Work-related diseases - findings from an EU-OSHA activity

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Presentation of EU-OSHA

- **Set up in 1994 by the European Union and based in Bilbao, Spain**
- **Promote a culture of risk prevention**
  - Collect, analyse and disseminate information

- **What we don't do**
  - Write legislation
  - Inspect workplaces
  - Enforce the law
- **How we do it**
  - Produce reliable and relevant information
  - User-friendly tools
  - Share good practices
  - Network with organisations across Europe

+/- 64 staff
Budget: EUR ~15 m
of which **EUR ~ 8 m
operational**

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Background of the project

- **EU OSH Strategic Framework 2014-2020**
  - One of the 3 major challenges: to improve the prevention of work-related diseases

- **Background**
  - 320,000 workers die worldwide every year due to communicable diseases caused by biological agents - 5,000 of these fatalities are in the EU.
  - At least 15% of all new cases of cancer worldwide are caused by viruses, bacteria or parasites (e.g. Hepatitis B, aflatoxin B1, wood dust).
  - FR (2010): 4,7 million workers (22%) exposed to biological agents
    - healthcare/social work (74.9%), agriculture (38.8 %), Horeca (44.7 %), personal services (58.8 %), green jobs (46.4%)
  - Waste management and healthcare are growing sectors

Work-related diseases
Large related OSH overview 2015 - 2019

- **Instruments and practices – Return to work after cancer, incl. workplace cancer**
  - **Up-to-date knowledge on the impact on workers and employers, incl. costs;**
  - **Specific aspects relevant to SMEs;**
  - **In-depth analysis of specific policies and workplace interventions;**
  - **Analysis of drivers and barriers to successful reintegration;**
  - **Advice for enterprises.**

- **Review on specific diseases – Work-related diseases linked to biological agents**
  - **Overview on the current knowledge on relevant diseases and on recognised diseases;**
  - **Particular focus on emerging issues and new professions, e.g. green jobs;**
  - **Link to biological agents directive – unintentional exposures;**
  - **Collect information from recording and compensation systems.**

- **Methodologies – Alert and sentinel systems**
  - **Overview and typology of such systems for the identification of emerging health problems and diseases;**
  - **Insight on how they are used in practice to support evidence-based interventions and workplace prevention of diseases;**
  - **Several articles describing specific systems.**

Beneficiaries & intermediaries

- **Beneficiaries**
  - Policy makers at national and EU level, including social partners;
  - Legislators;
  - Researchers;
  - Actors in occupational diseases recognition and statistical data collection (e.g. national social security organisations);
  - Actors at enterprise level (e.g. health and safety manager, health and safety representative, trades union representative) and intermediaries involved in setting up company policies;
  - Sectoral organisations;
  - Policy makers in other, related areas, for example at the sectoral level, or regarding employment, public health and environmental policies.
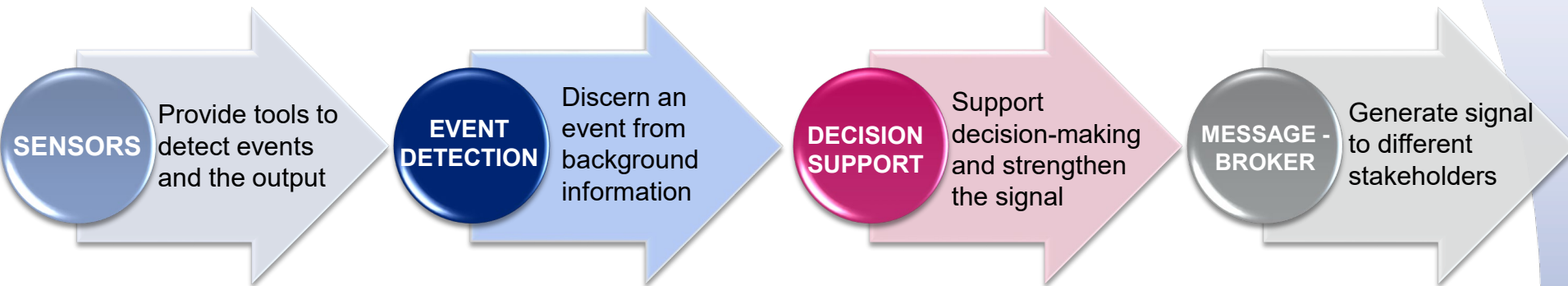
- **Intermediaries**
  - Intermediaries involved in setting up company policies;
  - Sectoral organisations
  - Policy makers at national and EU level, incl. social partners
  - Researchers…

