Sentinel and alert systems to detect new work-related diseases

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Background

• Continuous changes in work and working conditions are followed by **new/emerging work-related diseases** (WRDs)

• **Additional instruments** from those already used for monitoring known occupational diseases (ODs);

• **Comprehensive approach** using several complementary methods, rather than a single method
1. Identify the existing OSH monitoring systems that are suitable for detection of new and emerging WRDs;

2. Describe their main characteristics;

3. Set up the basic typology of these systems.
Role in the overall project

Task 1. • Literature review

Task 2. • In-depth description of selected systems through interviews and qualitative analysis

Task 3. • Seminar to discuss outcomes 1 and 2

Task 4. • Final report including analysis and policy options

Task 5. • Workshop to disseminate findings to stakeholders
Scientific literature

Databases:
- MEDLINE (PUBMED)
- Embase
- Web of Science

Grey literature

Databases: OpenGrey, OSH-update

Existing data from 3 surveys

Websites

Contacting authors to retrieve the missing information
Methodology

Data extraction:

• **General information:** country, organization/institution maintaining the system, website

• **Aim** of data collection, **coverage**

• **Reporting mechanism**

• **Evaluation** of work-relatedness, **follow-up**

• **Dissemination,** link with **prevention**
• **75** identified systems from the EU countries, as well as outside Europe (USA, Canada, Australia, Singapore, Taiwan etc.)

• Algorithm - **typology**

<table>
<thead>
<tr>
<th>Nr</th>
<th>Question</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is the system aimed at workers or at the general public?</td>
<td>Workers/General public including workers</td>
</tr>
<tr>
<td>2</td>
<td>Which type of surveillance is used in the system?</td>
<td>Passive/Active/Sentinel</td>
</tr>
<tr>
<td>3</td>
<td>Is the system linked to workers’ compensation?</td>
<td>Yes/No</td>
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<tr>
<td></td>
<td>If yes, what type of system</td>
<td>Closed list/ open list/no list at all</td>
</tr>
<tr>
<td>4</td>
<td>Which diseases or health problems are reported?</td>
<td>Comprehensive (all diseases)/Specific (one or subset of diseases)</td>
</tr>
<tr>
<td>5</td>
<td>Is the system among others aimed to alert on new and emerging work-related health problems?</td>
<td>Yes/No</td>
</tr>
</tbody>
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Results

Monitoring systems

Compensation-based
- Closed list
- Open list
- No list

Noncompensation-based
- Comprehensive systems
  - All work-related diseases
  - Specific group of work-related diseases
  - Work-related diseases, accidents and injuries
- Sentinel systems
  - All work-related diseases
  - Specific group of work-related diseases
- Public health systems aimed at workers and non-workers
  - All work-related diseases
  - Specific group of work-related diseases
World Map

Washington SHARP (3 programs aimed at dermatitis, asthma, musculoskeletal disorders)

Spain: CEPROSS and PANOTRASTSS

Belgium: Fund for Occupational Diseases

Hungary: Registration system of ODs

Taiwan: NODIS

Switzerland: SUVA

Compensation-based systems
Compensation-based systems

• Collect data for **compensation purposes** reporting is driven by insurance services

• Closed list / open list / no list

• Swiss **SUVA** and Taiwanese **NODIS** - **additional data set** which enables link with prevention regardless of compensation

• Data collection: reporting + **data mining** in Washington Workers’ Compensation claims (Washington **SHARP**)
Compensation-based systems

- Direct workplace prevention
  - Medical screening
  - Workplace inspections after identification of a WRD

- Possibility to implement preventive actions regardless of compensation

**New/emerging WRDs** are also tackled by preventive actions

**SUVA** – screening and prevention of burnout in companies
Comprehensive systems

- Canada: OWRAS
- Finland: Register of occupational safety and health administration
- Norway: RAS
- The Netherlands: NROD, PIM
- UK and Ireland: THOR; UK: Riddor
- France: MCP, RNV3P, ONAP2, EpiNano
- Spain: Navarre
- Italy: OCCAM
- South Africa: SORDSA
- Singapore: iReport
- Australia: SABRE
Comprehensive systems

