

# Ambulance Records as an Information Source to Document and Prevent Fall Injuries in Sweden

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## Abstract

In Sweden, there has been only limited documentation for injuries requiring ambulance responses. The main objective of this study is, through the use of historic data, to assess the suitability of ambulance records to describe circumstances with fall injuries. **Methods:** The injury events data around patients were sourced from the ambulance data register. Descriptive statistics were used to describe injured patients based on age group, type of injury, place of injury, injury mechanism and consequence of an injury event. Two-group comparison was performed with Pearson's chi-squared. Predictors of transport to hospital were identified using logistic regression analyses. **Result:** Ambulance provides unique data on all injury events, with direct implications for translational research, public policy and clinical practice (safety promotion). In 2002 ambulance attended 3964 injured people which represents 14% of ambulance attended workload in Värmland county, Sweden. The most common trauma location was the traffic area followed by residential area and nursing home. These three injury sites account for 2320 cases (61.6%). The most common cause of injury was falls (63.9%) followed by contact with another person (26.5%). Contact with another person is the most common site of injury in the traffic area (79.5%), and men aged 25-66 years are overrepresented. **Conclusion:** Logistic regression found that, age-group and place code were significant predictor for being attended by ambulance. Traffic, home and nursing homes were over-represented injury environments (61.6%) that require special attention. Most injury cases occur in the home and nursing homes among people over 67 years of age. Surprisingly, most of the injury events in the traffic environment are about hitting another person. Paramedics can provide rich and valuable data on injury events. Registration of such data is entirely possible and desirable, and can be used in preventive work.

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## Keywords

Injury Surveillance, Paramedics, Falls, Hit with the First, Injury

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### 1. Introduction

Statistics from Sweden's National Board of Health and Welfare reveal that approximately 650,000 people sustain injuries severe enough to necessitate medical care. Of these injuries, about 95,000, divided between 50,000 women (53%) and 45,000 men (47%) were admitted to hospital as a result of injury events. Falling injury events make up 75 percent of these injury events and are increasing in an ageing population [1]. Injuries are the second most common reason for ambulance calls in Sweden [2]. International literature describing injury events/falls as commonly among older people, often cause serious trauma and injuries [3]-[8]. The majority of falls occur in the home or residential institution [4] [8] and most fall incidents occur on the same floor, low energy fall (9% - 51%) or another level, high energy fall (10% - 20%) [4] [5]. Falls are a common cause of injury with significantly associated medical costs however public health surveillance of injuries from falls is underdeveloped [7] [9].

Information about patients injured in different environments in Sweden can be retrieved from patient register and the cause of death register. Unfortunately, it is not possible to obtain detailed data on the exact place of injury event. This means for example a serious fall cannot be attributed to a special setting (home area, traffic area, public space, sport area, etc.). Even more troubling, the available PAR data completely lacks a description of circumstances associated with injuries, which leads to less accurate assessment and understanding of underlying risk factors associated with these events [10]. In other words, there is also a lack of knowledge regarding the epidemiology of severe trauma from different kinds of injury events due to insufficient detailed data on site of injury and mechanism of injury in patient register and the cause of death register. Scientific articles and reports have drawn attention to this deficiency [11] [12] [13].

Additional studies are needed to address if coded ambulance data can identify and characterise a wide range of all kinds of injury event-related information e.g. exact place code, mechanism of injury etc. resulting in trauma.

### 2. Aims

The main objective of this study is, through using historic data, to assess the suitability of ambulance records to describe circumstances with fall injuries.

### 3. Methods

#### 3.1. Setting and Study Period

Värmland County is situated in the mid-western part of Sweden and comprises 16 municipalities. The county houses three hospitals, Arvika, Karlstad, and

Torsby, and features ambulance services operating from 11 ambulance stations, equipped with a combined fleet of 25 ambulances.

### 3.2. Data Sources

Detailed data on fall injuries, especially around injury site and injury mechanism are missing in registration regarding patient treated for injury at emergency department and inpatient care.

As first responders to many serious injuries, many ambulance authorities are required to complete reports on these events, which are then shared with other health care providers.

