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WELCOME TO TRACING NEW OCCUPATIONAL DISEASES

Welcome to the First International Congress on Tracing New Occupational Diseases. The occurrence of new health problems needs attention in order to initiate preventive actions. The attendance for this congress is amazing; about hundred participants from different countries are coming to Amsterdam for this exciting congress. The program includes excellent keynote speakers discussing state-of-the-art issues in new occupational diseases. The poster sessions provide a unique opportunity for face-to-face discussions and to exchange ideas.

Over the two different days we invite you to participate in as many sessions as you can, and especially in the poster session discussions.

We are very happy to host the congress in the Academic Medical Center in Amsterdam and we invite you also to take advantage of the social program in the historic city of Amsterdam.

If you have any questions, please do not hesitate to ask us or to stop by the information desk. Once again, welcome to the first congress on Tracing New Occupational Diseases and we look forward to your participation.

On behalf of the Tracing New Occupational Diseases Organizing Committee,

Prof. dr Monique HW Frings-Dresen, chair
ORGANISATION

Organized by:
The Scientific Committee on Occupational Medicine (SCOM)  
of the International Commission on Occupational Health (ICOH).
The Netherlands Center of Occupational Diseases / Coronel Institute,  
Academic Medical Center, University of Amsterdam

In Collaboration with:  
The Netherlands Society of Clinical Occupational Medicine

Supported by:  
European Agency for Safety and Health at Work Bilbao, ILO, WHO  
The Netherlands Ministry of Employment and Social Affairs  
The Netherlands Society for Occupational Health

Local Organizing Committee  
Monique Frings-Dresen (chair); Gert van der Laan (secretary), Leo Elders (treasurer), Derk Bruynzeel,  
Dick Spreeuwers, Teake Pal, Annet Lenderink, Henk van der Molen,  
Jeanine Mulders, Farhat Younis (AMC Congress Organisation)

International Organizing Committee  
Helena Taskinen FIOH (chair)  
Gert van der Laan (secretary)  
Monique Frings-Dresen, Coronel Institute  
Raymond Agius, University of Manchester  
Vincent Bonneterre, University of Grenoble
International Scientific Advisory Committee
Jorma Rantanen, Finland
John Harrison, United Kingdom
Sigurd Mikkelsen, Denmark
Axel Wannag, Norway
Geoffrey Calvert, NIOSH
Ben Nemery, Belgium
Lode Godderis, Belgium
Frank van Dijk, The Netherlands
Markku Saino, Finland
Regis de Gaudemaris, France
Pieter Rodenburg, The Netherlands
Claus Piekarski, Germany
Rokho Kim (WHO)
Shengli Niu (ILO)
Jukka Takala, EU Bilbao
Claudio Colosio, Italy
Cheng Aw, Dubai
Pavel Urban, Prague
Jadranka Mustajbegovic, Croatie
Paul Blanc USA
Malcolm Sim, Australië
Jos Verbeek, Finland
Pierluigi Cocco, Italy
Gérard Lasfargues, France
Maija Eglite, Latvia
Dirk Pallapies, Germany
Ivan Ivanov (WHO)
Seong-Kyu Kang, South-Korea

Congress Organisation
Congress Secretariat ICOHSCOM 2011
C/o AMC Congress Organisation
P.O. Box 23213
1100 DS Amsterdam
The Netherlands
T: +31 20 5668585
F: +31 20 6963228
E: icohscom2011@amc.nl
W: www.icohscom2011.nl
ACCREDITATION

CME points have been granted for participants for the following associations:
Accreditation number 89927, 11 punten / points:
- Nederlands Centrum voor Beroepsziekten,
- het NCVB/Coronel Instituut,
- AMC
- The Scientific Committee on Occupational Medicine of the International Commission on Occupational Health, het ICOH

CME point have been applied to the following association:
- European Union of Medical Specialists
GENERAL INFORMATION

Badges
Upon registration you will receive a personal badge and other congress material. We kindly ask you to wear your badge during the entire congress.

Climate
Average temperature in April during day time is 8 degrees Celsius.

Congress language
The official congress language is English.

Corresponding address
Congress Secretariat ICOHSCOM 2011
C/o AMC Congress Organisation
PO Box 23213
1100 DS Amsterdam
The Netherlands
T +31 20 566 8585
F +31 20 696 3228
E icohscom2011@amc.nl

Currency
The official currency of the Netherlands is the Euro (€). Major credit cards are widely accepted, but always check before sitting down for dinner. There are plenty of cash dispensers (ATMs) throughout the city, which operate 24 hours a day.

Dates
Thursday 7 April and Friday 8 April, 2011.

Electricity
Electricity is supplied at 220 V – 50 Hz.

Food and refreshments
Coffee and tea during the official breaks and lunches are included in the registration fee of the participants.

Insurance(s)
The congress organizers cannot accept liability for injuries or losses arising from accidents or other situations during or as a consequence of the congress. Participants are advised to arrange health and accident insurance prior to travelling to the congress.

Messages
Messages for participants will be displayed on the notice board next to the registration desk.
Posters
Posters will be displayed during the entire congress but presenting authors are requested to present in one minute their poster in the lecture room. There will be two Poster sessions.

The Poster Sessions are scheduled on:

<table>
<thead>
<tr>
<th>Session</th>
<th>Day</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>P1</td>
<td>April 7, 2011</td>
<td>12.40 – 12.50 hrs</td>
</tr>
<tr>
<td>P2</td>
<td>April 8, 2011</td>
<td>12.45 – 13.00 hrs</td>
</tr>
</tbody>
</table>

Registration desk in the Academic Medical Center – opening hours
The registration / payment desk will be opened during conference hours.

- April 7, 2011 08.30 - 17.00 hrs.
- April 8, 2011 08.30 - 17.00 hrs.

Upon registration you will receive a:
- name badge
- certificate of attendance
- program book including abstracts
- list of participants
- dinner ticket if booked

The registration fee also includes:
Participation in scientific sessions, coffee and tea services during the scheduled breaks and 2 lunches (Thursday, Friday)

Schiphol International Airport
The centre of Amsterdam and the Academic Medical Center are both about 20 minutes by car from the airport. Website www.schiphol.com

Time zone
In April, Dutch time is GMT + 1 hour.

Venue Address:
Academic Medical Center, lecture room 5
Meibergdreef 9, 1105 AZ Amsterdam, the Netherlands
Phone congress secretariat: +31 20 566 85 85
Phone at registration desk (on 7-8 April) +31 20 566 34 02
Email congress secretariat: icohscom2011@amc.nl
Website: www.icohscom2011.nl

Visa/letters of invitation
Letters of invitation required to meet the administrative and legal regulations for visas for participants from certain countries are available upon written request addressed to the Congress Secretariat. Such documents will not result in the organisers waiving registration fees.

Date and Location
SOCIAL PROGRAMME

Thursday April 7, 2011

An optional congress dinner is organized in restaurant Kantijl & de Tijger in the city centre of Amsterdam. Address:
Spuistraat 291-293
1012 VS Amsterdam
T: +31 (0)20 620 09 94
E: info@kantijl.nl
W: www.kantijl.nl

The restaurant has made a selection of the most beautiful dishes from the all-around Indonesian kitchen. Rice is the most important element in the traditional Indonesian kitchen, accompanied with fish, meat or vegetables.

Ticket costs: 50 euro per person. Unfortunately, on site registration for the dinner cannot be guaranteed. Dinner will start at 19.00 hrs. No transport is organised.

Route from Amsterdam Central Station:
Tram 1, 2 or 5, stop: “Spui / Nieuwezijds Voorburgwal”
CITY MAP OF AMSTERDAM
08.30 – 09.30  Registration

Day 1 Morning session - Plenary session
Methodology: early warning systems, data mining, application of pharmacovigilance methods in Occupational Health

Chair:
Monique Frings-Dresen, Coronel Institute on Occupational Health, AMC / University of Amsterdam, The Netherlands

Opening address
09.30 – 09.40 Monique Frings-Dresen, Coronel Institute on Occupational Health, AMC / University of Amsterdam, The Netherlands
09.40 – 09.45 Helena Taskinen, Finnish Institute of Occupational Health
09.45 – 10.00 Introduction to the theme of the meeting
Gert van der Laan, The Netherlands Center for Occupational Diseases/Coronel Institute on Occupational Health, AMC/University of Amsterdam, The Netherlands

10.00 – 10.40 Triangulated and targeted data-collection
Raymond Agius, Center for Occupational and Environmental Health, University of Manchester, United Kingdom

10.40 – 11.20 Tracing epidemiological evidence for new work-related cardiovascular risks
Jussi Vahtera, Unit of Excellence in Psychosocial Factors, Finnish Institute of Occupational Health (FIOH), Finland

11.20 – 11.45 Coffee break

11.45 – 12.45 Abstract oral presentations
11.45 – 12.00 Allergic for water from the swimming pool!? Harma Stenveld
12.00 – 12.15 Evaluating interventions to reduce allergic contact dermatitis due to occupational latex and chromate exposure Jill Stocks
12.15 – 12.30 Using health surveillance data for online peer-benchmarking as an educational tool to motivate participation in reporting Raymond Agius
12.30 – 12.45 Relevance of repeated lifting tasks and high body weight in retinal detachment: results of a case-control study in myopics Stefano Mattioli
Poster presentations

The scaffolding shoulder and the effect of implementation of a shoulder pad
Leo Elders

Incidence rates of surgically treated rhegmatogenous retinal detachment in manual workers, non-manual workers and housewives of Tuscany, Italy
Stefano Mattioli

Confluence of occupational factors contributing to Virchow’s triad and hence thrombosis
Stefano Mattioli

Epigenetics and Hypoxic effect on working environment
Amir Radfar

Does eye injury and longstanding exposure to liquid ammonia predict carcinoma: case reports
Nurka Pranjic

Search for occupational cardiovascular risk by interactive medical Avatar
Jerry Tyszkiewich

Does the Czech Statistics of Occupational Diseases Reflect the Reality?
Daniela Pelclova

The rnv3p network, detecting new consequences of work on health
Maylis Telle-Lamberton

Identification of new and emerging occupational risks using a text mining based information system
Anjoeka Pronk

Extrinsic Allergic Alveolitis in a manicurist with ethyl methacrylate: first case report
Vincent Bonneterre

Immunologic status of agricultural workers in the region of Lombardy, Northern Italy
Giulia Rabozzi

Tuberculosis and cattle breeding: the case of an Egyptian milker
Chiara Somaruga

Lunch

Chair:
Claudio Colosio, Department of Occupational Health of the University of Milan, San Paolo Hospital Unit, and International Centre for Rural Health of the S. Paolo Hospital

Pharmacovigilance, lessons learnt
Kees van Grootheest, The Netherlands Pharmacovigilance Foundation LAREB, The Netherlands

Application of pharmacovigilance methods in OHS
Vincent Bonneterre, Equipe Médecine et Santé au Travail, Hôpital Michallon, CHU Grenoble, Université de Grenoble, France

Coffee break
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker(s)</th>
</tr>
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<tbody>
<tr>
<td>15.40 – 17.10</td>
<td>Abstract oral presentations Methodology</td>
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<tr>
<td>15.40 – 15.55</td>
<td>Best national estimates of incidence and trends of occupational and work related disease through multiple reporting schemes</td>
<td>Melanie Carder</td>
</tr>
<tr>
<td>15.55 – 16.10</td>
<td>Registry of outpatients examined by the Norwegian occupational medicine departments</td>
<td>Hans M. Gravseth</td>
</tr>
<tr>
<td>16.25 – 16.40</td>
<td>OcCIDEAS: an innovative tool to assess exposure for the Australian Mesothelioma Registry</td>
<td>Malcolm Sim</td>
</tr>
<tr>
<td>16.40 – 16.55</td>
<td>Surveillance programme of work-related diseases (WRD) in France</td>
<td>Madeleine Valenty</td>
</tr>
<tr>
<td>16.55 – 17.10</td>
<td>Detection of new and managing existing occupational diseases in the Finnish chain of health care</td>
<td>Ari Kaukiainen</td>
</tr>
</tbody>
</table>
PROGRAMME APRIL 8, 2011

Day 2 Morning session – Plenary Session

Chair:
Raymond Agius, Center for Occupational and Environmental Health, University of Manchester, United Kingdom

09.30 – 10.10
Key note lecture on Nanotechnologies and Occupational Health
Kai Savolainen, Finnish Institute of Occupational Health, New Technologies and Risks, Helsinki, Finland

10.10 – 11.25
Abstract oral presentations
Early warning systems

10.10 – 10.25
Easy-to-use nano control banding to for risks related to working with nano materials: Stoffenmanager Nano
Birgit Duuren-Stuurman

10.25 – 10.40
Tracing newly occurring occupational diseases with a sentinel clinical approach: From detection to alert
Vincent Bonneterre

10.40 – 10.55
Suspected clusters at workplace: a difficult challenge
Catherine Buisson

10.55 – 11.10
An ICT application for real time surveillance and prompt discovery of emerging new occupational health hazards
Pierluigi Cocco

