The Integration of Electric Scooters: Useful Technology or Public Health Problem?

It's a bird. It's a plane . . . No, it's a scooter! Scooter!? That's right, electric scooters (e-scooters) have invaded cities from west to east. First introduced in November 2017, this technology has become a prevalent form of transportation that has taken off in more than 100 cities and college campuses nationwide. These Web-based e-scooters are controlled by rental networks and easily operated by smart phones. Although they are a convenient and affordable solution to transportation gaps, they have presented a new public safety problem that cities and clinicians must face.

With only a thin, flat piece of metal between two small rubber tires, these scooters ride just inches above the ground (Figure 1) and travel at speeds of up to 15 miles per hour, leaving riders exceptionally vulnerable to traumatic injury on major roadways. The venture-funded e-scooter companies, some of which are now valued at more than two billion dollars, have created a sell first, safety later technology.[1] Although trauma centers are prepared to care for critically injured patients regardless of mechanism of injury, we have largely been taken by surprise with respect to the systematic approach required to capture e-scooter crashes. Collecting these data are paramount for better understanding the baseline problem and subsequently providing a way to assess the effectiveness of injury prevention efforts.

The recommendations that e-scooter companies have put forward include wearing your own helmet while riding; being at least 18 years old; riding only on roadways, not sidewalks; not riding double; and not blocking public pathways when parking. Although the e-scooter companies have established preliminary safety precautions, these rules all too often are not followed.

Take, for example, the issue of wearing a helmet: riders often disregard this recommendation. We have seen this firsthand in Baltimore, Maryland: helmetless riders have become part of the new urban landscape, weaving through traffic-filled streets and veering around pedestrians on sidewalks. In addition, e-scooters, which are dockless, are left by riders throughout the city, resulting in sidewalk and public path obstruction that creates pedestrian hazards.

The companies dominating the market in this industry have boasted more than 11 million rides in just over a year. Within the past few weeks, we have seen numerous full trauma team activations owing to e-scooter mechanisms in Baltimore. E-scooter accidents have led to an increase in traumatically injured individuals, many of whom require surgical intervention. Other cities have had similar experiences; Washington, DC, and Dallas, Texas have reported recent deaths related to e-scooters.[2] Although providers across the nation are reporting increased visits to trauma centers, many centers are not capturing these data.

This technology has seen exponential growth, and e-scooter companies are planning expansion to more than 50 US cities and international venues just this coming year. With companies charging a one-dollar initial usage fee and 15 to 20 cents per minute thereafter, it turns out that getting to your final destination may be cheaper than your cup of joe. Compared with other methods of transportation, e-scooters have become perhaps one of the most affordable modes of urban transit. Because of their low cost, zero emissions, and minimal environmental footprint, communities will increasingly use e-scooters.

This prompts the question: What can we do to ensure public safety? Is the solution to ban them? Certain cities have attempted banning e-scooters altogether. New York City, the third most congested city in the world, has successfully kept them off the streets because the New York State Department of Motor Vehicles requires any electric vehicle to be registered, which is not possible for the e-scooter share technology. Nashville, Tennessee, impounded more than 400 e-scooters for violations, including blocking the sidewalks. San Francisco, California, initially impounded and banned e-scooters; however, the city has reinstated a limited number of e-scooters from only two companies, which presented the city with proposals that promoted both safety and accountability. The reality is that banning this technology is not the solution. In fact, innovative organizations have shown interest in helping scale this technology. Uber, for example, recently acquired an e-scooter company.[3]

The reality is that e-scooters are here to stay; so we must develop sound safety policies and determine methods for how best to enforce these regulations. The public health community has dealt with these types of issues in the past. When motor vehicle fatalities were on the rise, various safety measures (e.g., seatbelts, air

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FIGURE 1—E-Scooters

bags) were developed and adopted. Strategies are required to promote safety compliance (e.g., with helmet requirements) while riding e-scooters. Helmet requirements have become standardized in many states across the country for motorcyclists, bicyclists, skiers, and snow-boarders; this needs to be translated to e-scooters as well. Creating awareness of the need for a helmet is critical. We commend the e-scooter companies that report providing more than 40 000 free helmets to their users. Despite this effort, it does not appear this translated to riders actually wearing the helmets.

Policies typically trail behind innovation, in this case leaving e-scooter riders increasingly vulnerable to traumatic injury. What should the medical and surgical communities advise our city governments to help promote safety? Part of the recommendation should be to ensure that our elected officials are passing new legislation on e-scooters. Another consideration must be of the types of roads that e-scooters can be used on. It is not uncommon to drive past an e-scooter rider on the shoulder of a major highway such as I-95. California has recently addressed this topic and passed Active Assembly Bill 2989, which only allows e-scooters on streets with speed limits up to 35 miles per hour.[4] In fact, this bill is more liberal than is previous legislation that had 25 miles per hour street restrictions and required only riders younger than 18 years to wear helmets. It is clear to us that tackling this issue will require a multimodal approach.

It is no surprise that a paucity of data exists, considering the recent introduction of this technology in late 2017 and its recent exponential growth. As clinicians, we must explore ways to enhance data collection and research on e-scooters, which will allow us to better understand the related patterns of injury and mortality. Additionally, to capture data on a national scale, a medical code (e.g., *International Statistical Classification of Diseases and Related Health Problems–10*) needs to be created and assigned to e-scooter riders injured in transit. This will facilitate improved data capture, so we can record and review e-scooter injury data in large data banks like our national trauma registry.

The consumer adoption of e-scooters has skyrocketed, and our trauma centers are seeing severely injured patients as a result.[5] Although society was relatively unprepared for the integration of this transportation technology, we must work together across disciplines and with stakeholders to create the safest environment possible for e-scooter riders and those near them within the community. **AJPH**

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