

Modernet Newsletter

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Modernet 2.0: What is new in identifying work-related ill health?

By Stefania Curti



The first meeting of **Modernet 2.0: What is new in identifying work-related ill health?** was held in **Lodi**, Italy on September 8, 2015.

Lodi is a small town located 30 km from Milan. It was originally a Celtic village. Later on, Lodi's geographical location made it an important city, especially for the famous Roman road system. One of the main features of the city is the Adda river that over the centuries has contributed to Lodi's agricultural development.

The meeting covered different topics as indicated on the program. It started with five presentations on Modernet topics concerning both methodological aspects and detection of new risks. For example, Nicole Palmen, industrial hygienist and toxicologist from the National Institute for Public Health and Environment (RIVM), illustrated the importance of detecting new and emerging risks (NERCs) and the possible actions needed to control them.

Following this there was the session on new occupational health risks which consisted of presentations of new cases. Gert van der Laan, visiting Professor at the University of Milan, reported some examples of new cases in the Dutch agricultural sector (e.g. marijuana plantation, tulip bulb industry). Finally, the morning session was closed by Jorge Costa-David (EU Commission, Principal Administrator in Directorate General Employment, Social Affairs & Inclusion) who explained the EU strategy in occupational safety and health.

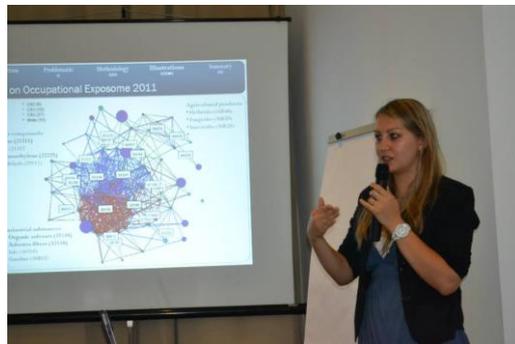
The afternoon session consisted of presentations describing new collaborative projects. Annet Lenderink (AMC Coronel Institute Occupational Health) illustrated the proposal on the EU-OSHA tender on work-related diseases and sentinel and alert systems, while Lode Godderis (KU Leuven) described the application for a new COST Action on neurotoxic diseases (namely ToxBrian).

Thank you to all participants who joined us in Lodi and see you in Prague!



News

Two PHD students from Grenoble university who have previously attended Modernet conferences and presented part of their work will have their “viva voce” on the 12th and 13th of November 2015: Best wishes to Delphine Rieutort (exposomes) and Marie Delaunay (GIS). Lode Godderis will be on the jury. Please find the email addresses below for those who want to send encouragement.



Delphine Rieutort

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Exposomes et Fonctions Expertes pour la Surveillance et la Détection des Evènements Emergents dans le Réseau National de Vigilance et de Prévention des Pathologies Professionnelles (RNV3P)

Exposomes and « expert functions » for the surveillance and detection of emerging events within the French national network for occupational diseases and prevention (rnv3p)

Abstract

Impact of population on the environment, and conversely, is obvious and represents a real challenge for Public Health since 2000. It has been shown an increase in cancer prevalence, respiratory disease or even reproductive disorders, for which multifactorial origins are strongly suspected. In this

context, surveillance has become an essential tool to decision making in public health, and surveillance networks of health events are multiplying, giving rise to numerous databases (sometimes considered as “big data”), still poorly used.

Objective of this thesis work was to develop a new concept of surveillance, the Observational Surveillance (OS). This allows an optimal use of observational databases, extendable to different kind of databases and problematics, taking into account various multiple information available.

OS is based on the exposome approach, to restructure data as a network, allowing the study of associations between information and also their structure. In this purpose, several indicators have been developed to study in the meantime the different recruited association for an event of interest, but also the evolution of their structure over time. These indicators allow generating the unique signature of the event: the spectrum. A tool, named “Observational Surveillance Analysis” (OSA), allowing the routine use of methodology, has been developed in the R platform, which permits automation and standardization of results.

