

## **Causes of Accidental Injury Leading to Hospitalization in Sweden presented by Age and Gender for the years 2001 - 2014.**

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### **I. INTRODUCTION**

Injuries caused by impacts can occur in many scenarios, such as fall, transportation, and sports accidents. To prioritize research efforts and prevention of injuries epidemiological studies can provide valuable information. The risk of injury varies with age and gender because of cultural, behavioral, structural, biological, and exposure differences. The aim of this study was to do a national survey of accidental injury that results in hospitalization and study differences based on age and gender for the Swedish population in recent years.

### **II. METHODS**

The statistical database at the National Board of Health and Welfare in Sweden [1], which is provided online in the form of anonymous aggregated statistics, was used for this study. This database includes all public in-patient care in Sweden and is based on the International Classification of Diseases revision 10 (ICD 10). Inclusion criteria for this study were: 1) years 2001 until 2014, and 2) that the cause of injury was coded as unintentional accidental injury (ICD 10: V01-V99, W01-W64). The external causes of injuries were analyzed by gender and age, no analyses of the injury types have been done at this point. Age groups of 20 years were used, but the youngest group was divided in children 14 year-olds or younger and youths 15 to 19 year-olds. National population data were taken from SCB Statistics Sweden [2] for the corresponding years.

Quality control is performed routinely on the data reported by each county and hospital (2014: 0.3% lacks cause of injury [3]). Patients treated for multiple accidents during the same year are counted once for each cause (only once if the injuries had the same cause). Only patients with correct social security numbers are collected (2014: 1.7% drop-out [3]), which gives a relatively high drop out for young infants.

### **III. FINDINGS AND DISCUSSION**

A total of 1,380,675 medical records were collected from 2001 to 2014. During 2014, 74,428 patients with injuries due to fall accidents were reported, 11,131 due to transportation accidents, and 9,802 due to other external forces. Gender and age differences were seen for some causes, Fig. 1. For elderly patients, the major cause of injury were fall accidents (more than 90% for 80+ year-olds). For children, fall accidents accounted for almost 70% of the injuries and about 10% were connected to play. Equestrian accidents accounted for a substantial portion for female patients (0-59 year-olds) while it was negligible for males. Motorized two or three wheelers (MTW) and terrain vehicles accounted for a substantial portion of male patients (15-59 year-olds) while it was much less for females. Male patients had relatively more work-related accidents (e.g. contact with machines), injury due to sharp objects, and hit by or collided with other person (which likely has many sport accidents) than females. The least gender differences were seen for 0-14 year-olds and 80+ year-olds.

During 2001-2014, decreasing trends were seen for some causes (i.e. cyclist, skiing and boarding, and passenger car), while others seemed more or less constant (e.g. general falls and equestrian accidents), Fig. 2. The highest incidence by far was for fall accidents (4,000-6,000 patients per 100,000 inhabitants). MTWs had highest incidence for 15-19 year-olds, reduced substantially the last years. Injuries due to passenger vehicle accidents have reduced for all groups, but most prominently for men 15-40 years of age. Cycling had highest incidence for boys and elderly men (60-80 patients per 100,000 inhabitants), where the incidence has reduced for children (since 2005 when the helmet law was introduced) but not for the elderly. Skiing, skating and skateboarding and other sport injuries had highest incidences for male 0-19 year-olds. It is interesting to note that while traffic injuries have reduced, the injury in equestrian sports seem constant. In continued work, exposure will be studied to estimate the risk of injury for the different activities. Based on this limited study, it seems clear that there are differences in causes of injuries for men and women of different ages. This needs to be addressed by injury preventive research, in order to reduce the actual number of injured patients.

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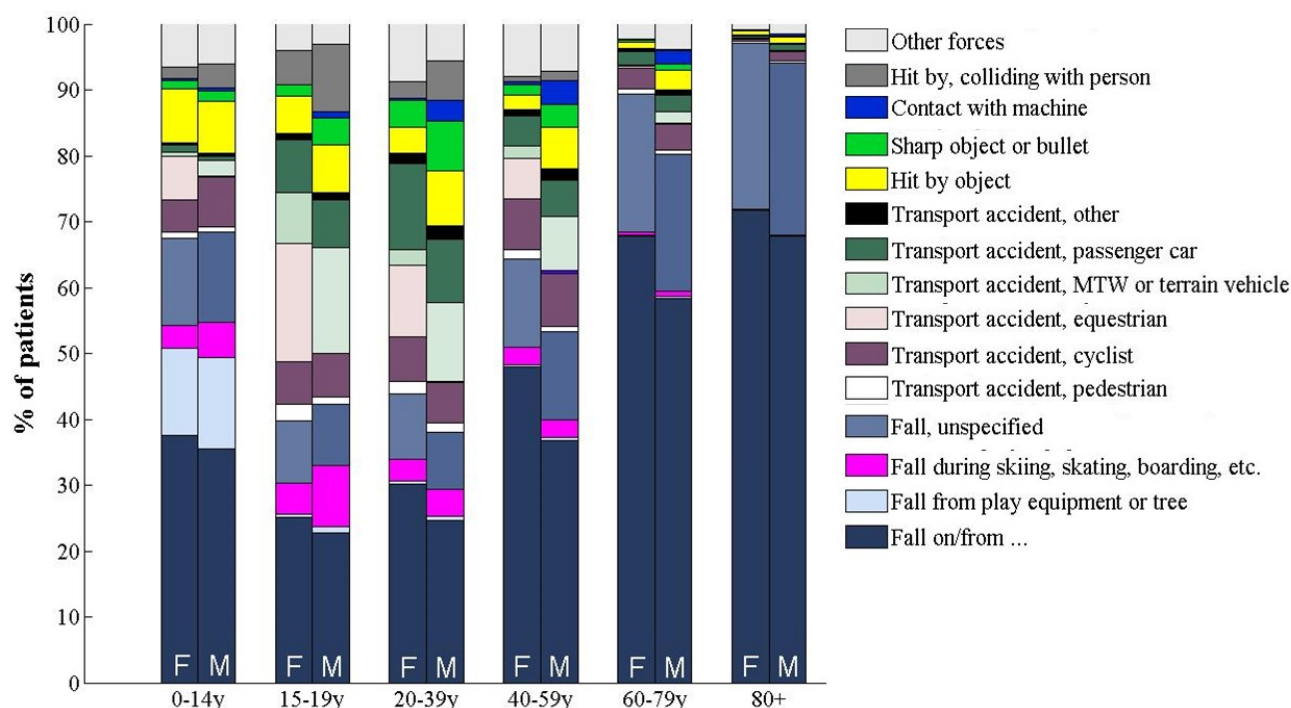


