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Alexandria Health Department E-Scooter Injuries – January to August, 2019 (Brief Report)

Background

Since January 1, 2019, the City of Alexandria has participated in a dockless electric scooter (e-scooter) program. On September 4, 2019 the Complete Streets Program of the City of Alexandria Transportation and Environmental Services Department contacted the Alexandria Health Department (AHD) to request information about injuries related to e-scooter use.

Nationally the use of e-scooters as a means of transportation has increased in the past few years, especially with growing availability of dockless e-scooter rentals. Few studies that characterize the incidence of injury and success of pilot programs have been published.^{1, 2, 3}

Summary

This report is a retrospective analysis of reported injuries related to e-scooters in the City of Alexandria from January 1 to August 30, 2019. Ten cases of e-scooter related injuries were identified using ESSENCE, a surveillance system used by the Virginia Department of Health (VDH). ESSENCE uses hospital and urgent care center data to analyze chief complaint and discharge diagnosis codes from participating facilities.

As stated in the following limitations section, these summary statistics are descriptive of these cases only. They do not represent risk factors for e-scooter injury, nor are they generalizable to all e-scooter riders or e-scooter riders who sustain injuries.

Limitations

1. These data do not represent the total number of e-scooter injuries that may have occurred in the City of Alexandria over the eight month period. This limitation exists because the data do not capture:
 - Individuals who were treated by a healthcare provider outside of a hospital or urgent care center
 - Individuals who were seen at a facility that does not report information to ESSENCE
 - Individuals who did not seek medical treatment
 - Individuals who are non-Alexandria residents who sought care for injuries outside of Alexandria

- Individuals whose provider did not include the word “scooter” in the chief complaint or discharge diagnosis (for instance if the injury was documented as “ankle sprain” rather than “scooter injury” or “ankle sprain from scooter injury”)
2. The type and severity of injuries may not be representative of typical injuries sustained by e-scooter riders who are injured because of a limited sample size that may not be representative of all e-scooter riders.
 3. These data cannot be used to calculate the risk of injury to e-scooter riders.
 - As stated above the total number of e-scooter injuries is not known.
 - Comparative data are not available to us about persons who rode an e-scooter but who did not sustain injury.
 - Data are not available to us about the time spent at risk of e-scooter injury, including the total time a person spent riding an e-scooter, the number of trips a person made, mileage of trips, or minutes spent on an e-scooter.
 - The surveillance was retrospective and relied on clinically documented data to classify cases and characterize injuries.
 4. When comparing data from year to year, month to month, time of day, or day of the week it is not possible to discern whether more injuries occur during a certain time period because there were more e-scooter rides taken in that time period, longer mileage e-scooter rides taken in that time period, or if the increase in injury in those months was due to another factor unique to that time period.
 5. These data cannot be used to compare risk of injuries from other modes of transportation such as biking, walking, or skateboarding.

Results

There were 10 total cases of e-scooter related injury that occurred in Alexandria City between January 1, 2019 and August 30, 2019 that were classified as either confirmed, probable, or suspect (Table 1). In contrast, there were two e-scooter related injuries that fit these criteria in 2018.

Table 1: Classification of e-scooter injuries reported to ESSENCE in Alexandria from January 1, 2019 to August 30, 2019.

Case Classification	Number of E-scooter cases
Confirmed	1
Probable	6
Suspect	3

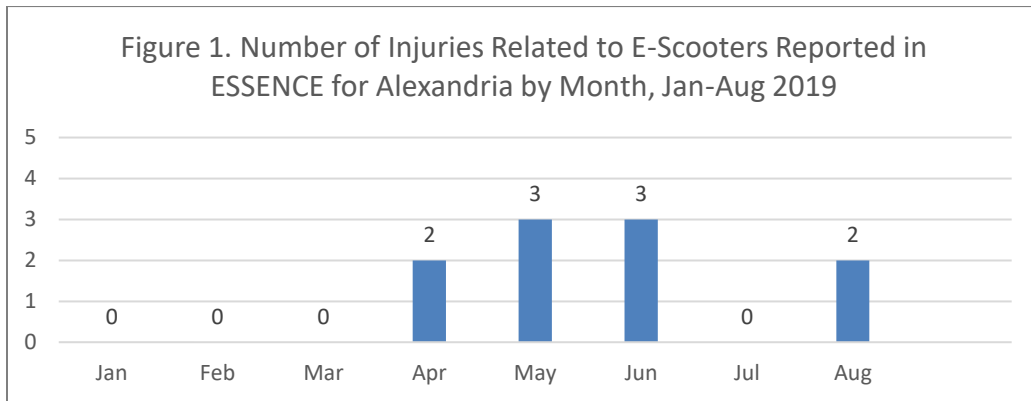
Confirmed: Injury related to a *rentable dockless e-scooter*

Probable: Injury related to an *e-scooter, not otherwise specified as rentable or dockless.*