Applications were used to illustrate the OS analysis and its portability and adaptability to different context and problematic. Three applications are based on the French National Occupational Diseases Surveillance and Prevention Network (RNV3P): bladder cancer, asthma and non-Hodgkin lymphoma. Three other applications are based on the Belgium occupational physicians group IDEWE: sore throat, caregivers and farmers.

Thanks to different applications, it has been demonstrated the portability of the OS methodology to different databases, and also, to different analysis configuration, disease/exposures or activity/diseases. Furthermore, the “OSA” tool which has been developed, allows an easier use to routine analysis and, in the end, could be integrated in an existing surveillance network.

Keywords: Observational surveillance, exposome, database, R, multiple information



Marie Delaunay

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Approche géographique appliquée au Réseau National de Vigilance et de Prévention des Pathologies Professionnelles (RNV3P).

Geographical approach of the French national network for occupational diseases and prevention (rnv3p)

	<p>Abstract</p> <p>The field of occupational health is complex because it combines many different types of data (activity sector, occupations, risk exposures, diseases), available at nested scales (communes, activity territories, employment areas, regions, etc.) and from different partners (insurers, stakeholders, monitoring systems). These multiple sources of additional data, formalized or not, are always analyzed independently, ignoring in particular the geographic dimension associated therewith (underlying activities territories).</p> <p>The aim of our work is to consider one of these data sources, the rnv3p (French National Occupational Diseases Surveillance and Prevention Network), as a spatial object. Through different methods (explained Part 1) and geomatics tools, and taking into account the underlying workforce, it is primarily a description of the network in terms of recruitment, shadow and preferential recruitment areas that is made (Part 2). Secondly, it is the confrontation of this database to other data sources describing occupational diseases (especially compensated one) which is analyzed through approaches by industry and pathology (Part 3). Finally, recommendations regarding the development of a mapping tool, built for the rnv3p database for vigilance purposes and helping various occupational health stakeholders, were made (Part 4).</p> <p><i>Key words: occupational health, work related diseases, surveillance network, Geographic Information System (GIS), spatial analysis</i></p>
	<p>Core Group matters - voluntary association</p> <p>We are in the process of creating a voluntary association to keep a more or less (in)formal structure for our network. The voluntary association will be based in Belgium and a bank account will be opened. At the meeting in Lodi the participants agreed in an annual membership fee of 25 Euro to have a small working budget and pay for the website maintenance. During the meeting Annet was informed about a surplus in the budget of our COST Action. After consultation with the Coronel Institute and the financial controller of the Action we are currently working on a substantial donation to our Modernet Association. It looks very promising and we will keep you informed. It would be great to have some money for the organization of an annual meeting etc.</p> <p>Below you will find some information on research collaborations and abstracts of two important papers on Modernet topics authored by our Modernet members and published in 2015.</p> <p>At the 31st International Conference on Occupational Health (ICOH 2015) in Seoul we had a special session on Modernet topics.</p>
	<p>Final update from WG2</p> <p>Just so you know what has happened in WG2 since our meeting in Bologna.</p> <p>Several of us have been working with our data to see if we can measure the impact of the EU vibration directive. Our aim is to investigate whether the incidence of HAVS or CTS in 8 European countries (Belgium, Czech Republic</p>

