

Micromobility with a focus on children driving e-scooters and e-bikes

Purpose

The intent of this backgrounder is to provide an overview of risks associated with e-scooter and e-bike use among children between the ages of 0 – 16 years in Atlantic Canada and provide best practice recommendations. It is not meant to be distributed to parents and caregivers.

Introduction

An electric kick-scooter (e-scooter) is defined as a small electric vehicle that can be driven while standing. It has two wheels in a straight line, a handlebar for steering, and a flat platform to stand on. It is powered by an electric motor and can travel at speeds of up to thirty-two (32) kilometers per hour.ⁱ

An e-bike is defined as a power-assisted bicycle that can be pedaled at all times and is powered by both human effort and a small electric motor. It has two wheels in a straight line and may be equipped with an electric motor of up to 500 watts. The motor stops aiding once the bicycle reaches a speed of thirty (30) kilometers per hour on level ground.ⁱⁱ

E-bikes and e-scooters are emerging as a popular mode of transport, occupying a space that previously received limited attention in policy and planning discussions. As cities pursue sustainability and carbon-neutrality goals, these vehicles offer an appealing alternative for short-distance travel. Their integration into urban mobility networks is seen as a way to reduce greenhouse gas emissions, lower air pollution levels, and alleviate traffic congestion. In addition to environmental benefits, these vehicles enhance urban accessibility and connectivity by strengthening first and last-mile travel options. Beyond utility, e-scooters and e-bikes also contribute to a more engaging travel experience; riding these vehicles can be enjoyable and may positively support physical and mental well-being, reinforcing their broader value within the transportation landscape.ⁱⁱⁱ

E-scooters and e-bikes have been popularized by introduction of shared micromobility in Canada. Shared micromobility is a term derived from micromobility. Micromobility is an umbrella term used for describing small, compact, and low-speed rideable vehicles such as bicycles, folding bikes, e-mopeds and e-scooters.^{iv} Shared micromobility is described as a publicly available fleet of bicycles, e-bikes and e-scooters available for short term use.^v

Overview of the Issue

Increased number of injuries among children

Across Canada, rising injuries linked to e-scooters and e-bikes particularly among children and youth have become a major concern. Canadian Paediatric Society (CPS) has warned public that children under the age 16 do not typically have strength, coordination or experience needed to operate them safely. They further added that these electric devices can speed up to 30 - 50 km/h, which requires significant skills to operate them especially in traffic.^{vi}

The CPS states that emergency rooms across the country are reporting a noticeable rise in injuries linked to e-scooter and e-bike falls and collisions. Kids are arriving with broken bones, concussions, and other trauma that could have been mitigated with proper safety measures.^{vii}

Recently, Canadian Institute of Health Information (CIHI) released data where they found that e-scooter hospitalizations for children between age five and seventeen increased by sixty one percent from 2022 -2023 to 2023 - 2024. ^{viii} Montreal Children’s Hospital (MCH) has also expressed concern as they observed that approximately half of all e-scooter injuries at MCH’s Trauma Center were children and youth under the age of 14. ^{ix} MCH has further recommended increasing the minimum age for riding e-scooters to increase to 16 years from current minimum age of 14 years. ^x

While there is no significant evidence from Atlantic Canada in relation to children’s injuries caused by e-scooters and e-bike driving, it could be because the shared micromobility projects are only in its pilot phases in provinces. Taking proactive measures to prevent these injuries can significantly reduce the burden of injuries.

It is important to note that given injury figures reflect absolute counts and do not account for changes in exposure or ridership volume. Without exposure data, absolute injury numbers may overstate or understate relative risk. Improved exposure-adjusted surveillance systems are needed to accurately assess injury risks over time.

