

WORKSHOP 'ALERT AND SENTINEL SYSTEMS FOR THE IDENTIFICATION OF WORK-RELATED DISEASES IN THE EU' Leuven, 31 January 2018 (Belgium)

On 31 January 2018, in Leuven (Belgium), the European Agency for Safety and Health at Work (EU-OSHA) brought together more than 30 leading experts and policy-makers from various European countries to discuss and consolidate the results of the project 'Methodologies to identify work-related diseases — review on sentinel and alert approaches'. The participants included those nominated by the Agency's national focal points, mainly representatives of ministries of health, ministries of labour, national insurance bodies, national institutes of public health and other occupational and public health authorities, as well as EU policy-makers.

The workshop built on a [literature review of alert and sentinel approaches to identify work-related diseases](#) (WRDs), and a draft report consisting of an in-depth analysis of 12 alert and sentinel approaches and recommendations related to setting up or improving sentinel and alert surveillance in EU countries. The workshop also provided a platform for the exchange of information and practices between Member States and stimulated cooperation. The feedback from the workshop participants was incorporated into the final project report.

In the morning session, the research team presented the findings of EU-OSHA's alert and sentinel systems review. The morning session also included presentations by experts involved in three such systems: The Health and Occupation Research Network (THOR) of the United Kingdom, Réseau national de vigilance et de prévention des pathologies professionnelles (RNV3P) of France and the Norwegian Registry for Work-related Diseases (Register for Arbeidsrelaterte Sykdommer, RAS). The afternoon was dedicated to group work to discuss feasibility, added value, prerequisites and recommendations in relation to the implementation of sentinel and alert approaches.

Opening statements and background to the project

The participants were welcomed by **Elke Schneider** of EU-OSHA, who introduced the workshop agenda. This was followed by further welcoming words from **Emmanuelle Brun**, EU-OSHA project manager, who gave some background information to the project. Emmanuelle Brun pointed out the significance of the burden of WRDs in Europe: they account for an estimated 160,000 deaths each year. She also explained that 'improving the prevention of WRDs by tackling existing, new and emerging risks' is a key challenge identified in the EU Strategic Framework on Health and Safety at Work 2014-2020, as well as in EU-OSHA's Multi-annual Strategic Programme 2014-2020. She also presented the most recent work performed by EU-OSHA regarding WRDs, including this sentinel and alert systems project and two others ('Rehabilitation and return-to-work after cancer — Instrument and practices' and 'Review on specific work-related diseases due to biological agents') commissioned to a research consortium led by the Finnish Institute of Occupational Health in collaboration with KU Leuven, the Coronel Institute, the Netherlands Organisation for Applied Scientific Research (TNO Netherlands), the University of Manchester and the University of Bologna.

Emmanuelle Brun explained that the main goal of the project on sentinel and alert systems was to provide an overview of different approaches to identifying emerging WRDs, but also to provide insights into how these approaches can support evidence-based prevention and policy. Further objectives are to contribute to information exchange on such approaches and to provide recommendations for their development. Ultimately, the project seeks to improve the visibility of WRDs. The target groups are policy-makers at the EU and national levels, including in areas other than occupational safety and health (OSH) (e.g. public health), researchers and groups of stakeholders involved in the monitoring of occupational diseases (ODs) and/or WRDs interested in implementing a sentinel/alert approach in their countries.

Emmanuelle Brun gave an overview of the project tasks:

1. Task 1 consisted of producing a review of the literature on existing sentinel and alert approaches and other monitoring systems that have aspects suitable for identifying new WRDs. The report "*Methodologies to identify work-related diseases: Review of sentinel and alert approaches*" is available at: <https://osha.europa.eu/en/tools-and-publications/publications/methodologies-identify-work-related-diseases-review-sentinel-and/view>.
2. In Task 2, 12 systems identified as a result of the Task 1 literature review were described in depth through interviews with stakeholders and qualitative analysis.
3. In Task 3, an expert workshop was held (18 May 2017, Brussels) to discuss the findings from Tasks 1 and 2. The main conclusions were published in a workshop summary, available on EU-OSHA's website (available at: <https://osha.europa.eu/en/tools-and-publications/seminars/methodologies-identify-work-related-diseases-review-sentinel-and>).
4. Task 4 involves the preparation of the final project report, building upon the previous tasks and including recommendations for the improvement of alert and sentinel surveillance in the EU, taking into consideration the discussions of the present workshop.
5. The present, and final, workshop of the project constitutes Task 5.

The final welcoming words were given by European Commission representative **Francisco Jesús Álvarez Hidalgo**, Directorate-General for Employment, Social Affairs and Inclusion. He emphasised once again the importance of WRDs and the use of an evidence-based approach to tackle this issue. He reckoned that the goals of this project are in line with the principles of the European Pillar of Social Rights and with the mission of EU-OSHA to anticipate emerging OSH risks. Finally, he underlined the crucial link between occupational health and public health, and the importance of collaboration in this regard for tackling new and emerging risks and WRDs, which EU-OSHA's project also aims to encourage.