11.10 – 11.25
Using expert functions for detection for potentially emerging occupational health problems
Laurie Faisandier

11.25 – 11.45
Coffee break

11.45 – 12.45
Abstract oral presentations
New Occupational Cancers / New Occupational Neurologic Diseases
New Occupational Infectious Diseases

11.45 – 12.00
New occupational lymphohematopoietic diseases – experience of Korea
Hye Eun Lee

12.00 – 12.15
Neuropsychological performance among welders
Fouzia Kamen

12.15 – 12.30
Emerging zoonoses: the “one health Approach”
Claudio Colosio

12.30 – 12.45
Antibiotic resistant infection risks in industrial food animal production
Ellen Silbergeld
Poster presentations

3 cases of Non Hodgkin Lymphoma among welders exposed more than 10 years to a spray containing methylene chloride (dichloromethane)
Vincent Bonneterre

Case-report: precancerous and cancerous skin lesions limited to area in contact with epoxy resin in a man applying epoxy resin on floors
Vincent Bonneterre

Environmental and occupational clusters of Amyotrophic Lateral Sclerosis (ALS) associated with exposure to metals polishing dusts
Vincent Bonneterre

Oil leakage in aircraft: adverse effects for pilots?
Leroy de Graaf

A case of pulmonary infection to Mycobacterium fortuitum in a house painter involved in water-damaged buildings remediation
Vincent Bonneterre

Design and validation of a questionnaire for measuring hospital staff attitudes about pandemic influenza
John Harrison

Downsizing and restructuring within financial institutions following a major depression and its association with sleep disturbances among employers and laid-off employers.
Ásta Snorradóttir

Risk factors associated with longterm musculoskeletal pain and disability among nurses in Bosnia and Herzegovina: a cross-sectional study
Nurka Pranjic

Irritant vocal cord dysfunction and occupational bronchial asthma: differential diagnosis in a hairdresser
Fabrice Herin

Secondary pulmonary alveolar proteinosis: a case report of a mechanic involved in nondestructive testing of engine parts
Els Adams

Occupational exposure and the need for sinus surgery
Ben Nemery

Aerotoxic syndrome in two airline pilots?
Stephan Keirsbilck

Emerging Infectious Disease and Occupational Health: a Dutch approach
Monique Loo

Lunch
Aerotoxic Syndrome in aircrew and passengers: A new occupational disease?
Michel Mulder

Evidence for contested occupational diseases, does it change our beliefs?
Jos Verbeek, Coronel Institute/AMC Amsterdam, The Netherlands; Finnish Institute of Occupational Health (FIOH), Finland

Emerging occupational lung diseases in emerging economies
Ben Nemery, Occupational, Environmental & Insurance Medicine, K.U. Leuven, Leuven, Belgium

Abstract oral presentations
New work-related Psychological Disorders
Preventive strategies
New Miscellaneous Occupational Diseases

Dampness in primary schools: First lessons
Jos Rooijackers

Iteration and evaluation of Quantative Structure Activity Relationships to identify novel occupational asthmagens
Raymond Agius

Organized in collaboration with the European Agency for Safety and Health at Work
A Brief History of Occupational Disease: The Paradigm of Respiratory Illness
Paul Blanc, Professor of Medicine, endowed Chair in Occupational and Environmental Medicine, School of Medicine, Division of Occupational and Environmental Medicine, University of California, San Francisco, CA, USA

Closing remarks
Jorma Rantanen, Finland

Dick Spreeuwers, The Netherlands Center for Occupational Diseases/Coronel Institute on Occupational Health, AMC/University of Amsterdam, The Netherlands
ABSTRACTS IN CHRONOLOGICAL ORDER

01. Triangulated and targeted data collection
The University of Manchester

02. Tracing epidemiological evidence for new work-related cardiovascular risks
*Vahtera J*
Finnish Institute of Occupational Health, Finland

03. Allergic for water from the swimming pool?!
*Stenveld H*
Huid en Arbeid

04. Evaluating interventions to reduce allergic contact dermatitis due to occupational latex and chromate exposure
*Stocks J*, Turner S, McNamee R, Carder M, Agius R
The University of Manchester

05. Using health surveillance data for online peer-benchmarking as an educational tool to motivate participation in reporting
*Agius R*, Hussey L, Thorley K, Zarin N
The University of Manchester

06. Relevance of repeated lifting tasks and high body weight in retinal detachment: results of a case-control study in myopes
*Mattioli S*¹, De Fazio R², Buiatti E³, Truffelli D⁴, Zanardi F¹, Miglietta B⁴, Curti S¹, Baldasseroni A⁵, Tassinari G², Violante F¹
¹ Section of Occupational Medicine, Department of Internal Medicine, Geriatrics and Nephrology, University of Bologna, Italy, ² Department of Ophthalmology, Ospedale Maggiore, AUSL, Bologna, ³ Agenzia Regionale di Sanità, Tuscany Region, Florence, Italy, ⁴ School of Occupational Medicine, University of Bologna, Italy, ⁵ Tuscany Regional Centre for Occupational Injuries and Diseases (CeRIMP), Florence, Italy

07. The scaffolding shoulder and the effect of implementation of a shoulder pad
*Elders L*, van den Berg T, Burdorf A
Erasmus Medical Centre Rotterdam
08. Incidence rates of surgically treated rhegmatogenous retinal detachment in manual workers, non-manual workers and housewives of Tuscany, Italy

Mattioli S 1, Baldasseroni A 2, Curti S 1, Zanardi F 1, Cooke R 1, Farioli A 1, Violante F 1, Coggon D 3

1 Section of Occupational Medicine, Department of Internal Medicine, Geriatrics and Nephrology, University of Bologna, Italy, 2 Tuscany Regional Centre for Occupational Injuries and Diseases (CeRIMP), Florence, Italy, 3 MRC Epidemiology Resource Centre, University of Southampton, UK

09. Confluence of occupational factors contributing to Virchow's triad and hence thrombosis

Mattioli S 1, Agius R 2, Farioli A 1, Zanardi F 1, Bonfiglioli R 1, Violante F 1

1 Section of Occupational Medicine, Department of Internal Medicine, Geriatrics and Nephrology, University of Bologna, Italy, 2 Centre for Occupational & Environmental Health, Health Sciences Group, School of Community Based Medicine. Faculty of Medical and Human Medicine, The University of Manchester, UK.

10. Epigenetics and Hypoxic effect on working environment

Radfar A 1, Filip I 2, Asgharzadeh Ahmadi S 3, Radfar F 4

1 Florida International University-USA, 2 Kaplan Institute-USA, 3 Babol University of medical sciences-Babol-Iran, 4 Babol University of medical sciences-Babol-Iran

11. Does eye injury and longstanding exposure to liquid ammonia predict carcinoma: case reports

Pranjic N 1,2

1 Department of Occupational Health, Medical School of University Tuzla, Bosnia and Herzegovina, 2 Department of Occupational pathology and toxicology, Tuzla, Bosnia and Herzegovina

12. Search for occupational cardiovascular risk by interactive medical Avatar

Tyszkiewicz J, Symonides B, Gaciong Z

Medical University of Warsaw

13. Does the Czech Statistics of Occupational Diseases Reflect the Reality?

Pelclova D, Urban P, Fenclova D

Charles University in Prague, 1st Medical Faculty, Department of Occupational Medicine

14. The rnv3p network, detecting new consequences of work on health


15. Identification of new and emerging occupational risks using a text mining based information system


TNO
16. Extrinsic Allergic Alveolitis in a manicurist with ethyl methacrylate: first case report
Bonneterre V¹, Persoons R¹, Hamm B², De Gaudemaris R¹
¹ Occupational Diseases Centre, Grenoble Teaching Hospital, France and RNV3P Network (France), ² Pneumologist, Grenoble (France)

17. Immunologic status of agricultural workers in the region of Lombardy, Northern Italy
Rabozzi D¹, Corsini E², Somaruga C¹, Sokooti M¹, Tabibi R¹, Vellere F¹, Colosio C¹, Brambilla G¹
¹ Department of Occupational and Environmental Health of the University of Milan and International Centre for Rural Health of the University Hospital San Paolo, Milano, Italy, ² Laboratory of Toxicology, Department of Pharmacological Sciences, University of Milan, Italy

18. Tuberculosis and cattle breeding: the case of an Egyptian milker
Somaruga C, Rabozzi G, Vellere F, Tabibi R, Colosio C
Department of Occupational and Environmental Health of the University of Milan and International Centre for Rural Health of the University Hospital San Paolo, Milano, Italy

19. Pharmacovigilance, lessons learnt
van Grootheest K
¹ Netherlands Pharmacovigilance Centre Lareb ² University of Groningen, Groningen, The Netherlands

20. Application of pharmacovigilance methods in Occupational Health Surveillance
Bonneterre V¹,²,³, Bicout D³, de Gaudemaris R¹,²,³, on behalf of the RNV3P
¹ RNV3P (French National Occupational Diseases Surveillance and Prevention Network), ² Occupational Diseases Centre, Grenoble Teaching Hospital, France, ³ EPSP Research Team (Environment and Health Prediction in Populations), TIMC-IMAG Laboratory, Faculty of Medicine, Joseph Fourier University, Grenoble, France

21. Best national estimates of incidence and trends of occupational and work related disease through multiple reporting schemes
Agius R, Carder M, Hussey L, McNamee R
The University of Manchester

22. Registry of outpatients examined by the Norwegian occupational medicine departments
Mehlum I, Gravseth H
National Institute of Occupational Health

23. Review on the validity of self-report to measure work-related illness
Lenderink A¹, Zoer I², van der Molen H¹, Spreeuwers D¹, Frings-Dresen M², van Dijk F²
¹ Academic Medical Center (AMC), University of Amsterdam, Netherlands Centre for Occupational Diseases/Coronel Institute of Occupational Health, ² Academic Medical Center (AMC), University of Amsterdam, Coronel Institute of Occupational Health
24. OcclIDEAS: an innovative tool to assess exposure for the Australian Mesothelioma Registry
Sim M 1, MacFarlane E 1, Benke G 1, Fritschi L 2
1 Centre for Occupational and Environmental Health, Monash University, Victoria, Australia, 2 Western Australian Institute of Medical Research, University of Western Australia, WA, Australia

25. Surveillance programme of work-related diseases (WRD) in France
Valenty M 1, Homere J 1, Mevel M 1, Dourlat T 1, Garras L 1, Brom M 2, Imbernon E 1
1 Institut de Veille Sanitaire, 2 Ministère du Travail

26. Detection of New and Managing Existing Occupational Diseases in the Finnish Chain of Health Care
Kaukiainen A
Finnish Institute of Occupational Health

27. Nanotechnologies and Occupational Health
Savolainen K
Finnish Institute of Occupational Health, Helsinki, Finland

28. Easy-to-use nano control banding tool for risks related to working with nanomaterials: Stoffenmanager Nano
Duuren-Stuurman B 1, Heussen H 2, Spaan S 1, Fransman W 1, Verbiest K 2, Pronk A 1, Tielemans E 1
1 TNO, 2 Expert Centre for Chemical Risk Management, Arbo Unie

29. Tracing newly occurring occupational diseases with a sentinel clinical approach: from detection to alert.
Bonneterre V 1,2,3, Ameille J 1,4, Telle Lamberton M 1,5
1 RNV3P (French National Occupational Diseases Surveillance and Prevention Network), 2 Occupational Diseases Centre, Grenoble Teaching Hospital, France, 3 EPSP Research Team (Environment and Health Prediction in Populations), TIMC-IMAG Laboratory, Faculty of Medicine, Joseph Fourier University, Grenoble, France, 4 Centre of Occupational Diseases, Assistance Publique Hôpitaux de Paris – Hôpital Raymond Poincaré, Garches, France, 5 ANSES (French National Agency of Health Security)

30. Suspected clusters at workplace: a difficult challenge
Buisson C 1, Gault G 2, Juilliard S 1, Provost D 3, Lauzeille D 1, Rolland P 2, Imbernon E 1
1 Institut de Veille Sanitaire, occupational health department, Saint Maurice, France, 2 Institut de Veille Sanitaire, Regional epidemiology unit, Agence Regionale de Santé Aquitaine, Bordeaux, France, 3 Institut de Veille Sanitaire, occupational health department, ESSAT unit, Université Bordeaux 2, Bordeaux, France.