Improper or Inconsistent Legislation

Regulatory frameworks for e-scooters and e-bikes have not kept pace with their rapid introduction across Canada. Laws vary widely among municipalities, cities, and provinces, and sometimes even within different parts of the same city. A recent Canadian Automobile Association (CAA) report identified major gaps in regulations, collision data collection, and public awareness related to e-bikes and e-scooters, including inconsistent rules and limited safety education. ^{xi} Provinces in Atlantic Canada do not share a consistent set of regulations for e-scooters and e-bikes. Rules and regulations for each Atlantic Canadian province can be found below:

Prince Edward Island (PEI):

Among Atlantic Canadian provinces, PEI has the most comprehensive framework, outlining consolidated public regulations covering minimum age of operator, maximum driving speed, definitions, permitted operating areas, equipment standards, safe operation guidelines, helmet use, and penalties. For instance, some key regulations in the consolidated guide of PEI include minimum age of 16 years to drive e-scooters and e-bikes, maximum speeds of 24 km/h and 32 km/h for e-scooters and e-bikes respectively; and maximum power output of 500 W for e-scooters and e-bikes.

Links to PEI’s consolidated regulations for e-scooters and e-bikes can be found here:

- [PEI E-scooter Regulations](#)
- [PEI E-bike Regulations](#)

Nova Scotia (NS):

Regulations for e-bikes and e-scooters exist through amendments to the Motor Vehicle Act. E-bikes are considered in a similar category as bicycles and all the rules that apply to bicycles also apply to e-bikes. ^{xii}

In NS, the Motor Vehicle Act (MVA) was amended to introduce an official definition of “electric kick-scooter” and set rules like a minimum age of 14 yrs for operation, maximum speed of 32 km/h, motor power limit of 500 W. ^{xiii} Municipal by-laws supplement the provincial law: e.g., in the Halifax Regional Municipality (HRM) the “Micromobility By-law (By-Law M-300)” provides local rules for e-scooters (e.g. where they may operate, maximum speeds, etc). ^{xiv}

Unlike in PEI, there isn't one standalone regulation document exclusively for e-scooters and e-bikes that is easily referenced in NS. The rules are scattered: part of them in the MVA amendments, part in local bylaws, and part in supplementary guides.

New Brunswick (NB) and Newfoundland & Labrador (NL):

Neither province has provincial-level rules specific to e-scooters or e-bikes.

Research Gaps

Rapid adoption of e-scooters and e-bikes across Canada has outpaced the development of comprehensive data systems. Differences in device definitions across jurisdictions restrict consistent data collection and meaningful injury analysis.

A 2024 review conducted during an e-bike fatality inquest in Ottawa found that police records, transportation databases, public health data, trauma centers, and provincial health systems all lacked standardized definitions of e-bikes. Information about devices involved in injury or fatal collisions was inconsistent and incomplete.^{xi}

There is also a need for mechanisms to capture non-injury incidents such as collisions with pedestrians, fixed objects, or hazards like open car doors as these could guide safer infrastructure decisions (e.g., whether sidewalks, protected bike lanes, or roadways offer the most protection).^{xi}

Distinguishing between shared service and personally owned devices is essential. Their designs, safety features, and permitted riding environments differ, leading to different risk profiles. For instance, shared micromobility services are primarily available in urban areas where adequate infrastructure is available for safe operations. On the other hand, a privately owned e-scooter or e-bike user may or may not be operating these devices in areas with adequate infrastructure. Failing to separate these categories obscures important safety distinctions and limits the effectiveness of policy interventions.^{xi}

Accountability and Safety Challenges in Non-Regulated Jurisdictions

Injuries related to e-scooters and e-bikes occur within an environment of legal ambiguity in provinces that lack regulations governing them. Accountability is difficult to establish following collisions in legislation without defined operating rules, minimum ages, equipment requirements, or designated riding areas. Police and health systems lack standardized definitions for reporting and injury surveillance remains incomplete.^{xi} The absence of regulation also encourages unrestricted purchase and use of personal micromobility devices, increasing the risk of pediatric injuries and placing additional burden on emergency departments.

Lack of insurance coverage

Insurance frameworks for e-scooters and e-bikes have not kept pace with the rapid growth of e-micromobility use across Canada, leaving many riders without dedicated protection in the event of a collision or injury.