	<p>Finland, France, Italy, NL, Spain, UK) has changed following the implementation of the directive. Riitta Sauni presented our initial findings at ICOH in Seoul and we plan to write up our findings as a paper. Please contact me if you would like to join this project.</p> <p>Now we are moving forward and sadly leaving behind WG2 we need some new ideas. We have often discussed the role of occupational health (OH) in relation to public health and the potential positive benefits of bringing together OH and public health. An ambitious but worthy goal would be to promote the recording of some occupational data in today's large routine datasets (particularly primary care) and bespoke research datasets/cohorts.</p> <p>A first step would be a European-wide scoping exercise to see what could be done with the existing data and what would be the most cost-effective way to make changes that would make existing datasets more relevant to occupational health. One possible source of funding would be the Leverhulme Trust in the UK but there is also the possibility of applying for EU funding (I am looking into the options). If you are interested in collaborating and/or have suggestions for potential funders let me know by email (jill.stocks@manchester.ac.uk).</p>
	<p>COST IS1002 Modernet matters – Special issue</p> <p>The financial reports of our Action were submitted in time and approved; the AMC (Netherlands) got the second instalment paid in February 2015. The final report was sent by Raymond to the COST Office on 9 February 2015. Our Science Officer acknowledged receipt of the report and said that she would look into it. We are awaiting response.</p> <p>The work on the special issue of Occupational Medicine on Modernet topics is nearly finished and it will probably be published in November 2015.</p>
	<p>Next Modernet meeting in Prague To be determined</p>
	<p>Publications on Modernet topics</p> <p>Isocyanate exposure and asthma in the UK vehicle repair industry. Stocks SJ¹, Jones K², Piney M³, Agius RM⁴ Occup Med (Lond). 2015 Jul 25. pii: kqv108. [Epub ahead of print]</p> <p>Abstract BACKGROUND: Organic diisocyanates are a common cause of occupational asthma, particularly in motor vehicle repair (MVR) workers. The UK Health & Safety Laboratory provides screening for urinary hexamethylenediamine (UHDA), a biomarker of</p>

exposure to 1,6-hexamethylene diisocyanate (HDI). The UK Surveillance of Work-related and Occupational Respiratory Disease scheme (SWORD) has collected reports of occupational asthma since 1996.

AIMS:

To compare trends in HDI exposure with trends in the incidence of work-related asthma attributed to isocyanates or paint spraying in MVR workers reported to SWORD.

METHODS:

Two-level regression models were used to estimate trends in UHDA levels and work-related asthma in MVR workers reported to SWORD. The direction and magnitude of the trends were compared descriptively.

RESULTS:

From 2006 to 2014, there was a significant decline in the number of urine samples with detectable levels of UHDA (odds ratio = 0.96; 95% confidence intervals 0.94-0.98) and minimal change in those over the guidance value (1.03; 1.00-1.06). Over the same period, there was a significant decline in all asthma cases attributed to isocyanates or paint spraying reported to SWORD (0.90; 0.86-0.94) and a non-significant decline among MVR workers (0.94; 0.86-1.02).

CONCLUSIONS:

The simultaneous decrease in HDI exposure and incident cases of asthma reported to SWORD is temporally consistent with a reduction in exposure to airborne isocyanate leading to a reduction in asthma. Although this is not direct evidence of a causal relationship between the two trends, it is suggestive.

The impact of national-level interventions to improve hygiene on the incidence of irritant contact dermatitis in healthcare workers: changes in incidence from 1996 to 2012 and interrupted times series analysis.

Stocks SJ^{1,2}, McNamee R³, Turner S¹, Carder M¹, Agius RM¹.

Br J Dermatol. 2015 Jul;173(1):165-71. doi: 10.1111/bjd.13719. Epub 2015 Jun 2.

Abstract

BACKGROUND:

Reducing healthcare-associated infections (HCAI) has been a priority in the U.K. over recent decades and this has been reflected in interventions focusing on improving hygiene procedures.

OBJECTIVES:

To evaluate whether these interventions coincided with an increased incidence of work-related irritant contact dermatitis (ICD) attributed to hand hygiene or/and other hygiene measures in healthcare workers (HCWs).

