

# E-SCOOTER SAFETY EXPERIENCES FROM DENMARK

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Rådet for  
**Sikker Trafik**

# OUTLINE

1) The legal framework and rules for e-scooters in road traffic in Denmark

2) The bumpy road of e-scooters  
- a timeline

3) Accidents and risks among e-scooter riders



# THE LEGAL FRAMEWORK

- A "pilot scheme" legislation: rules can quickly be changed by the Minister of Transport
- (In the same way, there are also pilot scheme legislations on other new modes of transport such as hoverboards and speed pedelegs)

As well as other technical requirements (reflectors, size, etc.)



## Rules for riding an **e-scooter** in Denmark

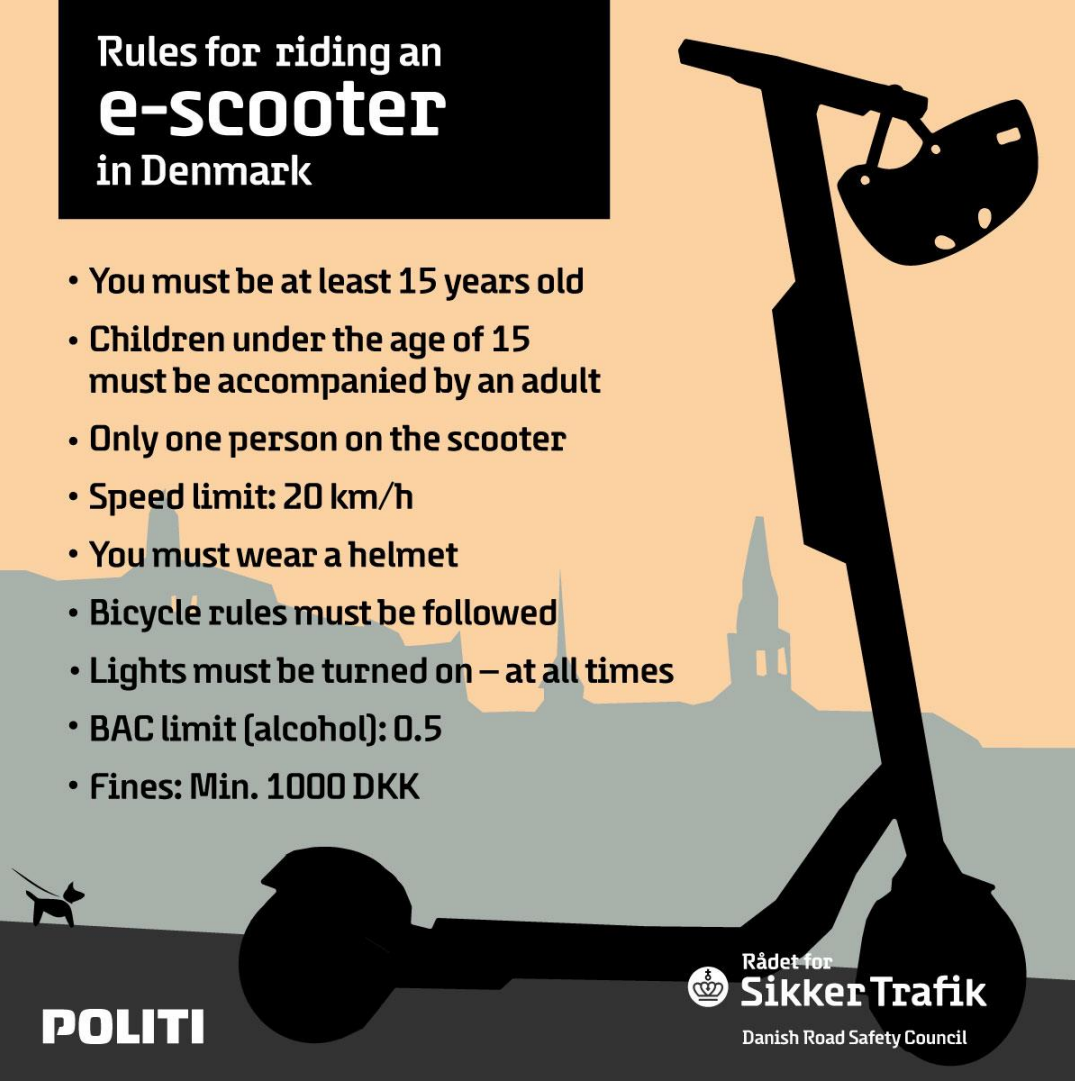
- You must be at least 15 years old
- Children under the age of 15 must be accompanied by an adult
- Only one person on the scooter
- Speed limit: 20 km/h
- You must wear a helmet
- Bicycle rules must be followed
- Lights must be turned on – at all times
- BAC limit (alcohol): 0.5
- Fines: Min. 1000 DKK