In Sweden, these data are routinely collected as part of the ambulance services' on-site patient care responsibilities. Unfortunately, data on injury events is not available for external research use after year 2002, thus this study assesses historical data from year 2002.

International Statistical Classification of Disease and Related Health Problems: 10<sup>th</sup> Revision (ICD10) is used as an epidemiological tool in healthcare to classify morbidity and mortality in health datasets. In chapter 19 is about deals with the consequences of an injury and chapter 20 with external causes of illness and death [14]. The injury events data were sourced from the ambulance data register. This data contained information about: response time, age, gender. Additionally, details such time, type and location of injury occurrence, the patient's activity during the injury event, and preliminary diagnosis were recorded. Further information about the injuries was captured through a free-text field (narrative field), where ambulance personnel briefly described the circumstances of the injury event.

### 3.3. Data Processing and Analysis

All data were transferred to the Statistical Package for the Social Sciences (SPSS 27). Nordic Medico-Statistical Committee Classification of External Causes of Injuries codes were employed to enhance information related to variables as: contact code (reason for treatment), time and place of occurrence (when and where the injury happened), and mechanism of injury [15]. Details concerning the injury event (place and time of occurrence, nature, and mechanism of injury) were documented in 100% of the cases.

Descriptive statistics were compiled for injured patients and based on age, sex, type of injury, place of injury, and injury mechanism. Two-group comparison was performed with Pearson's chi-squared. All tests were two-sided, and p-values below 0.05 were considered significant. To examine factors associated with transport to hospital were calculated using logistic regression. The result of the logistic regression model is presented in **Table 1**.

The study was approved by the Ethics Committee of Karlstad University, Sweden (UFO 2003/2). All personal identifiers (patient ID number and place of residence) were removed before analyses.

**Table 1.** Logistic regression analysis.

		Variable in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	alderGroups			112.332	2	0.000	
	alderGroups (1)	-1.368	0.262	27.213	1	0.000	0.255
	alderGroups (2)	-2.950	0.290	103.809	1	0.000	0.052
	KON (1)	-0.073	0.181	0.162	1	0.688	0.930
	Place Code: Traffic, Home and Nursing Home			349.131	2	0.000	
	Place Code: Traffic, Home and Nursing Home (1)	-4.110	0.240	293.618	1	0.000	0.016
	Place Code: Traffic, Home and Nursing Home (2)	-4.326	0.477	82.347	1	0.000	0.013
	Constant	2.945	0.347	71.850	1	0.000	19.015

a. Variable(s) entered on step 1: Place Code: Traffic, Home and Nursing Home.

## 4. Results

The study assesses the suitability of using ambulance records from Värmland County to describe circumstances with fall injuries. The reporting of the variables from ambulance includes gender, injury body part, mechanism of injury, place of injury is complete and detailed text description of the injury event are nearly complete. Information about the exact location of the injury event is detailed and usually includes the *name of the facility or area where the injuries occurred*. The free-text description was fully described in the vast majority of cases. Only about 13 % of ambulance records lacked a free-text description of injury circumstances.

The total number of ambulance responses was 28,523 and of these 3964 (14%) were attributed to injuries. Below are some informative examples of free-texts about various injury events, which illustrate the type of information available from these records.

A) *"Halkat på isfläck/is knöl. hö fot svullen lätt felställd utåt. förvånansvärt smärtfri. även skrapsår hö hand. Vid carportar nedre delen av parkering vid Horsensgatan 214. snö på is"*

("Slipped on an ice patch/ice bump. Right foot is swollen and slightly externally misaligned. Surprisingly pain-free. Also has abrasions on the right hand. Incident occurred near the carports at the lower part of the parking area at Horsensgatan 214. Snow on ice.")

B) *"Man som ramlat vid snowboardåkning i Branäsbacken. Slagit i huvudet, varit avsvimmad en kort stund, lite illamående efter kollisionen."*

("Male who fell while snowboarding at Branäs slope. He sustained a head injury and experienced a brief loss of consciousness, followed by mild nausea after the collision.")