31. An ICT application for real time surveillance and prompt discovery of emerging new occupational health hazards
Cocco P 1, Cappio Borlino C 2, Manca C 3, Marracini G 4
1 University of Cagliari, 2 METSO Srl, Cagliari, 3 INAIL, regional office, Cagliari, 4 SPreSAL, ASL 8, Cagliari

32. Using Expert Functions for detection of potentially emerging occupational health problems
Faisandier L 1, De Gaudemaris R 2, Bicout D 3
33. New occupational lymphohematopoietic diseases - experience of Korea
Lee H, Kim E, Kang S
Occupational Safety and Health Research Institute, Korea Occupational Safety and Health Agency

34. Neuropsychological performance among welders
Kamen F, Gana N, Tebboune B
Faculty of Medicine

35. Emerging zoonoses: the “one health Approach”
University of Milan

36. Antibiotic resistant infection risks in industrial food animal production
Silbergeld E 1, Davis M 1, Peterson A 2, Feingold B 1, Leibler J 3, Vegosen L 1, Hardy C 1, Kyerematend-Amoah E 2, Price L 4, Resnick C 1
1 Johns Hopkins Bloomberg School of Public Health, 2 Kansas State Department of Health, 3 George Washington University School of Public Health, 4 TGEN Institute, Northern Arizona University

37. 3 cases of Non Hodgkin Lymphoma among welders exposed more than 10 years to a spray containing methylene chloride (dichloromethane)
Bonneterre V 1, Lacroix M 2, Focand J 3
1 Occupational Diseases Centre, Grenoble Teaching Hospital, France and RNV3P Network, 2 Occupational Health Service Privas (Ardèche, France), 3 Mass Spectrometry Laboratory-CART, University of Liège, Liège, Belgium

38. Case-report: precancerous and cancerous skin lesions limited to area in contact with epoxy resin in a man applying epoxy resin on floors
Bonneterre V 1, Charles J 2, Salameire D 3, Bourrain J 2, Templier I 2, Beani J 2, Leccia M 2
1 Occupational Diseases Centre, Grenoble Teaching Hospital, France, 2 Department of Dermatology, Grenoble Teaching Hospital, 3 Department of Pathology, Grenoble Teaching Hospital & CR Albert Bonniot Institute - Inserm U823 / UJF Grenoble I, France
39. Environmental and occupational clusters of Amyotrophic Lateral Sclerosis (ALS) associated with exposure to metals polishing dusts

Bonneterre V 1, Pradat P 2, Buisson C 3, Lagrange E 4, Bicout D 1, Boumediene F 5, Catinon M 6, Corona C 7, Elbaz A 8, Garnier R 9, network for ALS clusters a

1 EPSP (UMR 5525), J Fourier University, Grenoble & Occupational Diseases Centre Grenoble, France, 2 Neurology, ALS reference centre, Pitié Salpêtrière, Paris, France, 3 InVS, France, 4 Neurology, Grenoble teaching hospital, France, 5 GEOLAB (UMR 6042), Limoges University, France, 6 LECA (Alpine Ecology Laboratory), J Fourier University, Grenoble, France, 7 CEMAGREF, Grenoble, France, 8 Inserm U708, Paris, France, 9 D Diderot University and Poison centre, Paris, France

40. Oil leakage in aircraft: adverse effects for pilots?

de Graaf L 1, Hageman G 1, Mulder M 2

1 MST Enschede, 2 Aviation Medical Consultant

41. A case of pulmonary infection to Mycobacterium fortuitum in a house painter involved in water-damaged buildings remediation

Bonneterre V 1, Bon F 2, Bru J 3, Bland S 4

1 Occupational Diseases Centre, Grenoble Teaching Hospital, France and RNV3P Network (France), 2 Pneumologist, Annecy (France), 3 Infectious Diseases Unit, Annecy Hospital (France), 4 Bacteriology Laboratory, Annecy Hospital (France)

42. Design and validation of a questionnaire for measuring hospital staff attitudes about pandemic influenza

Harrison J 1, Naghavi H 2, Shabestari O 3, Roudsari A 4

1 Imperial College Healthcare NHS Trust. London UK, 2 Department of Occupational Health & Well-being, Queen’s Hospital, UK, 3 Centre for Health Informatics, City University, London, UK, 4 School of Human Information Science, University of Victoria, BC, Canada

43. Downsizing and restructuring within financial institutions following a major depression and its association with sleep disturbances among employers and laid-off employers.

Snorradóttir Á 1 2, Tómasson K 1

1 Administration of Occupational Safety and Health in Iceland, 2 University of Iceland, Faculty of Social and Human Sciences

44. Risk factors associated with longterm musculoskeletal pain and disability among nurses in Bosnia and Herzegovina: a cross-sectional study

Pranjić N 1 2, Kusturica- Selimovic A 2

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45. Irritant vocal cord dysfunction and occupational bronchial asthma: differential diagnosis in a hairdresser

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47. Occupational exposure and the need for sinus surgery

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48. Aerotoxic syndrome in two airline pilots?

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49. Emerging Infectious Disease and Occupational Health: a Dutch approach

Heimeriks C, Loo M

RIVM / NCvB

50. Aerotoxic Syndrome in aircrew and passengers: A new occupational disease?

Mulder M

Guest Researcher Dutch Center for Occupational Diseases
51. Evidence for contested occupational diseases, does it change our beliefs?
Verbeek J

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Nemery B
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Jacobs J, Krop E, Heederik D, Borràs-Santos A, Leppänen H, Hyvärinen A, Haverinen-Shaughnessy U,
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Utrecht, the Netherlands

54. Iteration and evaluation of Quantitative Structure Activity Relationships to identify novel
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Seed M, Agius R
The University of Manchester

55. A Brief History of Occupational Disease: The Paradigm of Respiratory Illness
Blanc P
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Introduction
There are several important pre-requisites for networks collecting data for the purposes of tracking trends in recognised occupational disease and other work related ill health (WRI) as well as in tracing new hazards and diseases. These include: a well motivated, engaged and representative network; methods to determine the reliability of the data through ‘triangulation’ from multiple sources; and the power to answer questions and seek new information not only on a national level but with a targeted focus.

Methods
For several years, the Health and Occupation Reporting Network (THOR) collects data about WRI in the UK and in the Republic of Ireland, from clinical specialists (CSs) e.g. dermatologists, chest physicians, and occupational physicians (OPs). In the UK a sample of 300 general practitioners (GPs) with training in occupational medicine has also participated since 2005. All report incident cases of WRI postally or electronically on a regular monthly basis or by random sampling. Denominator data is obtained from the (UK) Labour Force Survey besides a special rolling denominator programme for OPs. Adjustments are made for the sampling ratio, participation and response, and other information is collected such as GP to specialist referral ratios to complete the picture: http://www.medicine.manchester.ac.uk/oeh/thor

Results
WRI incidence data (per 100,000 per annum) for 2006-2008 combined, for musculoskeletal disease was 19 from CSs, 56 from OPs, and 830 from GPs. For mental ill-health it was 81 from CSs, 85 from OPs, and 488 for GPs. Whereas for skin and respiratory disease the figures respectively were 13 and 16 from CSs, 12 and 5 from OPs and 154 and 39 from GPs. ‘Referral ratio’ data from GPs to CSs provided validation since these ratios were much higher for respiratory disease than for musculoskeletal and mental ill-health. Further analysis reveals high incidence ‘hot spots’ ranging from mental WRI in certain service sectors to dermatitis in hairdressers.

Discussion
Data from independent sources can be used to ‘triangulate’ incidence data to obtain reliable estimates of WRI incidence and trends in incidence by disease category by industry sector and by occupation thus enabling targeting of preventive steps.
Stress is one of a group of psychosocial risks that are an increasing occupational health concern. While perceived differently by individuals, stress at work is linked to the way work is designed, organised and managed, as well as to its economic and social context. Psychosocial risks can lead to emotional, cognitive and behavioural reactions, and are also associated with physiological reactions, such as including heart problems, or hypertension. According to a recent meta-analysis of prospective cohort studies, work stress is associated with about 50% excess risk for CHD. In spite of this, work stress is currently not included in the list of established risk factors for CHD of, for example, the American Heart Association. Tracing epidemiological evidence for cardiovascular risks related to work stress is methodologically challenging. This presentation focuses on recent developments and findings in this area.
03. Allergic for water from the swimming pool?!

Stenveld H

Huid en Arbeid

Background
Water from swimming pools is often irritative to the skin. Not only from the chemicals used for hygienic intentions, but also from the water itself. In our case however, a 46 year old lady presented with pruritus and erythema, after contact with swimming pool water, which appeared to have an allergic origine. She has worked as a swimming-instructor for 5 years, mostly without serious problems, although she had a sensitive skin.
At this moment though, within an hour after contact with the water, an itchy rash arised, disappearing in the next 4 days, when she did not work. Work-relatedness seemed therefore reliable.

Methods
We performed patch tests with European standard series, pool water, pool chemicals and her own skin care products.

Results
Type IV allergy for water from several pools, foam-materials (used during the lessons), and Locron L (aluminium chlorohydrate), a chemical used in swimming water for clearing the water from small particles.

Conclusion
Work-related skindiseases among instructors in swimming pools exist, and although irritant contactdermatitis will most often be the problem, contactallergy must be considered.
We think she has been sensitized during a period in which (by mistake) high concentrations Locron L were added to the water. The concentration afterwards was normal again, but once sensitized, this normal concentration elicited her rash.
For as far as we know, there are no publications on contactallergy for aluminiumchlorohydrate among swimming pool workers; skin diseases from swimming pools, described in literature, are mostly infections, e.g. with pseudomonas.
Introduction
Surveillance schemes are traditionally used to measure incidence or trends in ill-health. Here we present two examples using The Health and Occupation Reporting Network (THOR) data to assess the effectiveness of interventions aimed at reducing work-related allergic contact dermatitis (ACD).

1. ACD due to latex gloves: Concerns over occupational exposures to blood-borne viruses have resulted in increased usage of protective (especially latex) gloves in the UK. Consequentially, latex allergy became a hazard to occupational groups such as health care workers. Mandatory advice was issued by the Medical Devices Agency (1998) followed by an Appeal Court decision (2002).

2. ACD due to hexavalent chromates (Cr VI) in cement: A common cause of ACD in building and construction workers is Cr VI occurring in cement. Following the Chromium (VI) Directive (2003/53/EC), new regulations requiring manufacturers and suppliers in the UK to reduce the levels of (CrVI) in cement to below 2ppm came into effect in January 2005.

Methods
Data from THOR collecting incident cases of work-related ill-health reported by physicians was used: http://www.medicine.manchester.ac.uk/oeh/research/thor/

The change in incidence per time period or year was estimated using a longitudinal, negative binomial (i.e. over-dispersed) Poisson model with random effects. The dependent variable was the number of cases, including reports of zero cases, per reporter per month.

Results
1. The incidence of ACD due to latex in clinical workers reported to THOR by dermatologists declined significantly compared with all other cases of ACD both during (1998-2002, time2) and after the intervention period (2002-2007, time3) relative to the period prior to the intervention (1996-1998, time1) as below:
   • Incidence rate ratio (IRR) time2 = 0.81; 95% CI 0.70-0.95
   • IRR time3 = 0.84; 0.39-0.72

2. The incidence of ACD attributed to CrVI declined steadily post 2004 consistent with the regulations whereas ACD not attributed to CrVI did nor change significantly as shown by calculation of incidence rate ratios (IRR)

Discussion
Incident case reporting in THOR is useful to detect changes in incidence following interventions designed to reduce work-related ACD.
Using health surveillance data for online peer-benchmarking as an educational tool to motivate participation in reporting

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Introduction
Good quality voluntary health surveillance by physicians requires a high and well maintained participation rate as well as adherence to evidence based criteria. These requirements are particularly challenging when collecting data from general practitioners, such as in THOR-GP: http://www.medicine.manchester.ac.uk/oeh/research/thorgp/

By linking the data on work related ill health (already submitted by physicians) with extant pedagogic resources and skills the aim is to improve the quality of reporting and the participation rate, in a cost-effective manner.

Methods
The THOR-GP database was interrogated and conditions ranked by frequency. The THOR GP webform for case reporting was adapted to automatically respond to diagnostic triggers and to link to learning resources, largely already developed for post-graduate teaching. Moreover additional options were added to electronically audit GP case management such as advice given and onward referral to specialists. This was done both against external standards as well as peer-benchmarking against the database. This new initiative was entitled EELAB (Electronic Experiential Learning Audit and Benchmarking): http://www.medicine.manchester.ac.uk/oeh/eelab

Results
The 4902 cases of work related ill health reported by GPs. from 2006 – 2009 inclusive have been included so far, with about 80% of case reports covered by educational resources (in musculoskeletal, mental, skin and respiratory disorders). Every month in 2011, 20-25 new GPs per month have been offered EELAB (towards the target of 250). Feedback to GPs is instant, and participants can store, download or print a summary of this. Retention has been good and early feedback has been encouraging.

Discussion
EELAB provides interactive, actual case-based (experiential) learning, audit of case management and benchmarking in the recognition and reporting of occupational disease and work related ill health by physicians. Although this innovative methodology is in its infancy, and still in the process of evaluation, it has the potential to educate and motivate participating physicians effectively and efficiently.
Background
Identification of risk factors for retinal detachment is important for primary prevention and management of myopic patients. We conducted a case-control study to investigate the hypothesis that repeated lifting tasks involving Valsalva’s maneuver could be a risk factor for retinal detachment in myopics.

