This investigation aims to identify patient, provider, and systemic factors for iatrogenic opioid overdose. Iatrogenic in-hospital opioid toxicity results in a range of adverse drug effects - sedation, potentially life-threatening CNS and respiratory depression. A structured approach is required to identify risk factors for iatrogenic opioid overdose. This investigation aims to identify patient, provider, and systemic factors associated with iatrogenic opioid toxicity in the emergency department (ED).

**RESEARCH QUESTION**
Can the Haddon Matrix, a well-defined injury prevention paradigm, be applied to ED iatrogenic opioid overdose?

**METHODS**
A case series of iatrogenic opioid overdose from a large urban academic ED was identified through query of ED electronic medical records for ED visits during 10/1/10-12/31/11.

Patients were included if they: 1) received an opioid before naloxone; 2) had an opioid-related adverse drug event (ADE); and 3) were determined to have experienced a medication error resulting in harm. ADE was defined as objective or subjective respiratory distress, sedation, or hypotension which then improved after naloxone administration.

Each case was reviewed to determine category of harm and root cause of error.

Cases were assigned a category of harm based on the National Coordination Council for Medication Error Reporting and Prevention Index [NCC MERP] classification scheme.

Cases where harm resulted were used to construct a Haddon Matrix.

**RESULTS**
Utilizing the naloxone trigger tool, a total of 63 cases of iatrogenic opioid overdose were identified. None of the patients identified using the naloxone trigger had an adverse event identified in the voluntary reporting system.

The median age was 57 (Range: 14 - 97). 42 (67%) cases were determined to have experienced harm (NCC MERP categories E - H). Identified patient, provider (vector), and system factors were then used to construct a Haddon Matrix.

The displayed Haddon Matrix frames the actionable areas required to prevent serious opioid-related adverse drug events in the ED setting.

**CONCLUSIONS**
The naloxone trigger tool successfully identified numerous cases of iatrogenic opioid toxicity. We describe a Haddon matrix for iatrogenic in-hospital overdose, which identifies several modifiable factors.

Focused interventions for high-risk patient populations and clinical settings, and pre-/post-event provider education could be effective at reducing iatrogenic opioid overdose in the ED setting.

**FUNDING**
The Lifespan Risk Management Grant Award