The methodology and results of the project

The first part of the morning session was dedicated to the presentation of the results of the project by the senior researchers of the project team. First, **Annet Lenderink** from the Coronel Institute of the University of Amsterdam presented an overview of different systems identified through the systematic literature review, as well as the basic typology (classification) of these systems developed by the project team (report available at: <https://osha.europa.eu/en/tools-and-publications/publications/methodologies-identify-work-related-diseases-review-sentinel-and/view>). In addition, she described 12 systems selected from the literature review that were investigated in more depth through desk research and interviews with stakeholders as part of Task 2. The 12 systems cover each group of the typology developed by the research team and a variety of EU countries, as well as the United States. Each system implements a different approach for identifying new WRDs and can be effectively linked with prevention.

This was followed by a presentation by **Lode Godderis**, from Centre Environment and Health of the University of Leuven, who talked about drivers for and obstacles to sentinel and alert approaches and summarised the main recommendations for their implementation, building upon the in-depth analysis of the 12 systems mentioned above, as well as the discussions held during the Task 3 expert workshop. Some of the main common drivers were visibility of the system; motivation of the reporting parties; systematic and detailed exposure assessments; standardisation and quality control of the data collected; awareness and detection of new/emerging WRDs; two-way communication between system owners/users and authorities being essential for the systems' sustainability and for their effective contribution to prevention; and financial support and resources. Different approaches have been described in this project and each of them has strengths and disadvantages. Before implementing a new alert and sentinel approach, the national context and systems already in place should be considered. Lode Godderis concluded that, while establishing a European-level alert and sentinel system might not be a realistic option, better collaboration between the Member States in terms of the existing alert and sentinel approaches in the following ways would significantly improve sentinel surveillance in the EU:

- exchange of the data recorded;
- harmonisation of the data recorded;
- guidance for a systematic determination of an adequate level of alert based on the data reported;

- transnational collaboration at the level of the assessment of cases reported, for example through the setting up of an international group of experts;
- developing an EU-wide database for cases reported would also significantly contribute to the better detection of emerging WRDs, in particular for new WRDs with a low incidence.

General discussion

Some participants inquired about the reasons why some systems they knew of were not among those described in the project — for instance, neither German systems nor the Italian compensation-based system, which has a long history of use, were included in the review. The project team members explained that the systems selected are only some of the examples of sentinel and alert approaches, and that the goal of the project was not to analyse all existing systems. In addition, the project focused on the approaches most suitable for the identification and monitoring of *new* WRDs; registries and compensation-based systems that focus on ODs were therefore out of the scope of this project. Moreover, some systems are not described at all in the scientific literature and therefore would not be identified with the search string used in the literature review. In addition, even for systems described in the literature, information on whether or not a system is suitable for detecting emerging WRDs is often not clearly described and further investigation has to be performed to understand how a system works and whether or not it is suitable for capturing new risks and WRDs. Therefore, the systems described in depth in this project were those that seemed to be good examples of different approaches for the identification of new WRDs based on the information retrieved in the literature review. At later stages of the project, in the interviews with stakeholders and at the expert workshop held on 18 May 2017, the project team learnt about additional existing approaches, which were not described in the literature, and integrated this information into the project deliverables. For instance, additional approaches implemented in Germany are described in the summary of this expert workshop.

Additional examples of relevant approaches from Italy were discussed. The research team had captured and described in the literature review the non-compensation-based system MALPROF, maintained by the Italian Workers' Compensation Authority (Istituto Nazionale Infortuni sul Lavoro, INAIL). However, INAIL also coordinates a compensation-based system closely linked to workplace prevention and initiates numerous preventive projects involving both employers' and workers' representatives. For instance, economic incentives are provided for companies that improve safety and health at work. Furthermore, data gathered by INAIL are used by the National Health System (SSN) to develop prevention plans for each Italian region according to priorities derived from the analysis of collected data and in collaboration with regional public health surveillance bodies. INAIL collects data in a database. Data made available for the public are aggregated and anonymised. In addition, for several years, data have been used to identify companies at risk so that workplace prevention can be implemented. This project was called 'Information Flows'. INAIL also maintains the National Mesothelioma Registry. As part of this, each case reported undergoes a thorough work-relatedness investigation. Finally, efforts are currently being made to implement a sentinel and alert approach involving occupational physicians as reporters.

Some of the workshop participants were inspired by the systems described and expressed their enthusiasm about the possible implementation of similar approaches in their own countries. For instance, the representative from the Czech Republic showed an interest in the Swiss compensation-based system SUVA. In the Czech Republic, there are no sentinel and alert approaches in place; however, there is a national compensation-based system, which could potentially be complemented with a sentinel approach. The questions raised related to how many physicians report to SUVA and what motivates physicians to report to such a system. The project team members explained that in Switzerland there are about 200 occupational physicians in total and the exact number reporting to SUVA can be found on the official website of the system. SUVA continually makes an effort to encourage physicians to report, mainly by facilitating two-way communication as well as providing help and expertise in the assessment of cases reported.

