

### Introduction

Mild traumatic brain injury (mTBI) is a common diagnosis requiring supportive care and observation. Frequently, these patients are admitted to an intensive care unit (ICU) or intermediate care unit (IMU) despite the rare occurrence of neurological deterioration and surgical intervention[1,2]. Intensive care only accounts for 10% of in-hospital beds but over 25% of acute care cost in the United States [3,4]. ICU admission may cause bed capacity issues and increased health care costs. This study investigates the safety and cost-efficiency of our novel mTBI admission protocol compared to historical controls.

### Methods

From February 2016 through July 2017, 779 consecutive mTBI patients were admitted to our level 1 trauma center. Using the new protocol, patients were stratified into risk categories, and the admission location was determined. We recorded mortality, neurological morbidity, bed admission acuity, upgrades in level of care, and neurological readmission in 30 days. The bed acuity included ICU, IMU, and floor. A 2-year historical cohort was used as a comparison.

### Comparison Analysis of Admission Level of Care