C) *"Hamnade i bråk på restaurangseptember Arvika, fick en flaska i huvudet, har ett jack där, blöder en del. Har inte ont någonstans. Behöver sys?"*

*Etylpåverkan.*”

“Was involved in an altercation at a restaurant September in Arvika, received a bottle to the head, resulting in a laceration that is bleeding significantly. There is no pain elsewhere. Is suturing required? Ethanol intoxication.”)

#### 4.1. Comprehensive Analysis of Injury Events Regarding Place Code and Mechanism of Injury Stratified by Gender and Age Group

The ambulance records all contained precise addresses, using GPS-based information, to pinpoint where injuries occurred. Due to ethical constraints, this study has categorised these setting into more general categories. The distribution of all injury cases by place code together with mechanism of injury, stratified by gender and age group, presented in **Table 2**.

**Table 2.** Comprehensive Analysis of injury events regarding Place code and Mechanism of injury stratified by Gender and Age group.

Category label		Male (%)	Female (%)	Total (%)	Chi-Square (X <sup>2</sup> ) p-value
Place Code 1-digit level	Traffic area	591 (60.4%)	387 (39.6%)	978 (100%)	Case missing = 200 X <sup>2</sup> (9, N = 3764) = 302.054, p < 0.001
	Residential-areas	363 (41.6%)	509 (58.4%)	872 (100%)	
	Production/workshop	61 (88.4%)	8 (11.6%)	69 (100%)	
	Retail/service-area	53 (63.1)	31 (36.9%)	84 (100%)	
	Institution	152 (32.3%)	318 (67.7%)	470 (100%)	
	School	31 (68.9%)	14 (31.1%)	45 (100%)	
	Sports-area	236 (71.7%)	93 (28.3%)	329 (100%)	
	Pub and discotec	104 (74.8%)	35 (25.2%)	139 (100%)	
	Open Nature/Sea	32 (50.8%)	31 (49.2%)	63 (100%)	
	Other	288 (40.3)	427 (59.7%)	715 (100%)	
<b>Total (%)</b>	1911 (50.8%)	1853 (49.2%)	3764 (100%)		
Age Group (in years)		0 - 24 year	25 - 66 year	67+ year	Chi-Square (X <sup>2</sup> ) p-value
Mechanism of Injury					Case missing: 990, X <sup>2</sup> (4, N = 2974) = 710.053, p = < 0.001
					<b>Total (%)</b>
	Fall	272 (14.3%)	464 (24.4%)	1163 (61.3%)	1899 (63.9%)
	Contact with another person	307 (38.9%)	414 (52.5%)	68 (8.6%)	789 (26.5%)
	Acute overexertion of body	65 (22.7%)	159 (55.6%)	62 (21.7%)	286 (9.6%)
<b>Total (%)</b>	644 (21.6%)	1037 (34.9%)	1293 (43.5%)	2974 (100%)	

When calculating all types of injury events divided into men and women, the following image appears: Traffic area was associated with the largest number of all fall related injuries requiring ambulance response (n = 978/3764; 26%), followed by residential area (n = 872/3764; 23.2%), Nursing home (n = 470/3764; 12.5%) and sports area (n = 329/3764; 8.7%) X<sup>2</sup> (9, N = 3764) = 302.054, p = <

0.001.

Male primarily experienced injuries at traffic areas (591/1911; 30.8%), residential areas (363/1911; 18.9%) and sports areas (236/1911; 12.3%), while female primarily experienced injuries at residential areas (509/1853; 27.4%), traffic areas (387/1853; 20.8%) and institutional areas (332/1853; 17.9%).

Analysis of mechanism of injury categorized by age group shows that falls were significantly more likely to occur amongst elderly people (67+). In age group 0 - 24 years and 25 - 66 years, thirty-nine percent respectively fifty-two percent of the injuries and most of the cases involved hit with the fist.

## 4.2 Consequence of an Injury Event

Falls comprised leading cause of injury in all areas in the municipality that requiring ambulance (n = 1899, 63.9%), followed by contact with another person (n = 789, 26.5%) and acute overexertion (n = 286, 9.6%). The consequences of a fall resulted primarily in a fracture of the upper/lower body and lower extremity (n = 639/2300; 27.8%).