Other interesting feedback came from the representative from Finland. In Finland, a legal act on the supervision of labour protection is in place. According to this act, every physician should report any case of WRD identified in their clinical practice. However, the efficiency of the process of linking the identification of WRDs with prevention is considered insufficient. More specifically, Level 3 alerts (alerts for national occupational health/public health authorities) are sometimes raised very late. As every case has to be assessed thoroughly, there is often a prolonged period between signal capturing and the national level of alert. The project team members agreed that the efficiency of linking the signals identified with alerts should be improved. However,

caution is necessary in terms of the dissemination of alerts, as not all cases reported will be work related. Therefore, the assessment of signals is a crucial step.

Another important insight was shared by the representative of the UK Health and Safety Executive (HSE). He pointed out that information for and training of those reporting to sentinel and alert systems are crucial. According to the UK data, there is a mismatch between diseases reported by workers (gathered by the Labour Force Survey) and those reported to the schemes by physicians (THOR). The project team members agreed that training is a very important driver of sentinel and alert systems, in particular in the case of medical specialists and general practitioners who often lack awareness of WRDs and especially of new/emerging work-related risks.

Finally, the role of case reports of new WRDs, or links between new exposures and WRDs, identified in alert and sentinel surveillance was discussed. According to Lode Godderis, some alert and sentinel systems rely on case reports. Because of the way they function, it is indeed easier for sentinel systems than for other systems to capture and analyse such reports. A general limitation of case reports published in the scientific literature is that they are rarely noticed by policy-makers and do not reach the policy level. In many cases, it takes too long to translate scientific knowledge about new risks and diseases into policy and prevention strategies. Sentinel and alert systems help to make this link. Therefore, the publication of case reports and the dissemination of knowledge generated by alert and sentinel systems to policy-makers should be encouraged.

Three sentinel and alert systems and their role in prevention and policy

The UK experience: the Health and Occupation Research Network (THOR)

THOR, implemented in the UK and Ireland, was presented by **Raymond Agius**, professor emeritus of the University of Manchester, Centre for Occupational and Environmental Health, and one of the main experts involved in the system over the years. Raymond Agius gave several interesting examples of how THOR experts use sophisticated statistical methods to identify trends of incidences in occupational health and links between new exposures and WRDs. He also talked about the contribution of THOR to prevention and policy at various levels: prompting the development of new and evaluating existing legislation; developing evidence-based educational campaigns; responding to inquiries of employers, workers and authorities (mainly the UK HSE); and providing alerts to different groups of stakeholders in areas in which more efforts are needed with regard to prevention and changes in policy.

A participant inquired about the link between cases reported and prevention and the sometimes late implementation of preventive actions. Raymond Agius explained that data confidentiality is sometimes a limitation. In order to ensure the confidentiality of the data reported, THOR experts use aggregated data for dissemination. However, in some cases sharing information on suspected exposure may result in making a company identifiable, as there are, for instance, substances that are produced by only one company in the UK. Therefore, THOR experts have engaged an aggregation/disaggregation advisory group of experts to help them deal with this issue.

The participants discussed the difficulties in identifying really 'new' work-related pathologies. Therefore, the term 'new' refers, rather, to new links being established between known WRDs and new workplaces, new contexts or new exposures causing these diseases. Raymond Agius clarified that the THOR system works independently from the national compensation systems and has different reporting criteria. Within THOR, all suspected cases of WRDs can be reported. Finally, he pointed out the importance of gathering exposure data within a sentinel and alert system, and that this still needs to be improved in the THOR system.

What can we learn from France?

Réseau national de vigilance et de prévention des pathologies professionnelles (RNV3P)

The second presentation was given by **Isabelle Vanrullen**, from the French Agency for Food, Environmental and Occupational Health & Safety (Agence Nationale Sécurité Sanitaire Alimentaire Nationale, Anses), who is one of the main experts in the French system RNV3P. She explained how the system functions and presented details of the wide network of stakeholders that support the implementation and maintenance of this system in France. She also described the specificities of the methods used by RNV3P to identify new/emerging WRDs,

giving rise to different levels of alert targeting local and national stakeholders and authorities. An interesting aspect of RNV3P is that it covers independent workers and includes mental health disorders. Data from the system were, for example, used to produce a report on mental ill health in France.

OccWatch: a call for international collaboration

Isabelle Vanrullen also mentioned OccWatch, the Occupational Diseases Sentinel Clinical Watch System, which was created by experts from different EU countries. This system provides an international online platform (hosted by Anses) through which cases can be reported and experts from different countries can comment on these cases. The objective is to support international collaboration and the sharing of data and knowledge on new/emerging work-related health risks and diseases. Some participants were interested in the possibility of joining OccWatch. Isabelle Vanrullen explained that the platform is already online but that it is in the testing phase with regard to the facilitation of the platform and the evaluation of cases. After this testing phase, it will be open for collaborations.

