



Fatal Occupational Accidents in the Nordic Countries 2003 – 2008

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Preface

Fatal occupational accidents are always unacceptable. Among those involved in occupational health, the fight against fatal occupational accidents has had top priority. Fortunately, the rate of these has fallen dramatically over the last decades. To be better able to study them, a larger population would provide some added value. The feasibility of such is explored in this report, where information from the five Nordic countries is examined both with respect to the systems involved as well as towards the time period from 2003 to 2008 when 1243 individuals were identified to have been registered in official occupational accident registries.

The Nordic countries have good registries in general and the principles regarding priorities in occupational health are similar. But despite this the comparison of fatal occupational accidents in the Nordic countries is not straight forward. The data are there and by using this information we should be better able to prevent these and other occupational accidents. In order for the information to become accessible we need to place all occupational related fatalities in each country into a single database, agree on which items to record and ensure that there is a common understanding of what is meant by different terms and concepts in this context. With the availability of this information we can then take steps to put in place preventive measures to achieve the goal of no fatal occupational accidents in the Nordic countries.

Anne-Marie von Benzon

Chairman, Nordic Working Environment Committee

Summary

In 2008 it was decided by the Nordic Working Environment Committee under the Nordic Council of Ministers that an overview was needed on fatal occupational accidents in the Nordic countries. A selected group from agencies in all the Nordic countries maintaining the occupational accident registries was formed. It should provide a report that would give a review of systems involved concerning occupational accidents, i.e. the reporting process, the investigation process, the registration process, the registries and legal statutes. On the basis of this the numbers of fatal occupational accidents in the Nordic countries during the time period 2003 to 2008 would be studied.

The comparison between the Nordic countries concerning the systems showed relatively minor differences. However, as these small differences involve all or nearly all aspects of the system process in occupational accidents, comparison of occupational accidents in the Nordic countries should be approached with care.

The total number of fatal occupational accidents in the time period was 1243. That is between 1.51 to 2.49 fatal occupational accidents per 100,000 workers per year, varying between countries. Over 93% of these accidents involved males. This no doubt reflects the predominance of men in the most dangerous branches, i.e. agriculture, construction, and transport and communication. This is in accordance with that “land vehicles” are the leading material agent involved, and that the leading factor going wrong is loss of control, breaking or bursting of material agent and falls.

In order to make data on occupational accidents more comparable a closer collaboration between the Nordic countries, in the field of occupational accident investigation and registration, is called for. This would make the database for the battle against fatal occupational accidents and occupational accidents in the Nordic countries more effective and improve our common ability to identify prevention strategies.

Introduction

In 2008 it was decided by the Nordic Working Environment Committee under the Nordic Council of Ministers that an overview was needed on fatal occupational accidents in the Nordic countries. This would give an indication on differences between the countries, as well as possibilities to improve understanding on where further action is needed in respect to the most serious occupational accidents.

Comparison of occupational accident statistics between countries has been known to be problematic. This is because different countries use different national recording and notification systems or possibly apply the system in a different manner. The results of this can be significant.

In a study comparing fatal occupational accidents in the US and EU countries of the EU (the European Statistics on Accidents at Work (ESAW)), from 1995 to 1998, it was found that similar definitions for workplace fatalities were in use. The US data was based on an active search, while the ESAW depended on passive notification. Daily fatal occupational injury numbers were similar in both, i.e. about 17 workers dying per day, but the average annual work-related death rates were higher in the U.S. The difference, although significant, may be the consequence of the different surveillance systems as the US system actively seeks out while the European one passively receives notifications (1).

The risk of fatal occupational accidents varies significantly depending on the occupation. Fosbroke et al (2), examining the 50 industries and the 50 occupations with the greatest risk of fatal occupation accident over a 45-year working lifetime, found cause-specific fatal injury risks in a range from a predetermined minimum of 1 death per 1,000 lifetime workers to 36.4 deaths per 1,000 lifetime workers depending on the occupation.

Hamalainen et al (3) presented recently that up to 2003 the total number of occupational accidents and fatal work-related diseases has increased, but the fatality rates per 100,000 workers have decreased in a sample of countries based on estimates on a world-wide basis. In that study it is also clear that the rate of fatal occupational accidents in the Nordic countries is among the lowest in the world. This decrease has by some been contributed to deindustrialization but a US study observing a 45% decline in fatal occupational accidents from 1980 to 1996 only attributed 10 to 15% of the total change to deindustrialization (4).

Despite this fact it is important to continue to search for ways and means on how to reduce these numbers even further.

There are many factors to look at when studying fatal occupational accidents. In a study in Australia it was found that the contributing causes in fatal accidents were in 37% of cases design related issues (5). Underscoring this point is a study of the US manufacturing industry from 1984 to 1997

(6). The most common mechanisms of injury were being caught in or between parts of equipment, electrocution, and being struck by or against objects. Typical scenarios included cleaning a mixer or blender, cleaning a conveyor, and installing or disassembling electrical equipment. Lockout procedures were not even attempted in the majority (at least 58.8%) of fatal incidents reviewed. Lockout/tagout-related fatalities occur under a wide range of circumstances. Enhanced training and equipment designs that facilitate lockout and minimize worker contact with machine parts may prevent many lockout/tagout-related injuries. Although a sizeable proportion of occupational accidents can thus be attributed to design, a study of fatal occupational accidents preceding the Olympics in Greece 2005 found that these accidents mostly occurring in the construction industry, were related to other factors. These other factors stemmed from poor work practices arising from a lack of orientation and job training, performance pressure and workers' inexperience associated with knowledge- and skill-based errors (7). Unfortunately conclusions like these coming from studies in Australia and Greece cannot be made based on national databases.

Even though it is claimed that the Nordic countries are among the nations with the lowest occupational fatality rates, it is important to study the Nordic countries further and ask questions such as who is involved in the accidents, what line of work are they in and went wrong, i.e. the deviation and material agent involved. Furthermore, it is important to study the mechanism of notification, examination, registration and the legislation pertaining to a work like this. One should also keep in mind that fatal accidents are fortunately rare occurrences, so one of the key objects with this report is to address how feasible it is to combine the information from the occupational accident statistics in the Nordic countries.