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Alert and sentinel systems

- **Continuous changes in work and working conditions may lead to new/emerging work-related diseases (WRDs)**

- **A 'new occupational safety and health risk' defined by EU-OSHA as any occupational risk that:**

  - ➢ Was previously unknown and is caused by new processes, new technologies, new types of workplaces, or social organisational change; or

  - ➢ Is a long-standing issue that is newly considered a risk as a result of a change in social or public perceptions; or

  - ➢ Is a longstanding issue that new scientific knowledge allows to be identified as a risk.

WHAT ARE ALERT AND SENTINEL SYSTEMS?

- **Additional instruments to those already used for monitoring known occupational diseases (ODs)**

- **Early warning systems with a comprehensive approach for signal management: detecting, strengthening and alerting of new WRDs**

SENSORS → Provide tools to detect events and the output

EVENT DETECTION → Discern an event from background information

DECISION SUPPORT → Support decision-making and strengthen the signal

MESSAGE - BROKER → Generate signal to different stakeholders

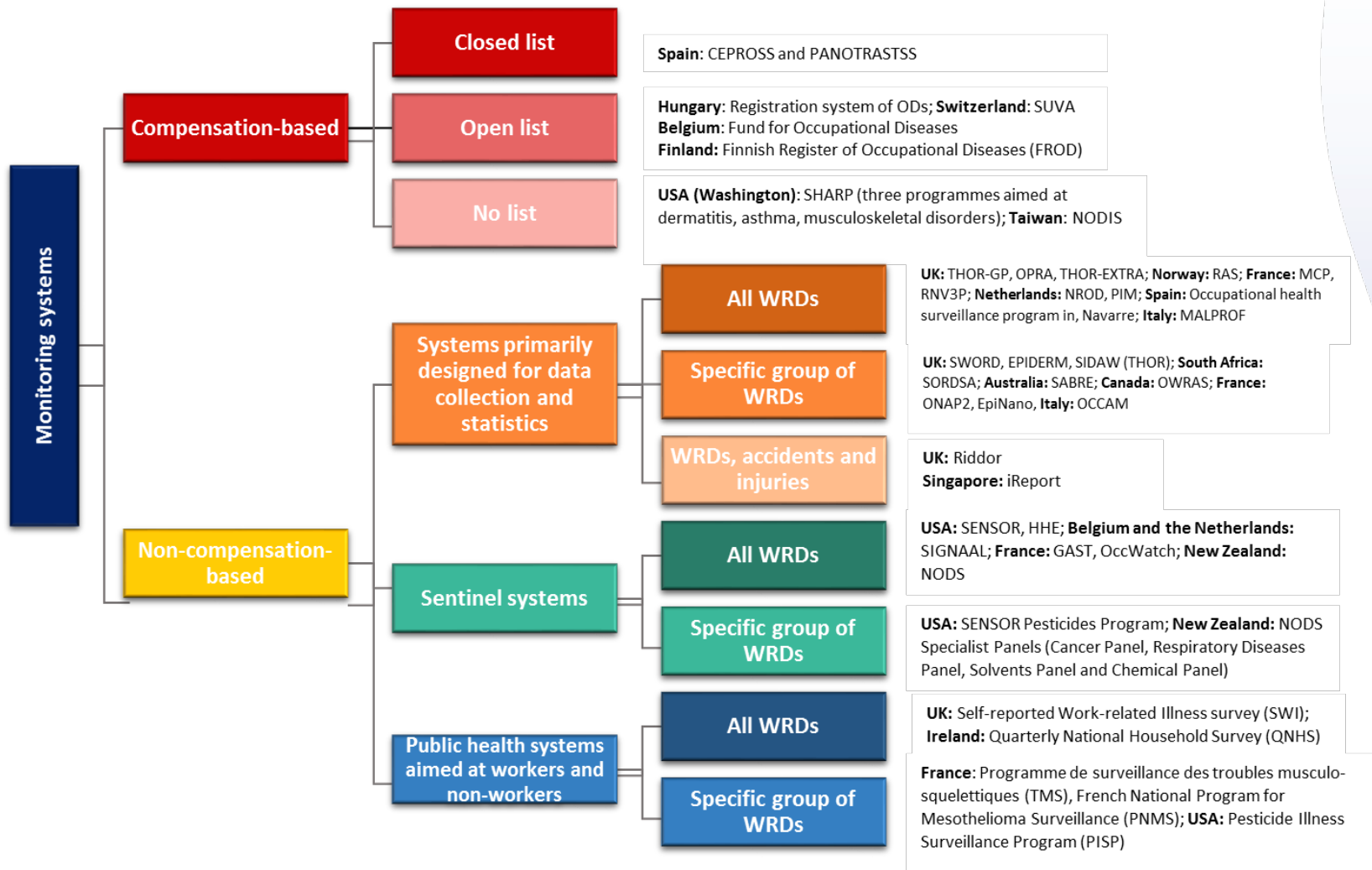European Agency for Safety and Health at Work