Methods
Cases (n=61, identified among myopic patients operated for retinal detachment in a large urban hospital) and controls (n=99, drawn from myopic outpatients attending an eye clinic in the same catchment area) responded to a structured questionnaire regarding individual, pathological and work-related factors, including past/present occupational lifting tasks. Based on a median “cumulative lifting index” among manual workers (product of load, maneuvers/hour and lifting-years), we defined three lifting categories: no lifting (reference category); light lifting (≤8000 kg·freq·yr); heavy lifting (>8000 kg·freq·yr). The lifting categories were tested in a logistic regression model, adjusted for age, sex and degree of myopia.

Results
In addition to ocular surgery and ocular and/or head trauma (known risk factors), strong independent associations were recorded for heavy lifting (vs. no lifting, odds ratio [OR] 4.4, 95% confidence interval [95%CI] 1.5–13.) and high body mass index (≥25.5 kg/m²: OR 6.8, 95%CI 1.6–29). No association was recorded for light lifting (OR 1.1, 95%CI 0.4–3.0). Likelihood ratio tests did not reveal interactions between body mass index, heavy lifting and ocular/cataract surgery.

Conclusions
Heavy occupational lifting may be a relevant risk factor for retinal detachment in myopics. Larger studies are needed of myopics/non-myopics in the general population, carefully considering the role of body weight.
The scaffolding shoulder and the effect of implementation of a shoulder pad

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Background
Scaffolding is a well-known occupation for shoulder complaints. The force applied on the shoulder during horizontal transport may exceed 25 kg. Point pressure could cause nerve injuries. Serratus anterior paralysis is an example of one of the occupational injuries in scaffolders, caused by carrying excess load on the shoulder. In order to prevent specific work related shoulder disorders, it has been suggested to enlarge the contact area on the shoulder and decrease the point pressure by wearing a shoulder pad. A pilot study was conducted to evaluate the implementation of a shoulder pad with regard to prevention of the development of a scaffolding shoulder.

Methods
Both before and after implementation a questionnaire and diary were used to assess compliance to the intervention, presence and severity of shoulder complaints, productivity and perceived comfort and usability of the shoulder pad. After 1 and 4 months post-intervention measurements were taken. Subjects were selected from two large scaffolding companies in the Netherlands. A mixed model analysis was used to identify the effects of the intervention on the three outcome variables.

Results
In total, 40 respondents participated in all three measurements. The results show that the average pain severity decreased significantly after 4 month use of the shoulder pad. There are even indications for a decrease in low back pain. The experienced physical load and productivity remained unchanged. Those workers with complete compliance during follow-up reported a reduced pain intensity of 37%. Subjects valued the shoulder pad with a mean mark of 7 on a 10-point scale varying between 0 'not satisfied' and 10 'very satisfied'. After complete follow-up 55.3% of the users believe that the shoulder pad reduces shoulder complaints. Whereas 54.0% of the users think that the shoulder pad should be included in the standard equipment.

Conclusions
Four months use of the shoulder pad significantly reduces pain severity and pain among scaffolders. There are even indications for a decrease in low back pain. Self-reported productivity and physical load did not change. Although scaffolders suffer from occupational shoulder disorders, carrying a shoulder pad decreased pain on the shoulder significantly.
Incidence rates of surgically treated rhegmatogenous retinal detachment in manual workers, non-manual workers and housewives of Tuscany, Italy

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Background
Candidate risk factors for idiopathic rhegmatogenous retinal detachment (RRD) include heavy manual handling (requiring Valsalva’s maneuver) and high body mass index (BMI). We assessed incidence rates of surgically-treated idiopathic RRD in the general population and among manual workers, non-manual workers and housewives.

Methods
In Italy, both public and private hospitals are obliged to issue codified discharge records (even after day-treatment) for archival in patients’ regions of residence; Tuscan hospitals additionally provide employment information, allowing classification of patients as manual workers, non-manual workers or full-time housewives. We retrieved all Italian discharge records bearing a principal diagnosis corresponding to idiopathic RRD (ICD-9 code 361.0–361.07, 361.9) coupled with retinal surgery (DRG code 36) for any resident of Tuscany or Emilia-Romagna (1997–2008) aged 25–59 years. we restricted the study population to subjects. We extracted population data from the 2001 census. We calculated age-standardized admission rates (per 100,000 person-years) based on the WHO Standard European Population.

Results
After eliminating repeat admissions, we identified 1,380 eligible cases (795 men). Among men, manual workers experienced a 1.9-fold higher age-standardized rate than non-manual workers (17.8 [95% CI, 16.3–19.4] vs. 9.2 [8.0–10.4]). Among women, age-standardized rates were ~2-fold higher among both manual workers (11.1 [9.6–12.6]) and housewives (10.8 [9.2–12.4]) than in non-manual workers (5.6 [4.5–6.6]).

Conclusion
This study suggests that manual workers are more often affected by idiopathic RRD than non-manual workers. The findings accord with the hypothesis that heavy manual handling and high BMI have a causal role.
09. Confluence of occupational factors contributing to Virchow’s triad and hence thrombosis

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Background
In 2005 was reported a case of axillo-subclavian vein thrombosis in a 43-year-old male race-course farrier also affected by thoracic outlet syndrome. This peculiar comorbidity was highly evocative of the so-called effort thrombosis, that may occur after vigorous activity; thus, authors decided to evaluate occupational biomechanical risk factors to which our farrier had been exposed. On the ground of the exposure assessment, authors concluded that cervical hypertension induced by postures and abduction-induced functional subclavian vein stenosis could have been work-related causes of the vein thrombosis. We investigated the plausibility of a more complex aetiopathologic mechanism for axillo-subclavian vein thrombosis that considered the simultaneous exposure to biomechanical risk factors and biological hazards.

Methods
We conducted a literature review on the association between vascular disorders and exposure to biological hazards in the context of animal husbandry. In particular, we investigated current knowledge on health effects of occupational exposure to endotoxins other than respiratory diseases.

Results
Beyond respiratory diseases, little is known on the health effects of occupational exposure to endotoxins. An increase of plasma fibrinogen (≈1 g/L) has been reported in pig farmers and some historical cohorts highlighted a raised risk of cardiovascular diseases in workers presumably exposed to bioaerosol. Overall knowledge on long term consequence of occupational microbial exposure in animal husbandry were poor.

Conclusions
We hypothesize a possible synergy of biomechanical risk factors and biological hazards in raising the risk of vein thrombosis. Applying the Virchow’s triad leading to the development of thrombophlebitis, the biomechanical risk factors could alter the nature of the blood flow (inducing stasis or turbulence) and damage the vessel wall, while endotoxins and bacterial proteins could affect coagulation (due to chronic inflammation) or themselves modify the quality of the vessel wall. This model could be applied to our patient, that was exposed to both biomechanical stressors and biological hazards (bioaerosol). Work-related vascular diseases are a neglected field and more studies are needed, especially on the possible role of inhaled toxins on hypercoagulability.
10. Epigenetics and Hypoxic effect on working environment

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Medical Data
Our body experiences hypoxia in different environmental and occupational settings and through adaptation mechanism reacts to it. However, some people respond highly to hypoxic states such as altitude change and others react differently.

Exposure Data
Hypoxic exposure involves a cascade of cellular and molecular level events. Hypoxia response system is tissue-specific Oxygen-sensing, which regulate the synthesis of a transcription factor known as hypoxia inducible factor 1 (HIF 1) and reacts through variable adaptive response.

Assessment
It can be argued that substantial inter-individual variability in the adaptive response to hypoxia could represent non-physiological factors as well as insensitivity of physiological markers to hypoxia-induced adaptation. These findings may be also attributed to the fact that environmental cues like hypoxia can trigger gene expression.

Conclusion
This presentation addresses the normobaric hypoxic state in an environmental and occupational setting and its effect on cellular and organ level. This review proposes that epigenetic signatures may represent an additional mechanism to promote and maintain a hypoxic-adapted cellular phenotype. In other word, normobaric hypoxic states might induce stable changes in phenotype, perhaps through epigenetic modifications.

Key words: Normobaric hypoxia, HIF, cellular adaptation, epigenetic
Does eye injury and longstanding exposure to liquid ammonia predict carcinoma: case reports

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Introduction
A few studies have addressed to eye effects of occupational exposure to ammonia at workplace. The aim of this case study is to present new occupational malignant diseases which develop due past occupational exposure to mixed ammonia, tar, polycyclic solvents (tar, tar oil, benzene, phenol, naphthalene, etc.; two or more IARC carcinogens\textsuperscript{1}) after past chemical in addition to thermal eye injury among coke- plant chemical workers; trying to find common features and to recognize early signs for prevention among workers.

Methods
The three eye malignant tumors were discussed in light of the practical findings and common workplace risk factors, working environment, symptoms and clinical signs of carcinoma, assessed risk factors and duration of exposure, histopathology- finding, immunological analyses, assessed vision function and other relevant data.

Results
A 57 year old precious mechanic operator eyes were first time injured at workplace two years ago with liquid ammonia, and second his eyes were injured again with mixed ammonia boiled aqua one year ago (Case 1). A 47 old skilled workman- assistant in old condensation run has experienced left eye injury with mixed ammonia liquid three years ago. During hospital examination basal cell skin and conjunctiva carcinoma of left eyes Pt1 (Case report 2) was diagnosed 6 months ago. Fifty five year-old chemical operate technician with 30 years of working experience had developed squamous cell and intraepithelial invasive carcinoma of the conjunctiva and eyelids of left eye (G-2, pT1). On one occasion, his left eye was sprayed with the chromate caustic two years ago (Case report 3).

Conclusion
Three workers in 2010 with exposure experience 25-30 years to mixed ammonia, tar, polycyclic solvents in a coke-chemical plant developed malignant injured eye/eyes disease and maculopathy post chemical injuries. Symptoms of conjunctivitis are early signs and time for examination and prevention.

Keywords: eye injuries, eye carcinoma, mixed ammonia, tar and polycyclic solvents exposure
12. **Search for occupational cardiovascular risk by interactive medical Avatar**

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**Background**
Cardiovascular diseases (CVD) are leading cause of premature deaths in European workers population. Effective screening for high risk group may reduce cardiovascular morbidity and mortality. Since individual assessment of CVD risk based on classic questionnaires is time consuming and responder-to-respondent relation dependent process, we have created an interactive computerized mass-screening tool for CVD risk in working population at age >39 years.

**Methods**
An intuitive interactive computerized system for patient-to-machine data acquisition was prepared. An interface based on Avatar technology (*Avatāra* from sanskrit – appearance/incarnation – e.g. of medical professional in digital world): computerized databases, CVD risk calculation module and communication module containing touch panel and virtual animated humanoid with integrated voice synthesizer, allowing digital conversation and patient non-assisted CVD risk self measurement, was implemented.

**Results**
We studied 499 workers (women/men 351/148, 45±9.8 years old) of public healthcare and police, with no history of CVD complications, diabetes mellitus or very high single risk factors levels.

The risk profile of studied group (BMI 26±4.2kg/m², SBP 123.4±15.9mmHg, DBP 77.1±12.8mmHg, TC 198.2±36.1mg/dL and 90.3±13.7mg/dL) provided low mean individual risk SCORE 0.7±1.2% (calculation based on European Cardiac Society 2007 Guidelines and SCORE chart for Poland). Among this population of “healthy” workers our system selected groups of patients with present cardiovascular risk factors: SBP>140mmHg or DBP>90mmHg (n=75), FPG>110mg/dL (n=16), TC>200mg/dL (n=217), obesity (n=78) and nicotine dependence (n=165).

Avatar system allowed to describe significant (p<0.05) differences in risk profiles of groups (statistics was performed with Wilcoxon’s non-parametric test).

Three sub-groups had significantly elevated risk SCORE levels: “hypertensives” (1.6±2%), “hypercholesterolemics” (0.9±1.3%) and “smokers” (0.8±1.4%) respectively. “Hypertensives” except higher blood pressure (SBP=147.5±12.8mmHg and DBP=88.7±17.9mmHg), were older (48.5±9.2y.o.) and more obese (BMI=28.2±4.1kg/m²). “Hyperglycemics” except higher FPG (121.9±13.2mg/dL), had non-significantly elevated blood pressure (SBP=128.4±15.2mmHg and DBP=81.2±11.5mmHg). Group of obese patients (BMI=32.9±2.5kg/m²) had significantly elevated blood pressure (SBP=132.4±14.8mmHg and DBP=83.3±12.2mmHg) but low SCORE (0.6±0.8%), whereas “hypercholesterolemics” (229.5±23.7mg/dL) were older (47.6±8.5y.o.). “Smokers” risk profile, except elevated SCORE, was similar to whole studied population.

**Conclusions**
CVD correctable risk factors are highly prevalent in the population of employees in Poland and measured risk factors profile was similar to results of previous epidemiological surveys. Results show the efficacy of new Avatar screening tool in active, potentially healthy population, facilitating selection of endangered patients with elevated CVD risk.
13. Does the Czech Statistics of Occupational Diseases Reflect the Reality?

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Background
Czech List of Occupational Diseases, order of the government No. 290 was released in 1995. This closed list contains 83 items, grouped into 6 chapters. Occupational disease can be acknowledged under condition both the diagnosis and exposure are confirmed by objective methods, and the disease reaches a certain level of severity.