The present report will therefore look at a number of elements involving fatal occupational accidents from the Nordic countries. The report will begin by focusing on the definition of fatal occupational accidents, with reference to the number of days from accident until death, as well as any potential overlap with leisure time, home, and traffic accidents. This is central for any comparison between countries. Secondly, the reporting process is also looked at involving e.g. the emergency number 112, police, employers, internet, use of reporting forms etc. Subsequently, the investigation process is described. After that the registration process and registries are examined. The above is described in some detail for each of the Nordic countries. The focus is on all occupational accidents that are registered, as at the time of the notification or registration it may not be known what the consequences are for the worker. The purpose of this relatively detailed description is to lay the foundation for certain elementary comparison regarding fatal occupational accidents in the Nordic countries.

Information regarding the number of occupationally active persons in different branches is from the Nordic databank [<http://ww3.dst.dk/pxwebnordic/Dialog/statfile1.asp>] while other information is obtained from the respective occupational accident registries in each country.

1. Definition of fatal occupational accidents

Following is a definition of fatal occupational accidents for each of the five Nordic countries.

1.1 Definition of fatal occupation accidents in Denmark

An accident at work is defined as “a sudden, unexpected and harmful incidence that happens during the course of work and which results in the injury of the victim”.

A fatal accident at work is defined as “a sudden, unexpected and harmful incidence that happens during the course of work and which results in the death of the victim”.

Accidents involving private persons (leisure time, home, family members etc.) are included in the definition (and are reportable) if a technical device was involved, for instance a machine, a vehicle or a tool. This is the reason why children (and other family members) are included in the occupational accident statistics, especially in relation to agriculture (farming).

The number of days from the accident until death has no limit in Denmark. The fatal accidents include road traffic accidents during the course of work and also fatal accidents in private homes if it is in the course of work. Commuting accidents are not included.

1.2 Definition of fatal occupation accidents in Finland

An accident at work is defined according to the definition by ESAW, i.e. “*accidents at work leading to the death of the victim within a year of the accident*”. The fatal accidents include road traffic accidents in the course of work.

Road traffic accidents include commuting accidents between home and work place. The number of days from the accident to the death is 365, to be considered related to the accident. No significant overlapping with leisure time accident is to be expected.

1.3 Definition of fatal occupation accidents in Norway

The Norwegian Insurance Act defines a work accident as “sudden, unexpected strain or endeavour that people have endured because of their work.” Some work accidents are defined as a specific, time-limited, external event that causes a strain that is extraordinary in relation to how the work normally is. But it is necessary that the injury or sickness has originated from the person’s work or work-related situation. In practice this means that the injury or sickness is caused by the workplace, during working hours and while people are at work. A fatal accident at work is defined as “*a damaging incident at work that leads to a persons death within one year (365 days) after the accident*”. Fatal accidents include road traffic accidents in the course of work, but commuting accidents are not included.

1.4 Definition of fatal occupation accidents in Sweden

Sweden follows the ESAW methodology.

An accident at work is defined as “*a discrete occurrence in the course of work which leads to physical or mental harm*”. This includes cases of acute poisoning and wilful acts of other persons, as well as accidents occurring during work but off the company’s premises, even those caused by third parties. It excludes deliberate self-inflicted injuries, accidents on the way to and from work (commuting accidents) and accidents having only a medical origin and occupational diseases. The phrase “*in the course of work*” means whilst engaged in an occupational activity or during the time spent at work. This includes cases of road traffic accidents in the course of work.

A fatal accident is defined as an accident which leads to the death of a victim within one year of the accident.

The fatal accidents include road traffic accidents in the course of work and also fatal accidents in private homes if it is in the course of work.

1.5 Definition of fatal occupation accidents in Iceland

An accident at work is a sudden, unexpected and harmful incidence that happens during the course of work and which results in the injury of the victim. The definition of a fatal accident at work is a sudden, unexpected and harmful incidence that happens during the course of work and which results in the death of the victim.

The number of days from the accident until death has no limit in Iceland. Fatal accidents include road traffic accidents during the course of work and also fatal accidents in private homes if it is in the course of work. Commuting accidents are not included.

Accidents involving private persons (leisure time, home, family members etc.) are included in the definition and are reportable if a technical device was involved, for instance a machine, a vehicle, a tool, or a work area that is the site of the accident. Such accidents fall under the inspection authority of the Administration for Occupational Health and Safety.

2. Reporting process

Following is a description of the reporting process of fatal accidents for each of the five Nordic countries.

2.1 Reporting process in Denmark

The main source for information about fatal accidents at work is the DWEA notification system (EASY). Other information sources are: The National Board of Industrial Injuries (NBII), cooperation with the police, the local labour inspectorates, the media, employer's organizations and trade unions (only some areas, e.g. agriculture and construction).

2.2 Reporting process in Finland

The sources for fatal accident information are: an employer's obligation to report serious accidents to the Labour Inspectorate (Occupational Safety and Health Enforcement and Cooperation on Occupational Safety and Health at Workplaces Act (44/2006) 46§), police and 112-emergency response centre, and the media.

2.3 Reporting process in Norway

The Working Environment Act (Arbeidsmiljøloven) states that "If an employee dies or is seriously injured as the result of an occupational accident, the employer shall immediately and by the quickest possible means notify the Labour Inspection Authority and the nearest police authority. The employer shall confirm the notification in writing. The safety representative shall receive a copy of the confirmation." In praxis the first reporting often happens via telephone. The employers are then asked to confirm the notification in writing. The employers are asked whether the police have been notified. Not every fatal accident is reported to the Labour Inspection Authority, so the Authority keeps a watchful eye on the media to see whether any fatal accidents during work have not been reported to them but are reported in the media. This specially applies to traffic accidents that occurred when the person that died was at work.

In addition, all accidents at work that require medical treatment or lead to disability should be reported to The Norwegian Labour and Welfare Ad-

ministration. The Labour Inspection Authority receives copies of these reports and a few of them include fatal accidents not otherwise reported.

2.4 Reporting process in Sweden

The sources for fatal accidents include: The Work Injury Insurance Act (*Lagen om arbetsskadeförsäkring – LAF*), notification of serious accidents and incidents 2§ according to the Work Environment Act (2§ *Arbetsmiljöförordningen*), cooperation with the police, the local labour inspectorate, the media, and employers' organizations and trade unions.

2.5 Reporting process in Iceland

The main source for information about fatal accidents at work is the AOSH notification system. However, other information sources include, the Icelandic Health Insurance Institute, cooperation with the police, the media, and employers' organizations and trade unions

2.6 Reporting process in general

In general the registration process is similar across the Nordic countries. The table below is a summary of how information gets into the registries according to each nation's national report.