RESULTS

- **75 systems identified from EU countries, as well as outside Europe (USA, Canada, Australia, Singapore, Taiwan etc.)**
- **Algorithm - typology**

No	Question	Answers
1	Is the system aimed at workers or at the general public?	Workers/General public including workers
2	Which type of surveillance is used in the system?	Passive/Active/Sentinel
3	Is the system linked to workers' compensation? If yes, what type of system	Yes/No Closed list/ open list/no list at all
4	Which diseases or health problems are reported?	Comprehensive (all diseases)/Specific (one or subset of diseases)
5	Do the system's aims include alerting to new and emerging work-related health problems?	Yes/No

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Alert and sentinel systems:
75 surveillance systems from 26 different countries

Monitoring systems

Compensation-based

- **Closed list** — **Spain**: CEPROSS and PANOTRASTSS
- **Open list** — **Hungary**: Registration system of ODs; **Switzerland**: SUVA; **Belgium**: Fund for Occupational Diseases; **Finland**: Finnish Register of Occupational Diseases (FROD)
- **No list** — **USA (Washington)**: SHARP (three programmes aimed at dermatitis, asthma, musculoskeletal disorders); **Taiwan**: NODIS

Non-compensation-based

Systems primarily designed for data collection and statistics

- **All WRDs** — **UK**: THOR-GP, OPRA, THOR-EXTRA; **Norway**: RAS; **France**: MCP, RNV3P; **Netherlands**: NROD, PIM; **Spain**: Occupational health surveillance program in, Navarre; **Italy**: MALPROF
- **Specific group of WRDs** — **UK**: SWORD, EPIDERM, SIDAW (THOR); **South Africa**: SORDSA; **Australia**: SABRE; **Canada**: OWRAS; **France**: ONAP2, EpiNano, **Italy**: OCCAM
- **WRDs, accidents and injuries** — **UK**: Riddor; **Singapore**: iReport