Harmonisation of data regarding work-related exposure

The French EU-OSHA focal point representative, Marianne Koszul from the French General Directorate for Labour, was next up. She emphasised the need to harmonise data on work-related exposure. One of the objectives of the French occupational health plan (guided by the EU Strategic Framework on Health and Safety at Work 2014-2020) is to identify, streamline and harmonise existing surveillance, expertise and vigilance OSH data in France in order to improve their exploitation, including by using a harmonised thesaurus. In this respect, work is ongoing to develop this tool and share it more widely.

It would be interesting to have a discussion at European level on the use of a harmonised thesaurus, to facilitate the comparison and standardisation of data between Member States.

The participants discussed the possibility of implementing a uniform exposure thesaurus, such as the one used in the RNV3P system. This thesaurus was developed by occupational health experts in France and provides hierarchical codes for all types of exposures. When available, international thesauruses were used. Uniform exposure data are an important prerequisite for the international exchange of data. The harmonisation of exposure data across Member States is a topic that requires in-depth discussion. The workshop participants reckoned that the discussions that took place at the workshop are an important step forward that should be taken further.

The Norwegian Registry for Work-related Diseases (RAS)

The Norwegian system, RAS, was presented by **Tonje Strømholm**, Chief Medical Officer of the Norwegian Labour Inspection Authority. Tonje Strømholm shared interesting information on the design of the system, its objectives and the system data flow. An interesting and unique feature of this system is that it is directly supported by the Norwegian Labour Inspection Authority, a governmental agency under the Ministry of Labour and Social Affairs. Tonje Strømholm presented some of the data reported by the system in previous years and gave examples of the contributions that RAS has made to the identification of new WRDs, and to prevention and policy.

The workshop participants were interested in the interventions that followed the identification of mental health risks, which are the third most common risk type reported by the system. Tonje Strømholm explained that these interventions usually take place at the workplace level. System experts perform workplace investigations to verify whether or not legal requirements have been met and they provide guidance to the employer and employees. A question was raised on the link between RAS and other systems in place in Norway (such as the compensation-based system or cancer registries). Tonje Strømholm clarified that there is no such link, even though studies were conducted in order to detect discrepancies between data reported to the national compensation-based system and RAS.

The presentation on RAS and the discussions that followed allowed participants to gain insights into the main challenges and obstacles that experts from RAS face. **Underreporting** is one of the main challenges in terms of system sustainability. Only 2-3% of doctors report to RAS annually, with no insight into the possible reasons for this low rate of participation. This is particularly interesting given the Working Environmental Act in place in Norway, which makes the reporting of all WRDs identified mandatory by law. In addition, physicians that report

WRDs receive financial compensation for reporting (about EUR 20 per case). However, these incentives do not seem to be having the desired effects. These points highlight the problem of insufficient engagement of reporting physicians, which the project team identified as an issue common to several systems studied as part of EU-OSHA's review. RAS experts are aware of the issue and are trying to improve the situation, for example through the development of electronic reporting and collaborative efforts to improve the engagement of reporting physicians.

Another challenge is the tendency for **skewed reporting** to RAS. The large majority of cases reported (49%) are noise-induced hearing loss, while only 11% are work-related respiratory diseases, 8% are musculoskeletal disorders and 6% are mental disorders. In addition, many of the cases of noise-induced hearing loss reported are related to historical exposure and only about 10% of cases require follow-up.

The fact that health disorders related to **historical exposures** are recorded is an obstacle to the sentinel function of RAS. Even though the system was initially designed based on the Sentinel Health Event model, the fact that in 2016 reported exposures were historical in about 29% of cases shows that the system is not functioning completely as a sentinel system. The delay between the exposure of workers, on the one hand, and signal capturing and alert raising, on the other hand, should be addressed.

Finally, participants raised questions on the influence on reporting of the involvement of the labour inspectorate in the system. They wondered if this could result in the reluctance of physicians to report cases because of possible workplace interventions by the labour inspectorate. Indeed, Tonje Strømholm confirmed that this could hinder the reporting, as the data reported are not anonymous. Nevertheless, obtaining the consent of the worker is a mandatory step before reporting the case to the Labour Inspection Authority.

Discussions: towards the improvement of sentinel surveillance in the EU

The participants were divided into four small groups to discuss the following aspects of sentinel and alert approaches:

1. *the feasibility of setting up an alert and sentinel approach in their countries;*
2. *the added value of an alert and sentinel approach in terms of detecting emerging WRDs, and the contributions to prevention and to policy-making;*
3. *prerequisites for setting up an alert and sentinel approach;*
4. *which recommendations presented in the morning session are most relevant and applicable in their countries.*

More detailed questions discussed at the workshop on these topics are available at: [Annex-Questions group work](#).

Feasibility of setting up an alert and sentinel approach

When discussing the feasibility of setting up an alert and sentinel approach, the participants uniformly agreed that the key enabling factor is **the political will** to do so. There is a high level of interest in some countries, but the national contexts must be kept in mind. As representatives from 19 European countries participated in the workshop, see [attendance list of participants](#), it was an ideal opportunity to learn about different national contexts with regard to the monitoring of WRDs and the potential implementation of sentinel and alert approaches. As there are significant differences in the maturity of the occupational health and monitoring systems in place among the EU countries, there is a large variety in interest and ability to implement sentinel and alert approaches in the Member States. In **Italy**, there is a high level of interest in monitoring ODs and WRDs and reporting is mandatory by law. There are several systems in place, for instance the non-compensation based system MALPROF (described in [EU-OSHA's literature review](#) and the final report (in press)), that can capture new WRDs. However, the main challenge is how to improve the information flow from these systems. Another problem is that some diseases are more consistently reported than others. For example, the coverage of work-related cancer is estimated to be around 80%, whereas musculoskeletal disorders have a coverage of only 30-40%.

