

The occupational safety and health (OSH) of cleaning workers

FPS Employment
Brussels, 2-3 December 2009

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- Work-related diseases
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The OSH of cleaning workers – a literature review

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➤ Aim:

○ To provide an overview of the **most important OSH issues for the cleaning workers** by reviewing:

- scientific literature
- quantitative data at EU level and from EU Member States

with regard to:

- working conditions
- exposures
- health outcomes

○ To **identify gaps in knowledge and information**

➤ Includes 135 references published up to 2009

➤ Report published in October 2009

http://osha.europa.eu/en/publications/literature_reviews/cleaning_workers_and_OSH/view

Scope of the review

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- **Cleaning is a generic job**
 - carried out in all sectors; in public places, private companies, households; encompasses a wide variety of tasks
 - *The OSH risks to cleaners depend on the tasks, sector, premises!!!*
- **NACE code:**
 - From 2008: Revision 2: N “Administrative and support service activities”, class 81.2 “Cleaning activities”:
 - 81.21 “General cleaning of buildings”
 - 81.22 “Other building and industrial cleaning activities”
 - 81.29 “Other cleaning activities”
 - Before 2008: Revision 1: K.74.7: “Industrial cleaning”
- **Excluded: jobs characterized by very specific techniques and risks**
 - Window and façade cleaning, street cleaning, industrial maintenance and parts cleaning, disinfection, chimney sweeping...
- **Included: office cleaning, cleaning in the education sector, in HORECA, in health care and hospitals, in private households, in industries, etc.**

- One of the most **dynamic areas of services** in Europe that continues to grow
 - 129,000 companies in 2006 (18MS+NO+CH) employed 3.6 million workers
- Mainly small and micro companies
 - 2006: **89%** with less than 50 workers
- Trend: **diversification of activities** towards integrated services and facility management
 - but office cleaning still the main activity (2006)
- **High competitiveness**

Context - Employment patterns

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- Industrial cleaning: generally sub-contracted
 - important to include **OSH into procurements**
- Cleaning workers directly employed by the organisation: free-lance or part of staff
 - not included in employment/occupational accidents and diseases data of industrial cleaning sector but in the different specific sectors
- Self-employed in private households
 - much **undeclared work**
 - hinders the real estimation of number of cleaning workers
 - **NO: In the cleaning services sector, which has the largest proportion of self-employed individuals, 84% of workers operate illegally or in a grey area.**
 - **service cheques/vouchers** introduced in e.g. BE, FR, DE to achieve a shift towards declared work
 - BE: More than 90% of the vouchers are used for cleaning activities
 - Possible side-effect: creating more precarious short-term jobs

Context - Characteristics of the workforce

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- Predominantly female (77%)
 - FI (1999): 90%
- Little data about age
 - FI (1999): 50% over 45 year old
- 30% are **migrant workers** - probably underestimated
 - AT (2006): 70%
- Large proportion of (sometimes undeclared) **self-employed workers, mostly in domestic cleaning**
- Mainly **part-time workers** (70%)
- 86% are **operational workers/blue-collars**
- Majority of **low skill workers**
- 24% of managers are women

Context - Workers' participation

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- Lack of/poor training and lack of easy-to-access information.
 - In particular for those workers who work **outside the regular working hours**
- European social dialogue committee for the industrial cleaning sector set up in the 1990s: EFCI and UNI-Europa
- Sectoral study by UNI-Europa/EFCI: **cleaners are often left outside of OSH measures and policies in "host" companies**
- Main issues for the cleaning industry targeted by the European social partners are:
 - the improvement of the **sector's image**
 - the **professionalisation of the industry**
 - the creation of **career perspectives for employees** in the sector
 - the development of an **"employee loyalty"** (*fidélisation*) with the transition from part-time work to full-time work and the transition towards day-cleaning
 - the fight against **unfair competition and for better health and safety at work**

Working conditions - Dangerous substances (DS)

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- Exposure depends on:
 - the **type of products** used
 - the **characteristics** of the working environment
 - e.g. presence/efficiency of ventilation
 - the **conditions of use**
 - frequency, quantity, application mode (e.g. sprayed), heavy physical work (increased breathing rate)



Working conditions - Dangerous substances (DS)

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- **Cleaning workers may be exposed to a broad range of different chemicals, not only contained in the cleaning products:**
 - volatile organic compounds (VOCs) (e.g. acetone, formaldehyde, halogenated alkanes)
 - Surfactants (skin problems, increased by wet work)
 - film formers (wax)
 - complexing agents (e.g. EDTA)
 - acids, (e.g. hydrochloric acid) and bases (e.g. potassium hydroxide)
 - Biocides
 - additives such as colour pigments and fragrances e.g terpenes react with ambient ozone or other oxidants (hypochlorite, nitrogen oxides) to form irritant/sensitizing by-products and may explain increase in work-related asthma (NIOSH)
- **According to an Afsset Study 54.4% of preparations for domestic use in France (2005) contained formaldehyde for its preservative properties.**
 - High mean concentration found = 1,65 mg/m³
 - SCOEL and Afsset recommend a short-term exposure limit value (OEL) of 0,5mg/m³ (acute irritants) and 8-hour OEL of 0,25g/m³ (carcinogenic irritant)

