

# E-Bike and E-Scooter Safety

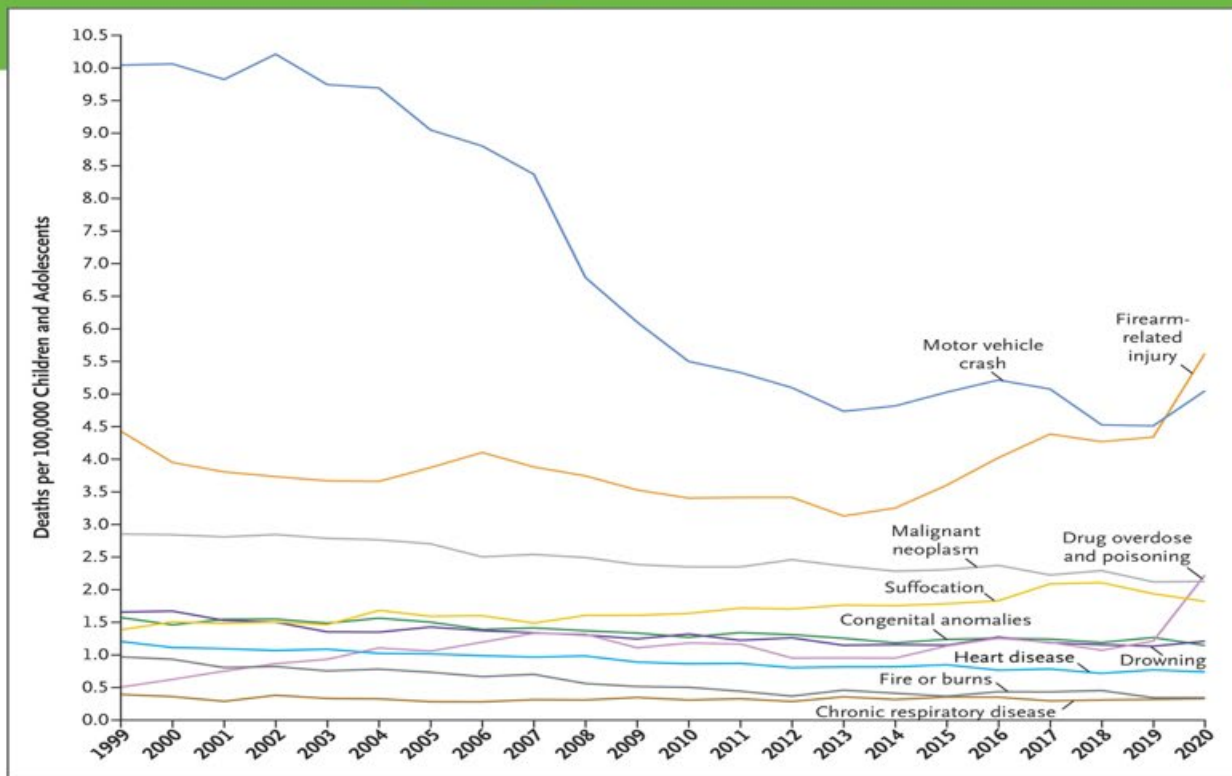
Dr. Brittany Fitzpatrick and Dr. Kammeron Brissett



# Overview

- Background
- Injury Patterns
- Legislation and Regulations
- Helmet Use & Recommendations
- Patient and Family Resources

# Why Child Injury Prevention?



Godstick, Cummingham, Carter (2022)

# E-Bike and E-Scooter Background



# What is an e-bike?



A bicycle equipped with an electric motor that aids with propulsion

**Motor:** Provides pedal assistance or throttle-powered movement

**Battery:** Rechargeable (typically lithium-ion)

**Controller:** Regulates speed and power output

**Pedals:** Most e-bikes still require or allow pedaling

# E-bike classes

## EBIKE CLASSIFICATIONS

### WHAT'S THE DIFFERENCE



#### CLASS 1

**20MPH**  
**PEDAL ASSISTED**  
**NO ASSISTANCE WITHOUT PEDALING**  
**SAME RULES AND ACCESS RIGHT AS**  
**REGULAR BIKES**



#### CLASS 2

**20MPH**  
**THROTTLE ASSISTED**  
**CAN BE RIDDEN WITHOUT PEDALING**  
**SAME RULES AND ACCESS RIGHT AS**  
**REGULAR BIKES**



#### CLASS 3

**28MPH**  
**PEDAL ASSISTED OR OPTIONAL THROTTLE**  
**NO ASSISTANCE WITHOUT PEDALING**  
**AGE LIMIT APPLIES**  
**USAGE AREA RESTRICTED**

# Why is e-micromobility safety important?



# Rapid Rise in Injuries

2019-2023

Over 15,000 e-bike injuries were reported among children

Pediatric E-bike injuries increased from 4% to 49%

Flyer ZE, Giron A, Schomberg J, et al. Electric bicycles and speed-related trauma in pediatrics: Risk of internal injury and hospitalization. Injury. 2025.