## 4.3 Summary

- The model includes significant predictors: alder groups and place code categories.
- The coefficients for alder groups (1) and (2) and place code categories (1) and (2) are highly significant, indicating strong associations with the dependent variable.
- KON (1) is not a significant predictor.
- The constant term is also highly significant.

The interpretation of the odds ratios (Exp(B)) provides insights into how much more or less likely the outcome is for each category compared to the reference group.

## 5. Discussion

Of all events involving ambulance responses in Värmland County, Sweden, over a year's time, 2503 (64%) responses were attributed to fall injuries. This study shows that more ambulance responses for fall related injuries were required for elderly people (67+), it is surprising to some extent, given that this age group only comprised about 29% of the total population in the county at the time of the study. Fall injury in the home was caused by falling on the same plane (n = 496/650; 76.3%), e.g. slipping on the floor or tripping on the carpet. Also, in the nursing home exhibits the same pattern  $\chi^2(6, N = 1238) = 86.329$ ,  $p < 0.001$ .

This pattern mirrors that found in other studies. For example, the Australian study of elderly falls patients who was taken care of by paramedics found that the most common mechanism of injury was falls (80.7%) [3]. Another study by Rundle *et al.* [7] also found that 66 percent occurred indoors.

A Swedish survey [4] of patients who were assessed as injured by paramedics showed that the most common place where the injury occurred was at home (55%). The most common mechanism of injury was low-energy falls (falls in the same plane) (51.4%) and the majority of patients were over 67+ age (77.8%). The second most common site of injury was in a public place (32.1%) and high-energy falls were the second most common mechanism of injury (9.5%). Injury in the traffic environment accounted for only 15 % of the cases.

Injury data about traffic shows an unexpected injury picture. The majority these injury events stem from hit with the first to another person (79.5%). Exposure to hit with the first to another person divided by gender shows that men were overrepresented (62.2% vs. 37.8%). Age group 25 - 66 dominated these injury event related ambulance attendances. A relatively recent study from Australia, Ambulance Tasmania and Ambulance Victoria [16], show similar figures regarding these injuries who took place in the community and also here where men overrepresented (67.1% vs. 32.8%).

### 5.1. Consequence of an Injury Event

Upper/lower body were most likely to be the body parts injured do to fall (n = 835/2300; 36%) with mostly a fracture (n = 351/2300; 15.3%) as a consequence, followed by lower extremity with a fracture (n = 288/2300; 12.5%) and head and face with a wound (206/2300; 9.0%)  $\chi^2$  (12, N = 2300) = 77.819 p < 0.001. Present image from this study is quite consistent with two Swedish studies [4] [5]. The purpose of the first study was to describe population who get injured and sedemera were treated by paramedics. Some results from this study showed that treatment of fractures was quite common 1220 (27.8%) and wound care 891 (20.3%). The second article presents equivalent data: Fracture (64/269; 23.8%), Wound (30/269; 11.2%).

### 5.2. Strengths and Limitations

The single biggest gain seen from using ambulance records was information about time of ambulance calls, combined with location, injury type, injury mechanism and free text data how the injury happened. The data on injury events in traffic-, nursing home-, and sports environment are almost complete (2% vs. 4% and 5%). Current hospital-based records, using ICD 10 categorisation schemes often miss recording both location and specific environment and clear and detailed information about how the injury event occurred, which leads to less accurate injury assessment. To summarize: these ambulance records can indeed serve as a valuable source of information, particularly as the records we analysed include a wealth of information via the free text reporting fields. The results from this study are also reinforced by several international studies, for example: McKenzie *et al.*, [13] has carried out a systematic review of 41 articles with a focus on the usefulness of the plain text descriptions. The results from the review demonstrate great strengths around the descriptive text, e.g. the activity

at the time of the injury, mechanism of injury. Regarding injury event such as self-harm or hit with the first to another person in public settings, studies by (Scott *et al.* [16], Lubman *et al.* [17], and Backe & Andersson [18] have shown that the paramedics can offer a unique opportunity to help identify characteristics of hit with the first to another person and the people affected, as well as where the hit with the first to another person took place. However, there are some weaknesses: in a fairly proportion the information about the age of the patient was missing. This information was probably not considered the most important thing to record when injuries required ambulance response and would be added later on to hospital reports that are linked to these ambulance records.