Table 1. Ways to get registration information for each country

	Cooperation with police	Media inspection	Cooperation with local labour inspectors	Cooperation with employers
Denmark	X	x	x	x
Finland	X	x	x	x
Norway	X	x	x	x
Iceland	X	x	x	x
Sweden	X	x	x	x

3. Investigation of fatal occupational accidents

Following is a description of the investigation process in each of the Nordic countries.

3.1 Investigation of fatal occupational accidents in Denmark

Approximately 48,000 accidents have been notified each year in Denmark for the last 3–4 years. From these the local labour inspectorates select 2,000 cases (in all) for investigation. Some criteria have to be followed when selecting in their respective areas: All fatal accidents (except traffic accidents which are only investigated by the police, but the DWEA gets the investigation report), all 112-emergency response calls, and all serious accidents involving bone crushes and/or amputations. There are up to 7 other additional criteria which can change from year to year, decided upon at a central level. For example in 2009 it was accidents with new employees and accidents with young people (<25 years).

3.2 Investigation of fatal occupational accidents in Finland

The official investigation of fatal accidents in the course of work is made by the police and by the local labour inspectorate. Some of the cases lead to a preliminary pre-trial investigation by police and a pronouncement report from the labour inspectorate to the official prosecutor. “TOTTI” is an investigation concerning fatal accidents at work. All accidents where employed persons are involved are investigated. The investigation is organized by the Federation of Accident Insurance Institutions in cooperation with representatives from trade unions and employers’ organisations. The third examiner is The Accident Investigation Board, which investigates all major accidents in aviation, maritime and rail accidents and their incidents. The Accident Investigation Board is located within the Ministry of Justice.

3.3 Investigation of fatal occupational accidents in Norway

As a rule, fatal accidents should be examined. The most common exception to this rule is traffic accidents. When the examination is completed, the local region should consider whether the Labour Inspection should investigate it further or if the case should be closed. The administration decides whether other professionals should be included in the investigation process. In this context, it should also be evaluated whether the enterprise should be re-examined. The police are notified about the outcome of this assessment. When the case is classified as needing further investigation the police should be sent a letter with a request for further investigation. If there is no added information relevant for the decision classifying the case as not needing more investigation, the region sends a letter stating that according to established working legal protocol this case need not be examined further. If, however, new relevant information comes to light the matter will be reassessed by the Labour Inspection. The documents compiled in the correspondence between the labour inspectorate and police are internal and exempt from public access. Following the examination, a written final report is sent to the enterprise. This report is public.

3.4 Investigation of fatal occupational accidents in Sweden

Fatal accidents in the course of work are investigated by the police and normally also by the local labour inspectorates. Fatal road-traffic accidents in the course of work are not always investigated by the labour inspectorates. It is the local inspectorate who decides which accidents to investigate. The local inspectorates and the Swedish Work Environment Authority have access to the investigation reports.

3.5 Investigation of fatal occupational accidents in Iceland

Approximately 1,800 accidents are notified each year in Iceland. From these the local labour inspectorates select about 220 cases for investigation. Some criteria have to be followed when selecting accidents for investigation: All immediately fatal accidents are investigated (except traffic accidents which are only investigated by the police but the AOSH gets the investigation report) in cooperation with the police. Furthermore, all 112-emergency response calls are specially reviewed by the on call inspector. Additionally, all serious accidents if the report is done in a timely fashion and the scene of the accident is unchanged. These last two mentioned criteria are considered quite important as the accidents may have a serious outcome at a later date, including death.

4. Registrations process

Following is a description of the occupational accident registration process for each of the five Nordic countries.

4.1 Registration process in Denmark

For registration the Register of Occupation Accidents (Arbejdsskaderegistret, Ulykkesregistret) is used. It is a statutory notification scheme where accidents at work are reported to the Danish Working Environment Authority (DWEA). The employer has the obligation to report accidents at work within 9 days from the victim's first day off. Notification can be done either electronically or in paper format. Electronic notifications are coded directly into the database (EASY = Elektronisk AnmeldelsesSYstem) and paper reports are coded by staff in either the DWEA or the National Board of Industrial Injuries (NBII) into the database. EASY is a joint reporting system between the DWEA and NBII, however the two agencies have their own separate legislation. Where notification to the NBII or an insurance company serves the purpose of applying for compensation, the notification to the DWEA serves a statistical purpose and the purpose of prioritizing inspections as well as providing an overview and statistics and analysis on work accidents and work-related well-being for the purpose of occupational health prevention work. Fatal accidents are always inspected by the DWEA, except fatal road accidents at work in which case the police do the inspection and file the report.

As from July 1st 2010 electronic notification will be obligatory for employers.

Data in EASY (termed INDATA) are subject to some treatment before being converted (termed OUTDATA). Before being considered as statistical DWEA data (once a year), the in-data are made anonymous, controlled for duplets (there is also a control for duplets when registering in EASY) and that notifications are covered by the Health and Safety Act (terrestrial accidents in Denmark). Only accidents with more than 1 day of incapacity to work are included in the data. This data treatment process is automated for the large number of accidents. For fatal accidents the data quality is checked manually. Approximately 73% of all notifications are electronic (2008). The rest (27%) are received in paper format that is then coded in EASY by staff. The basic variables such as the name of the victim, date, branch etc. are coded by the NBII and variables such as type of injury and those concerning the causes and circumstances of the accident are coded by the DWEA.

Denmark follows the ESAW methodology with respect to classifications and terminology.

4.2 Registration process in Finland

The national register of occupational accidents is based on the compensation system of employment accidents according to the Employment Accidents Insurance Act (608/1948). Every insurance company handling the statutory accident insurance in Finland has to be a member of The Federation of Accident Insurance Institutions (FAII), which functions as the co-ordinating organ of all the organisations which are engaged in statutory accident insurance. Since 1992 the accident insurance companies have been obliged to keep statistics on work accidents and occupational diseases. The member institutions of the FAII are obliged to provide the FAII with information necessary for compiling and maintaining statistics. The compiled statistics give information about work accidents and occupational diseases, injuries and illnesses caused by them, types and amounts of compensation paid to each recipient and the factors influencing the amount, and also on the policy holders, their sphere of business, actual payroll and insurance premium.

The database of accidents is based on accident reports on a form approved by the Ministry of Social Affairs and Health. Every report is coded according to the ESAW-coding by the insurance companies.

The accident insurance of self-employed persons can be taken out to insure the self-employed person and his family members as well as those partners and shareholders who are not covered by obligatory insurance.

In Finland the farmer accident insurance is handled by the Farmers' Social Insurance Institution ("Mela"), which covers accidents of self-employed farmers and their family members. It should be noted that fatal accidents of self-employed farmers and their family members are not included in the statistical tables shown in this document. The ESAW coding system is not applied to the Mela's statistics so we cannot extrapolate any specific information from this material.