Sentinel systems

- **All WRDs** — **USA**: SENSOR, HHE; **Belgium and the Netherlands**: SIGNAAL; **France**: GAST, OccWatch; **New Zealand**: NODS
- **Specific group of WRDs** — **USA**: SENSOR Pesticides Program; **New Zealand**: NODS Specialist Panels (Cancer Panel, Respiratory Diseases Panel, Solvents Panel and Chemical Panel)

Public health systems aimed at workers and non-workers

- **All WRDs** — **UK**: Self-reported Work-related Illness survey (SWI); **Ireland**: Quarterly National Household Survey (QNHS)
- **Specific group of WRDs** — **France**: Programme de surveillance des troubles musculo-squelettiques (TMS), French National Program for Mesothelioma Surveillance (PNMS); **USA**: Pesticide Illness Surveillance Program (PISP)

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13

Sentinel and alert systems

- **Collect information on new WRDs**
- **Raise alert to stakeholders**
- **Use collected data to trigger timely preventive actions**

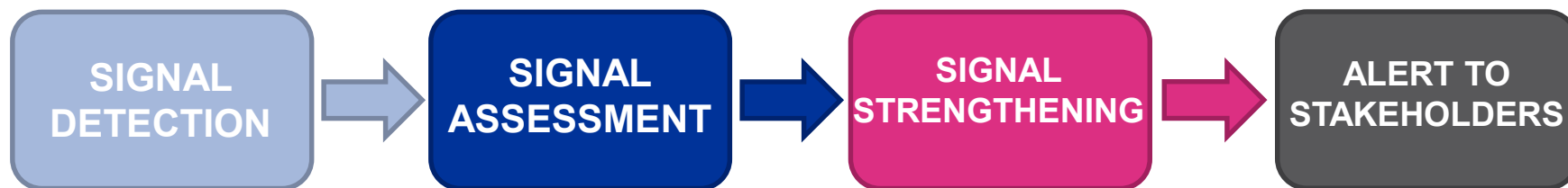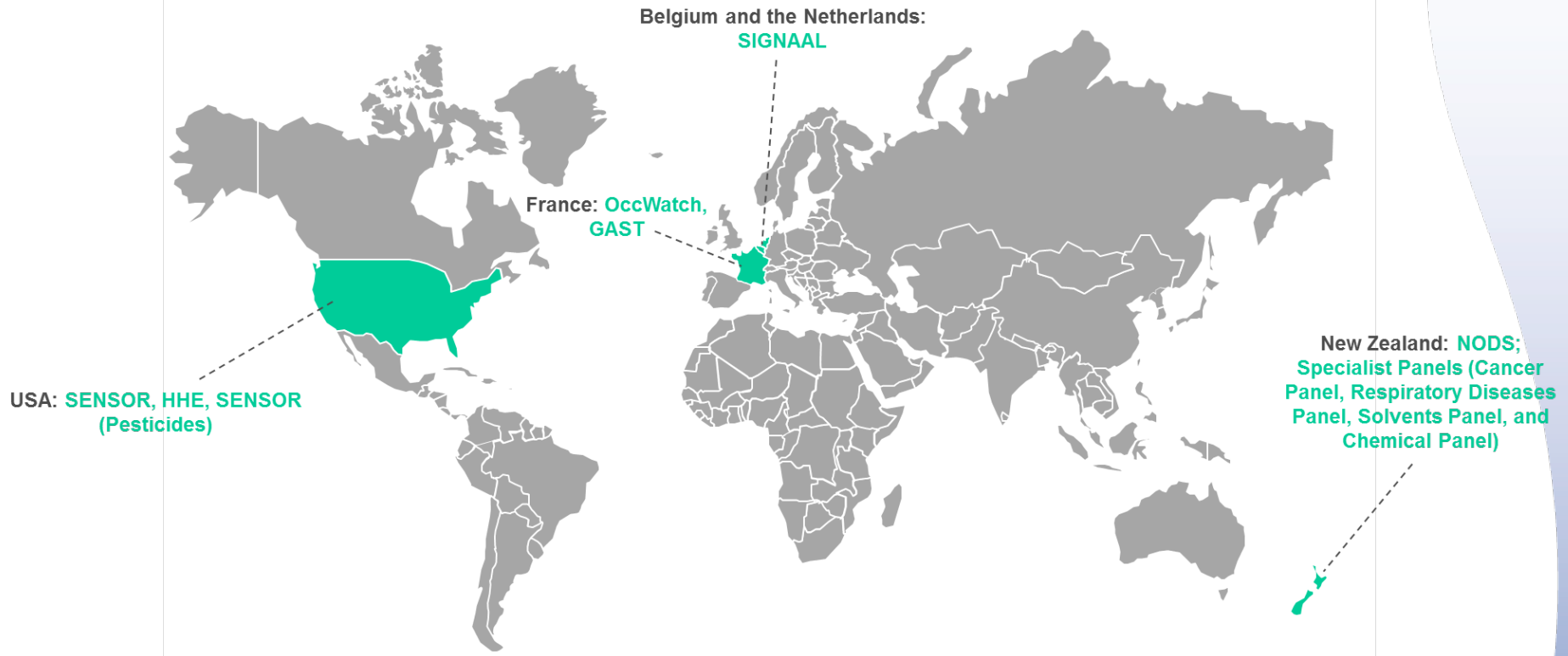| SIGNAL DETECTION	→	SIGNAL ASSESSMENT	→	SIGNAL STRENGTHENING	→	ALERT TO STAKEHOLDERS