**POLITI**

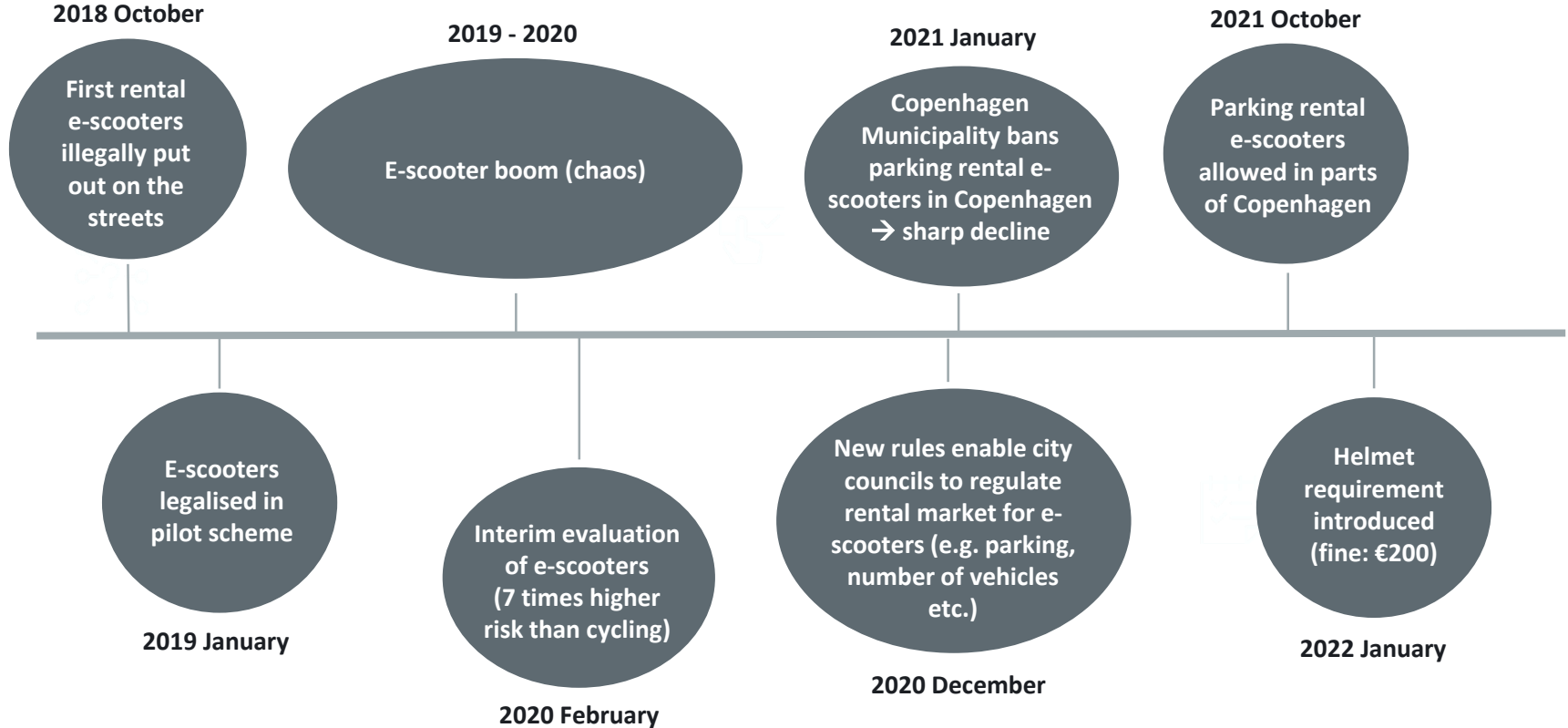


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Danish Road Safety Council

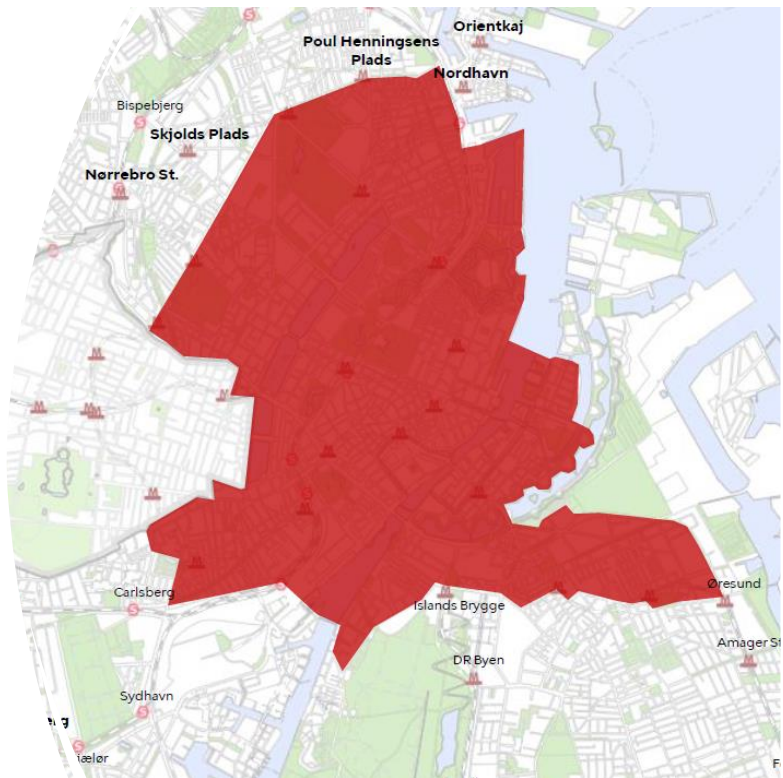


# TIMELINE

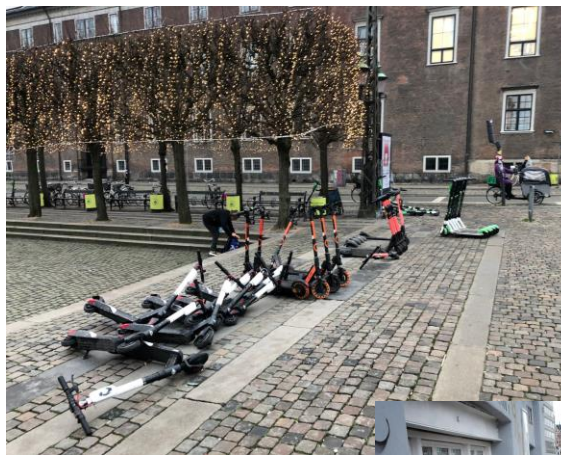




## Map of Copenhagen where rental e-scooters cannot be parked as of October 2021



<https://www.kk.dk/erhverv/gadesalg-butikker-og-restauranter/gadesalg/cykler-loebehjul-mv-til-udlejning>



Picture: Own  
(before parking ban)



Picture: Politiken, Jens Dresling  
(before parking ban)

# ACCIDENTS AND RISKS OF E-SCOOTERS




# ACCIDENTS ON E-SCOOTERS

- Police registered data: few accidents are recorded (same as for cyclists)
- Need to look at injury data from emergency medical services, hospitals etc.!

Open access

Original research

## BMJ Open Injury from electric scooters in Copenhagen: a retrospective cohort study

Stig Nikolaj Fasmer Blomberg , Oscar Carl Moeller Rosenkrantz, Freddy Lippert, Helle Collatz Christensen

**To cite:** Blomberg SNF, Rosenkrantz OCM, Lippert F, et al. Injury from electric scooters in Copenhagen: a retrospective cohort study. *BMJ Open* 2019;9:e033988. doi:10.1136/bmjopen-2019-033988

► Prepublication history and additional material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2019-033988>).

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### ABSTRACT

**Objective** To analyse injuries related to manual and electric scooter use from January 2016 up to and including July 2019.

**Setting** Electric scooter rental services were launched in Denmark in January 2019. The services were provided by private companies. Although rules for handling and riding scooters have been established, no reports either before or after introduction of electric scooters anticipated the full extent of use, and injuries to riders and pedestrians.

**Participants** All patient records mentioning manual or electric scooters. Records were reviewed, and data were stratified according to two groups: manual and electric scooters.

**Interventions** A predefined survey was completed in all cases where 'scooter' was present. This contained variables such as type of scooter, type of participant, mechanism of injury, acuity, intoxication, referral to treatment facility.