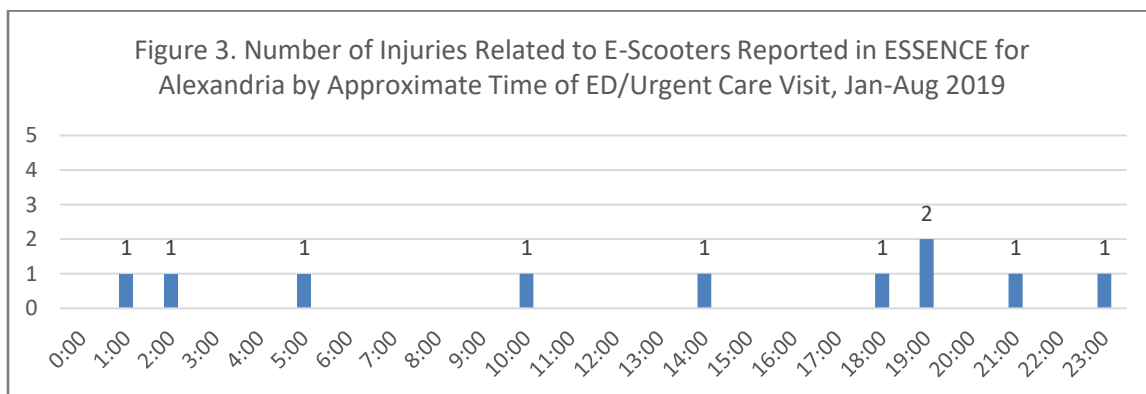
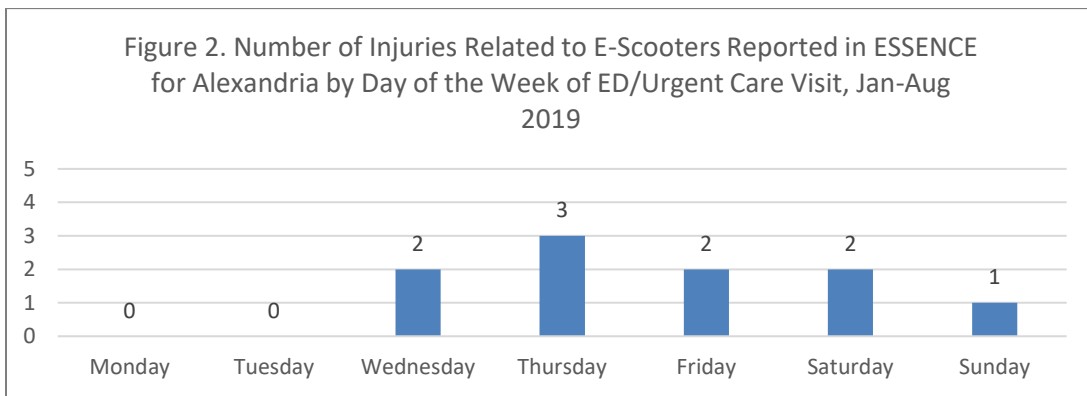
Suspect: Injury related to any *scooter, not specified as rentable or dockless, or electric.*

The median age among cases was 36 years with a range of 19 to 71 years. Six cases were male, four cases were female. Seven cases were Alexandria residents while three were non-Alexandria residents who were seen by a healthcare provider in Alexandria for their injuries.

The most common injury types were lacerations and abrasions. The most common injury locations were on the face and the arms or hands. Three cases sustained an injury to their head (in addition to other possible injuries). None of the cases had documentation of helmet use at the time of injury (three specifically documented no helmet, seven had no documentation). Three cases had documentation of substance use (i.e. drugs or alcohol) at the time of the injury. One case had injuries classified as "severe" based on NTSB criteria (criteria listed below in methods section). Three cases were transported via EMS. Most injuries occurred in May and June, with none identified from January to March, or July (Figure 1).



Most cases sought care for injury toward the end of the week (Wednesday through Sunday), with the most occurring on Thursday (Figure 2). Most cases sought care for injury during the afternoon/evening hours and early morning hours (Figure 3).



Methods

Surveillance data were compiled using an ESSENCE query developed by VDH that captures chief complaints and discharge diagnoses that include the word "scooter", and ICD-10 medical diagnostic codes relevant to motorized scooter injury (V00.14, V00.83, W05.1, and W05.2).

AHD epidemiologists examined electronic health records related to visits identified by the query, dating from January 1 to August 31, 2019. Demographic information and details of each visit were extracted from the medical record. Criteria used by AHD epidemiologists to classify visits reported in ESSENCE as confirmed, probable, or suspect cases included:

Confirmed: Injury related to a *rentable dockless electric scooter*.

Probable: Injury related to an *electric scooter, not otherwise specified as rentable or dockless*.

Suspect: Injury related to any *scooter, not specified as rentable or dockless, or electric*.

Injuries were further characterized by type, location, and severity. To determine whether injuries were "severe", we used the National Transportation Safety Boards (NTSB) definition of severe injury. NTSB defines severe injury as 1) requiring hospitalization for more than 48 hours within 7 days of injury, 2) resulting in fracture of any major bone (excludes fingers, toes, or nose); 3) causing severe hemorrhage, and nerve, muscle or tendon damage, 4) involving any internal organ; or 5) including second- or third-degree burns on more than 5% of the body.

A total of 15 reports were identified through ESSENCE. Five reports were excluded upon further investigation that involved non-motorized scooters, hover boards, skateboards, or moped-type scooters. These were classified as not a case. Descriptive summary statistics of confirmed, probable and suspect cases (N=10) were calculated and are presented here, along with limitations of the data.

¹ Trivedi TK, Liu C, Antonio ALM, et al. Injuries Associated With Standing Electric Scooter Use. JAMA Netw Open. Published online January 25, 2019;2(1):e187381.

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2722574>

² Austin Public Health and CDC. Dockless Electric Scooter-Related Injuries Study in Austin, TX: September-November 2018. Published online April 2019.

<http://www.austintexas.gov/edims/pio/document.cfm?id=318777>

³ Portland Bureau of Transportation, 2018 E-Scooter Findings Report. Published online <https://www.portlandoregon.gov/transportation/article/709719>

ADDENDUM

Professional medical societies have issued recommendations on age limitations and protective measures to take for safe e-scooter use.

American Academy of Pediatrics recommendation on e-scooter use can be found here <https://www.healthychildren.org/English/safety-prevention/on-the-go/Pages/E-Scooters.aspx>

American College of Emergency Physicians policy statement on small motorized vehicles can be found here <https://www.acep.org/patient-care/policy-statements/small-motorized-recreational-vehicles/>