According to Mela's statistics, there were 48 fatal accidents involving farmers in Finland in the period 2003–2008. These fatal cases should be added to the Finnish statistic tables in order to have a total picture of the agriculture and forestry branch. Annually the situation was as follows:

- 2003 7 accidents
- 2004 9 accidents
- 2005 0 accidents
- 2006 5 accidents
- 2007 10 accidents
- 2008 7 accidents

More information is available on the web-site of the Farmers' Social Insurance Institution: <http://www.mela.fi/526/Insured-wellbeing>

4.3 Registration process in Norway

In cases where the consequence of an accident at work is death or serious injury, the employer should follow the Working Environment Act (Arbeidsmiljøloven) and notify the Labour Inspection Authority (Arbeidstilsynet) about the incident. Today notifications of fatal accidents are registered in a "Fatal Accidents at Work Registry" at the Labour Inspection Authority. Work is ongoing to expand this registry to also include notifications of accidents with serious injuries.

Accidents at work received by the Labour Inspection Authority as copies of the reporting to The Norwegian Labour and Welfare Administration are registered in the Labour Inspection's "Registry of Enterprises and Occupational Accidents" (Virksomhet- og Yrkesskade-Registeret, VYR). Fatal accidents are regularly quality controlled to ensure that the two data bases include the same fatal accidents.

4.4 Registration process in Sweden

The register is based on work injury reports to the Social Insurance Office under the Work Injury Insurance Act. The employer reports the accident to the Social Insurance Office and the report form is scanned. Both the Swedish Work Environment Authority (SWEA) and the Social Insurance Office have access to the scanned reports. At SWEA the reports and a text file are put into the database ISA (Informationssystemet om arbetsskador). The coders search for accidents with absence in the database ISA and complete the dataset with information about the victim's occupation and the causes and circumstances of the accident.

On the computer the coders have one half of the screen with the scanned report form, and the other half contains the variables included in the causes and circumstances of the accident. In Sweden all accidents resulting in absence from work are included and coded just as with fatal accidents. Accidents without absence or the commuting accidents are not manually coded, but the numbers and the information are available from the scanning.

4.5 Registration process in Iceland

The register is based on a statutory notification scheme where accidents at work are reported to the Administration of Occupational Safety and Health. The employer has the obligation to report accidents at work within 7 days

from the victim's first day off. In case of severe injury this should occur immediately or at least within 24 hours. Notification is via a paper form. Notifications are coded directly into the database <http://www.vinnueftirlit.is/is/vinnuslys/> for public reporting. More detailed information is published annually by the AOSH. Furthermore, a number of cases are reported through the Icelandic Health Insurance for cases seeking compensation due to occupational accidents. Fatal accidents are always inspected by the AOSH, except fatal road accidents at work where the police conduct the investigation.

Accidents with more than one day of incapacity to work, in addition to the day of accident are included in the data, as well as all accidents thought likely to have serious consequences. This data treatment process is automated for the large number of accidents. For fatal accidents the data quality is checked manually.

All notification is based on the report form available through the AOSH web-page. The basic variables such as name of the victim, date, branch as well as type of injury and those concerning the causes and circumstances of the accident are coded by the DWEA. In Iceland the same classification system has been in use from the outset of the occupational accident registry in 1980.

5. Registry

Following is a description of the registries of occupational accident for each of the five Nordic countries

5.1 Registry in Denmark

The registry used for statistics is located at the DWEA (Arbejdstilsynet). The registry used for notifications (in data), EASY, is located at the NBII (Arbejdsskadestyrelsen).

One of the prime functions of the Danish registry is to be a database for statistical analyses, i.e. to elaborate tables, statistics and analysis on accidents at work and on occupational diseases for planning and documenting the preventive efforts. This is primarily done internally in the Ministry of Occupation.

External users may request data (tables) and will normally get it within two or three weeks. Some standard tables are available on the DWEA website: <http://www.arbejdstilsynet.dk/sw11073.asp>, together with the written yearly reports (“Notified Accidents 2003–2008”). These are updated once a year. A new development is that the number of fatal accidents (preliminary figures) will be available weekly on the website.

Typical external users are employers’ organizations, trade unions, other authorities, researchers, students, and the media.

Registration of foreign workers has not been conducted in 2003–2008. As from 2009 the nationality of the victim will be registered. Nationality will be the victim’s “citizenship”.

5.2 Registry in Finland

Finland classifies nationality according to the ESAW-classification, i.e. 0 = Nationality unknown, 1 = National, 2 = Non-national from EU, 3 = Non-national outside EU.

In many cases (especially fatal accidents) the victim’s nationality is stated in the accident report. A total of 30 different items are registered pertaining to the demographics of the victim, as well as branch, occupation and nature of the accident in terms of causes and consequences.

The registry is located at Suomen vakuutusdata Oy/Finska försäkringsdata AB.

Authorized users are registered and mainly include The Federation of Accident Insurance Institutions, the insurance companies, the Ministry of

Social Affairs and Health and the Labour Protection Inspectorate. Annual reports are published by the FAII and by Statistics Finland.

5.3 Registry in Norway

Fatal work injuries are logged in two registries. One is The Labour Inspection's Registry of Enterprises and Occupational Accidents where all occupational injuries are recorded. This information is recorded by the inspector who has the case. The other is a separate registry for fatal work accidents, where more information is collected. This register is administered by the Directorate of Labour Inspection. Both registries are available to all employees in the Labour Inspection.

The Labour Inspection only records deaths in the Labour Inspection Management Area, which is limited to land-based working life in Norway. Occupational injuries that take place offshore, at sea, or in connection with aviation are not included in the Labour Inspection's registry. This means that accidents among fishermen are not included, while employees in aquaculture are included. Occupational injuries in military occupations are included with the exception of injuries or deaths in war situations.

Foreign employees in enterprises that are not located in Norway, for example a travelling salesman or a foreign truck driver passing through Norway, should be registered in the country where the employee has employment. In a similar way, Norwegians working abroad are classified in accordance to where their employment is located. There are criteria that help to classify borderline cases or complicated cases.

5.4 Registry in Sweden

The statistics are used for planning activities in the Swedish Work Environment Authority (SWEA) to reduce accidents at work and ill-health, for political decisions, public information, workplace visits, research, regulatory work etc. Publications are available on the internet for external users, and an online software where external users can search for statistics themselves and have the statistics presented in tables is available.