Image source:

RNV3P (France)

- **The National Network for Monitoring and Prevention of Occupational Diseases (RNV3P) is a network for monitoring and prevention in OH**

- **It groups together the 30 Occupational Disease Consultation Centres (CCPPs) in mainland France and a sample of 9 OH services associated with the network**

- **The network aims to collect data from each consultation in a permanent national database on ODs (including patient demographic data, diseases, exposures, business sector and profession)**

- **It is up to the network's university hospital experts to investigate the diseases and attribute them, if necessary, to an occupational origin (this 'expert' causality is also registered in the database)**

- **The RNV3P is not only a platform for dialogue between clinicians and other OH professionals but also a system that coordinates knowledge for the purposes of monitoring, improving knowledge and preventing occupational risks**

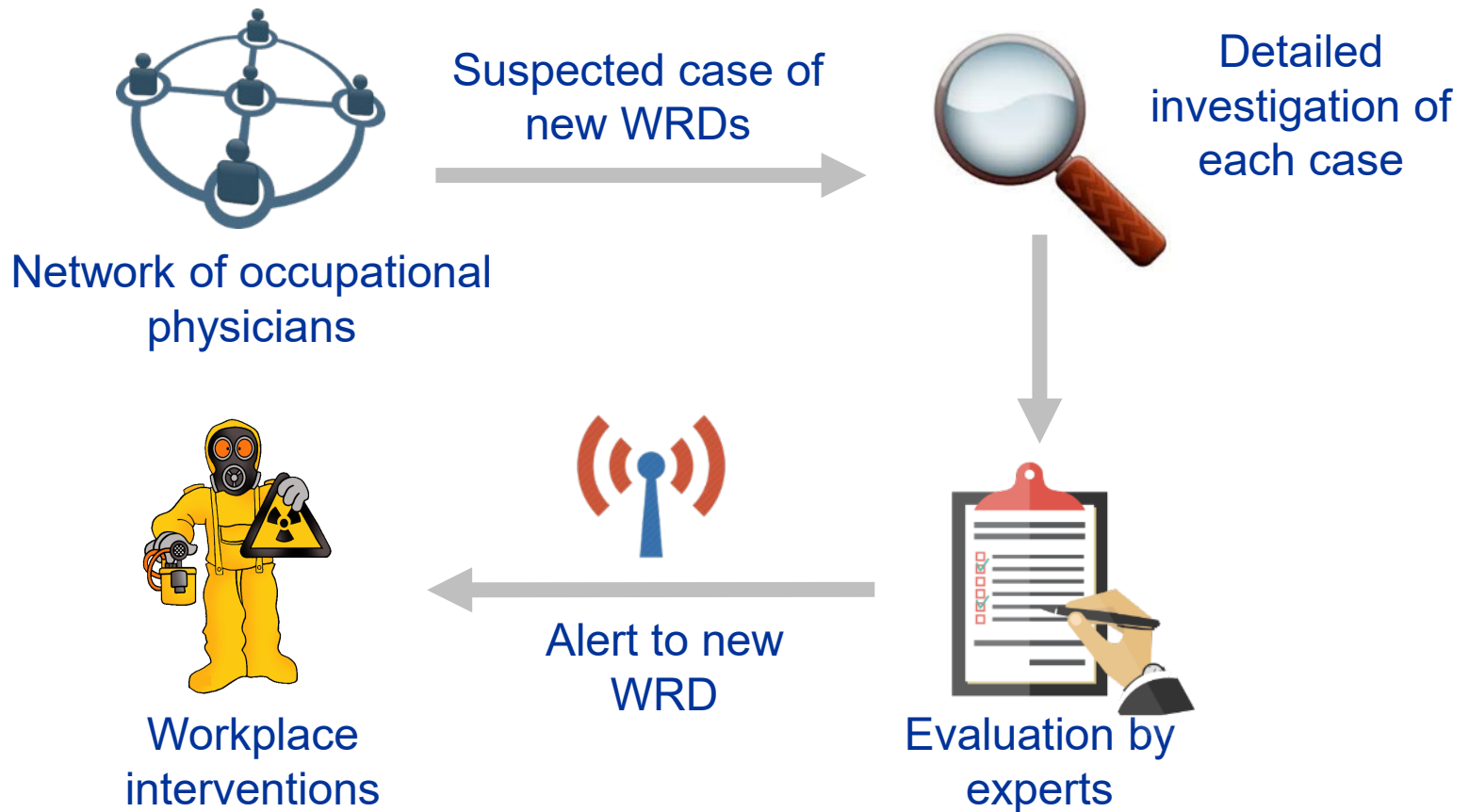*Image source: http://docplayer.fr/16930181-Presentation-du-reseau-national-de-vigilance-et-de-prevention-des-pathologies-professionnelles-rnv3p.html*

Sentinel systems

Belgium and the Netherlands: **SIGNAAL**

France: **OccWatch, GAST**

USA: **SENSOR, HHE, SENSOR (Pesticides)**

New Zealand: **NODS; Specialist Panels (Cancer Panel, Respiratory Diseases Panel, Solvents Panel, and Chemical Panel)**

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Sentinel systems

Network of occupational physicians

Suspected case of new WRDs →

Detailed investigation of each case

Alert to new WRD ←

Workplace interventions

Evaluation by experts

Image sources: https://www.kissclipart.com/network-clipart-computer-network-clip-art-l2qn92/download-clipart.html, http://clipart-library.com/magnifying-glass-vector.html

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SIGNAAL (Belgium and the Netherlands)

- **Maintained by the Netherlands Centre for Occupational Diseases (NCvB) and the Centre of Environment and Health of KU Leuven (Belgium)**

- **Main goal is to** **detect new OH risks and new WRDs**

- **OH physicians report diseases they suspect to be caused by an employee's occupation to an** **online platform**

- **Every reported case is** **evaluated in a structured manner** **by at least two independent OH experts**

- **After the assessment, the reporting physician receives an** **expanded report. This report contains supportive literary research, the relevance to the job in question and suggest regarding the next steps in the course of action.**

Image sources: https://ilpallonenellarete.files.wordpress.com/2016/07/countrieseuro2000.png, https://www.mysignal.be/