# Who is getting injured?

Injuries are overwhelmingly male  
(82.5%)

Early adolescents (10- 13 yrs) are  
at highest risk (44.3%)

Hospitalization is needed for  
11.5% of pediatric e-bike injuries

Nearly all riders did not wear a  
helmet (97.3%)

Goodman LF, Birnbaum Flyer Z, Schomberg J, et al. Electric bicycles (e-bikes) are an increasingly common pediatric public health problem. Surg Open Sci. 2023;14:4651.

# Why does this matter?

- Higher speeds
- Heavier
- Use in urban environments
- Head injuries occur most often



# E-micromobility Injury Patterns



# Speed and Loss of Control Drive More Severe Injuries

Less likely to involve helmet use

Injury patterns:

- Head, neck, face (49%)
- Extremities (43%)
- Concussions
- Internal bleeding

Flyer ZE, Giron A, Schomberg J, et al. Electric-bicycles and speed-related trauma in pediatrics: Risk of internal injury and hospitalization. Injury. 2025.

# Legislation & Regulation



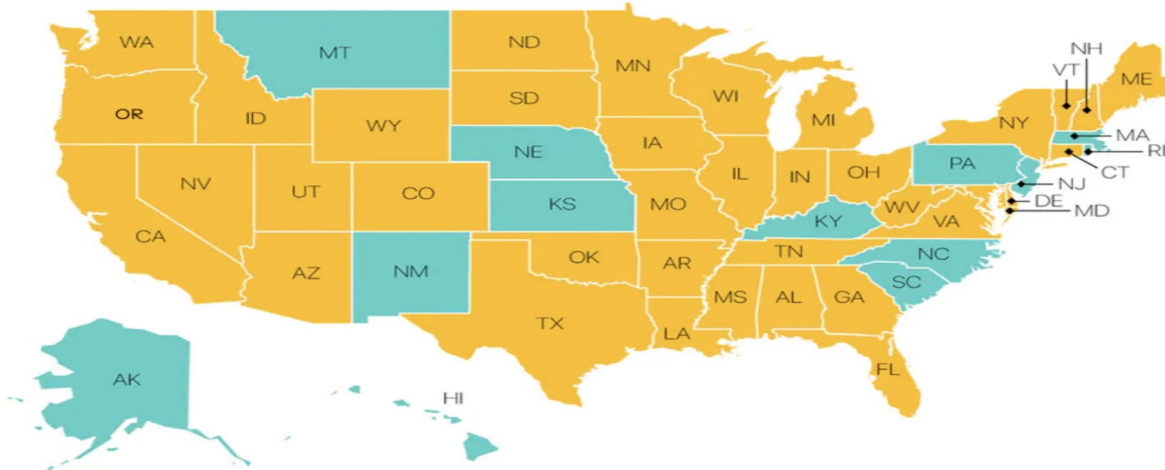
# E-Bike Laws Vary by State



**Which states use the three-class system?**

✓ Used

✗ Not Used



# E-Bikes in DC

**Age Restrictions:** 16 years old to operate an e-bike, riders under 18 yrs old are required to wear a helmet

**Equipment Standards:** E-bikes must be equipped with operable pedals and a motor that doesn't exceed 750 watts (1 horsepower)

**No License or Registration Required**

# Helmet Use & Recommendations



# Helmet Use

- There is no federal law requiring helmet use on any vehicle. 22 states have helmet laws.
- Bicycle helmet use has been shown to reduce serious head injury by 60-88%.\*
- If a powered vehicle is traveling 20 mph or more, there is greater risk of injury than with unpowered bicycles. A standard bicycle helmet may not be adequate to prevent injury.



*It takes brains to be safe—  
Be smart and wear a helmet!*

# Helmet Recommendations

- For powered scooters, the CPSC recommends a moped or motorcycle helmet
- Helmets in this category have been certified by the following standards, which should be visibly displayed on the helmet:
  - Snell L-98, K2020; SA2020, M2020, CM20163; and DOT FMVSS 218



## Which Helmet for Which Activity?

**See inside for an answer to  
this and other questions.**



# Natural Hairstyles + Bike Helmets



Low Buns



Bun



Braids or Dreadlocks



Hair Down



Hair Down



Low Ponytail

**Protect your head with a helmet every time you ride.** Wearing a bike helmet can lower the risk of brain injury by up to 88%.

