

**Ashley B. Clement**  
L3  
LSU Health Sciences Center, New Orleans, LA

Mentor's name: Dr. Alison Smith  
Assistant Professor of Clinical Surgery, Louisiana State University

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

**Background:** Bowel injuries from trauma require immediate recognition and operative intervention. Missed bowel result in significant morbidity and mortality such as infection, enterocutaneous fistulas, additional surgeries, prolonged hospitalization, and mortality. Clinical and diagnostic expertise are limited as significant blunt bowel and/or mesenteric injuries can be evasive to detect with current imaging modalities, and physical exam findings can be unreliable. Current guidelines for the management of patients with a possible bowel injury do not offer clear direction.

**Objective:** The objective of this study was to develop decision-making algorithms to identify patients at high risk for missed bowel injuries.

**Methods:** A retrospective chart review was performed at a Level I trauma center from July 2012-March 2022. A delayed bowel injury diagnosis was defined as 4-24 hours after trauma activation. A missed bowel injury was defined as a diagnosis made after more than 24 hours. Two algorithms were created, one for blunt abdominal trauma and one for penetrating. The algorithms award points for clinical findings (CT signs= 0.33-1.5 points, clinical exam=1 point, laboratory values=1 point) that should raise suspicion for a bowel injury. Once a point threshold is reached, the patient should be brought to the operating room for exploration.

**Results:** In total, 123 patients with blunt or penetrating (77.2%) abdominal trauma and a resulting bowel injury were identified with 16 (13.0%) patients having either a delayed or missed bowel injury. An average of two days to surgical management would have been saved with use of the algorithm.

**Conclusions:** The algorithms are currently being evaluated through a prospective study. The algorithms have been adopted into a website calculator which can be accessed via a QR code that automatically calculates the patients' score for provider ease of use. Pending the results of the prospective study, a multi-center study will be proposed to evaluate the effectiveness of this algorithms at other institutions.