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Work-related diseases from biological agents

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Complementary to previous and ongoing work

EU-OSHA campaigns
European Week 2003 and HWC 2018-19

Expert Forecast: Main emerging biological risks
- Global epidemics (avian flue, HIV, etc.)
  - Workers are many times at the frontline of contamination
- Drug-resistant micro-organisms (MRSA, tuberculosis, etc.)
- Poor Indoor Air Quality: Indoor mould
  - Poor maintenance of air-conditioning, construction & insulation technics
  - Mould-related diseases: in FI, 264 cases (155 allergies) (2002)
- Waste treatment: micro-organisms, mould, endotoxins, etc.
- Poor risk assessment: little information on dose-effect relationship; measurement is challenging; low awareness level

Selected reviews:
- Legionella and Legionnaires' disease: a policy overview
- Biological agents and pandemics: review of the literature and national policies

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Work-related diseases caused by biological agents - literature review

- **Significant amount of allergens related to:**
  - production and processing of food - agriculture, food preparation, food management, fishing
  - wood in various forms
  - bacterial or fungal contamination of metalworking fluid
  - asthma and farmer's lung – hypersensitivity pneumonitis
  - waste management and composting - more green jobs in the future ->increased sensitization to biomass-related allergens

- **Animal breeders/carers/handlers, veterinarians, zoo personnel**

- **Healthcare workers, laboratory personnel, and waste workers**

- **Maintenance workers for air-conditioning and related systems (legionella),**

- **Forest workers (tick-born related diseases), healthcare workers (hepatitis, HIV, etc.);**

- **Professional drivers: fungi infections, possibly related to air-conditioning**

- **Re-emerging diseases (for instance Q-fever, tuberculosis and influenza)**

- **Travelling and contact with travellers**

- **Migration of immigrants/refugees to Europe may also introduce diseases**

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Work-related diseases caused by biological agents - literature review

- **Exploration and comparison of national monitoring systems focusing on systems available in France, Germany, the United Kingdom, The Netherlands and Finland.**

- **Lack of prevalence data; data on diseases dispersed and not publicly accessible.**

- **Data on diseases partly confirm findings of the literature review on respiratory diseases**

- **Little information on actual exposure to biological agents at the workplace**

- **Both in France and in Germany, classification systems are in use which can serve as practical examples for harmonisation**

- **Concept 'Biological agents' as applied in this review broader than in the Directive:**
  - substances or structures that originate from living or dead organisms (e.g. exotoxins, endotoxins, glucans, mycotoxins), allergens (originating from living or dead organisms, plants or animals) and carriers of a variation of biological agents (e.g. organic dust and bioaerosols)

Results

- **Workers exposed in many professions, but little information on prevalence or incidence of exposure or diseases**
- **Associations between occupation and diseases clear for some occupations**
  - High risk sectors: healthcare workers, workers in agriculture (arable farming and livestock farming), waste treatment workers, occupations that involve travelling and contact with travellers.
  - Lack of awareness of the risks from biological agents in all sectors, except healthcare and laboratories
  - Other professions: bone button makers, restauration (of artworks),etc.
- **Exposure to mixtures:**
  - Organic dust in agriculture and other professions, causing infections and allergies
  - Surgical smoke
- **Allergenic agents, sectors and occupations at clear risk:**
  - Agricultural and fisheries sector, food industry, wood-working and metal industry and the waste treatment sector
  - Well known allergenic occupational diseases are asthma in farmers and farmer's lung (hypersensitivity pneumonitis)

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Vulnerable groups

- For most occupations, no specific information
- Critical doses and circumstances of exposure may be different for these groups

- **Trainees and new professionals, young workers** → lack of experience & knowledge
- **Pregnant women**
- **People with pre-existing diseases,** like lung diseases, allergies and asthma, chronic diseases
- **People treated with immunosuppressants,** especially fungal diseases
- **Cleaning and maintenance workers,** working at different workplaces and for different employers
- **Temporary and undocumented workers**
- **Foreign workers**
- **Healthcare:**
  - Workers in home care (not always well informed)
  - Health workers who travel for work