**Tips for a better & more comfortable fit:**

- + Wear hair down when possible
- + Keep a tie-down on hand to pull hair back and down

# How to talk about e-micromobility use

## DO

- Ask open-ended questions
- Familiarize yourself with community resources and resources at your institution
- Assess every child for risk factors

## DON'T

- Make families feel like they are doing something wrong
- Assume you know everything about e-micromobility
- Use statistics as a scare tactic
- Stop advocating outside the office

# Resources for Patients & Families



# Additional Resources

## AAP:

- [AAP News: Don't let children under 16 ride electric scooters](#)
- [AAP Healthy Children: Why Children Should Not Ride E-Scooters](#)
- [AAP Policy Statement: Helmet Use in Preventing Head Injuries in Bicycling, Snow Sports, and Other Recreational Activities and Sports](#)
- [E-bike Risks for Kids: Tips Before & After You Buy One](#)
- [AAP News: Pediatricians warn of dangers youth face when riding e-bikes](#)

## American College of Surgeons:

- [American College of Surgeons: Statement on Electric Bicycle Safety and Injury Prevention](#)
- [Electric Bikes Are Emerging as Public Health Hazard](#)
- [AANS Neurosurgery Position Statement on Safety of Electric Bicycles and Scooters](#)

## Watch for Me CT

- [E-Bikes: Riding Safety \(parent-friendly handout from Connecticut Children's\)](#)
- [E-Bikes Laws, Classifications, Safety Tips](#)

# Additional Resources

League of American Bicyclists:

- [E-Bikes Policy and Advocacy](#)
- [E-bike Smart safety video series](#)
- [Cycling education](#)
- [Discover Your Local Bicycling Community](#)

[Safe Routes to School: E-Bike Education](#)

[Book: The Caring Parent's E-Bike Survival Guide](#)

News stories:

- [E-bike injuries rise sharply, prompting calls for stricter safety laws \(CBS News, Sept. 2025\)](#)
- [E-Bike Crashes & Injuries on the Rise \(Irvine Community News\)](#)
- [More Kids, Teens Injured In E-Bike Wrecks, Study Finds \(HealthDay\)](#)

# Thank You!



# How Can I Participate in the Day of Action?

# T4CIP Activities

Monthly Trainings



Day of Action



Local Outreach



Social Media Outreach



Mentorship



# T4CIP 2025 COHORT

81  
Trainees



41  
Medical  
Students

31  
Residents

9  
Fellows

75  
Alumni Committee  
Members



53  
Institutions



30 States



Monthly Trainings &  
2 Days of Action



**T4CIP**  
TRAINEES FOR CHILD INJURY PREVENTION

  
**NATIONWIDE  
CHILDREN'S**  
*When your child needs a hospital, everything matters.™*

**CENTER for INJURY  
RESEARCH & POLICY**

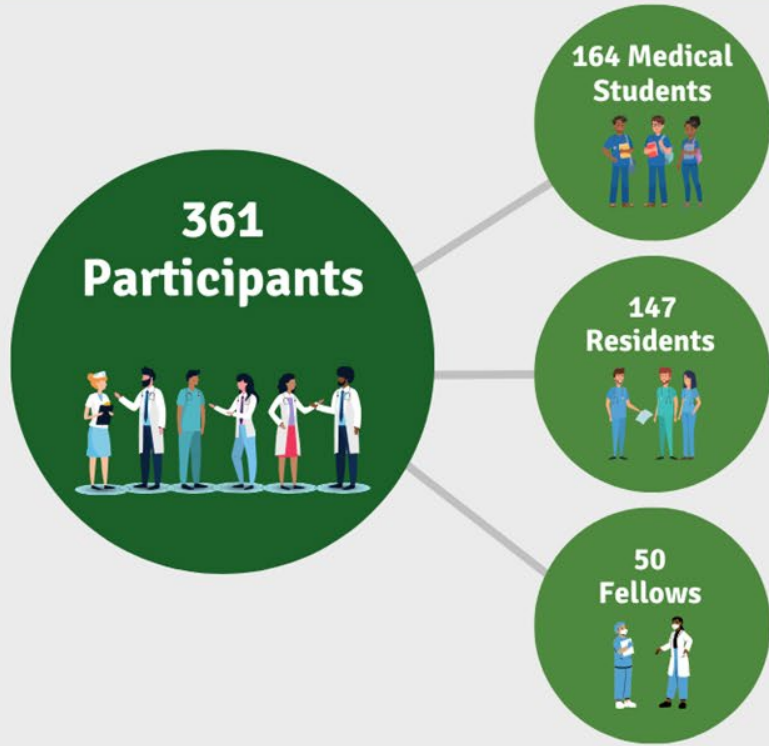


 **SOPT**  
Section on Pediatric Trainees

**COIVPP**

**COUNCIL ON INJURY VIOLENCE  
AND POISON PREVENTION**

# Since 2021, T4CIP has reached:



# Since 2021, T4CIP has covered:

High-powered magnets



Bike helmet use



Drowning prevention



Child passenger safety



Button battery safety



Pediatric firearm injuries



Safe sleep



Safer edibles storage



Teen driving



6,796  
Posts



80,054  
Engagements



23,383,610  
Impressions