<http://www.av.se/statistik/statistikdatabas/#>

In Sweden external and internal users can ask for assistance in finding the statistics they are looking for on the internet, or they can ask for special statistics tables and have it delivered as soon as possible.

Typical users include the SWEA, the media, workplaces, students, researchers, municipalities, other authorities and organizations etc.

The standard report form is used to code all fatal accidents in the course of work. There are no differences in the coding of a fatal accident and the accidents with absence. The same variables for the fatal accidents and the

accidents with absence are available. The coding of the accidents at work is according to the European Statistics of Accidents at Work methodology (ESAW). It is the same coders, located at both the Swedish Work Environment Authority and the Labour Inspectorate (total of six persons), who are coding the accidents with absence and the fatal accidents.

Foreign workers in enterprises that are not located in Sweden are registered in the country where the employee has employment. Swedish workers working abroad are classified in accordance to where their employment is located. The actual number of fatal accidents in Sweden for foreign workers is counted but not included in the national statistics of fatal accidents at work.

5.5 Registry in Iceland

The registry used for statistics is located at the AOSH (Vinnueftirlitið).

Statistics are primarily used within the purpose of AOSH, i.e. to elaborate tables, statistics and analyses on accidents at work and on occupational diseases for planning and documenting the preventive efforts. External users may study directly the registry through the web-page: <http://slysatoelraedi.ver.is/>

Typical external users are employers' organizations, trade unions, other authorities, researchers, students and the media.

Registration of foreign workers has been conducted since 2003. Nationality is the victim's "citizenship". Only accidents occurring in Iceland are registered.

6. Legal statutes

Following is a description of legal references concerning fatal occupational accidents for each of the five Nordic countries.

6.1 Legal statutes in Denmark

The legal references in Denmark are the following: The Health and Safety Act (Lov om arbejdsmiljø, §75); DWEA: Statutory Order on notification of accidents at work (bekendtgørelse nr. 33 af 20. January 2003); The Work Insurance Act (Lov om arbejdsskadesikring, §35); NBII: Statutory Order on notification of accidents at work (bekendtgørelse nr. 997 af 20. oktober 2005); EASY reporting rules (anmeldesregler, oplysningskrav) [<http://www.at.dk/sw6998.asp> / <https://easy.ask.dk/easy/>]; ESAW Methodology and Instruction on Handling Fatal Injuries (Instruks om behandling af dødsulykker i Arbejdstilsynet; <http://www.arbejdstilsynet.dk/sw9169.asp>].

6.2 Legal statutes in Finland

The legal references in Finland are the Employment Accidents Insurance Act (608/1948) that is 1) Act on Occupational Safety and Health Enforcement and Cooperation on Occupational Safety and Health at Workplaces (44/2006) 46§) and 2) ESAW Methodology.

6.3 Legal statutes in Norway

If an employee dies or becomes seriously injured in a work accident, the employer must act promptly in accordance to the Working Environment Act §5-2, and notify the Labour Inspection Authority and the nearest police authority. The employer must next confirm the notice in writing.

6.4 Legal statutes in Sweden

The employers are obliged to report all workplace accidents and diseases to the Social Insurance Office According to the Work Injury Insurance Act.

All accidents at work with more than three days of absence are reported to Eurostat, according to regulation No 1338/2008 and the ESAW methodology.

Notification of serious accidents and incidents according to 2§ Work Environment Ordinance: The employer is obliged to immediately report a fatal or serious accident in the workplace, or an accident that involves several employees, to the Swedish Working Environment Authority. That also includes serious near accidents.

6.5 Legal statutes in Iceland

The Health and Safety Act (no: 46/1980)

The employer shall, without undue delay, inform the Administration of Occupational Safety and Health of all accidents in which a worker dies or becomes incapable to work for one day or more in addition to the day on which the accident occurred. An accident in which it is likely that a worker has incurred long-term or permanent damage to his health shall be reported to the Administration of Occupational Safety and Health within a maximum of twenty-four hours.

The employer shall notify the Administration of Occupational Safety and Health of the accident in writing within one week. The parties involved in work safety in enterprises, cf. Articles 4–6, and the service provider, cf. Article 66 a, shall receive a copy of the notification.

The Administration of Occupational Safety and Health shall investigate the causes of all accidents, mishaps and pollution reported according to Articles 79 and 80 in order to endeavour to prevent the reoccurrence of such incidents in workplaces.

When the Administration of Occupational Safety and Health receives a notification, its employees shall go to the site without undue delay in order to begin the site investigation. Circumstances at the scene of the accident may not be altered more than is absolutely necessary in connection with rescue or salvage measures until the site investigation has been completed. If the Administration of Occupational Safety and Health considers there is no need to carry out a special site investigation, it shall inform the employer of this without undue delay.

7. Fatal occupational accidents 2003–2008: The data

From the above described registries, data for all the Nordic countries pertaining to fatal occupational accidents were collected. In order to study the accidents further, deviation and the material agent involved were examined. However, these items were not available from all the countries based on the ESAW classification systems. In the case of Norway deviations were re-classified based on case descriptions.

In Finland, the total number of fatal accidents amongst farmers 2003–2008 according to Mela's statistics was 48, which are not included in this report. The ESAW classification of this material is not available.

7.1 Demographics of fatal occupational accidents

Table 2 shows the number of fatal occupational accidents in the Nordic Countries in the time period from 2003 to 2008. As expected fatal occupational accidents are extremely skewed towards men, with men dominating those who are victims of these very serious incidents in all of the Nordic countries. It is striking that about 92% of the victims are male in Denmark Sweden and Finland, 96% in Norway and 100% in Iceland.

Table 2. Gender ratio for deaths from 2003–2008.

	Men %	N	Women %	N	Total
Denmark	92.5	295	7.5	24	319
Finland	92.5	233	7.5	19	252
Norway*	95.7	245	3.9	10	255*
Iceland	100	24	0.0	0	24
Sweden	91.8	360	8.2	32	382
Total	93	1157	7	85	1242

*Gender not registered for one person

Table 3. The mean age at the time of death for the samples as a whole and for men and women in the years 2003–2008.

	Mean age	N	Mean age for men	N	Mean age for women	N
Denmark	45.1	319	45.8	295	36.6	24
Finland	42	252	42	233	47	19
Norway	47.0	256*	46.8	245**	51.5	10
Iceland	50	24	50	24		0
Sweden	45.4	392	45.8	360	40.5	32
Total	47.7	1243*	46	1157	44	85

* Gender not registered for one person **Age missing for 9 men

As seen from table 3, men are middle-aged in all of the countries as are the women. The variability in the mean age between the women is more apparent; however, the number of women from each country is relatively low.

