

## Single bicycle crashes - an analysis of self-reported crashes

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### Background

Approximately half of all bicycle crashes are single crashes. However, most of these crashes are not recorded by the police: In Denmark, single bicycle crashes constitute only 4% of all police reported bicycle crashes. Consequently, this type of crashes may easily be neglected in road safety work when relying on police records only, because the road authority risk focusing on other types of crashes with a higher degree of reporting, particularly motorised vehicles. Despite the low degree of reporting in the police records, some cyclists having a single bicycle crash sustain severe injuries, which results in high costs for the authorities (e.g. to medical care, rehabilitation and sickness benefits).

### Aim

We aim at describing the contributory factors of self-reported single bicycle crashes and estimating the attributable hospital cost due to single crashes.

### Methods

Based on 349 self-reported single bicycle crashes obtained from “The Yellow Bike Jacket Study” (2012-2013, Denmark), we have conducted an analysis to gain more knowledge of the nature of single bicycle crashes. Besides general characteristics such as the time of event, cyclist demography, weather conditions, road type, etc., we look into the main contributory factors of the self-reported single crashes. Based on an analysis of almost 10,000 cyclists who were admitted to hospital or treated in an emergency room in Denmark in 2015 after a single bicycle crash we study which injuries the cyclists sustained and the attributable cost of hospital and rehabilitation of these crashes. We supply with an estimation of the risk of ending up on long-term sickness benefit. We also compare the injury types in hospital admitted crashes with those from the 349 self-reports to obtain a better overview of the severity of single bicycle crashes in general.

### Results

We hypothesize that the condition of the road will explain a major share of single bicycle crashes. Furthermore, we expect an association between the type of the most severe injury and the contributory factors and factors such as helmet use. The hospital admitted single crashes are, of course, only the more severe ones and we expect that a fair share of the self-reported crashes result in only light bruises. We hypothesize a significant attributable hospital cost and risk of long-term sickness benefit that both will present an association with the severity of injury type.

### Conclusion

If cyclists generally fall over the kerb or crash due to potholes, lacking winter maintenance, or something else, then the road authorities are faced with a road safety problem – road users are injured in traffic areas and their injuries are costly not only monetary. This need for more attention on single crashes will undoubtedly be stressed by non-negligible attributable cost estimates. Suggesting that more funds are moved in the direction of countermeasures to prevent single bicycle crashes.