- **Aim:** data collection and analysis to measure incidences and trends in OSH
- Based on voluntary participation of physicians
- Disease-specific systems:
  - respiratory diseases;
  - skin diseases;
  - occupational cancer;
  - infectious diseases and
  - WRDs related to nanomaterials exposure
- Final decision made by reporter vs. work-relatedness evaluation by experts
- **Lack of exposure assessment**
Prevention is mainly implemented on a wider level, in communication with governing bodies.

These systems use collected data to provide OSH statistics and input for national preventive strategies and policies.

**Comprehensive systems**

- **THOR**
  - Sophisticated statistics
  - Health and Safety Executive
  - Preventive programs targeting specific industries, age groups, etc.

- **MALPROF**
  - Local units
  - Local stakeholders: companies, unions, representative of workers’ safety, local authorities, etc.

- **RNV3P**
  - Alert
  - 1) RNV3P physicians
  - 2) Other physicians and partners
  - 3) Regional and national level
USA: SENSOR, HHE, SENSOR (Pesticides)

Belgium and the Netherlands: SIGNAAL

France: OccWatch, GAST

New Zealand: NODS; Specialist Panels (Cancer Panel, Respiratory Diseases Panel, Solvents Panel, and Chemical Panel)
• Designed on the Sentinel Health Event (SHE) model
• Based on voluntary participation of physicians

• 2 international systems: SIGNAAL (Belgium and the Netherlands), OccWatch (MODERNET)

• Mainly monitor all types of WRDs; some have additional schemes for specific WRDs:
  - SENSOR Pesticides
  - NODS Specialist Panels: Cancer, Chemical, Respiratory Diseases, Solvent Panel
  - reviewing cases notified by registries
• Information on exposure: more thorough description while reporting / workplace inspections with data gathering

• Work-relatedness: team of experts; SIGNAAL, OccWatch – international platform

• Strong link with prevention by providing an alert signal:
  - Communication between different stakeholders
  - Direct workplace interventions

GAST Cluster of renal cell carcinoma in a chemical plant
Chloracetal C5

French National Authority for Health - guidelines for medical surveillance of the plant employees
Public health systems

USA: Pesticide Illness Surveillance Program (PISP)

Ireland: Quarterly National Household Survey (QNHS)

UK: Self-reported Work related Illness survey (SWI)

France: TMS, PNMS
Public health systems

- Aimed at health surveillance of workers and **general population**

**Survey-based systems:**
- **QNHS** (Ireland), **SWI** (UK); active surveillance

- Data collection on a 3 month periods, through **interviews** with workers (randomly selected) – reporting of health problems

- No evaluation nor follow-up

**“Classic” reporting systems**
- France **TMS** - musculoskeletal disorders;
  - **PNMS** - pleural mesothelioma;
- USA **PISP** – diseases related to pesticides exposure

**Reporting:** voluntary; medical specialist

**Work-relatedness evaluation:** experts
Public health systems

- Link with prevention

Pesticide Illness Surveillance Program (PISP)

- Environmental Protection Agency
  - Ongoing re-evaluation process of new chemicals
  - Restrictions on pesticides use

- Identification of vulnerable groups (pregnant farm workers, adolescent workers, etc.)
  - Preventive actions and policies
Integrating different approaches to detect new/emerging WRDs

**Disease coverage:** mental diseases

**Detailed exposure assessment:** cause-effect

**Dissemination of knowledge:** international network

**Better link with prevention:**
- Direct link with workplace preventive actions: SUVA
- Identification of high-risk economic sectors and industries: THOR
- Link with policies: Pesticide Illness Surveillance Program (PISP)
Thank you for your attention!

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