The absence of mandatory insurance is also reflected in the policies of shared e-micromobility providers. For example, Bird Canada states in its rental agreement that riders are responsible and liable for any misuse of its vehicles, including any resulting claims, demands, damages, injuries, losses, legal costs, and other liabilities. Bird Canada also notes that personal automobile insurance policies may not provide coverage for accidents involving or damage to e-scooters or e-bikes.^{xv} Similarly, insurance is not required for privately owned e-scooters and e-bikes.

As a consequence, riders involved in collisions may face financial and legal consequences if they cause injury, property damage or sustain injuries that are not covered by existing insurance policies. These insurance gaps create uncertainty regarding liability and compensation for all parties involved.

The lack of comprehensive insurance frameworks represents an important policy gap. Developing clear and consistent insurance requirements and coverage options could improve financial protection for riders, clarify liability following collisions, and better support the safe integration of e-micromobility into the transportation system.

Lack of Comprehensive Public Health Strategies

Despite the rapid growth of e-bike and e-scooter use, comprehensive public health strategies have not kept pace with emerging risks associated with e-scooters and e-bikes.

Regulatory gaps across jurisdictions mean many regions still lack essential road safety rules, including speed limits, clear definitions and designated riding areas. Shared micromobility fleets often operate with stronger built in protections such as geofencing*, enforced speed caps and higher minimum rider ages highlighting the contrast with personal devices that typically face fewer safety requirements. Public education efforts also remain limited. Additionally, risks originate from uncertified lithium-ion batteries and user modifications that can increase fire and injury hazards for users. ^{xvi}

Together, these gaps indicate the need for comprehensive public health strategies that combine regulation, education, infrastructure, and surveillance to reduce injuries and improve safety.

*Note: Geofencing is a GPS based technology that creates a virtual boundary around a real-world geographic area. Shared micromobility service providers utilize geofencing to track service users' entry or exit in the virtually predefined boundary. ^{xvii} Through geofencing, service providers can control vehicle speed in slow zones (e.g. downtowns, high pedestrian areas), restrict vehicle usage outside of designated boundary and prevent theft by immobilizing the device or triggering alerts. ^{xviii}

Best Practices (By Es of Injury Prevention)

The model of Es of Injury Prevention is believed to be developed by the US Military during World War II for industrial safety programs incepted during the time. The model has been widely accepted in injury prevention as it emerged as a discipline in public health. The primary model includes three Es of injury prevention which are Education, Engineering and Enforcement. ^{xix} However, emerging research highlights that these approaches alone do not adequately address the unequal burden of injury experienced by communities who are adversely affected by social and structural determinants of health. ^{xx} To ensure that prevention strategies are effective, and responsive to diverse populations, addition of "Equity" as fourth E is increasingly recognized as essential.

Considering the four Es of injury prevention, the recommendations below outline how all four Es can be applied to strengthen injury prevention efforts related to e-scooters and e-bikes.

Recommendations

E: Education: initiatives to develop personal habits, education or behavior change strategies

Educational efforts should target caregivers and children to improve understanding of risks, safe operation, and age-appropriate use of e-scooters and e-bikes. Public knowledge regarding e-scooter and e-bike safety remains limited, partly due to confusion created by inconsistent regulations and varying safety measures across

jurisdictions. Developing standardized safety education materials could help address these gaps by clearly communicating:

1. The risks associated with children under the age of sixteen operating e-scooters and e-bikes.^{vi}
2. Local rules and regulations in a clear, accessible, and easy-to-understand manner.^{xxi xxii}
3. The importance of helmet use while riding e-scooters and e-bikes, as well as the added protection provided by knee pads, elbow pads, reflective vests and gloves.^{xi}
4. Safe riding practices, including starting at lower speeds, monitoring the riding environment, riding solo, riding in single file, staying alert to traffic, obeying traffic laws, watching for pedestrians, and avoiding sidewalk riding.^{xi}
5. The differences between privately owned e-scooters and shared micromobility systems.^{xvi}

E: Engineering: modification of a product or environment; ensuring access to appropriate services