The age distribution is further studied in table 4 for men and in table 5 for women. It can be seen that the age distribution through the working years is fairly uniform with the highest prevalence among the middle-aged. One can thus argue that compared with the expected over-dominance of young workers in occupational accidents that the age distribution is somewhat more skewed towards older employees than is expected.

Table 4. Fatal occupational accidents according to age group for men in the Nordic countries from 2003 to 2008.

	DK*	FI	IS	NO**	SE***	% of total
Age group – men	N=295	N=233	N=24	N=245	N=360	N= 1157
15–24 years	12%	8,6%		6%	8%	7.7%
25–34 years	10%	15,9%	17%	14%	19%	15.5%
35–44 years	21%	18,9%	34%	21%	17%	19.5%
45–54 years	24%	30,0%	16%	24%	21%	24.7%
55–64 years	21%	23,2%	17%	18%	29%	23.1%
65 years and older	11%	3,4%	17%	13%	6%	8.7%
Total	100%	100%	101%	96%	100%	100%

*5 Children **Age data missing for 9 men *** Data missing for one man

Table 5. Fatal occupational accidents according to age group for women in the Nordic countries from 2003 to 2008.

	DK*	FI	IS	NO	SE	% of total
Age group – women	N=24	N=19	N=0	N=10	N=32	N=85
15–24 years	17%	10,5%		20%	25%	17%
25–34 years	13%	10,5%		10%	9%	9.8%
35–44 years	33%	21,1%			16%	23.2%
45–54 years	13%	31,6%		10%	34%	26.8%
55–64 years	17%	26,3%		10%	13%	17%
65 years and older	0%	0%		50%	3%	6%
Total	93%	100%	100%	100%	100%	100%

*Two children

7.2 Results according to branches

To further the understanding of cross country comparison it is important to look at fatal occupational accidents according to different branches. This is looked at in table 6.

Table 6. Fatal occupational accidents according to branches in the Nordic countries 2003 to 2008 per 100,000 workers per year.

Branch*	All Nordic countries	DK	FI	IS	NO	SE
Number of persons	1243	319	252	24	256	392
Agriculture, forestry, hunting and fishing (A, B)	9,29	10,83	1,38	7,03	13,88	14,09
Mining, manufacturing, electricity and water (C,D,E)	1,89	2,12	1,84	0,77	2,71	1,44
Construction (F)	5,31	6,31	5,90	14,93	4,17	4,53
Wholesale and retail trade, restaurants and hotels (G,H)	0,70	0,90	0,80	0,00	0,52	0,65
Transport and communication (I)	4,59	4,08	5,49	9,43	4,78	4,05
Finance, insurance, real estate and business services (J,K)	0,89	1,14	0,96	0,00	0,72	0,82
Services (L,M,N,O,P,)	0,61	0,57	0,85	0,30	0,47	0,60
Unknown	22,63	50,56	2,33	0,00	40,00	2,63
All branches	1,74	2,00	1,75	2,49	1,81	1,51

*Economic activity of employer according to NACE

[http://ec.europa.eu/competition/mergers/cases/index/nace_all.html]

The table clearly shows that the risk of dying in an occupational accident is lowest in Sweden, with the number of fatal occupational accidents being highest in Iceland. The highest occupational fatality rate is in agriculture, forestry hunting and fishing, with construction and transport and communication coming in second and third. It needs to be underscored that the number of individuals working in a sector where the economic activity of the employer is unknown is very small. These numbers are therefore very unstable.

Table 7 shows the percentage of fatal accidents by branches and underscores that manufacturing, transportation and construction are the leading branches resulting in fatal occupational accidents in the Nordic countries. At the same time the table shows that fatal occupational accidents can occur in most branches. This table compared with table 6 is more helpful in answering the question where the bulk of these serious accidents are taking place.

Table 7. Percentage in 2003 to 2008 of fatal occupational accidents by branch and country.

Branch	DK	FI	IS	NO	SE
Number of persons	319	252	24	256	392
Agriculture, forestry, hunting and fishing	14,7	3,6	16,7	24,6	18,9
Mining, manufacturing, electricity and water	16,3	20,2	4,2	20,7	15,3
Construction	20,7	22,6	50,0	16,4	18,4
Wholesale and retail trade, restaurants and hotels	8,2	7,1	0,0	5,1	6,6
Transport and communication	12,9	22,6	25,0	17,2	16,8
Finance, insurance, real estate and business services	8,2	7,5	0,0	5,1	8,2
Services	10,3	15,9	4,2	10,2	15,6
Unknown	8,8	0,4	0,0	0,8	0,3
Total	100	100	100	100	100

7.3. Material agent

Table 8 shows the material agent involved at the time of accident. The category most clearly associated with these fatalities is some form of vehicle used in the line of work. The second in line is “building or structures above ground level” and thirdly “conveying transport and storage systems”.

Table 8. Material agent in fatal occupational accidents in the Nordic countries.

Material agent	Denmark N=319	Finland N=252	Iceland N=24	Norway N=256	Sweden N=392
0. No material agent or no information	16%	5%	8%	4%	2%
1. Buildings, struct., surfaces at ground level	7%	9%			4%
2. Buildings, struct., surfaces above ground level	10%	12%	13%	0%	9%
3. Buildings, structures, surfaces below ground level	1%	2%			1%
4. Systems for the supply and distribution of materials, pipes and networks		2%			0%
5. Motors, systems for energy transmission and storage	0%	1%			2%
6. Hand tools	0%	1%	8%		0%
7. Hand-held or hand-guided tools, including mechanical	0%	1%	17%		1%
8. Hand tools – without spec. of power source		1%		2%	
9. Machines and equipment	7%	1%			10%
10. Machines and equipment	3%	11%	4%	5%	4%
11. Conveying, transport, and storage systems	8%	8%		9%	12%
12. Land vehicles	23%	25%	25%	56%	25%
13. Other transport vehicles	3%	6%		8%	9%
14. Materials, objects, products, machine components, debris, dust	4%	5%	8%	7%	4%
15. Chemical, explosive, radioactive, biological substances	1%			2%	2%
17. Office equipment, personal equip., sports equip., weapons, domestic appliances	1%				1%
18. Living organisms and human-beings	3%	2%		0%	10%
19. Bulk waste.					
20. Physical phenomena and natural elements		3%		2%	2%
99 Other material agents not listed	13%	7%	17%	5%	0%

**Accidents among self-employed farmers and self-employed entrepreneur's are not included in Finland. Percentage will not add to 100 due to rounding*

7.4. Deviation

Table 9 shows what the deviation in line of work was at the time of accident. Deviation refers to the immediate cause, i.e. the event or failure which triggered the accident.