Moreover, 13 percent of all ambulance records lacked a free text description of injury circumstances. The missing free text data may be partially due to the urgency to transport the injured person to hospital or the person was confused or intoxicated. An increase in filling in the degree regarding free text can certainly be done through better instructions and tools for registering injury event data. The first limitation of data about missing age could have some impact on the generalizability of which age group suffered the most injury events.

Regarding the limitation of data around free text: Eighty-seven were complete with very detailed information about serious injury event process itself and its medical consequences. The plain text description that the paramedics missed were about patients with minor injuries therefore of minor importance from a preventive point of view.

### **5.3. Need for Robust Injury Surveillance Systems to Inform Targeted Interventions**

The need for better surveillance of all type of injuries, including those occurring at home, institution, sports- and traffic areas, has been expressed in multiple studies [8] [11] [13] [16] [17] [18] [19] There are numerous challenges in capturing information on these injuries, including:

- Ensuring that surveillance systems can gather information about e.g. detailed free text descriptions of the injury events.
- As more detailed information on risk factors, including injury location together with free-text descriptions, can be used to help improve the safety-promoting work within various arenas in the municipality and healthcare.
- Injuries cost society large sums each year, approximately 96 million SEK, while work with injury prevention ends up at about 10 million SEK. Thus, a lot of money that can be save if society invests in injury prevention [9].

## **6. Conclusions**

Ambulance reports emerge as a valuable resource in injury surveillance, offering critical data that can significantly enhance the accuracy and comprehensiveness of existing systems. Addressing challenges through standardized reporting processes will further elevate the utility of ambulance records, fostering collabo-

ration between healthcare providers, researchers, and public health officials in ensuring effective injury prevention and response strategies.

- Ambulance staff can collect valuable data about the injury events, and this data can be used in preventive work.
- No data about gender, injury body part, place of injury, injury mechanism was missing.
- The reporting of the injury event in free text is coherent, very detailed and almost complete.
- Reporting of injuries via paramedic is entirely possible and recommended

It is important to highlight the value of ambulance records as injury data sources, such approach can help authorities work with emergency response, including ambulance responses, to better understand the need for sharing the information they collect. The usefulness of an expanded ambulance-based reporting system regarding fall injuries and other type of injuries would benefit not only injury researchers but also ambulance responders and other public health officials.

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## Declaration of Interests

## Ethics Approval and Consent to Participate

This study was approved by Ethics Committee of Karlstad, Sweden (Dnr UFO2003/2).

## Data Availability

The datasets from the study is available from the corresponding author on reasonable request.

## Competing Interests

No competing interests.

## References

- [1] Socialstyrelsen (2023) Statistik Och Data. <https://www.socialstyrelsen.se/statistik-och-data/statistik/alla-statistikamnen/skador-och-forgiftningar>
- [2] Magnusson, C., Herlitz, J. and Axelsson, C. (2020) Patient Characteristics, Triage Utilisation, Level of Care and Outcomes in an Unselected Adult Patient Population Seen by the Emergency Medical Services: A Prospective Observational Study. *BMC Emergency Medicine*, **20**, Article No. 7. <https://doi.org/10.1186/s12873-020-0302-x>