In **Germany**, statutory accident insurance bodies are responsible for assessing, granting and the official reporting of workers' compensation claims for legally defined ODs and they also use these data to conduct investigations into WRDs. Furthermore, there is a special notification system in place for early-stage skin

diseases with the purpose of preventing more serious disease states. A similar system is planned for airway and lung diseases. Another programme involves specific preventive services for healthcare or child care workers in cases of back complaints. Above all, the regular health monitoring of workers by occupational physicians is a legal obligation. The monitoring results are evaluated and used to infer specific measures at the company level but are not available for general reporting. There seem to be no current plans to enlarge the present German notification and reporting system. Other data sources for the investigation of WRDs in Germany are described in the summary of the expert workshop held on 18 May 2017 (available at: <https://osha.europa.eu/en/tools-and-publications/seminars/methodologies-identify-work-related-diseases-review-sentinel-and>).

In **Switzerland**, along with the compensation-based system SUVA (described in [EU-OSHA's literature review](#) and final report (in press)), a system for public health surveillance is in place. The establishment of a better link between SUVA and the public health surveillance system would probably enhance the detection of both 'traditional' ODs/WRDs and new WRDs.

In **Lithuania**, there is a system of workers' compensation and there are annual medical examinations of workers. One of the main issues is that ODs/WRDs are often detected at a late stage. Regarding medical examinations, the obstacle to the identification of WRDs might be that workers may not discuss their health problems with the physician if they fear they might be at risk of losing their job as a result. Regarding the potential implementation of a sentinel and alert approach, there is certainly a will to improve existing systems, but there are also potential obstacles that need to be confronted.

In **Belgium**, there is certainly a political will to implement a sentinel and alert system. Indeed, the alert and sentinel system SIGNAAL was officially implemented by Fedris (Federal Agency for Occupational Risks) in 2017 — and [EU-OSHA's literature review on alert and sentinel approaches](#) supported this implementation. Currently, there seems to be no report of new disease-exposure combinations, but there is also underreporting of the traditional ODs.

In **Cyprus**, no sentinel and alert system is yet in place. The existing monitoring system in Cyprus is aimed at prevention and is comparable to the Norwegian system RAS (described above). There is certainly interest in implementing a system aimed at new and emerging WRDs, although there is some doubt with regard to the political will to do this. At the moment, the focus is on improving the current system and addressing underreporting.

In **Ireland**, the THOR system (described above) has been implemented. However, underreporting is a serious problem, with only about 200 cases reported per year, and these cases are reported by only 5-10 occupational physicians and a few medical specialists. In addition, there is a public health surveillance system in place (the Labour Force Survey, described in [EU-OSHA's literature review](#) and final report (in press)), which collects data directly from interviews with workers. The main occupational health body is the Health and Safety Authority and efforts are made to involve the Department of Health in WRD monitoring.

As in Ireland, in **the UK**, the main non-compensation-related data sources are the abovementioned systems, THOR and Labour Force Survey. The data collected are integrated in collaboration with the HSE, which also enables the implementation of preventive actions and links with policy. However, one of the main challenges related to the UK systems is the lack of resources to maintain these systems. In addition, in relation to THOR, there is a group of reporters that report to the system cases identified in only one month of each year. One of the main problems with this kind of reporting is the issue of confidentiality. If cases are identified outside this month, a physician can only report the case via the THOR Extra scheme, intended for unusual cases or those identified outside the reporting month.

In **France**, there are numerous occupational health monitoring systems in place, but only a few of them focus on new WRDs (such as RNV3P, described above). RNV3P relies on an impressive network and sound cooperation between various bodies. This can only happen with strong political support and sustainable funding at national level. One of the main obstacles that such systems face is reporter 'fatigue'. An idea that emerged during the workshop discussions is the possibility of offering an alternative means of reporting. For instance, in the UK system THOR, some physicians report in only one month of each year, and, in the Netherlands, there is an 'intensive' reporting scheme for a small group of occupational physicians.

In **Croatia**, there is a national registry of ODs in place. However, it has only a weak link with prevention. In general, there is a lack of awareness and knowledge of WRDs and only certain occupational health risks receive sufficient attention (for instance exposure to asbestos). Periodic medical examinations are not carried out for all workers, but are performed in relation to high-risk jobs only. The main obstacle to the implementation of a sentinel and alert approach is the lack of multisectoral collaboration, especially between the Ministry of Health and the Ministry of Labour. In addition, workplace inspections are not encouraged because of financial

limitations. This, consequently, hinders the adequate assessment of workplace exposure. Nevertheless, there is interest in implementing a sentinel and alert system, potentially based on the approach used by the French system RNV3P.