METHODS:

A quasi-experimental (interrupted time series) design was used to compare trends in incidence of ICD in HCWs attributed to hygiene before and after interventions to reduce HCAI with trends in the same periods in control groups (ICD in other workers). Cases of ICD reported to a U.K. surveillance scheme from 1996 to 2012 were analysed. The time periods compared were defined objectively based on the dates of the publication of national evidence-based guidelines, the U.K. Health Act 2006 and the Cleanyourhands campaign.

RESULTS:

The reported incidence of ICD in HCWs attributed to hygiene has increased steadily from 1996 to 2012 [annual incidence rate ratio (95% confidence interval): hand hygiene only 1.10 (1.07-1.12); all hygiene 1.05 (1.03-1.07)],

whereas the incidence in other workers is declining. An increase in incidence of ICD in HCWs attributed to hand hygiene was observed at the beginning of the Cleanyourhands campaign.

CONCLUSIONS:

The increasing incidence of ICD in HCWs combined with the popularity of interventions to reduce HCAI warrants increased efforts towards identifying products and implementing practices posing the least risk of ICD.

Workplace injury data reported by occupational physicians and general practitioners

Jabbour R¹, Turner S¹, Hussey L², Page F¹, Agius R¹.

Occup Med (Lond). 2015 Jun;65(4):296-302. doi: 10.1093/occmed/kqv014.

Epub 2015 Apr 16.

Abstract

BACKGROUND:

Accurate workplace injury data are useful in the prioritization of prevention strategies. In the UK, physicians report workplace ill-health data within The Health and Occupation Research (THOR) network, including injury case reports.

AIMS:

To compare workplace injury data reported by occupational physicians (OPs) and general practitioners (GPs) to THOR.

METHODS:

Injury cases reported by OPs and GPs, reported to THOR between 2006 and 2012 were analysed. Demographics, industrial groups, nature of injury, kind of accident and site of injury were compared. Data on sickness absence for workplace injuries reported by GPs were investigated.

RESULTS:

In total, 2017 workplace injury cases were reported by OPs and GPs. Males were more likely to sustain a workplace accident than females. Sprains and strains were reported most often, with the upper limbs being affected most frequently. Slips, trips and falls were identified as important causal factors by both OPs and GPs. Psychological injuries also featured in THOR reporting, with a higher proportion reported by OPs (21%) than by GPs (3%). The proportion of people classified as 'unfit' by GPs reduced following the introduction of the 'fit' note.

CONCLUSIONS:

THOR reports returned by OPs and GPs provide a valuable source of information of workplace injury data, and complement other sources of information, such as the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations and the Labour Force Survey.

Online reporting and assessing new occupational health risks in SIGNAAL

F Lenderink A¹, Keirsbilck S², F van der Molen H³, Godderis L².

Occup Med (Lond). 2015 May 14. pii: kqv061. [Epub ahead of print]

Abstract

BACKGROUND:

Changes in work and working conditions continuously give rise to new work-related health risks. Without sufficient knowledge of these, opportunities for prevention and intervention may be missed.

AIMS:

