

Traffic accidents and injury evaluation based upon a coordinated data collecting system.

by

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Insecurity of traffic in a district can be measured by the accident rate as a function of the population, traffic intensity etc. The number of accidents can be registered by:

- 1) Insurance companies. These materials are obscured by own risk and uninteresting minor material damage.
- 2) Police, which is able to gather information from the accident scene.
- 3) Hospitals, whose materials in the Scandinavian countries have proved to be more representative and more comprehensive compared with police materials. Hospital materials pile up 2 - 2½ times faster, and they are less biased by the noise and dramatics at the scene. However access to the casualty room varies from one district to another and this may affect the comparability of different hospital materials.

Odense University Hospital covers a mixed urban and rural district with 230,000 inhabitants. Since February 1st 1971 practically all victims from traffic accidents (about 3,000 persons/year) have been registered on a special formula, describing time and place of accident, type and role of victim and counterpart, use of protective measures and inflicted lesions (table I,II,III). The lesions are registered by region and type, and graded in 7 groups according to the expected duration of inhabilitation, - occupation, age, sex and other influential factors taken into account. Copies of the police reports to the Central Bureau of Statistics are sent to the hospital and identified by means of accident time and location. The police description of the accident situation is transferred to the registration formula. In a restricted period the material was supplemented with description of the involved cars from the local division of the National motorcar inspection. The material is stored on magnetic tape in the hospital's computer room and it is serviceable for 18 different output programmes, which list or count cases according to fixed combinations of criterions supplemented with facultative single-criterions.

The reliability of the accident-describing data is found acceptable. The value of the severity grouping of the lesions has been controlled for selected groups and found acceptable. We are trying to calculate a mean value for each inhabilitation group. In as much as the social representation

in various typical accident situations seem to be rather constant, such a severity grading registration would be useful for benefit analysis.

The material is now taken into practical use by the town-planning authorities, especially for elucidating the geographical distribution of accidents which inflict lesions upon unprotected road users. These situations are extremely underrepresented in the police records (figure I). Furthermore the material has rendered information for different publications in scientific journals and associations, especially in regard to the reliability of the official accident statistics, analysis of childrens accidents, moped accidents and lesions inflicted upon car occupants. The latter subject will be presented before the conference in another paper.

### Literature

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Table I.

List of processed data.

Number in succession.  
Case sheet number.  
Central National Register number (L).  
Age.  
Sex.  
Name, occupation, address.  
Date of accident (L).  
Hour of accident (L).  
Date of first treatment.  
Hour of first treatment.  
Location of accident (nearest postal address).  
Code for location (Based upon the Central National Registers code of addresses).  
Police district in which the accident occurred (L).  
Source of information (patient, police, ambulance personnel, others).  
Business of the injured (during work, between home and work, home and school, leisure).  
Name of and code for eventual school.  
Category of road user (pedestrian, driver, passenger, unknown).  
Way of transportation (bicycle, MC/scooter, moped, private car, delivery van, lorry, bus, others, unknown).  
Use of safety belt or crash helmet.  
Safety belt fitting.  
Case sheet number of eventual driver involved in the same accident (L).  
Location in car (car riders).  
Opponent (pedestrian, bicycle, moped, MC/scooter, private car, delivery van, lorry, bus, parked cars or other immobile object on the road, object outside the road, single accident, others, unknown).  
Ejection from cabin.  
Later course of events (treatment concluded, referred to practitioner/outpatient clinic, hospital admission, dead on admission to the casualty room/in the department within 30 days/after 30 days).  
Hospital department.  
Registration number of eventual motor vehicle involved in accident (L).  
Police report received.  
Accident situation (from police record, according to the Central Bureau of Statistics classification system).

Sign: (L) used for linking between registers.

Table II

List of diagnosis.

Head: Facial lesions  
Concussion/contusion/dilaceration  
Cranial fracture

Neck: Soft tissue lesions  
Luxation/fracture  
Others

Back: Soft tissue lesions  
Luxation/fracture of spine  
Others

Chest: Contusion/uncomplicated rib fracture  
Complicated rib fracture  
Others

Abdomen: Contusion  
Rupture of vessels/organs  
Others

Urinary: Lesions of kidney/vessels  
system Lesions of urinary tract or bladder  
Others