In **Romania**, there is a compensation-based system in place with an open-list approach (cases outside the official list of ODs can be reported if there is proof of causality with regard to work). The coverage of cases reported is estimated to be around 60%. The main advantages of this system are the engagement of general practitioners and the existence of multidisciplinary teams for the investigation of work relatedness. In addition, there are some monitoring schemes for specific groups of workers, such as agricultural workers. There is interest in implementing a sentinel approach in Romania and such an approach could be built into the existing compensation-based system. In addition, there is interest in initiating a collaboration with the OccWatch platform.

For **Luxembourg**, as a small country, international collaboration are particularly important, including in the field of occupational health. Currently, no sentinel and alert system is in place. However, there is a reasonable level of medical surveillance of workers. However, an issue in relation to this surveillance is the large number of workers who are working abroad and therefore are not covered by occupational health surveillance. In addition, the education and training of occupational physicians to increase the awareness of new WRDs should be improved. As the occupational health system in Luxembourg is most comparable to the one in France, perhaps one of the French models of sentinel and alert approaches could be considered for implementation in Luxembourg, but this depends on a sufficient level of political interest.

In **Spain**, a national compensation-based system with an open-list approach is in place (described in [EU-OSHA's literature review](#)). In addition, there are several regional non-compensation based systems, such as the one in Navarra, described in-depth in EU-OSHA's final report (in press). Whereas underreporting is a significant obstacle to the compensation-based system, in the regional non-compensation-based schemes, such as the one in Navarra, the coverage of diseases seems to be significantly higher. The implementation of an electronic reporting system and the simplification of the reporting procedures in the existing systems are seen as the main solutions.

In **Norway**, RAS (described above) uses to some extent a sentinel and alert approach and can identify new WRDs. However, the system faces certain challenges as discussed above (section 4.3). The representative from Norway emphasised that efforts need to be made to enhance the political interest in further improving sentinel and alert surveillance. Proof of cost effectiveness is seen as a major tool in generating political support.

In the **Czech Republic**, a compensation-based system is in place. This system uses a closed approach where only ODs from an official list can be reported. This closed approach is seen as the major obstacle to the identification of new WRDs. At the moment, there seems to be no political interest in adjusting this system to make it more suitable for the detection of new WRDs, for instance by implementing an open-list approach. However, there is interest among occupational health experts. Pressure from outside would perhaps encourage these changes, for instance through European legislation explicitly requiring such steps to be taken.

In **Bulgaria**, a compensation-based system is in place. However, there is significant underreporting of WRDs — only about 100 cases are reported in the whole country per year. An advantage is that general practitioners and medical specialists are trained in occupational health and in reporting to the system. On the other hand, little reporting is carried out by occupational physicians. This could be because of conflicts of interest. Since occupational physicians are paid by employers, workers might fear that they would lose their job if they report a health complaint. Nevertheless, there is political will in the country to implement a sentinel and alert approach.

In **the Netherlands**, all diseases are covered whether work related or not. The National Registry for Occupational Diseases is non-compensation related and the Surveillance Project for Intensive Notification (PIM) is aimed at a small group of motivated occupational physicians. In addition, the sentinel and alert system SIGNAAL is implemented in collaboration with Belgium. As in Bulgaria, the issue of the independence of occupational physicians from employers is sensitive.

Added value of an alert and sentinel approach

Most of the discussions focussed on how to make 'a business case' for supporting the setting up of a sentinel and alert approach in different countries.

The most convincing argument seems to be the positive effect of sentinel and alert approaches on **decreasing the financial burden of WRDs**. This is a very important argument, relevant to a large number of different

stakeholders, including workers, employers and actors in healthcare systems. As sentinel and alert approaches help to establish causality with regard to work in cases of links between new exposures and WRDs, they contribute to the timely identification and prevention of such WRDs. This undoubtedly has an important impact on decreasing the economic burden of WRDs, which otherwise in many cases is transferred to social security and society as a consequence of a lack of established work causality.

An important aspect of sentinel and alert approaches is their ability to trigger **timely preventive actions**. Once new WRDs or links between new exposures and WRDs are identified through sentinel and alert systems, these links can be strengthened through further investigation to clarify causality with regard to work and to trigger adequate preventive actions. Alert and sentinel systems can also be used to identify vulnerable groups of workers or specific sectors and to develop targeted evidence-based prevention and policy. One of the examples is the long-term collaboration between the UK system THOR and the UK HSE. THOR experts use sophisticated statistical methods to identify emerging incidences of WRDs in specific sectors and alert the HSE. These data are further used to prioritise long-term preventive programmes, campaigns and policies by the HSE.

Timely prevention is especially important in the case of new work-related health risks that affect a large number of workers in different contexts, such as work-related mental health problems. Alert and sentinel systems can make a particularly important contribution to the detection and prevention of such WRDs as well as of multifactorial, long-latency WRDs and diseases that are sensitive topics of discussion such as infertility and teratogenicity. As these health problems are often not covered by traditional monitoring systems for ODS, sentinel and alert systems can play significant role in raising awareness of these risks and in their prevention.