	<p>To develop, implement and evaluate an online tool called SIGNAAL for reporting and assessment of new work-related health risks by occupational health physicians and experts in the Netherlands and Belgium.</p> <p>METHODS: Development and implementation of SIGNAAL to allow both easy and sufficient detailed reporting by occupational health physicians and structured and transparent assessment by occupational health experts. A new work-related health risk is defined as a work-related disease due to specific exposure in a specific work setting not described in the literature before.</p> <p>RESULTS: The online reporting and assessment tool proved to be a feasible means of reporting possible new combinations of health problems and exposures in the work situation. Eleven of the 15 cases reported until October 2014 were fully assessed: one was an entirely new work-related disease, four were known but uncommon work-related diseases, five were known but new in the reported work situation and one was a well-known work-related disease.</p> <p>CONCLUSIONS: An online reporting system used in an occupational health setting can provide insight into new work-related health risks by creating a structured way to gather, report and assess new combinations of health problems and exposure in the workplace.</p> <p>Asthma caused by potassium aluminium tetrafluoride: a case series. Laštovková A¹, Klusáčková P, Fenclová Z, Bonnetterre V, Pelclová D. Ind Health. 2015 Jul 23. [Epub ahead of print]</p> <p>Abstract The objective of this study is to describe a case-series of potassium aluminium tetrafluoride (KAlF₄)-induced occupational asthma (OA) and/or occupational rhinitis (OR). The study involves five patients from a heat-exchanger production line who were examined (including specific inhalation challenge tests) for suspected OA and/or OR caused by a flux containing almost 100% KAlF₄ - with fluorides' workplace air concentrations ranging between 1.7 and 2.8 mg/m³. No subject had a previous history of asthma. All five patients had a positive specific challenge test (three patients were diagnosed with OA alone, one with OR and one with both OR and OA). At the follow-up visit, after three years on average, all patients needed permanent corticosteroid therapy (four topical, one oral). After elimination from the exposure, only one of the observed subjects gave an indication of an improvement, two subjects stabilized and two worsened. Our case series focuses on the correlation between patients' exposure to fluorides in air-conditioner production and the subsequent occurrence of OR/OA. Currently, it is uncertain whether these OR/OA were caused by hypersensitivity or irritation.</p>
	<p>Research proposals granted</p> <p>Both KULeuven (Lode) and the Coronel Institute (Annet, Henk) are part of the consortium which submitted a proposal on the EU-OSHA call on work-related diseases. Our part was subproject 3 on Sentinel and Alert Systems. On Friday the 25th September we were informed we had been awarded the project. We</p>

	<p>will therefore work for together for approximately 2 years with at least some Modernet members (Stefania, Stefano, Raymond, Melanie, Nicole Palmen, Consol, Begoña, Mounia)</p>
	<p>Research proposals under review</p> <p>Annet and Lode submitted a proposal for a new Cost action on 24 March 2015: COST Action Proposal OC-2015-1-19813 " European Network integrating research on environmental or occupational neurotoxic diseases " It is expected that 42 proposals will be granted and we will find out on the 15th October.</p>
	<p>Research ideas and calls</p> <p>ANSES; French agency for health safety is launching a call on occupational and environmental health issues every year (autumn) with specific sub themes . Collaborations between French and non-French teams are welcomed. The average amount is about 200 k euros. This is a two level submission process. The first answer is expected at the beginning of January.</p> <p>In the draft program H2020 2016-17, Vincent noticed there is a theme « Big Data supporting Public Health policies » (SC1-PM-18–2016) . Cf page 34 document : https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/08.%20SC1-Health%202016-2017_pre-pub.pdf)</p> <p>The big data referred to within the program seemed to refer mainly to information that can be derived from sensors and other devices on the human body. However, we can think of administrative big data which can help in identifying health related effects. Cf « expected impacts ».: <i>“Turning large amounts of data into actionable information to authorities for planning public health activities and implementation of an approach "health in all policies"”</i>. This is what I suggested to colleagues in my lab and university. Grenoble University launched a collaboration with Swansea University (Wales) and wants to work on the big data & health subject. Vincent is using data mining techniques with the aim of seeking work-related effects.</p> <p>Vincent has recently sent a project to ANSES and to the body that administrates the social security system related to agricultural workers after corresponding with them over several months and raising their interest. “If we manage to join their different databases, and one external one, we could look for associations between diseases, drug consumption, and some variables related to occupational activity. The project is still in the early stages of development. Work has been carried out to write the project and raise the interest of the stakeholders concerned who have now agreed. The data mining would this time be done by mathematicians within our lab, who usually work on genomic studies. I should know by the end of the year if I will receive enough funding for a post-doc in order to start the job. It will also take some time to get all the necessary approvals require to go ahead with the project. If you can access such data and would be interested in participating, we can exchange information. I am aware that it will not be possible to open this kind of project to all Modernet members.”</p>