Methods
The trends in the counts of occupational diseases, reported to the Czech National Registry of Occupational Diseases were evaluated and the items on the Czech List of Occupational Diseases were compared with the systems in selected European Countries.

Results
The development of the number of diseases in the Czech Republic (population of 10 million) shows a stable decreasing trend. Total number of occupational diseases reported to the Czech National Registry of Occupational Diseases was 2,951 in 1995; in 2009 only 1,313 cases were registered. The number of pneumoconioses and occupational intoxications dropped substantially. In the last years, the most frequently acknowledged diagnosis was the carpal tunnel syndrome (308 cases, 24.7%). Unfortunately, the continuous decrease of the number of occupational diseases cannot be interpreted only positively. In addition to improved technical prevention, several factors play the role in the system - among them an increasing unemployment, migration of the workers and shortage of occupational physicians. Czech List does not include several diagnoses, such as spinal disorders, psychic disorders, etc. It does not enable to compensate any disease beyond the List. It well serves for the monitoring of occupational diseases but is not suitable for the alert function. The occupational origin of such a disease may be adjudicate only by the Court of justice, and does not appear in the statistics.

Conclusions
A regular update of the List of Occupational Diseases in the Czech Republic is strongly needed, and generation of both a new legislation for occupational diseases and criteria for newly appearing diseases is necessary. After the upcoming update, the Czech list will contain all diseases listed in Annex I of the European Schedule of Occupational Diseases, except broncho-pulmonary ailments caused by dusts from basic slags, and miner’s nystagmus, which we consider as obsolete.

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14. The rnv3p network, detecting new consequences of work on health


The 32 Occupational Disease Consultation Centres (CCPP) and 9 occupational health services in France have formed a network of medical experts, the ‘Réseau national de vigilance et de prévention des pathologies professionnelles (RNV3P)’ or National Network for Monitoring and Prevention of Occupational Diseases. This presentation describes this complementary approach and presents exploratory analyses illustrating how data can help detecting new consequences of work on health. The analyses are based on internal analyses (odds-ratios-OR) computed with several referent populations. In the CCPPs, sectors with higher OR for mental diseases are finance, trade and the real estate business. The higher OR for skin diseases are seen among health and social affairs workers, and higher odds-ratio for musculoskeletal disorders seen among domestic workers. In occupational health services, sectors with higher OR for mental diseases are finance and trade. The higher odds-ratio for skin diseases are seen among cleaners workers, and higher odds-ratio for musculoskeletal disorders among agriculture workers and construction workers.

These results are consistent with data from literature. They show the ability of the network to provide reliable information for prevention in occupational disease. These indicators have to be seen as a tool to orientate prevention towards relevant sectors rather than to look for causal elements explaining the diseases. Comparison between results observed in the two components of the network needs further analyses.
15. Identification of new and emerging occupational risks using a text mining based information system


TNO

Introduction
On the internet and in scientific databases relevant information is available on new and emerging occupational risks. However, the amount of information is enormous and the information is scattered over multiple and diverse data sources complicating the full utilization of the data sources. TNO has developed an innovative information system that can filter relevant knowledge on food risks from the growing flow of information. This system will be used as a basis for the development of a similar system for occupational risks.

Methods
The functionality of the method is based on the combination of advanced text mining technologies, expert knowledge and the application of up-to-date scientific databases. Information on emerging hazards can be obtained by defining tailor-made search queries, for which information (in e.g. ontologies) on occupational hygiene, substances, and known chemical hazards and health effects, can be combined. Because of the advanced text-mining technology, it is not only possible to search for known terms (such as known names of chemical substances), but it is also possible to use context wording (such as properties of substances) in order to identify yet unknown hazards.

Results and Discussion
A query typically results in a table-like overview of possible hazards, with a reference to the (scientific) sources. These overviews will then be evaluated by experts. These enhanced overviews form the input for risk management decisions. The power of this system is its ability to find any possible linguistic relationship in documents between the various terms contained in the knowledge base. The method and input parameters for an occupational hygiene case will be shown.
16. Extrinsic Allergic Alveolitis in a manicurist with ethyl methacrylate: first case report

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Medical History
This case concerns a 37-year-old patient who presented with dyspnoea and episodes of fever, which were clearly linked to her work of nail technician. At the time of symptoms, laboratory tests revealed inflammation, ground-glass infiltrate on CT scan and significant lymphocytosis on bronchoalveolar lavage. 10 days of steroid treatment cleared up the lesions. She was diagnosed as having an extrinsic allergic alveolitis (hypersensitivity pneumonitis).

Exposure Data
She had almost exclusively created false fingernails since she was 19, using two techniques involving methacrylic resins (“resin technique” involving a bi-component preparation, polymerising spontaneously, and “gel technique” involving a one component gel polymerising under UV light). The “fashioning liquid” used for the “resin” technique, consists of methacrylic monomers (80% ethylmethacrylate =EMA, 4% triethylene glycol dimethacrylate, hydroxypropyl methacrylate, glycerol dimethacrylate).

Assessment work relatedness
Tests for precipitins against fungal antigens and some keratinophilic fungi that may be present on nails were negative. It was decided to remove products containing EMA, \textit{the most volatile component}, and she was able to go back to work with no disease recurrence with, from now one, 2 years of retrospect. Challenge test with EMA alone was negative (surveillance 24 h in hospitalisation, controls of lung function test and biological parameters; exposure to EMA monitored in real time with infra-red spectrometry, controlled with measures on activated charcoal). We think that the challenge test a false negative due to insufficient cumulated exposure. Nevertheless, because the patient didn’t presented any symptoms more since she stopped using the products, we did not undergo a new test with higher exposure. There are currently no commercialized precipitins against EMA-Albumine conjugated, and their interest would be relative, as they would only testify exposure and not causality.

Conclusion
Along with skin sensitisation, and occupational asthma, this is a new adverse effect of EMA, which should be compared with two cases of hypersensitivity pneumonitis in dental technicians, already attributed to MMA in 2004 by Scherpereel et al (\textit{Exposure to methyl methacrylate and hypersensitivity pneumonitis in dental technicians}. Allergy 2004;59:890-892). This communication is one element of a warning issued by the French occupational disease surveillance and prevention network (RNV3P).
17. Immunologic status of agricultural workers in the region of Lombardy, Northern Italy

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Purpose
Farming is associated with a wide variety of hazardous exposures including physical, chemicals and biological agents. Animal farmers are exposed to dust which contains microorganisms, mycotoxins, endotoxins, animal feed particles, allergens and chemical agents. Organic dust exposure is known to cause allergic and non-allergic rhinitis, and organic dust toxic syndrome. This study was undertaken to evaluate the relationship between occupational health hazards and serum pro-inflammatory cytokines among agricultural workers, in particular we investigated whether animal breeders react differently to biological agents than non breeder farmers.

Methods
One hundred subjects working in agricultural enterprises in the region of Lombardy, were enrolled into the study in 2010. Serum cytokines including interleukin (IL)-6, IL-8, IL-10, IFNγ and tumor necrosis factor-α (TNFα) were measured. Cytokines were assessed by commercially available enzyme-linked-immunosorbent assay (ELISA).

Results of the study
Compared to control subjects, increased TNF-α, IL-8, and IL-10 levels were found in animal breeders, and a statistically significant relationship between type of job (breeder/non breeder workers) and increased serum pro-inflammatory cytokines. Results suggest that animal breeders might be at higher risk of occupational diseases and biological hazards than other farmers with less contact to animals.

Keywords
Farm workers, swine breeders, inflammatory cytokines, biological risks.
18. Tuberculosis and cattle breeding: the case of an Egyptian milker

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Background
Occupational health in breeding activities is strongly embedded with animal health. Tuberculosis (TB) – known for its critical progress and for the long duration of the drug treatment – has the specificity of a bi-directional infectious potential. Tuberculosis is still endemic in Africa, Asia and Balkan Area. Among these, the most risky regions for the disease are North Africa and India. In the Italian agricultural system, about 37000 migrants are legally employed, most of them in seasonal activities (e.g.: harvesting) but if we consider Northern Italy, we can easily find a significant presence of foreign workers also in animal breeding. In our experience, we have observed that people from India and North Africa are often involved in cattle breeding.

Case-report
This case report deals with a worker from Aegypt, employed as milker in an Italian enterprise since 1990. The worker, a 51 years old man, affected by chronic HCV, showed suddenly symptoms and signs suggesting lung TB (cough, haemoptysis, weight loss and thoracic pain). A diagnosis of lung TB was made in the past and the worker underwent a multidrug therapy. A re-activation of a silent lung TB due to the immunodepression linked to the chronic liver disease or to a new infection have been inquired with questionnaire. The diagnostic approach performed included BK search in the sputum, lung X-ray, Mantoux test, pulmonary evaluation. The worker was held temporarily not suitable for work.

Consequences
Preventive measures provide to perform Mantoux test to all milker’s colleagues and to perform tuberculin test to all animals reared. The occupational risk of TB to cattle breeders is discussed in light of bovine TB cases in Lombardy Region.
Pharmacovigilance is the science and activities related to the detection, assessment and prevention of adverse drug reactions or other drug related problems. After the thalidomide case in the sixties the interest in the early detection of possible harmful effects of medicines got a boost. Within the framework of the World Health Organization WHO several countries started the systematic collection of side effects of drugs and an international database was developed. Reports and knowledge are shared worldwide.

Several methods can be used in pharmacovigilance but the cornerstone was and is the reporting of individual of physicians, pharmacists and/or patients. On the basis of experienced adverse drug reaction new knowledge can be found and used to prevent future harm. In occupational health employers and employees can play such a role.

The goal of pharmacovigilance is signal detection: is there a signal of an adverse effect? The second stage is the confirmation of such a signal.

Key activity of those working in the field of pharmacovigilance is the causality assessment of a reported adverse reaction: is the reaction related to the suspected drug?

There are several similarities between pharmacovigilance and the knowledge and practice related to occupational diseases. Some of these similarities will be discussed and examples will be given.

At least the ultimate goal of both is identical: the prevention of harm by finding possible risks from daily practice as early as possible.
20. **Application of pharmacovigilance methods in Occupational Health Surveillance**

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**Background**

The RNV3P is a network of academic specialists of occupational diseases (OD), which collects since 2001, in standardised coded reports, all cases where a physician of any specialty, and throughout metropolitan France, referred a patient to a university occupational disease centre, to establish the relation between the disease observed and one or several occupational exposures, independently of statutory considerations related to compensation. We wanted to optimize the ability of the network to detect potentially new “disease x exposure” associations.

**Methods**

For this purpose we made a search of data mining tools already used in health surveillance. We decided to test 7 of the 8 disproportionality measures already used in the pharmacovigilance field to screen the databases of spontaneous reporting of adverse drugs effects. The comparison of the structure of the RNV3P database, with the pharmacovigilance databases showed similar sparsity and distributions of number of cases of the “disease x exposure” matrices (and also “disease x occupation” and “disease x activity sectors” matrices).

**Results**

Finally the PRR method (proportional reporting ratio with the LI₉⁵%IC signal generation criteria) was chosen, because more complex methods did not show a greater value with the RNV3P data (as the BCPNN method based on a Bayesian background). Accordingly, a method for detecting signals with PRR method, and then investigating these signals has been suggested. Results are illustrated with the example of the hemomalignancies with up to date data.

**Discussion / Conclusion**

These measures are interesting to sort out “disease x exposure” associations not previously known as OD, and that could testify of potentially new OD (without being reported in the sentinel watch system by any of the clinicians). For that purpose, they are designed to have a good sensibility but a poor specificity. These methods for detecting signals are, however, only the first step in a more comprehensive process, which requires evaluation of the relevance of the signals generated, and monitoring of such signals (« signal strengthening », « signal follow-up »). These methods are not able to demonstrate causality. They may be seen as a first step of hypothesis generation before launching epidemiological and/or experimental studies.
21. **Best national estimates of incidence and trends of occupational and work related disease through multiple reporting schemes**

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**Introduction**

Data on trends in incidence of work-related ill health (WRI) are important to determine their direction as well as the overall burden, to evaluate interventions and to identify differential patterns between sectors. The use of multiple data sources set in an appropriate context and with judicious interpretation can provide high quality information.

**Methods**

The Health and Occupation Reporting Network (THOR) collects data about WRI in the UK, from clinical specialists (CSs) e.g. dermatologists, chest physicians, occupational physicians (OPs) and general practitioners (GPs). Trends in incidence have been determined through Multi Level Models (MLMs) using methods previously described [http://www.medicine.manchester.ac.uk/oeh/thor](http://www.medicine.manchester.ac.uk/oeh/thor) but which have been further refined to investigate non-linear patterns (using a log quadratic or spline modelling approach) or to study industry or agent specific trends.