Working conditions - Dangerous substances (DS)

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- But also to those **substances present in dust, dirt or soot which can be aerosolised and inhaled:**
 - VOCs, surfactants, quartz, minerals and inorganic substances (e.g. trace metals)
- Over-dosage, mixing different products or the incorrect use of some cleaning products may create **unexpected chemical reactions and release DS**
 - some chemicals may have irritant properties at low concentrations and be corrosive at high concentrations, e.g. acids or bases
- The chemicals contained in some cleaning agents may also be **flammable or explosive**



Working conditions - Biological agents

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- Possible exposure to **micro-organisms** (bacteria, viruses and moulds) and their products (fungal secretions, bacterial endotoxins) present in **dust and aerosols created during the cleaning process, including when vacuuming**
- **Blood-borne pathogens:** needles and sharps, contact with body fluids in particular in healthcare and public places
 - HIV, Hepatitis B or C viruses: the most common risks for cleaners in hospitals, nursing homes, clinics and laboratories
 - Also evidence of Hepatitis A and bacteria (E.Coli) infection
 - Framework agreement on prevention from sharp injuries in the hospital and health care sector signed in 2009 by the European Hospital and Healthcare Employers' Association (HOSPEEM) and the European Public Services Union (EPSU)
- Contact with animals/ their secretion, insects (mosquitoes)
- Evidence of infection from Noroviruses
 - Increased risk (RR=2.8) in staff performing cleaning work in a nursing home similar to the ones of health care workers with high level of contact with residents (RR=2.8; 95% CI, 1.1-7.3).
- Possibility of infections with **Salmonella** or **Campylobacter**

➤ Risks to the **musculoskeletal system**:

- Work equipment: **poor ergonomics** (incl. vibration)/not adapted to worker
 - In **Australia a simple checklist** has been developed with the help of the workers to assist purchasers to select the best cleaning equipment
- **Awkward postures**: cleaning equipment/work environment
- **Manual handling**: heavy furniture/work equipment
 - Weight handled by cleaners can range from 2kg to 42kg
 - Often more problematic due to awkward postures adopted to handle the loads
 - Outdoor cleaning requires lifting and carrying heavier loads as well as transporting cleaning equipment over uneven ground and steps
- Repetitive movements, sometimes with high forces, e.g. scrubbing
- Vibration

Working conditions - Physical risks

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- Falls from ladders, elevated platforms and wet or slippery floors, falling objects, sharp objects, moving or rotating machinery parts
 - **BE:** More than 20% of the permanent injuries in cleaners were caused by slips, trips and falls
- Noise: generally below 85 dB(A), but factor of stress and accidents (collisions)
 - A UK report found that cleaners often collided with other people while buffing
- Electrical hazards from powered equipment



- Heat: mostly in restaurant kitchens, washing rooms
 - Burns: contact with hot objects
 - Heat rash, intertrigo, skin maceration (bacterial/fungal infection)
 - Heat stress
- Static magnetic fields:
 - Healthcare: in Magnetic Resonance Imaging (MRI) rooms
 - Research: Nuclear Magnetic Resonance (NMR) spectroscopy
 - Risk to wearer of metallic implant (e.g. pacemakers)

Working conditions - Work organisation and psychosocial factors

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- High demand for flexibility from customers in:
 - employment schemes to respond quickly/accurately to demands: fixed-term contracts, agency temporary employment, etc.)
 - working times: part-time, work shift change at short notice, etc.
 - tasks to carry out to accommodate the needs
- **Working hours:** mostly outside the usual daily working times (6am-9am/6pm-9pm/night work) not to interfere with daytime "core" activities of the host company
 - possible adverse effects: fatigue, poor work-life balance, social isolation, violence, higher exposure to dangerous substances (ventilation systems turned off), poor access to training and OSH info provided during normal working hours
 - social partners encourage daytime cleaning
 - advantages for workers and customer (increased workers' satisfaction and efficiency; reduced energy bills)
 - not implemented in all EU countries yet – **the average percentage of daytime cleaning in Europe in 2003 was 25%**
 - **part-time work** remains the most frequent form of employment – **66% of the cleaning workforce in 2003 and 70% in 2006**

- **Work intensification and high pace of work: main stressors**
 - Finnish studies mention that **50% to 70% of cleaners report overstrains due to an excessive workload**
 - UK: The majority of cleaners report that they had to work fast in order to complete their work and **56% of the workers report a high workload**
 - DE: 18.9% of cleaners questioned, answered that they were **under heavy time pressure**
- **Job contents: sometimes repetitive, monotonous and strenuous**
- **In general little control over the work organisation and the job**
 - UK: 53% of cleaners interviewed answered that they had **low control over what they did at work**
 - DE: In 2000, 66.8% of cleaners questioned reported that their **supervisors did not listen** at all to their ideas and suggestions