- [3] Cox, S., Roggenkamp, R., Bernard, S. and Smith, K. (2018) The Epidemiology of Elderly Falls Attended by Emergency Medical Services in Victoria, Australia. *Injury—International Journal of the Care of the Injured*, **49**, 1712-1719. <https://doi.org/10.1016/j.injury.2018.06.038>
- [4] Larsson, G., Axelsson, C., Andersson Hagiwara, M., *et al.* (2023) Characteristics of a Trauma Population in an Ambulance Organization in Sweden: Results from an Observational Study. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, **31**, Article No. 33. <https://doi.org/10.1186/s13049-023-01090-0>
- [5] Larsson, G., Axelsson, C. and Andersson Hagiwara, M., *et al.* (2024) Epidemiology of Patients Assessed for Trauma by Swedish Ambulance Services: A Retrospective Registry Study. *BMC Emergency Medicine*, **24**, Article No. 11. <https://doi.org/10.1186/s12873-023-00924-5>
- [6] Phelan, E.A., Herbert, J., Fahrenbruch, C., *et al.* (2016) Coordinating Care for Falls via Emergency Responders: A Feasibility Study of a Brief At-Scene Intervention. *Public Health*, **4**, 1-7. <https://doi.org/10.3389/fpubh.2016.00266>
- [7] Rundle, A.G., Crowe, R.P., Wang, H.E., *et al.* (2023) A Methodology for the Public Health Surveillance and Epidemiologic Analyses of Outdoor Falls That Require an Emergency Medical Services Response. *Injury Epidemiology*, **10**, 1-9. <https://doi.org/10.1186/s40621-023-00414-z>
- [8] Thomas, S.L., David, J., Muscatello, *et al.* (2011) Characteristics of Fall-Related Injuries Attended by an Ambulance in Sydney, Australia: A Surveillance Summary. *NSW Public Health Bulletin*, **22**, 49-54. <https://doi.org/10.1071/NB09034>
- [9] Lindqvist, K. and Lindholm, L. (2001) A Cost-Benefit Analysis of the Community-Based Injury Prevention Programme in Motala, Sweden—A WHO Safe Community. *Public Health*, **115**, 317-322. <https://doi.org/10.1038/sj.ph.1900793>
- [10] Socialstyrelsen (2015) Skador bland barn i Sverige Olycksfall, övergrepp och avsiktligt självdestruktiva handlingar.
- [11] Ekberg, J. (2019) Report on the Government Assignment (Ju2018/00781/SSK) to Strengthen Stakeholder Cooperation and Transfer of Knowledge Within the Framework of Society's Preventive Work Against Serious Personal Accidents in the Home and Leisure Environment.
- [12] Kisser, R., Latarjet, J., Bauer, R., *et al.* (2009) Injury Data Needs and Opportunities in Europe. *International Journal of Injury Control and Safety Promotion*, **16**, 103-112. <https://doi.org/10.1080/17457300902885769>
- [13] McKenzie, K., Scott, D.A., Campbell, M.A. and McClure, R.J. (2009) The Use of Narrative Text for Injury Surveillance Research: A Systematic Review. *Accident Analysis & Prevention*, **42**, 354-363. <https://doi.org/10.1016/j.aap.2009.09.020>
- [14] Injury Database (IDB) IDB Sverige. <https://www.socialstyrelsen.se/statistik-och-data/register/patientregistret/idb-sverige/>
- [15] NOMESCO, Nordic Medical Statistical Committee (1997) Classification of External Cause of Injuries. 3rd Edition, CNOMESCO.
- [16] Scott, D., Heilbronn, C., Coomber, K., *et al.* (2020) The Feasibility and Utility of Using Coded Ambulance Records for a Violence Surveillance System: A Novel Pilot Study. *Trends & Issues in Crime and Criminal Justice*, No. 595. <https://doi.org/10.52922/ti04428>
- [17] Lubman, D.L., Heilbronn, C., Ogeil, R.P., *et al.* (2020) National Ambulance Surveillance System: A Novel Method Using Coded Australian Ambulance Clinical Records to Monitor Self-Harm and Mental Health-Related Morbidity. *PLOS ONE*, **15**, e0236344. <https://doi.org/10.1371/journal.pone.0236344>

- [18] Backe, S.N. and Andersson, R. (2008) Monitoring the “tip of the iceberg”: Ambulance Records as a Source of Injury Surveillance. *Scandinavian Journal of Public Health*, **36**, Article 250. <https://doi.org/10.1177/1403494807086973>
- [19] Kuratorium für Verkehrssicherheit (2007) Injuries in the European Union—A Statistics Summary 2003-2005.

### List of Abbreviations

ICD-10	International Statistical Classification of Diseases and Related Health Problems 10th Revision
IDB	Injury Data Base
PAR	Swedish National Patient Register
SPSS 27	Statistical Package for the Social Sciences