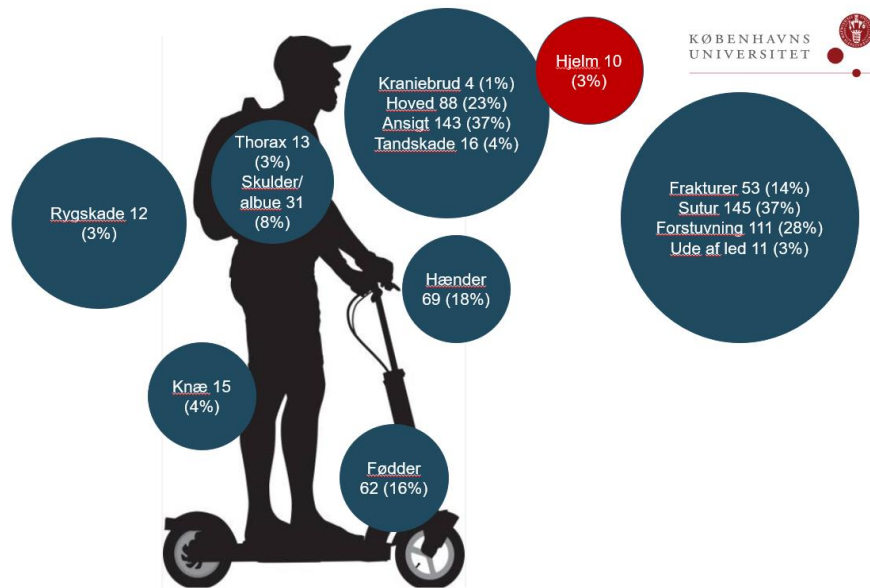
**Outcome measures** Among incidents involving scooters, summary statistics on continuous and categorical

### Strengths and limitations of this study

- This is the first Danish study on injuries related to scooters and electric scooters and among the first studies internationally to describe injuries to non-riders associated with electric scooters. This study collected data on a diverse range of factors, including type of scooter, type of participant, mechanism of injury, acuity and intoxication.
- The emergency departments in Copenhagen have a referral system through the emergency medical service (EMS). Consequently, all patients must call the EMS to be referred to an emergency department. Nevertheless, a small number of patients self-present at the emergency department; these individuals are not included in the study.
- This study is based on data from the EMS. This means that data are not validated with data from the emergency medical departments, thus resulting in under-reporting of injured persons.

# ACCIDENTS ON E-SCOOTERS – DATA FROM EMERGENCY MEDICAL SERVICES IN THE CAPITAL REGION OF DENMARK

353 injured e-scooter riders registered from January 2019 – July 2020 in Capital Region of Denmark



## Other characteristics of injured

- **Solo accidents:** 87 %
- **Ambulance:** 62 % picked up by an ambulance
- **Helmet use:** 3 %
- **Age:** Mostly 18-25 year-olds and 26-40 year-olds
- **Alcohol/drugs:** 34 % under the influence of alcohol and/or drugs
- **Evening and night time:** Most accidents
- **Seasonal variation:** Most accidents from May – October
- **Pedestrians:** In addition to 353 injured e-scooter riders: 37 pedestrian injuries (hit by e-scooters or tripping over e-scooters)

Source: Blomberg (2020). Presentation at Aalborg Trafikdage 2020.




# RISKS OF RIDING AN E-SCOOTER VS CYCLING

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- Interim evaluation of e-scooters in Denmark: **7 times higher risk** per vehicle miles travelled (VMT)
- Roughly same estimate from larger study from Oslo, Norway (**10 times higher risk**)
- Why are the risks greater?
  - The vehicle: small wheels, narrow handlebars, upright position, difficult to steer and keep balance, 20 km/h, backlights close to the road, toy-like
  - The users: Lack of training (first-time users at far greater risk of injuries), young people, tourists
  - Rental e-scooters placed close to bars
  - Interaction with other road users: misperceptions

## Sources



Færdselsstyrelsen [Danish Road Traffic Authority]. (2020). Evaluering af forsøgsordningerne for små motoriserede køretøjer. Accessed on: <https://fstyr.dk/da/Krav-til-koeretoer/Regler-for-koeretoer/Forsoegsordninger-for-motoriserede-koeretoer#om-forsogsordninger>



Statens Vegvesen [The Norwegian Public Roads Administration]. (2021). Skader på sykkel og elektrisk sparkesykkel i Oslo. Resultater fra en registrering i 2019/2020. Accessed on: <https://vegvesen.brage.unit.no/vegvesen-xmlui/bitstream/handle/11250/2740171/720%20Skader%20p%C3%A5%20sykkel%20og%20elektrisk%20sparkesykkel%20i%20Oslo.pdf?sequence=1&isAllowed=y>



# THANK YOU FOR YOUR ATTENTION

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