making guidelines resulted in missed diagnoses and delayed treatment.
- A standardized approach to the management of patients with a possible bowel injury will decrease delayed and missed diagnoses.
- Retrospective evaluation of the algorithm demonstrated its efficacy in reducing time to bowel injury diagnosis.
- Current studies focus on implementing this algorithm at a Level I trauma center to decrease morbidity and mortality associated with delayed diagnosis and treatment.



Ashley Clement
aclem7@lsuhsc.edu
[@_AshleyClement_](https://twitter.com/_AshleyClement_)



Logan Gold
lgold@lsuhsc.edu
[@_LoganCGold](https://twitter.com/_LoganCGold)