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Emerging biological risks

- **Climate change** --> newly occurring microorganisms that have spread to other regions (e.g. via ticks and mosquitoes)

- **Environmental legislation leading to changing patterns in waste management**

- **Waste treatment and composting - specific allergens**

- **Changing travelling patterns and volunteer schemes** in third world countries (chikungunya, Crimean-Congo fever)

- **Migration flow to Europe** – transfer of biological agents from the Middle East and Africa

- **Multi-resistant bacteria and epidemics (e.g. of zoonoses),** risk to health professions and agriculture

- **Expected increase in green jobs -** increased sensitisation to biomass-related allergens

- **Potential re-emerging diseases,** e.g. Q-fever, tuberculosis and influenza

- ➢ **No system in place to respond quickly to emerging risks**

Monitoring of exposures to biological agents

- **Information on exposure to biological agents limited Monitoring systems do not exist in all countries**
  - Of evaluated countries, only in Germany, France and Finland occupational exposures monitored and registered on regular basis.

- **Exposures not measured frequently**

- **Possible to derive occupational exposure limits (OELs) for biological agents that have toxic or allergenic effects as for chemicals (e.g. endotoxins) BUT**
  - Lack of data on exposure and effects (exposure-effect relationships)
  - Lack of knowledge on exposure and pathogenicity

- **Innovative measurement methods for identification and exposure measurement**

- **FINJEM, MEGA database, COLCHIC database**

- **French TOE as a basis for categories of exposure**

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Synergies with public health

- **Compulsory reporting in public health for some diseases and exposures:**
  - Pandemics such as avian influenza
  - Tuberculosis
  - Brucellosis, etc…

- **Sentinel approach as in public health notification systems could be followed**

- **Expert exchange**

- **Expert networks in public health and occupational hygiene, e.g. regarding antibiotics and multiple resistance**

- **General practitioners can act as mediators for the prevention message and are important carriers of information**

- **Monitor spread and outbreaks of diseases**

- **Clear intervention plan when a new risk is identified – from first signs to alert for prevention**

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Recommendations – awareness-raising and communication

- **Better link between research community, authorities and the OSH experts at workplaces**

- **Effective information exchange strategy on policy measures and lessons learned between counties**
  - filling the gaps by additional research
  - how existing data, knowledge, experiences and best practices in different sectors can be collected
  - more systematic assessments of specific exposures or specific occupations, e.g. technical rules for biological agents in Germany or GESTIS database
  - Communication to benefit policy makers and workers/employers

- **Raising more awareness:**
  - Among occupational physicians - observing an increase in incidence of known diseases in novel occupational settings
  - Among general practitioners - possible link between observed health effects and (previous) work environment of a patient
  - Among new / young workers in relevant sectors and occupations, through e.g. vocational education.

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Thank you for your attention

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https://osha.europa.eu/en/themes/work-related-diseases

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Work-related diseases →

   From biological agents

   Work-related cancer

   Alert and sentinel systems

   Health surveillance

   Rehabilitation and return to work

Young people & OSH

Work-related diseases

In line with the EU Strategic Framework on Safety and Health at Work 2014-2020 , one of EU-OSHA's priorities is to support the prevention of work-related diseases. The aim is not only to improve the lives of individual workers, but also to minimise the costs of work-related illnesses and deaths.

The number of workplace accidents has decreased by 25% over the last 10 years. However, work-related diseases still account for an estimated 2.4 million deaths worldwide each year, 200,000 of which are in Europe.

EU-OSHA's work on work-related diseases aims to provide an evidence base for prevention, policy and practice. Another important objective is to provide a better overview of the extent of the occupational burden of disease.
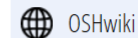
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