Engineering solutions should aim to reduce injury risk through safer device design, safer riding environments, and improved system-level protections.^{xi} Comparative analyses of spatial determinants influencing perceptions of e-scooter and e-bike safety suggest that infrastructure features such as separated bikeways, streetlights, trees, and docking stations play an important role in improving riders' perceptions of safety.^{xxiii} To improve the safety of e-scooter and e-bike users, as well as pedestrians, infrastructure and system-level improvements should include:

1. The development of separated bike lanes, improved streetlighting, urban greenery, and designated docking stations for e-bikes.^{xxiii}
2. The implementation of geofencing and speed-limiting technologies in shared micromobility programs to restrict riding in high-risk areas, such as sidewalks and school zones, and to reduce speeds in dense pedestrian environments.^{xviii}
3. The improvement of data collection systems through standardized device definitions across health, police, and transportation databases, including the reporting of non-injury incidents such as near misses and pedestrian conflicts.^{xi}

E: Enforcement (policy/legislation and measures to ensure compliance)

Clear and consistent regulations are essential to reduce pediatric injuries and address accountability gaps associated with e-scooter and e-bike use. Current inconsistencies in rules and regulations across jurisdictions can contribute to confusion among riders, caregivers, and enforcement agencies. Establishing consistent regulatory frameworks can improve safety, clarify responsibilities, and support safer integration of e-scooters and e-bikes into transportation systems. Key recommendations include:

1. The development of a unified provincial regulatory framework, rather than relying on fragmented rules across acts, bylaws, and pilot programs. This framework should include:^{xxi xxii}
 - a. A minimum operating age of 16 years for both shared micromobility platforms and privately owned e-scooters and e-bikes.
 - b. Maximum motor power and speed limits aligned with national standards.
 - c. Mandatory helmet use for all riders.
 - d. Clear guidance regarding where devices may be operated, including bike lanes, roads, multi-use paths, and trails.
2. The establishment of clear insurance coverage frameworks for e-scooters and e-bikes users.^{xi}
3. Mandatory safety labelling requirements for all devices sold, including:^{xi}
 - a. Battery certification standards.

- b. Warnings against aftermarket modifications that may compromise safety.
4. Strengthening enforcement capacity by providing police and bylaw officers with training on device classifications, applicable regulations, and enforcement procedures.^{xi}

E: Equity (creating equitable policies and strategies to address social determinants of health)

Evidence shows that injuries do not impact Canadians equally. People living in less affluent neighborhoods, have low socioeconomic status and low educational attainments disproportionately face higher levels of injuries.^{xix} Child Safety Link acknowledges that addressing social determinants of health and equity is essential in reducing burden of injuries for everyone.

Equity-focused strategies are essential to ensure that safety policies and interventions do not disproportionately burden or exclude children and families based on income, geography, language, or other social determinants of health. Effective micromobility safety strategies should promote equitable access to education, infrastructure, and safe riding environments across diverse communities. Key recommendations include:

1. Ensuring that safety education initiatives reach diverse populations, including:
 - a. Rural and remote communities.
 - b. Low-income households that may rely more heavily on personal micromobility devices for transportation.
2. Providing accessible safety education materials in multiple languages and formats, including visual resources, plain-language materials, and culturally relevant messaging.
3. Ensuring that infrastructure investments, such as bike lanes and safe riding spaces, are distributed equitably and not concentrated solely within urban centres.
4. Prioritizing education-based approaches to safety promotion and avoiding enforcement strategies that may disproportionately affect marginalized or underserved communities.
5. Strengthening data collection systems to capture equity-related variables, including:
 - a. Geographic location.
 - b. Socioeconomic status.
 - c. Device type (shared versus privately owned).
 - d. Access to safe riding environments and infrastructure.

About Child Safety Link

Child Safety Link (CSL) is an injury prevention program at IWK Health dedicated to reducing the incidence and severity of unintentional injury to children and youth in Atlantic Canada. CSL is committed to working with community organizations, governments and other partners to ensure children are as safe as necessary at home, at play, at school, and on the road.

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