

Changing Modes of Personalized Transport: E-Scooters, Bikes, and the Helmet Law

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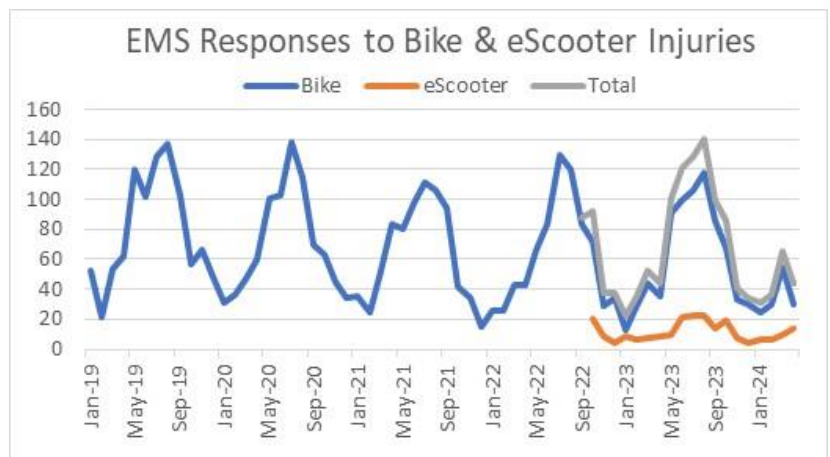
Background: Trauma is a major cause of 9-1-1 activation, morbidity and mortality, and healthcare cost. As a consequence, King County EMS tracks trauma frequency, mechanisms, and patterns. Over the past several decades, mortality from trauma has declined for a variety of reasons. Some of these reasons lie with better prevention whether it be through better motor vehicle design or more frequent use of seat belts or strategies of fall prevention (especially in the elderly). Trauma morbidity and mortality have also benefited from improvements in emergency care that have added key treatments or system response to identify and treat the sickest patients more quickly and effectively.

One type of trauma that KCEMS monitors involves personal modes of non-motorized transport. Historically this evaluation almost exclusively involved traditional, human-powered bicycles. More recently, hybrid or fully-electric powered personal vehicles have become an increasingly popular mode of individual transport. E-scooters in particular are largely novel mode of transport – designed to be accessible, convenient, eco-friendly, and “fun”. The arrival of e-scooters and e-bikes coincides with changes in bike helmet laws beginning in 2022. Although there is strong evidence that helmets prevent serious injury and death (1), consistent enforcement is challenging, leading King County to replace the bike helmet law with a resolution recommending helmets, deferring some helmet laws to local jurisdictions. Some King County communities have maintained requirements for bike and scooter helmets though some do not.



Evaluation: KCEMS undertook a surveillance activity to begin to understand the role of e-scooter injuries and the need for EMS response in the larger context of bike-related injury. As background, about 1000 persons die each year in the United States from bike crashes, and upwards of 40,000 suffer serious injury, but relatively little is known about how e-scooters contribute to the challenge of traumatic injury (1,2). Beginning partway through 2022, the E-scooter flag was activated in ESO, enabling a means to monitor related 9-1-1 emergencies. KCEMS has tracked these events using the ESO smart tab as well as electronic narrative searches to survey the pattern of 9-1-1 use for bike and scooter responses.

As highlighted in the figure, EMS responses in King County for injuries related to bike and scooter crashes account for upwards of a thousand calls per year, though with a striking seasonal dependence. The number of calls increases more than 5-fold when comparing the summer months to winter season. In 2023, E-scooter injuries accounted for approximately 15% of these 9-1-1 calls. Nearly three quarters of calls occurred in men, with about two-thirds <45 years of age. About 10% require ALS transport and over half require BLS transport regardless of whether the vehicle was a scooter or a bike.



Medical Director Comment: Transportation is a dynamic reality here in King County as individuals consider increasing options of public and personal transport as the region grapples with how to best support transportation infrastructure. E-bikes and E-scooters are relatively new options that provide some with more mobility but also potentially introduce new challenges related to safety. As we approach the summer months, there is interest about whether E-scooter injuries will *simply replace some of the bike-related injuries or will be in addition to the count of bike injuries*. There is more to learn as we track and evaluate the consequence of personal electric vehicles joining the byways and roadways.

Contributors: This report was produced with the help of Amy Poel, David Murphy, and Tom Rea.