Working conditions - Work organisation and psychosocial factors

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- **Lone work and poor social support** from colleagues and managers
 - A Nordic project has introduced team-based cleaning with varying degrees of self-steering teams
 - Research in the UK showed that 35% of respondents of questionnaire survey stated that support from others was unavailable to complete work if time was limited
- **Learning possibilities and career development**
 - Lack of interest from employers in training their staff due to high staff turnover
- **A large portion of cleaners are migrant workers (30%) and frequently have problems communicating in the national language**



Occupational accidents and diseases

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- High risk sector
 - BE: accidents in the cleaning sector happen more frequently and are more serious than average
- Main causes of accidents: **“slips and falls”**, **“manual handling”** and **“moving objects”**
 - PT: 25% of the accidents were due to slips and falls
 - UK: 34% of accidents were caused by manual handling
- **More accidents in male than female cleaners**
 - men more often in higher-risk cleaning jobs (window cleaning, refuse cleaning, industrial cleaning)
 - BE: In 57% of the cases the victim was male
- Most important consequences are **contusions**, **distortions**, **sprains and fractures**
 - DE: 65% of accidents had these consequences

- Main occupational diseases: **skin diseases and tuberculosis**
 - BE: 90% in women, 47% are over 45 years
- Little quantitative data on **absenteeism**
 - BE: 12.88% in 2006 – fourth sector with the highest absenteeism
 - BE: 30 – 40% of the total absence rate is caused by musculoskeletal disorders
- Difficulty to set-up **monitoring systems**
 - cleaning spread over several sectors
 - Undeclared work

- Most common work-related health problems:
Musculoskeletal Disorders (MSDs), skin diseases and respiratory diseases
- Different groups of factors may contribute to MSDs including physical and biomechanical factors, organisational and psychosocial factors, individual and personal factors.
 - The proportion of working hours spent bent forward and/or with a twisted back is 36-56%
 - DK: **MSDs had a prevalence rate of 75%** during the same 12-month reference period
 - DE: **72% of the cleaners** (mostly school cleaners) **visited a physician** due to MSDs and 61% took sick leave because of MSDs
- Skin diseases, e.g. dermatitis, (contact) eczema, due to **wet work**, dermal exposure to chemicals/biological agents, mechanical abrasion of skin
 - DK: the prevalence rate of skin disorders is 54%

- **Elevated risk for asthma, increased in the last decade**
 - European Community Respiratory Health Survey (ECRHS): **cleaning is the fourth occupation with the highest risk of asthma**
 - **Asthma risk 1.7 times higher than for other jobs** – risk factors: certain cleaning chemicals, bioaerosols, mites, latex in the workplace
 - Spanish ECRHS: **risk of asthma differed with cleaning tasks/ locations**: higher for kitchen cleaning, furniture polishing, vacuuming, sweeping, cleaning furniture, cleaning of sanitary facilities – possible explanation: use of sprays/products for kitchen cleaning and furniture polishing
 - Chlorine, ammonia, quaternary ammonium compounds and (ethanol) amines in **cleaning products suggested to cause work-related asthma**
 - Food industry: **higher irritation of nose/throat/eyes in cleaners** – link to airborne NH_3 and aldehydes in **food industry**

- Significant prevalence of **mental ill health** due to poor organisational conditions
 - **NO**: survey of 374 female cleaners – **17.5% reported mental health problems – higher in age group 50-59**
 - Higher among **immigrant cleaners**
- Indications of associations cleaning/**cancers** (of the pancreas, liver, bladder, lungs, cervix, brain glioma, esophageal squamous cell carcinoma, gastric cancer, leukaemia and non-Hodgkin's lymphoma) and **reproductive health disorders**
- **Disability rate higher** than in other workers' groups
 - **NO**: 13.4 per 1.000 persons a year
- **Long-term diseases are more common**
- **Early retirement** due to work incapacity **more common**
 - **DE**: 40% in cleaners compared to 17% for the general workforce

Challenges and needs for research and action

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- **High prevalence of health problems** in the cleaning workforce
- Most studies very **specific to elements of the cleaning work or health outcomes**, rather than on the cleaning occupation as a whole
 - Need for a **global approach of the risks/issues for the sector**, taking into account combined exposures
- **Develop monitoring systems and health surveillance**
 - down to the level of the different types of cleaning jobs, in order to be able to **better identify the risks, the groups at risks, the health problems and the needs for prevention**
- Address the **issue of undeclared work**
- Improve **workers' access to training**
- **OSH awareness-raising** in:
 - employers, "host companies", cleaning workers
 - further actors whose work impacts on the OSH of cleaning workers: architects, designers, manufacturers of cleaning equipment and e.g. hotel room furniture

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Thank you for your attention !

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