Pelvis: Soft tissue lesions  
Fracture/luxations  
Others

Arm: Soft tissue lesions  
Distorsion/lexation  
Fracture  
Others

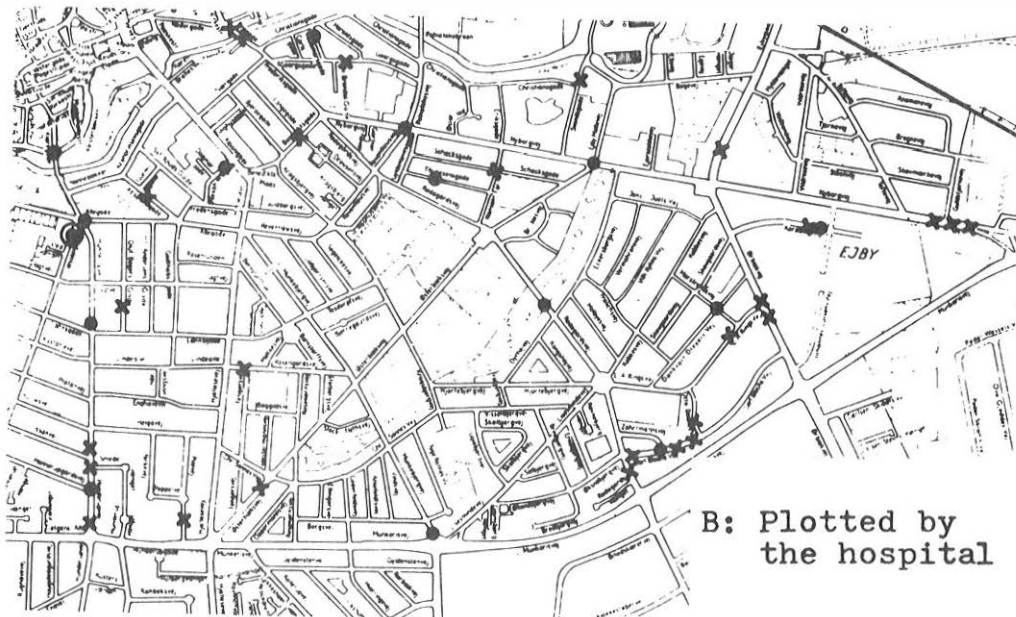
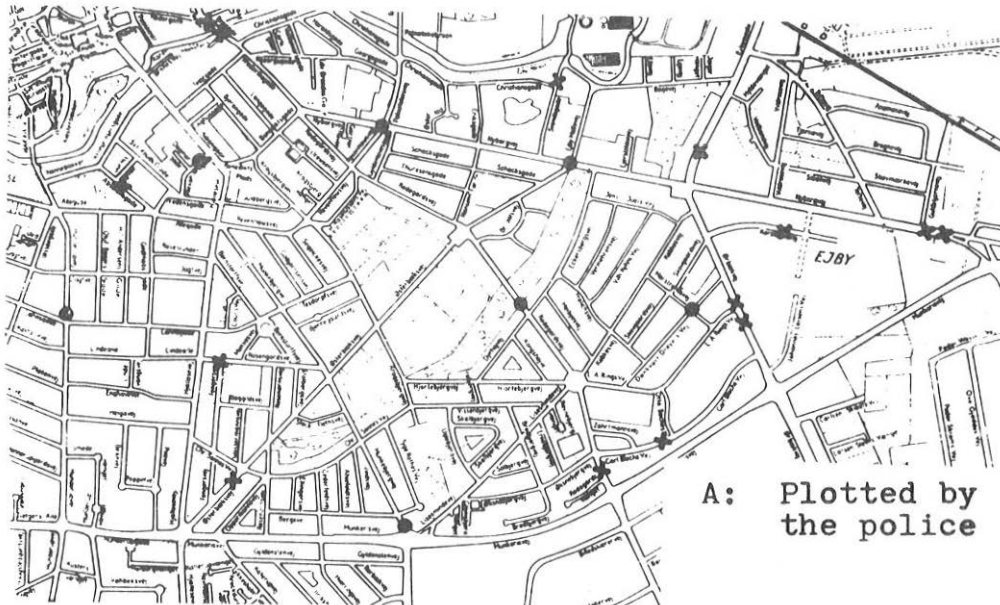
Leg: Soft tissue lesion - knee region  
Soft tissue lesions - others  
Distorsion/luxation (except hip)  
Fracture of femur  
" " patella  
" " lower leg  
" others  
Other lesions

Table III

Grading of lesions (severity).

1. Suspected
2. Light injury - no inability
3. Light injury - inability less than 2 weeks
4. Medium injury - inability from 2 weeks to 3 months
5. heavy injury - inability 3 - 6 months
6. Heavy injury - inability exceeding 6 months
7. Most essential cause of death

Figure I.



Police versus hospital registration of black-spots.  
Part of Odense town plotted where accidents in which children  
0-15 years were hit by motor-vehicles.  
Period: 1.II.1971 - 31.VII.1972.

Signs: X Pedestrian

● Cyclist

⊗⊙ Accident not caused by the child