**Results**

MLMs showed significant downward trends in incidence of occupational skin, and chest disease reported by CSs and OPs while for musculoskeletal disease the downward trends were significant from all three groups of reporters. The estimated annual decrease in skin disease (1996-2009) was -2.7% (95% CIs: -3.4%, -2.1%) (CSs) and -8.2% (-10.1, -6.3%) (OPs). For respiratory disease the corresponding figures were 2.6% (95% CIs: -3.7%, -1.6%) (CSs) and -7.1% (-10.7%, -3.4%) (OPs). Between 2006 and 2009, GP data showed a larger annual average decrease in incidence of -14.3% (-17.9%, -10.6%) compared to -4.6% and -7.5% for CSs and OPs over the same period. In contrast for mental disorders while CSs and GPs suggested a significant decrease in incidence, OPs incidence data showed a significant increase of approximately 4.2% per year (95% CI: 2.7%, 5.7%).with the results of the log quadratic and spline model suggesting a maximum incidence around 2004 and consistent with a plateau for the ensuing years. Some variation between industries was observed.

**Discussion**

These data show that the reported incidence of most WRI has generally fallen slightly but progressively or remained constant over the last 10-15 years. However, there was a sharp increase in mental WRI incidence although this appears to have levelled off over the last 5 years. This method also permits comparisons of differences in trends between large industrial sectors.
22. Registry of outpatients examined by the Norwegian occupational medicine departments

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Background
In recent years, possibly work-related ill-health in several industries has been focused on. Examples are mercury-related health problems among dental assistants and chemically induced illness among offshore workers. The Norwegian authorities have required overviews of certain outpatients examined by the occupational medicine departments in Norway. To get a better and more continuous overview of the patient assessments, a national, anonymous registry of all patients examined by the country's six occupational medicine departments was established from January 1st 2009. The National Institute of Occupational Health (NIOH) coordinates the data entry and reporting from the register.

Methods
Data in the registry are based on a form that is completed by the physician who examined the patient. The form was created by the coordinator from NIOH in collaboration with representatives from the occupational medicine departments. In the beginning, paper forms were sent to NIOH for registration, but now all registrations are performed online by the respective departments.

Results
In 2009, a total of 1106 patient examinations were performed, of which 820 concerned men, and 67% were more than 50 years old. In about half of the cases, the patient had respiratory symptoms, and in 342 cases (31%) the primary diagnosis was a respiratory disease. Most common were asthma and COPD. Pleural plaques caused by asbestos exposure were found in 32 cases. Tumors were the main diagnosis in 166 cases (15%). Of these, 114 had lung cancer and 20 had malignant mesothelioma. Respiratory diseases, tumors and diseases of the nervous system were all considered to be possibly work-related in about half of the cases.

Conclusions
This newly established patient registry provides an overview of incidence, and referral and examination practices of occupational medicine outpatients in Norway. Work-related respiratory diseases, cancer and suspected chronic solvent induced encephalopathy constitute a large proportion of the patient material. Data from the registry will be included in the regular reporting of the occurrence and development of work-related diseases in Norway by the Department of Occupational Health Surveillance at the NIOH.
23. Review on the validity of self-report to measure work-related illness

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Background
Self-report is an efficient and accepted means of assessing population characteristics, risk factors, and diseases in occupational health and other studies. Little is known on the validity of self-report used to measure work-related illness. This study reviews the evidence on the validity of workers’ self-reported work-related illness in comparison to expert assessment based on clinical examination and testing.

Methods
A systematic literature search was conducted in four databases (Medline, Embase, PsycINFO and OSH-Update) using a search strategy built on the presence of the concepts: work-related ill health, self-report, measures, validity, and reliability. Two reviewers independently performed article selection and data extraction. The methodological quality of the studies was evaluated and the levels of reliability and validity were rated against predefined criteria.

Results
In 32 studies the validity of self-report is compared with the ‘reference standard’ of expert opinion based on clinical examination or testing. The most studied health conditions were musculoskeletal disorders (13 studies; eight of high quality) and skin disorders (eight studies, six of moderate quality). The self-reported relation of the health condition with work was only studied explicitly in three studies. Self-report measures that focus on symptoms usually have a high sensitivity, but a low to moderate specificity. Self-report based on an aggregated score of relevant symptoms or based on self-diagnosis showed a lower sensitivity but a higher specificity. On population level the prevalence based on aggregated scores of self-reports may be close to prevalence measured by physicians’ diagnoses, but on an individual level there may be large dissimilarities.

Conclusions
It is not possible to state a final judgement on the validity of self-reported “work-related illness”. The validity depends on the purpose the self-report and the context in which it is used. The inclusion of questions about perceived relationship between symptoms and work could enhance the significance of self reported work-related illness.
Although it has long been established that asbestos is the main cause of Mesothelioma, the retrospective assessment of occupational exposure in community-based studies has often been crude and involved considerable misclassification. Mesothelioma registries have been established in several countries, but the exposure assessment to asbestos has been found to be a challenging task with conventional methods, as this has usually involved self-reported asbestos exposure over some decades.

A new web-based software expert assessment system approach for exposure assessment, known as OccIDEAS (http://www.occideas.org), has recently been developed for use in community-based studies investigating occupational exposures. OccIDEAS aims to improve retrospective exposure assessment by collecting a full occupational work history and then applying occupation specific questionnaires or Job Specific Modules (JSMs). The answers given by participants trigger automatic exposure assessments which have been designed using expert input. In OccIDEAS all steps in the exposure assessment process are available in the one software package; which allows for manual or automatic assessments, using consistent exposure assignment.

The Australian Mesothelioma Registry (AMR) aims to assess exposure to asbestos from both environmental and occupational sources to identify emerging ‘at risk’ occupations, especially those involving work on asbestos materials in buildings and those involved in the asbestos removal industry, and those exposed to environmental sources. For the AMR, 15 occupational JSMs and an environmental module for asbestos exposure have been developed within the OccIDEAS platform. Beginning in early 2011, the asbestos exposure of all cases notified to the AMR in Australia will be assessed using OccIDEAS.

25. Surveillance programme of work-related diseases (WRD) in France

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Background
In France, the financial compensation of an occupational disease relies on « tables » which are based on presumption of causality and define the necessary and sufficient conditions. « Work related diseases » (WRD) are all the diseases from occupational origin non compensated. The declaration of putative WRD is an obligation for all physicians with the aim of updating the tables of occupational diseases. However, physicians notify rarely the diseases they think to be linked with work conditions or occupational exposures. Moreover, these notifications cannot be used for epidemiologic surveillance due to the lack of data on the source population. Then, the InVS has developed a protocol of the WRD surveillance. The main purpose is mainly to estimate the prevalence of WRD in the working population according to socio-economic factors. In 2011, this programme is implemented in 13 regions.

Methods
In 2008, the registration system was implemented in 8 regions. Actually, it is based on two-week registration repeated every 6-months period through a network of volunteer occupational physicians. These physicians notified the WRD they have observed during the annual visit of workers. In order to estimate the prevalence rates, we collected data on age, gender and economic sector of all the workers visited by the same physicians during the same period.

Results
In 2008, 968 occupational physicians (about 33%) have been volunteered to take part in these 8 regions. The economic sectors of the regions were quite well represented. The WRD prevalence varied from 5% to 8% according to the region and the period. The musculo-skeletal disorders represented the main cause of diseases; the second cause was the mental disorders (prevalence : 2.4 % among women and 1.1 % among men). A decreasing gradient from professionals and managers to blue collars was observed, in women and men.

Conclusion
A better registration was observed during these «two-week registration » in comparison with the other regions where this program was not implemented. Regularly repeated, these short periods of registration will provide useful data on the frequency of pathological manifestations associated with work, as well as an estimate of the extend of undeclared compensable WRD.
26. Detection of New and Managing Existing Occupational Diseases in the Finnish Chain of Health Care

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Background
In Finland, the delineation between occupational and other work-related diseases is flexible and, if necessary, can be changed on the basis of scientific proof. Primary cause has to be a physical, chemical or biological factor at work. Physicians are obligated to report all cases of occupational disease or other work-related morbidity.

In line with general Scandinavian trend, Finnish economy has been moving towards increasing service sector employment. Some ‘classic’ occupational diseases have been practically eradicated, such as lead and carbon disulphide poisoning and chronic solvent encephalopathy. On the other hand, traditional diseases might remain undetected if their incidence is believed to be reduced.

Methods
In the chain of care, the most common occupational diseases, such as most toxic contact dermatitis and strain diseases, are diagnosed and treated in outpatient care, particularly occupational healthcare. Private otologists or central hospitals diagnose the majority of noise injuries. University hospitals conduct examinations on diseases requiring specialised research. Dermatology clinics are well equipped to diagnostise occupational skin diseases. All university and a few central hospitals have occupational medicine clinics which work in co-operation with the Finnish Institute of Occupational Health (FIOH). FIOH functions as a national diagnostic centre for occupational diseases. Examination of problematic cases is centralised in FIOH, e.g. skin and respiratory system examinations requiring specialised capabilities as well as diseases suspected to be caused by new pathogens, borderline cases and rare diseases.

Results
Within a population of 5.5 million, around 6,000 recognised or suspected cases are reported yearly, the trend is slowly decreasing. Noise-induced hearing loss and repetitive strain injuries both equal 25% of all cases. The third largest group is skin diseases followed by asbestos-induced and allergic respiratory diseases. Co-operation between clinicians and FIOH research has introduced several new skin and respiratory allergens. Practice to detect toxic encephalopathy is a reference in the field of occupational neurological diseases.

Examples of cases of new occupational diseases and prevention strategies will be presented, as well as possible new methods for early detection of work-related hazards.

Conclusion
Future challenges are both in prevention of work-related diseases, supporting work-place measures and in work-ability co-operation.
The significance of engineered nanomaterials (ENM) and nanotechnologies grows rapidly. In the near future, nanotechnology-based applications will have a marked impact on human every day life. This may take place for example via the production of large number of innovative consumer products, or through having a fundamental impact on lives by providing means for the production of clean energy or pure drinking water. However, very little is known of the risks of ENM to occupational health and safety (OSH), even though workers are most likely to be at an extra risk, as compared with other groups of people, because the levels of exposure to ENM are usually higher at workplaces than in other environments. The exposure of consumers and various susceptible groups cannot be neglected, either. However, knowledge of the exposure to, or effects of, ENM on human health and safety in the occupational environment, and outside occupational environment, is limited and does not allow reliable risk assessment of ENM at workplaces. Several issues related to ENM in the workplaces require marked attention. The most topical issues include: 1) improved understanding of ENM metrics that determine their toxicity; 2) development of monitoring devices for ENM exposure assessment; 3) understanding the changes of ENM structure and state of agglomeration at different concentrations in aerosols; 4) understanding biological effects of ENM in the human body; 5) the development of tiered approaches for testing of safety of ENM; and 6) utilizing these data for health risk assessment, with a special emphasis on occupational environment. Available data on several ENM - ability to enter the body and reach almost any organ, to cause pulmonary inflammation and fibrosis, and even to cause increased risk of mesotheliomas in animal models, call for immediate action to identify those ENM that may cause occupational health and safety risks from those that are innocent hence allowing prioritization of regulatory and preventive actions at workplaces at national, regional and global levels. Supported by the European Union 7th Framework Program Grant CP-IP-211464-2 (NANODEVICE Project).
28. Easy-to-use nano control banding tool for risks related to working with nanomaterials: Stoffenmanager Nano

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Background
Control banding tools are needed to support small and medium enterprises with their risk assessment of working with manufactured nano objects (MNO). The goal was to build an easy-to-use web based control banding tool, using accessible and obtainable data on hazard and exposure parameters and resulting in a risk prioritization score and subsequent control.

Methods
Based on scientific literature, relevant parameters on hazard and exposure were selected and included in a conceptual model. A peer review of the model by a scientific advisory panel (SAP) and discussions with national and international stakeholders resulted in a final conceptual model covering four general source domains of the complete supply chain. The SAP reviews was done by expert judgment on a ad-hoc basis. Subsequently the model was converted into an online tool (http://nano.stoffenmanager.nl) that was tested and reviewed by some 15 companies, resulting in the release of version 1.0 March 2011.

Result
Stoffenmanager Nano is a control banding tool that prioritizes occupational risks related to working with MNO. It determines hazard potential (band A-E) based on particle size, solubility, fiber-like-properties and classification of nano- or parent material. Exposure potential (band 1-4) is determined using handling categories adjusted to the life-cycle of nanomaterials. The final risk prioritization (class I-III) can be iterated by selecting control measures.

Conclusion
Stoffenmanager Nano is a ‘continuous development’ tool reflecting the current knowledge on risks related to working with nanomaterials. This tool is limited by the lack of specific scientific data, e.g. exposure data or dose-response relationships. To fill in knowledge gaps until more scientific data become available, we will redesign the ad-hoc expert judgement of the SAP into a expert elicitation procedure to gather and combine new information on exposure, hazard and risk in a transparent way. The emerging knowledge from this expert elicitation procedure will be implemented in subsequent versions of Stoffenmanager Nano.
Tracing newly occurring occupational diseases with a sentinel clinical approach: from detection to alert.