Table 9. Frequency of each deviation in the years 2003 to 2008 in the Nordic countries according to the ESAW classification system.

	DK	FI*	IS	NO	SE
Deviation	N=319	N=252	N=24	N=256	N=392
0. No information	100%	12%			2%
10. Deviation due to electrical problems, explosion or fire		5%	4%	5%	7%
20. Deviation by overflow, overturn, leak, flow, vaporisation, emission – not specified		2%		1%	0.6%
30. Breakage, bursting, splitting, slipping, fall, collapse of a material agent – not specified		22%	29%	11%	17%
40. Loss of control, total or partial, of machine, means of transport or handling equipment, hand-held tool, object, animal – not specified		18%	29%	9%	53%
50. Slipping, stumbling and falling, fall of persons – not specified		19%	21%	18%	14%
60. Body movement without any physical stress (generally leading to external injury) – Not specified		2%			0.2%
70. Body movement under or with physical stress (generally leading to external injury) – Not specified		1%			0.2%
80. Shock, fright, violence, aggression, threat, presence – not specified		6%			6%
99. Other deviations not listed above in this classification		13%	17%	56%	1%

Percentage will not add to 100 due to rounding.

Here data are missing from Denmark and the data from Norway were classified according to the description of the accident in the records. As can be clearly seen from the table, there are three main categories of deviation primarily involved in these fatal accidents, loss of control, falling of a person and some form of deviation pertaining to the material agent. However the information is significantly limited as the data from Denmark are missing and in 56% of cases it was not possible to classify data from Norway into another category than “other deviations not listed above in this classification”.

8. Discussion

8.1 Comparison of systems

This report summarizes the reporting process of occupational accidents in the Nordic countries. The differences are noticeable with Denmark, Norway and Iceland having a clearly separate registry to which the employer is obligated to report the accident. In Finland and Sweden this is linked with the insurance system, with the Finnish system being very closely linked to the compensation system. This should result in a lower threshold in Finland than in the other countries when it comes to reporting accidents. However, one should not expect that this would greatly influence reporting of fatal occupational accidents. But it is worth noting that in Norway the Labour Inspection Authority has concerns that it does not have full reporting of fatal occupational accidents.

Regarding the definition of a fatal occupational accident, Sweden and Finland follow the ESAW definition and the other countries follow a definition that is quite similar. Commuting accidents are excluded. Norway, Sweden and Finland all have a 365-day limit from the day of the accident until death. It is difficult to see if such a long limit has any influence or practical implication on a statistical basis compared with having no formal time-limits in the definition. In Iceland and Denmark, accidents involving a technical device that falls under the surveillance obligation of the labour inspectorates, but where the victims are civilians, adults or children, are reportable to the occupational accident registries and may therefore become classified with the fatal occupational accidents. Maritime and aviation accidents are not included.

The reporting process is fairly uniform in all the Nordic countries with information concerning fatal occupational accidents being obtained through cooperation with employers, police and local labour inspectors as well as coverage by the media.

When it comes to the investigation of an accident differences are apparent. In Denmark, Iceland, Norway and Finland the labour inspectorates are responsible for investigation of all work related fatalities on land except for traffic accidents where the police lead the investigation and a report may be forwarded to the labour inspectorates. In Sweden accidents are investigated by the police and for the most part by the local labour inspectorates as well. However, the local inspectorates decide on an individual basis whether an accident should be investigated or not. In all the countries the police are involved in the investigation process.

Occupational accident registries exist in all the countries and are located in the work environment authorities except in Finland where it is based in an

insurance company. Finland and Sweden formally rely on the ESAW for classification, with classification of nationality being based on reference to the European Union. Denmark and Iceland record nationality as the victim's citizenship. Although all the countries record detailed information about the accidents, including age, gender and branches, not all code the deviation leading to the accident or the material agent involved. However, the data are in some cases is recorded in free text. The data are available for all the registries in reports and special publications. Iceland and Sweden have in addition the registry for elementary statistical study available on the internet, thus allowing companies, institutions, students and others to freely access these data for the benefit of better occupational health and safety.

Nordic comparison is, however, difficult as even relatively elementary statistics are not presented in an easily comparable manner.

The legal background is quite similar with the obligation being on the employer to report. The ESAW methodology is part of the regulatory framework in Sweden, Finland and Denmark, but not in Iceland and Norway. One should have expected that this would have led to a fully comparable set of statistics from the countries, but Denmark did not provide information concerning deviation and data needed to be recoded from free text from Norway. Sweden and Finland, following the same principle, provided both.

8.2 Comparison of data

Regarding the statistical comparison done in this report, it is particularly noteworthy how similar the profiles are between all the countries with middle-age men being the most typical victim in fatal occupational accidents. This is in some contrast to the stereotype picture of the young male worker being the most common victim of occupational accidents. However, the findings regarding age and gender are total numbers and do not represent risk, and should therefore not be interpreted in such a manner. The dominance of men is striking with over 93% of occupational accident victims in the Nordic countries being male. This finding should lead to an increased focus on the dangerous tasks associated with work undertaken primarily by men. This finding also highlights a clear contradiction in the gender equality debate in the Nordic countries in that workplace safety is not taken properly into account despite its clear and heavy toll on men. The focus needs to be placed on ensuring safe workplaces for all, taking this marked gender imbalance into account.

It is clear from these data that the work environment, with respect to risk of fatal occupational accident is better in Sweden than in the other Nordic countries and worse in Denmark and Iceland. If this is put into direct numbers and the Danish accident frequency is used to extrapolate the number of deaths in Sweden then the expected number of fatalities in the period under

study would be 520 in stead of the actual 392. Namely 128 additional deaths compared with the actual Swedish figures.

It is of note looking at individual branches that the agriculture and forestry sector is a high risk industry with about 14 deaths per 100,000 employed in these branches in Sweden and Norway, and about 10 in Denmark. However, in Finland this is much lower or 1.38 per 100,000. The explanation for the lower rate in Finland is quite simple: The statistical material includes only employment accidents. Self-employed farmers and their family members are not included.