Fig. 1. Distribution of cause of accidental injury for patients in 2014, divided by age and female (F) / male (M).

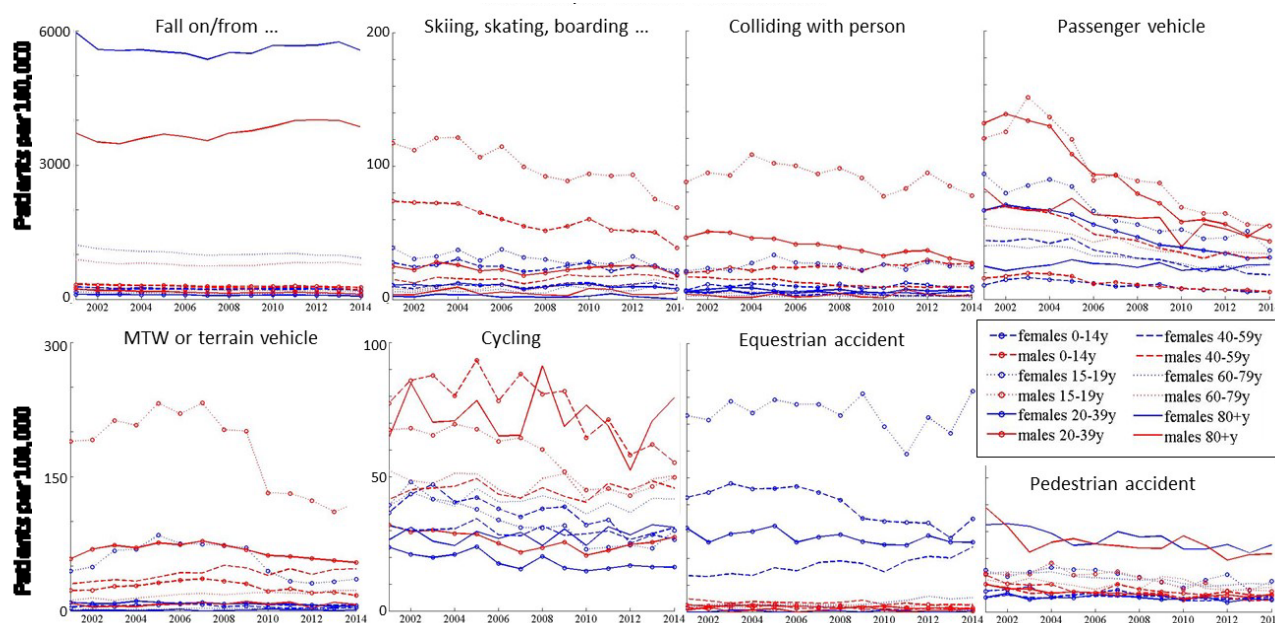


Fig. 2. Patients per 100,000 inhabitants for different causes of accidental injury displayed for male (red) and female (blue) age groups from 2001 to 2014. Note the four different scales on the y-axis!

#### IV. REFERENCES

- [1] Statistical database for external causes of injury and poisoning, National Board of Health and Welfare, Sweden. <http://www.socialstyrelsen.se/statistik/statistikdatabas/yttreorsakertillskadorochforgiftningar>. Access: March 2016.
- [2] Population by age and sex. Year 1860 -2015. SCB Statistics Sweden. [http://www.scb.se/en/\\_Finding-statistics/](http://www.scb.se/en/_Finding-statistics/). Access: March 2016.
- [3] OFFICIAL STATISTICS OF SWEDEN, Hospitalisation due to injuries and poisoning in Sweden 2014, Published at [www.socialstyrelsen.se](http://www.socialstyrelsen.se), October 2015.