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Background
The RNV3P is a network of academic specialists of occupational diseases (OD), which collects since 2001, in standardised coded reports, all cases where a physician of any specialty, and throughout metropolitan France, referred a patient to a university occupational disease centre, to establish the relation between the disease observed and one or several occupational exposures, independently of statutory considerations related to compensation. RNV3P stakeholders wanted to build a system analysing well argued case reports that may testify of new, apparently undescribed, cases of OD.

Methods
A sentinel clinical watch system was build to take in charges potentially new OD that would be directly identified during a consultation. A « new, potentially emerging » case report refers either to a couple associating a well defined disease to a well documented exposure, with a strong evidence for the expert, and for whom scientific literature is «silent » or non conclusive; or to a couple “disease x exposure” already known in the literature, but observed in a different occupational setting (a new trinomial «disease x exposure x occupational setting»). « Strong evidence » for the expert may come from a strong chronologic criterion, the existence of a cluster, the full demonstration of causality with a challenge test, etc.

Results
A procedure has been developed where the senior physician of an OD centre refers his case to an Alert Treatment Cell, composed of permanent members and non permanent members including reporting physician him/herself and two experts competent in disease or exposure concerned. If there is a presumption of strong causality, an alert is done to stakeholders. If there is a doubt, a procedure of “active waiting” is starting. If the alert cell think there is no relation, cases are only stored.

Conclusion
This sentinel approach capitalizes on the “qualitative added value” of the expert network, and acts as a complement of data analysis in search of potentially emerging diseases. It bypasses one of the main drawback of Data Mining methods, which supposes that a potentially emerging disease must have been coded several times and in a relatively uniform way to generate a signal.
30. Suspected clusters at workplace: a difficult challenge

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Background
The National Institute for Public Health Surveillance, a French health state agency, has to monitor the health of the French population according to all determinants of health, including occupational risks. To detect occupational health risks and diseases, the institute coordinates epidemiological surveillance programs and implements clusters investigations.

The number of suspected clusters has been increasing since several years. Occupational physicians, workers, or syndicates are more and more worried about an elevated number of cases, often cancer cases, observed within a period of time among workers in the workplace. Usually these potential clusters are simultaneously notified to different resources, as the Health ministry, the Labor Ministry, other state health agencies, the Universities hospital occupational consultations. The demand is to find the cause of observed diseases. Then every contacted institution has to respond to these inquiries.

Methods
To coordinate the responses to these demands, and to build a systematic approach in these responses, the InVS is developing a system to elaborate one response, based on the consensus of a network of several national and local occupational risks experts. These experts are a regional occupational physician, a physician of the university hospital occupational consultation, an epidemiologist in the InVS regional cell and in the national department. When a cluster is notified to one member, a short report is sent to the network. The experts group evaluates the signal, and comes to consensual decisions about its validation, and a further investigation. If an epidemiological investigation is needed, the InVS regional cell will be in charge of it, with the support of the others, continuously informed.

Results
This system is being tested in the Aquitaine region. Several signals have been analyzed, mostly suspected cancers clusters. With several examples, the authors will show how this response-system works, the difficulties to investigate a suspected cluster in the workplace.

Conclusion
The participants of the experts’ network note as a difficulty that every institution has to be available to analyze all the signals. As strengths, all partners are simultaneously informed, and the fact that they build one consensual rationale response increases the speed, accuracy and efficiency of this response.
31. An ICT application for real time surveillance and prompt discovery of emerging new occupational health hazards

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Introduction
ICT management of compensation claims for occupational diseases and reports of occupational accidents would allow to proactively implement prevention workplace accidents and occupational diseases. This result might be achieved by automatic elaboration of updated information on occupational accident rates or sentinel events resulting in outputs useful to setting inspection priorities of the Occupational Safety and Health (OSH) agencies at the local level. We designed such application based on the recently implemented automation of the Regional Health System in Sardinia, Italy.

Methods and results
A data base has been created meant to be automatically fed with data from the on-line compensation claims for occupational diseases and reports and medical certificates of occupational accidents submitted to the regional agency of the National Institute for Insurance of Occupational Accidents and Occupational Diseases (INAIL). The data base includes four sections interlinked between each other using a relational logic: the worker, the employer, the description of the occupational accident circumstances or the specific job activities and the medical certificate. Our application 1. matches the medical certificate from the automated regional Health system to the INAIL data from the accident report and/or the compensation claim; 2. feeds the data base with the individual data; 3. every three months, aggregates data according to the territory of competence of each OSH inspection agency, and calculates an observed/expected ratio by industry code, based on the nation-wide INAIL rates referred to the previous years. Results are tabulated in one page, and accompanied by the list of the individual workplaces ordered by industry code and number of accidents or compensation claims in the period. Further information or data elaborations may be acquired through specific queries upon request.

Conclusion
The automation of routine procedures flows in the health domain allows linking real-time linking of updated parallel data on occupational diseases and occupational accidents; a simple automatic algorithm makes that information readable to pro-actively prioritize the OSH inspection schedule and it may allow the discovery of new emerging hazards and their effects, supporting the observation of local excesses with the analysis of their spatial distribution and time trends.
Using Expert Functions for detection of potentially emerging occupational health problems

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Background
The occupational environment is a multifactorial source of exposures where industrial, chemical or toxic hazards interact to produce adverse effects on health. Faced to this occupational multi-exposure, detecting potential emerging situations is a major issue in public health in order to anticipate and prevent occupational risks. Objective of this talk is to present the strategy we develop to detect potentially emerging Occupational Health Problems (OHPs) taking into account multi-exposures related to a disease.

The French national occupational disease surveillance and prevention network (called RNV3P for Réseau National de Vigilance et de Prévention des Pathologies Professionnelles) is a growing database recording every year about 8,000 OHPs. OHPs are defined by experts after a professional examination and coded in the RNV3P database as a disease associated to a set of occupational exposures composed of 1 to 5 hazards, a poste and an activity sector.

Methods
First, we define a potentially emerging OHP as a disease-exposures association which already exists in the RNV3P database but appears with an abnormal frequency. Second, we describe and formalize the OHPs notification process in the form of stochastic functions, that we call "Expert Functions". From a disease and an activity, the Expert Functions generate OHPs under the assumption that hazards are associated randomly to the disease. Third, we develop a strategy to identify potentially emerging associations, submitting OHPs to a series of tests, which one is based on Expert Functions.

Results
We present a classification of malignant tumors registered in the RNV3P database according to their susceptibility to emerge. Then, we extract two samples of disease; a disease which is mentionned as compensated in the French system of occupational diseases recognition, and a disease presenting a low level of proof issue and for which literature suspects several exposures to be related to the disease.

Conclusions
We develop Expert Functions to learn from experts’ knowledges and provide a methodology to identify potentially emerging disease-exposures associations, taking into account multi-exposures. This approach has not an etiologic purpose, but generates hypothesis to initiate epidemiological investigations.
33. **New occupational lymphohematopoietic diseases - experience of Korea**

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**Background**
Lymphohematopoietic cancer (LHC) including leukemia is one of important occupational disease since early 20th century when benzene was turned out to be a powerful bone marrow poison. In Korea, only 20 cases of occupational LHC per year were officially compensated in recent 10 years although 13 million workers are covered by the public insurance. Majority of these cases were related to benzene exposure, and small portion of those were related to ionizing radiation and anti-neoplastic drugs. The current issue on occupational cancer is on multiple exposure or unknown hazards. This investigation is to assess work-relatedness of recent suspicious leukemia clusters in semiconductor industry in Korea.

**Methods**
Five cases of leukemia developed from 2007 to 2010 in one semiconductor factory were investigated. Clinical course, possible carcinogenic exposure were reviewed and airborne monitoring for chemicals including benzene and measuring of ionizing radiation was conducted. Chemicals used in major semiconductor companies in Korea were reviewed.
Simultaneously we performed retrospective cohort study on cancer risk using employee records of the 5 semiconductor companies. We analyzed standardized mortality ratios and standardized incidence ratios.

**Results**
Although semiconductor wafer fabrication is a definite chemical intensive process, no known carcinogens for leukemia were used in the workplace except radiation generating devices. Exposure level of benzene was lower than the 1 ppb, while the ionizing radiation dose was similar to the background level. Exposure level to chemical including benzene was also not so high these days. In case of retrospective cohort study, female semiconductor workers’ leukemia incidence was more than expected but it was not statistically significant whereas non-Hodgkin’s lymphoma incidence was significantly elevated.

**Conclusion**
We could not find strong evidence of work-relatedness for all cases, but it is hard to entirely rule out association between semiconductor work and leukemia. Because the cohort study had limitation of very young subjects and short follow-up period, so further follow-up is ongoing and majority of chemical used in semiconductor industry has not been evaluated for carcinogenicity.
34. **Neuropsychological performance among welders**

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Faculty of Medicine

**Background**  
Neuropsychological and neurological health effects are well known among workers with high occupational manganese (Mn) exposure. The risks among welders with lower exposures are less well understood. In Algeria, the number of workers exposed to welding fumes is increasing because of the economic situation of the country. The aim of the study was to assess neuropsychological performance among welders and compare them with those of unexposed referents.

**Methods**  
A total of 102 male welders and 120 age-matched (± 2 years) healthy control (manuals) completed questionnaires and underwent neurobehavioral testing. Welders were selected from a metal construction plant and shipyard. Controls were recruited from a car assembly plant and the same plants as the welders. 24 workers have been excluded (did not meet inclusion criteria). Outcome variables were analysed in relation to exposure to welding.

**Results**  
Welders performed a mean of 20 years of welding (range 1-34), were on average 42.6 years of age and had on average 6.7 years of education.  
Digit Symbol (27.3 versus 33.9, p <0.001), Digit Span forward (4.8 versus 5.6, p<0.001), Digit Span backward (3.9 versus 4.6, p<0.001), Benton Recognition (6.9 versus 7.6, p: 0.001), Pursuit Aiming Correct (127 versus 148, p<0.001) showed differences between welders and control individuals after adjusting for confounding variables (age, education, salary, cigarettes/day and pack-years).

Multiple linear regression analysis was performed to examine relation between neuropsychological test score and exposure to welding fumes. To avoid bias of confounders in relation analyses, potentials confounding factors (age, years of welding, year of education, confined space, salary and cigarettes/day) were included as covariates.

The analysis shows that welders remained significantly associated with impaired scores on tests, particularly for Digit span forward and "confined space" ($\beta$: 0.80 p<0.05).

**Conclusion**  
A limitation of this study is the lack of biomarkers. However, results showed suggestive evidence that the performance on tests was significantly poorer in welders than in referents. Confined space particularly without protection is at risk.
Environmental factors such as climate and ecosystem changes, besides social and economic effects of the “globalization”, can affect the distribution of the pathogens in the world. In addition, they might bring new and emerging biological risks, or cause typical risks to move in the areas different from their origin. It is worth reminding that some of the latest and most significant public health problems that originated from animal breeding are: the avian influenza H5N1, Severe Acute Respiratory Syndrome (SARS), Creutzfeldt-Jakob disease (CJD) and swine flu. All these emergencies clearly indicate that the link between animal and human health is strong and evident, and also occupationally exposed subjects (e.g. farmers, breeders) are particularly at risk of zoonotic diseases. Also new problems are emerging nowadays and need more investigation. For instance the peripheral neuropathies observed in pig slaughterhouses workers, the increased risk of hemolymphopoietic system disease suggested by some studies on veterinarians, and attributed to a contact with oncogenic viruses from animals, and finally the risk of hepatitis E in farmers, veterinarians and consumers who are in contact with pigs or pig products. Our health surveillance data confirmed a noticeable difference for the immune system reactions (amount of antibodies and proliferation of inflammatory cytokines) against zoonotic agents in animal breeders and other agricultural workers not in contact with animals. Very often signals are not appropriately interpreted, eg. the case of “Cow Milker’s Nodule” we observed in a milker working in dairy herd affected by the same pox virus for several months. It is finally necessary to take into account that the same living environment can be an important occupational and non-occupational risk factor. For instance, as a result of the increasing of the ticks population due to climate changes, there is an increased incidence of tick-borne diseases which will affect subjects exposed at risk of bites from these particular mites. Therefore, the reduction of zoonotic risks in farms becomes a priority in order to improve the overall health of humans and animals. To achieve this purpose a close cooperation and interaction between veterinarians, occupational health physicians and public health operators seems necessary.
36. Antibiotic resistant infection risks in industrial food animal production

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Background
Antimicrobial drugs used in food animal feeds generate drug resistance in bacterial pathogens. Little research has focused on occupational exposures to these risks among farmers, farm workers, and workers in slaughter and processing plants. Pathogen exposure is not considered an occupational health risk in this sector except in responders to zoonotic outbreaks.

Methods
We conducted cross sectional and cohort studies to examine pathogen exposures and health outcomes among persons working in poultry and swine houses: We enrolled poultry house workers and we analyzed data from the US Agricultural Health Study (AHS). For cohort studies workers were compared to community referents and for the AHS participants with and without poultry or livestock exposure were compared. Microbial exposure was determined by self report, stool sampling, and serology; health status information was based on self report, serum biomarkers, and testing respiratory function.