The construction industry is clearly a high risk industry, although in general an order of magnitude less so than agriculture and forestry, with Norway and Sweden having the lowest prevalence and Finland and Denmark being a little higher with the range from 4.2 to 6.3. Iceland on the other hand has a higher order of magnitude. However, the Icelandic number is unstable due to so few cases. The transportation and communication sector is the third branch with a relatively high prevalence. Here the risk of misclassification may be highest as a number of fatalities may not be included. Sweden and Denmark are the lowest, while Finland has a higher order of magnitude. The branch group “unknown” is very small thus leading to difficulties in interpretation.

It is clear from this list that these three branches, agriculture, construction and transport should be on the top priority list for safety prevention efforts. This is not a new finding, but still an important message for all involved in occupational health and safety.

The attempt made in this report to study these accidents further by using data from the registries was somewhat disappointing. It can be argued that we could simply have reviewed all the cases according to the case histories but that would have involved much more work than was intended with this pilot project comparing Nordic occupational accidents. This can be seen in the classification of the data from Norway where 56% of cases fall into the category “other deviation not listed”. Regarding material agent, one can though conclude that the class “land vehicles” is the leading material agent. This should call for action to reduce workplace accidents associated with these machines in the Nordic countries. This could involve improving knowledge about the use of these machines, as well as a review of safety measures that are undertaken in their use. Critics of this point might argue that this statement is too general, we need to know more about these accidents to be able to prevent them, but that is exactly what is needed. Regarding deviation, there is a point that is in harmony with this, i.e. loss of control, total or partial etc., which is quite common. This is the leading cause in Sweden, along with breakage, bursting etc. of material agent and falling of a person. These three deviations leading to fatal accidents are the most common deviations that were identified.

8.3 Limitation

There are certain limitations that should be mentioned, namely the number of missed cases, i.e. fatal occupational accidents that do occur but go unregistered. This has been studied in Norway recently and found to be a substantial problem (8). Furthermore, although 1243 fatal accidents is not a small number, it quickly becomes small when the numbers are broken down. A natural disaster, like a severe storm, could lead to a substantial increase in rates of fatalities in the branch of agriculture and forestry etc. compared with another time period under study. This makes the number more unstable, but underscore that accident are unexpected and if we are not prepared for such, bad things will happen. At the onset our intention was to conduct a broader more analytical study of fatal occupational accidents in the Nordic Countries based on the current status of the registries. This was not possible as the Nordic registries are not similar enough to facilitate this comparison in a reasonable and easy manner. The spread and difference in material agents and deviation between the countries could be related to differences in terms of how they are classified locally in each country, even though the same ESAW classification system is used.

8.4 Conclusions

Fatal occupational accidents in the time period from 2003 to 2008 in the Nordic countries ranged from 1.51 to 2.49 per 100,000 workers per year. The prevention effort needs to focus on males in all age categories, within the branches of agriculture, construction and transport and communication. To be able to learn from these fully unacceptable occurrences, the Nordic countries need to cooperate in studying these accidents. However, in order for such to be achieved the fatal occupational accident registries in the Nordic countries need to collaborate and agree on which factors should be included and how they are classified. This would require a closer collaboration between the Nordic countries, both in the field of occupational accident investigation and registration and amongst for those involved, to ensure a shared standardized registration in all countries.

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Abstract

In 2008 it was decided by the Nordic Working Environment Committee under the Nordic Council of Ministers that an overview was needed on fatal occupational accidents in the Nordic countries. A selected group from agencies in all the Nordic countries maintaining the occupational accident registries was formed. It should provide a report that would give a review of systems involved concerning occupational accidents, i.e. the reporting process, the investigation process, the registration process, the registries and legal statutes. On the basis of this the numbers of fatal occupational accidents in the Nordic countries during the time period 2003 to 2008 would be studied.

The comparison between the Nordic countries concerning the systems showed relatively minor differences. However, as these small differences involve all or nearly all aspects of the system process in occupational accidents, comparison of occupational accidents in the Nordic countries should be approached with care.

The total number of fatal occupational accidents in the time period was 1243. That is between 1.51 to 2.49 fatal occupational accidents per 100,000 workers per year, varying between countries. Over 93% of these accidents involved males. This no doubt reflects the predominance of men in the most dangerous branches, i.e. agriculture, construction, and transport and communication. This is in accordance with that “land vehicles” are the leading material agent involved, and that the leading factor going wrong is loss of control, breaking or bursting of material agent and falls.

In order to make data on occupational accidents more comparable a closer collaboration between the Nordic countries, in the field of occupational accident investigation and registration, is called for. This would make the database for the battle against fatal occupational accidents and occupational accidents in the Nordic countries more effective and improve our common ability to identify prevention strategies.

Dansk abstrakt

I året 2008 blev det besluttet i arbejdsmiljøudvalget under Nordisk Ministerråd, at der var behov for en oversigt over arbejdsulykker med dødelig udgang i de nordiske lande. En gruppe fra agenturer i alle de nordiske lande, der opretholder arbejdsulykkeregistre, blev etableret. Gruppen skulle formulere en rapport, som skulle gennemgå systemet, der behandler arbejdsulykker. Gennemgangen skulle indeholde rapporteringsprocessen, undersøgelsesprocessen, registreringsprocessen, registersystemet og juridiske regler. På baggrund af disse oplysninger blev antallet af arbejdsrelaterede dødsulykker i de nordiske lande i perioden 2003 til 2008 undersøgt.

Sammenligning af systemerne viste relativt små forskelle. Da disse små forskelle omfattede alle eller næsten alle aspekter af systemenes processer angående arbejdsulykker måtte sammenligningen præsenteres med omhu.

Det samlede antal arbejdsulykker med dødelig udgang i perioden var 1243. Der er forskelle mellem landene, d.v.s. fra 1,51 til 2,49 arbejdsulykker med dødelig udgang pr. 100,000 arbejdere om året. Over 93% af disse ulykker involverede mænd. Dette afspejler uden tvivl, at det er mænd, som arbejder i de farligste brancher, dvs. landbrug, byggeri, transport og kommunikation. Resultatet er i overensstemmelse med, at „arbejds køretøjer“ er den vigtigste involverede materielle agent. Dette er også i overensstemmelse med, at den vigtigste faktor for ulykker er tabet af kontrol, brud eller sprængning af materiale og faldulykker.

For at gøre oplysninger om arbejdsulykker mere sammenlignelige må samarbejdet mellem de nordiske lande gøres tættere, især vedrørende undersøgelse og registrering af arbejdsulykker. Dette ville gøre databasen for kampen mod arbejdsulykker med dødelig udgang og arbejdsulykker i de nordiske lande mere effektiv og vores fælles evne til at identificere forebyggelsesstrategier bedre.