

The Effect of Nighttime Rental Restrictions on E-Scooter Injuries at a Large Urban Tertiary Care Center

This study reviewed medical records from a large, urban tertiary care and trauma center in Atlanta, Georgia, to characterize trends in e-scooter injuries. The data collected was used to assess the effects of Atlanta's nighttime ban on e-scooter rentals and characterize several factors that may modulate the risk of injury in electric standing scooter riders.

This study has several implications for the future of trauma care as well as the injury prevention field. Findings support a need for future work to explore how the pandemic has affected e-scooter ridership and injury, considering pandemic-related changes in ridership and rider behavior.

Citation:

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Methods: The retrospective review of medical records from a single trauma center in Atlanta, Georgia, calculated distributions of factors influencing e-scooter injury and categorized those injuries as certain and possible. The effects of regulation banning nighttime e-scooter rentals between the hours of 21:00 and 03:59 were compared prior to and following its implementation on 10 August 2019 until its suspension due to the COVID pandemic. The authors used the Watson-Wheeler test to compare the time of ED arrival across e-scooter rides.

Findings:

- Patients with injuries associated with e-scooters, categorized as “certain” were identified from a pool of ~360k medical records.
- The median age of these patients was 31 years old, 65% were male, 41% had head injuries, 20% of injuries were associated with the built environment, and approximately 19% were admitted to the hospital.
- Approximately 19% of patients with injuries associated with e-scooters noted to be clinically intoxicated or have a serum ethanol level exceeding 80 mg/dL.
- The number of patients with e-scooter injuries peaked in summer 2019 and then decreased into the fall of 2019 and winter 2020 until the e-scooter rental program was briefly suspended due to the COVID pandemic.
- For patients with certain e-scooter related injuries, the nighttime ban on rentals did not have a significant effect on ED time of arrival ($p = 0.16$), although the proportion of e-scooter riders injured during those hours was reduced from 32% to 22% after the ban was instituted.
- The median charges for care of these riders averaged \$9.6k.

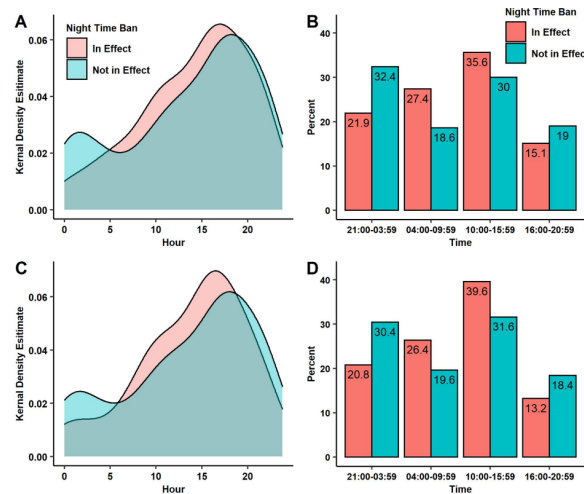


Figure 1. (A) distribution of arrival times for certain e-scooter patients as a function of the nighttime ban, (B) percentage of certain scooter patients as a function of time of day and night time ban, (C) distribution of arrival times for certain scooter patients transported by EMS, (D) percentage of certain scooter patients transported by EMS

Discussion: The implementation of a nighttime rental ban on e-scooter rentals reduced the proportion of patients with e-scooter injuries who were transported by EMS with times of arrival during the hours of the ban. However, this effect was not significant. Atlanta's nighttime ban on rentals was intended to prevent more severe injuries primarily resulting from e-scooter crashes involving motor vehicles. This study affirms that e-scooter injuries are a public health concern. Due to a relatively small post-ban sample size, the current study is not able to reliably estimate the effect of the nighttime ban on motor vehicle crashes involving e-scooters. Furthermore, characterizing the effects of the COVID-19 pandemic on e-scooter injuries will provide more information about pandemic-related changes in ridership and rider behavior.