License to Ride: Regulating E-Bikes

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Introduction

Electric bicycles (e-bikes) are very convenient. E-bikes are defined as a part of a growing class of devices known as electric mobility devices, which include e-scooters, e-unicycles, e-skateboards, e-hoverboards, and the balance scooter, Segway. It is an easy way for people to get where they need to be when other transportation is not available or easy to access. E-bikes are especially useful for kids, particularly if their parents can not take them places; they just hop on their e-bikes and easily make it to where they want to go. However, after knowing the fact that from 2017-2022 e-bike injuries have doubled every year, convenience turns into concern. NPR reports that “head injuries associated with electric bikes have risen sharply in recent years as helmet use has declined” (Cohen). E-bike accidents have continued to surge, and without any regulations and laws, they will continue to increase and harm many people involved in e-bike-related accidents.

Background

The first prototypes of e-bikes were issued in France and the United States during the 1900s. In 1990, e-bikes were fully developed and declared not to be motor vehicles or mopeds because, without pedaling, they only go 20 miles per hour (Maa et al.). Dr. John Maa is a surgeon and public health advocate affiliated with the American College of Surgeons. He has written extensively about injury prevention, trauma care, and public safety. Maa and colleagues warn that “electric bikes are emerging as a public health hazard” due to their increased speed and weight when compared to traditional bicycles. There are three different classes of e-bikes. Class 1 e-Bikes are pedal-assisted with motors that assist up to 20 mph. Class 2 e-Bikes may be propelled with a throttle instead of the use of pedals and have a maximum assisted speed of 20 mph. Class 3 e-Bikes are pedal-assisted with motors that assist up to 37 mph (City of Irvine). The City of Irvine states that “riders of Class 3 E-Bikes must be at least 16 years old and must wear a helmet at any age.” The situation becomes dangerous when speed increases, and

reaction time for riders decreases, leading to major injuries and even deaths. The information is designed to educate the public and promote safe transportation practices.

The basic components of an e-bike are a battery, controller, and motor. Accessory components include the displays, throttles, and sensors. Maa and colleagues explain that these devices are heavier and faster than traditional bicycles, increasing injury severity when crashes occur.

Although e-bikes are very convenient and useful for people throughout the United States, people question whether the benefits outweigh the risks. On one side, supporters argue that e-bikes provide affordable transportation and independence for kids who are not old enough to drive. On the other side, people believe that e-bikes are becoming dangerous due to high speeds, inexperienced riders, and a lack of proper regulations and training. The main concern comes down to rider safety and the safety of everyone who could be involved in an e-bike accident. Because current laws do not adequately prepare riders to operate e-bikes safely, a mandatory e-bike licensing system should be implemented to reduce accidents and improve accountability.

Increase in Accidents and Injuries

In 2017, 750 e-bike accidents were reported; in 2022, over 23,000 were accounted for. As time goes on, e-bike accidents increase, and the safety of e-bikers decreases. Research reported that “a retrospective analysis of the SWITRS 2018–2023 database showed e-bike incidents increased 18.6-fold over 5 years—from 184 to 3,429 events” (Maa et al.).

A report by the Children's Hospital of Orange County (CHOC) confirms that most patients who come in for e-bike-related accidents are between the ages of 14 and 16. CHOC explains that “most injuries we are seeing are preventable and related to lack of helmet use and inexperience” (Ferguson). CHOC is a well-known pediatric medical center, and its publications are based on medical expertise from pediatric doctors and injury prevention specialists. A report conducted by Elizabeth Fernandez from the University of California, San Francisco (UCSF)

says that public health experts warn that electric bike accidents are rapidly increasing. Fernandez reports on research conducted by UCSF physicians and scientists, including studies on the increase in electric scooter and bike accidents across the United States.

In addition, most of the injuries have to do with the head. NPR reports that “only 44% of injured e-bike riders were wearing helmets” and that helmet use declined 6% between 2017 and 2022 (Cohen). Ronnie Cohen, a health and public policy journalist, reports on medical research, injury trends, and public health concerns. The number of patients with head trauma from e-bike accidents in 2022 was 8,000 patients (Cohen). A study from the University of Utah stated that “The long-term effects of traumatic brain injury (TBI) depend on the degree of impact … Damage to the frontal lobe can lead to risky behavior, while trauma to the left side can cause speech and logic problems” (University of Utah Health). Claire E. Baker, a researcher on neuroscience and brain pathology further explains that “road traffic collisions are associated with significant traumatic brain injury pathology due to acceleration and rotational forces” (Baker et al.). Even mild TBIs can have lasting consequences. Konrad, from Psychological Medicine, found that “mild traumatic brain injury may result in long-term cognitive and emotional consequences including depression and memory impairment.” Additionally, the UCSF reported that “electric scooter and bike accidents are soaring across the U.S.” (Fernandez). If there are no regulations in place, more e-bike accidents will occur, causing countless injuries.