To make 'the business case' for the implementation of a sentinel and alert system, occupational health experts have to **increase publicity of new work-related health risks and diseases that alert and sentinel systems have been able to detect**. The identification of individual cases or clusters of cases of links between new exposures and WRDs through alert and sentinel systems could be supported by follow-up epidemiological studies to generate more data on the extent/number of estimated cases in order to build stronger, more convincing arguments for policy-makers. Finally, it is necessary to **engage social partners** and encourage them to support and advertise sentinel and alert systems.

Prerequisites for setting up an alert and sentinel approach

The participants divided the prerequisites and obstacles discussed into two different groups — **political** and **technical** — which are closely interconnected.

The main obstacles are the **lack of political will** to implement a sentinel and alert approach and to address the issue of new health risks and WRDs, as well as the lack of legislation on the national and EU level to support such implementation. The political obstacles need to be faced with knowledge and clear, evidence-based arguments. The participants also emphasised that there should be consistency over time in terms of the occupational health priorities at EU level, as changing priorities may hinder the implementation of national sentinel and alert approaches. Ultimately, political will is essential for the implementation of a sentinel and alert approach.

Another prerequisite highlighted by the workshop participants is **a certain level of maturity of the occupational health system in place**. There are significant differences in the occupational systems in place in the various EU countries. The participants concluded that in some countries certain features of the occupational health systems in place would need to be changed before a sentinel and alert approach could be implemented. For instance, collaboration between different policy areas (such as between ministries of health and ministries of labour) needs to be improved, and the awareness of WRDs in general ought to be increased.

Closely linked to the previous point is the issue of the **accessibility of occupational health services**. This mainly relates to the access of workers to occupational health specialists. An important obstacle is the insufficient number of occupational physicians, which seems to be the case in most of the countries represented at the workshop. Efforts need to be made to attract physicians to this field. A strong network of occupational physicians is an essential prerequisite for a sentinel and alert system that provides good-quality data. However, in some countries the decrease in the number of occupational physicians is the result of political decisions. It is therefore even more important to ensure that general practitioners are well trained in OSH in order to increase their awareness and ability to detect WRDs and to involve them in reporting to alert and sentinel systems.

The lack of infrastructure was also highlighted as an important obstacle. Participants reckoned that a reliable sentinel and alert system needs to be built on a **good infrastructure**. In relation to this point, it is inevitable that certain obstacles will be encountered, such as a lack of financial and human resources, insufficient engagement

of reporting physicians and the burden of bureaucracy. In terms of reporting, it is essential to make the reporting procedure as simple as possible and to implement an electronic reporting system. Therefore, collaboration with information technology (IT) services is also a prerequisite. A complete automatisisation of the reporting procedure may help. Moreover, efforts to raise awareness on new work-related health risks and diseases among different groups of reporting physicians, as well as supporting their engagement in the system, is essential.

Another major obstacle discussed during the workshop is the **lack of standardisation and harmonisation of data** collected in different systems and countries. This also applies to compensation-based systems (e.g. lack of harmonised criteria for compensation) or national registries for ODs and WRDs (e.g. different lists of reportable ODs/WRDs). As these systems could be a basis for the implementation of a sentinel and alert approach in countries that do not currently have one, harmonising these data would facilitate the sharing and comparison of sentinel and alert information. However, the participants reckoned that this is a sensitive issue and pointed out the difficulties faced by Eurostat in this area. Improved collaboration between various stakeholders is an alternative and would also contribute to the improvement of alert and sentinel surveillance in the EU. Some good examples were shared during the workshop, such as that of OccWatch, the collaboration between experts from systems in France and the UK to look for similar cases of links between new exposures and WRDs, and the implementation of SIGNAAL thanks to the cooperation of experts in the Netherlands and Belgium.

Apart from discussing the prerequisites for the implementation of sentinel and alert approaches, the participants mentioned that the following stakeholders should be involved in the process:

- **physicians** (occupational physicians, but also general practitioners and medical specialists);
- **OSH practitioners** (have crucial role in the exposure assessment);
- **policy-makers** (political will is needed to implement a system);
- **funding bodies**;
- **trade Unions** (need to be more involved);
- **employers**;
- **statisticians**.

Recommendations for the implementation of alert and sentinel approaches

The participants agreed that there is a need to improve alert and sentinel surveillance in the Member States. Indeed, there are numerous monitoring systems in place in the EU but only a few have an alert and sentinel function. Many national compensation-based systems are built on a reasonably good infrastructure, but use a closed-list approach and focus on established ODs. They are therefore not suitable for monitoring new WRDs or links between new exposures and WRDs. An alert and sentinel approach could be built into these compensation-based systems, thus making use of the infrastructure already in place. In addition, this would contribute to improving the link between the data collected by the alert and sentinel function and the official list of ODs, which would allow new WRDs and links between new exposures and WRDs to be better taken into account when revising the list of ODs.

The participants acknowledged the importance of the **strong network of clinics for ODs** successfully implemented in the French RNV3P. Occupational physicians are essential actors in data collection in sentinel and alert systems, as they can provide the highest level of data quality. Therefore, a network of occupational health clinics is the best starting point for sentinel and alert systems. Well-trained general practitioners can direct potential cases of new WRDs to occupational physicians in occupational clinics, who can then further report and initiate work-relatedness investigations. A stable network of occupational physicians in tertiary clinics could also be an alternative source of information on WRDs if no sentinel and alert systems are in place, at least as a bridging option.

Interestingly, when discussing the issue of the lack of occupational physicians and the lack of engagement of those reporting to alert and sentinel systems, workshop participants considered the possibility of **involving workers in reporting**. This approach is used in only a few of the systems identified though EU-OSHA's literature review. For instance, the UK Labour Force Survey relies on data reported by workers, but is used as a complementary source of information, in addition to systems relying on physicians' opinion (such as THOR). The participants thought that the workers' perspectives are not sufficiently represented in the existing systems and that this should be considered as an alternative data source. This could be especially significant for gaining insight into the incidence and prevalence of emerging multifactorial diseases, such as musculoskeletal

disorders. In addition, **more involvement of workers' representatives, such as trade unions**, is necessary, in order to improve communication and data exchange between workers and other stakeholders.

Another additional recommendation is the **enhancement of the link between cases reported and alerts**. This is often not efficient enough and there tends to be a considerable time lag, which hinders timely prevention. The main criteria for determining an adequate level of alert should be the clinical severity and incidence of the identified WRD. Clearly, not all cases identified will be confirmed to be work related. However, if the necessary level of action could be determined in a more structured way, a larger number of potentially exposed workers could be protected.

The necessity of **tackling some specific emerging risks, WRDs and sectors at risk** through sentinel surveillance was also highlighted. For instance, there is little knowledge of the health effects of some major emerging risks, such as nanotechnology and robotics. Putting in place alert and sentinel systems to specifically address these risks would contribute to developing knowledge on the effects of these risks and therefore to the timely prevention and protection of exposed workers. With regard to WRDs, multifactorial diseases and diseases with a long latency were pointed out as requiring particular attention, as their link with the workplace is often not straightforward. One of the suggestions was to use the approach implemented in Italy by INAIL, where identified WRDs are divided into long- and short-latency diseases. According to these features, appropriate preventive actions and policies are implemented. For instance, for diseases with short latency the focus is to act immediately through direct workplace interventions, whereas in the case of WRDs with long latency more effort is put into investigating the nature of the exposure and pathology. Finally, in terms of economic sectors, participants felt that the focus is still on traditional sectors, such as agriculture and construction, whereas there is a lack of knowledge and investigations in relation to 'newer' sectors such as call centres, the hotel, restaurant and catering sector (HORECA) and IT services.

Finally, the importance of **international collaboration between different countries and systems** was highlighted recurrently. The workshop itself was an opportunity to exchange ideas and knowledge for the improvement of alert and sentinel surveillance in Europe. OccWatch was mentioned as a good example of international collaboration and several participants expressed their interest in taking part in this platform. These potential collaborations will be further explored as a follow-up to the workshop. Further dissemination of such initiatives, as well as the engagement of occupational health experts from different countries, should be encouraged.

Finally, the participants agreed that developing a European sentinel and alert system might be too ambitious at this point, and therefore recommended 'starting small' and focusing on integrating an alert and sentinel function into existing systems (some such approaches are presented in EU-OSHA's literature review), on the harmonisation of data and on international collaboration. International pilot projects (such as OccWatch) are good starting points for the improvement of alert and sentinel surveillance in the EU.

Conclusions

Lode Godderis briefly summarised the main outcomes of the discussions. He emphasised the importance of taking into account the different national contexts and the existing systems in place, and of making use of these to improve sentinel surveillance in the Member States and in the EU as a whole. The existing compensation-based systems and OD clinics could be good starting points. Some interesting questions were raised and deserve further consideration, for example how to attract more physicians into the occupational health field, and how workers and employers could be more involved in reporting to sentinel and alert systems. Finally, Lode Godderis pointed out the importance of exchanging data on the EU level. During the workshop, the participants welcomed the opportunity to learn about and exchange knowledge on alert and sentinel approaches and showed an encouraging enthusiasm for further collaborations. The participants were encouraged to share this enthusiasm and these ideas with their organisations and national focal points.

Emmanuelle Brun from EU-OSHA closed the workshop by thanking the participants for their very active participation. She recalled that the objective of EU-OSHA's project was to improve the detection of WRDs and their prevention by, among others, encouraging the exchange of information on existing alert and sentinel approaches and by fostering cooperation in the EU. She was therefore pleased that the workshop provided concrete opportunities for collaboration between attendees, for example on a thesaurus for exposure data and through OccWatch. Finally, she offered EU-OSHA's support to the participants to help them disseminate information on their work on alert and sentinel approaches and on new WRDs, for example through EU-OSHA's website, OSHmail and OSHwiki, or, together with the national focal points, through national-level workshops in countries that express an interest.