No Regulation and Accountability for E-bikes

Currently, e-bikes are not regulated as an electric vehicle. E-bikes are regulated as bicycles, not electric vehicles, even though the difference between the two is drastic. The city of Irvine released this statement: “E-Bikes are subject to all of the same rules and regulations as traditional bicycles…” However, this does not solve the problem that classes 1 and 2 of e-bikes have little to no regulations. Unlike traditional bicycles, e-bikes require riders to understand motor assistance, braking, and speed control. Many children may not receive proper training

(Rodriguez). Since e-bikes are not defined as motor vehicles, e-bike riders typically always have the right of way. Many riders take advantage of this fact and operate their e-bike recklessly.

The American College of Surgeons emphasizes the need for “education, training, and enforcement” to reduce injuries among young riders. E-bikes go up to 20-37 mph depending on the model. Regular bikes tend to go as fast as the rider is willing to pedal. The fact that a bicycle that goes up to 40 mph and a regular bike have the same regulations is extremely difficult. Easton Law Offices explains that “there are no age restrictions for Class 1 and Class 2 electric bikes in California,” while riders must be 16 to operate a Class 3 e-bike. Easton is an attorney specializing in accident and injury law.

A report from Miller Children's and Women's Hospital states that “many children may not receive the proper training before riding an e-bike, which could lead to accidents.” For children and teens, the appeal of e-bikes lies in their ability to travel longer distances with less effort and at speeds that make commuting or recreational rides more exciting. However, these higher speeds also introduce significant risks, especially for inexperienced riders (Rodriguez).

Solution

A solution to these issues is the implementation of a required online e-bike safety course that would result in an e-bike license. The DMV would create a condensed version of a driver’s education training program specifically for e-bike riders, consisting of about 10 hours of online instruction and a shorter, handbook-friendly guide focused on e-bike rules and safety. The course would educate riders on traffic laws, right-of-way rules, speed awareness, and proper handling of e-bikes. This course would be free, but since parents would have to sign off on their child's final quiz, it involves them directly and may cause parents to take it seriously. Because e-bikes operate faster and weigh more than traditional bicycles, riders must understand braking distance, reaction time, and road-sharing with pedestrians and vehicles. The course would include quizzes at the end of each section to ensure riders understand the material, followed by a final DMV knowledge quiz taken online, and requiring a guardian's e-signature to receive the

e-bike license. To reduce accidents, riders must be at least 12 years old to operate Class 1 and Class 2 e-bikes. Additionally, riders under 18 would require a parent or guardian to sign a permission form confirming they completed the training. Riders with a driver's license wouldn't need it. This system would increase safety without limiting access, since an online course would be affordable, accessible, and easy to complete. Licensing programs would also reinforce helmet use and safe riding habits, helping reduce the severity of head injuries. By prioritizing education rather than restriction, a licensing requirement would improve accountability, encourage safer behavior, and help prevent many of the injuries currently seen in e-bike accidents.

Counterargument

Some question whether the training would actually make a difference. However, hospitals consistently recommend increased awareness and safety instruction to prevent accidents. Miller Children’s Hospital emphasizes that proper safety training is key to preventing e-bike injuries among youth. In addition, the course would include quizzes throughout the program, which are intended to keep students attentive. Riders who are 16 years old and already have a driver’s license would not need to take the course because they have already learned the rules of the road through driver’s education. Although concerns about access and effectiveness exist, these issues can be addressed through the e-bike licensing program being accessible and well-designed to prioritize safety and responsibility.

Conclusion

E-bike operators should be required to obtain an e-bike license. E-bike injuries are increasing, especially among young riders, and the lack of regulation and training often leads to dangerous behavior and preventable accidents. Medical research confirms that traumatic brain injuries can cause lifelong consequences (Baker et al.; Konrad et al.; University of Utah Health). Implementing a licensing system that includes a short online training program and safety knowledge quiz would help ensure that riders understand traffic laws, safe riding practices, and

the responsibilities that come with operating an e-bike. By preparing riders before they begin riding in public spaces, this policy would reduce accidents, improve accountability, and create safer roads and bike paths for both riders and pedestrians.

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