Results
Poultry workers were at increased risk of exposure to drug-resistant Campylobacter, Staphylococcus aureus, Enterococci, and E coli. Swine, cattle, and poultry farmers in the AHS were more exposed to Campylobacter. Health risks include self reported respiratory and gastrointestinal symptoms in poultry workers. AHS farmers were more likely to report symptoms consistent with peripheral neuropathy and to have increased titers of antibodies to C jejuni and specific ganglioside epitopes. Currently, we are enrolling swine slaughter and processing plant workers to examine exposure to methicillin resistant S aureus (MRSA) as well as risks of lacerating injuries.

Conclusions
Workers in food animal production are routinely exposed to zoonotic pathogens in animal husbandry as well as slaughter and processing. Routes of exposure include inhalation, ingestion, and dermal contact. In the US these risks are augmented by failure to provide worker protection or hygiene facilities and lack of access to health care for much of this workforce. These data suggest the need to recognize and monitor pathogen exposures, as well as actions to develop guidelines and interventions that protect these workers from infections.

37. 3 cases of Non Hodgkin Lymphoma among welders exposed more than 10 years to a spray containing methylene chloride (dichloromethane)

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Medical History
Cases of 3 welders (men born in 1953, 1952 and 1948) who presented different types of NHL (follicular, small cells / lymphoblastic T / small marginal cells plasmocytoïd) were investigated.

Exposure data
All 3 patients were exposed in different companies to anti-splashes sprays during 12, 24 and 13 years with no protective equipments.

Assessment work-relatedness
We did measurements in the serum of the only surviving patient of dioxins, furans, and dioxin like-PCB, which could have contaminated this chlorinated spray, as these compounds have been associated with NHL in scientific literature (Viel, Environ Int 2010). Concentration and distribution of these molecules in that patient were similar to those of the French general population. We should nevertheless notice that patient had undertaken multiple chemotherapies (3 relapses) and a bone marrow transplant, which might have modified its lipid metabolism and dioxins storage.

Discussion
Some publications found an excess of NHL risk among welders, but the risk factor was not clear. Questions raised by these cases are: is there a real risk excess related to the use of these sprays? If so, is it related: to methylene chloride itself, to a contamination of the spray by other chlorinated substances as dioxins, to the generation of dioxins when heating the spray during welding? Concerning methylene chloride itself, one Italian multi-centric study showed a NHL risk excess (OR=1.7, Miligi Epidemiology 2006). The European case-study EPILYMPH (Cocco, Occup Environ Med. 2010) has shown a role of occupational exposure to solvents in the aetiology of B-NHL and CLL, suggesting that aromatic solvents (benzene, toluene, xylene and styrene) were associated with lymphoid malignancies. Some analyses specific to methylene chloride were positives, but not with a dose-effect relation. Nevertheless, dose might be less important than the individual susceptibility, as mechanism could be immunologic (Vinéis Cancer Epidemiol Biomarkers Prev. 2007). In RNV3P, the association “Methylene chloride x Hematolymphopoietic Malignancies” is generating a signal with data mining methods, due to an excess of reported cases (these cases not included). For information, the reporting occupational physician knew 2 other cases among welders also exposed for more than 10 years to these sprays.
Case-report: precancerous and cancerous skin lesions limited to area in contact with epoxy resin in a man applying epoxy resin on floors

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Medical History
We report the case of a 62 years old patient presenting with multiple proliferating skin lesions on legs and in a lesser extend on fore-arms. Dermatologists and pathologists diagnosed an «epidermal pseudo-epitheliomatous hyperplasia on dermal lymphangectasia, with a focal well differentiated / verrucous carcinoma». The search of oncogenic HPV by hybridation in situ was negative. Before, he had a history of low to moderate venous insufficiency, and of eczema starting in the area in contact with epoxy resin he was previously exposed to.

Exposure data
From 1996 to 2006, patient applied resins on floors (80% epoxy, 20% polyurethans). Before, he had few skin contacts with chemicals (rare applications of resins, never exposed to coal-tar). The « auto-smoothing » range was applied, kneeling, without any correct skin protection. To our knowledge, the epoxy resin he was exposed to consisted of polycondensation of bisphénol A and epichlorhydrine (30-40% DGEBA: diglycidyl ether of bisphenol A, average PM<700) and 10-15% of a free epoxy compound (1,2-Epoxy-3-(o-tolyloxy)propane-; RN: 2210-79-9, Mutagenic categ 2 of CLP). Hardener was an association of 3 polyamines: one alicyclic (isophorone diamine), one aliphatic, (diaminopolypropylene glycol) and one aromatic (1,3-benzenedimethanamine).

Assessment work-relatedness
His eczema was the cause of strong pruritus and numerous scratching lesions with frequent bleeding. For financial reasons he continued the same activity and damaged skin continued to be exposed to the resins. Lesions are limited to legs (below knee) and forearms (between elbow and gloves limits, less important), area exposed to resins. Patch test (on the back) with usual epoxy resins triggered no local reaction, but a systemic reaction beginning one hour later and lasting several days, with pruritus, swelling and discharge of the lesions.

Discussion
Occupational use of epoxy resins is associated with contact dermatitis (irritation, delayed sensitisation, and photosensitisation) and more rarely occupational asthma, but was not earlier related to any skin cancer. Nevertheless, we wonder if, in contact with a wounded skin, some of the molecules from the uncured resin and hardeners may have been responsible for these lesions, identifying several pathways that will be discussed. Workers should apply resins with correct equipments to avoid direct skin contact.

Article I.
39. Environmental and occupational clusters of Amyotrophic Lateral Sclerosis (ALS) associated with exposure to metals polishing dusts


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**Background**

Amyotrophic lateral sclerosis (ALS) is a rare neurodegenerative disease, generally considered as a multifactorial disease with strong gene-environment interactions. Data about occupational and environmental factors related to ALS remain sparse through the time, and lack of convergence (Sutedja. Amyotroph Lateral Scler. 2009), except the relation between lead and ALS (Fang. Am J Epidemiol. 2010).

**Medical history and exposure data**

We first report an occupational cluster of 3 ALS cases in a 30 worker familial factory of upscale faucets and accessories located in North of France. Cases are the employer and 2 polishers, who each spend more than 20 years of metal polishing (mainly brass alloys and sometimes bronze).

We also report an environmental cluster of 12 ALS cases living in a village next to Grenoble from decades, with a probability of occurrence of p<0.001. Cases are located “under the wind” of a factory manufacturing orthopaedic devices since the 1950’s (70% Ti-V alloys and 20% Cr-Co in the late 80’s versus 75% Cr-Co and 20% Ti, 5% inox nowadays). Polishing and sanding work stations are equipped with ventilation systems which discharge outside.

**Assessment work-relatedness**

We are currently trying to estimate past exposures to metals (atmospheric metrology in the tap factory, and dendrochemistry for the environmental cluster). Nowadays, there is a questioning about involvement of metals in neurodegenerative diseases (NDs) as, even in normal aging, there seem to be metal dyshomeostasis in the brain. Some metal ions such as Cu, Zn, Fe and Al have been advocated as modulators of protein misfolding, aggregation and deposition within neurons or brain parenchyma, a feature of most NDs (Bolognin et al. Neuromol Med 2009:11:223-238).

**Discussion**

Along with current literature questioning, these two clusters -as well as other cases investigated among metal tuners and fitters involved in milling and polishing activities-, raise the question of the exact role, on the onset of NDs, of occupational exposure to fine metal dusts in polishing activities. The proximity of other ALS clusters with industry possibly leaching metals in the air will be one of the hypotheses assessed by a “collaborative network for ALS clusters detection and investigation”, recently launched.
40. Oil leakage in aircraft: adverse effects for pilots?

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Background
Cabin air on commercial aircraft is supplied from the engines or auxiliary power unit. When there is an engine oil seal failure, lubricating oils can enter the combustion airstream from which ventilation air is bled of. These oils contain a large number of chemicals (for example, the organophosphate tricresyl phosphate (TCP)) which can cause neurotoxicity. The flight crew often report symptoms including dizziness, disorientation, blurred vision and tingling in legs and arms. There is an urgent need to increase awareness of this problem among medical practitioners in order to improve the recognition, diagnosis and development of treatment protocols for individuals with neurologic complaints following these events.

Methods
This paper presents a cross-sectional pilot-study of 12 pilots and aircrew members referred for neuro(psycho)logical assessment. The general aim of the assessment was to investigate whether there was evidence of cognitive impairment among the subjects and to determine the role of the applied diagnostic procedures. All pilots and aircrew members underwent a clinical interview, neuropsychological and neurophysiological tests and serumanalyses to search for evidence of physical or psychological impairment as a result of possible exposure to toxic fumes.

Results
Subjects reported alarming cognitive failures such as having ‘black-outs’ and problems with multitasking. Pilots sometimes made procedural errors during flight or kept their plane on the ground because they didn’t felt responsible enough to fly anymore. There appeared to be a clear relationship between the experienced (neurological) symptoms and environmental factors inside of the airplane. Neuropsychological screening presented little evidence of cognitive impairment. The EMG and the EEG results showed only nonspecific findings and were not yet proven valuable in the search for neurotoxic damage.

Conclusion
The evidence available in this study does not enable firm conclusions to be drawn regarding a causal link with contaminated air. As such, further research is needed to determine the potential toxicity of neurotoxisch fumes under aviation conditions.

Article II.
Medical History
We report the case of a 58 years old patient, with a history of common atopy and asthma treated by inhaled corticotherapy, who presented an atypical mycobacteriosis, due to *Mycobacterium fortuitum*. He was diagnosed by pneumologist and infectious diseases specialist and is currently treated by cyproflowacine and vibramycine for a one year period. Moreover his pneumologist thought it was better to stop the inhaled corticotherapy to avoid relapse. That's the reason why he initially referred the patient to our Occupational Disease Centre, thinking of a possibly work-aggravated asthma.

Exposure data
Patient was a house painter for 28 years. During consultation, we noticed that during the 3 last years he had an important building remediation activity and did many interventions on water-damaged buildings, associated with possible exposure to microbiologic contaminants (fungi as Aspergillus, or atypical mycobacteria). We also noticed a strong positive serology towards Aspergillus.

Assessment work-relatedness
A recent study detected high numbers of viable mycobacteria in moldy building with a history of water damage (years earlier). It also noticed that one of the isolated rapid-growing mycobacteria (RGM) representing a potentially pathogenic species, was *M. fortuitum* (*Rautiala S. J Occup Environ Hyg. 2004;1(1):1-6*). These kind of mycobacteria is not far from ubiquitous and may contaminate up to 90% of biofilms from piped water systems. *M. fortuitum* is more known to cause localized cutaneous infections - some post-chirurgical or post-injection, and also some occupational- but is also a rare cause of chronic mycobacterial pulmonary disease, most often in patient with underlying disease (*Brown-Elliott BA. Clin Microbiol Rev. 2002;15(4):716-46*). We are not aware of any occupational case of lung disease attributed to *M. fortuitum*.

Discussion
There is recent evidence that long term inhaled corticotherapy for asthma is associated with lung infections from common pathogens (*Crim C. Eur Respir J. 2009;34(3):641-7*) or mycobacterium tuberculosis (*Shu CC. Medicine (Baltimore). 2010;89(1):53-61*). We suggest paying particularly attention to atmospheric biologic occupational risks among patients treated with inhaled corticotherapy. For instance, metal working fluids that are also sometimes contaminated with other RGM such as *M. chelonae* and *M. immunogenum* (usually associated with epidemics of hypersensitivity pneumonitis in immuno-competent workers).

*Lung Diseases*[Mesh] AND "Mycobacteria, Atypical"[Mesh] AND *fortuitum=* 85 references

42. Design and validation of a questionnaire for measuring hospital staff attitudes about pandemic influenza

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Background
During pandemics, when there is increased workload among healthcare providers, awareness of staff attitudes and the ability to predict the rate of sickness absence are crucial factors in emergency preparedness and resource allocation. The aim of this study was to design and validate a questionnaire to measure the attitudes of hospital staff toward work attendance during an influenza pandemic.

Methods
An online questionnaire was designed and electronically distributed to staff at a teaching hospital in the United Kingdom. The questionnaire, which was influenced by the lessons learned during the SARS epidemic, included 15 independent fact variables and 33 dependent measure variables. Evaluation of the questionnaire was performed in four steps: Face validation, pilot data preparation, content validation and content reliability.

Results
Three hundred and sixty-seven responses were received. Response data for the measurement variables were not normally distributed. Three different methods (standardized residuals, Mahalanobis distance and Cook’s distance) were used to identify the outliers. Nineteen respondents (5.17%) were identified as outliers and excluded.

For the measure variables, there was a wide variation in the number of missing data, ranging from 1 to 74 instances. To improve the quality of the data, missing value analysis using the Expectation Maximisation Algorithm was applied.

To check for multicollinearity, the correlation between each pair of measured variables was calculated. This resulted in the merging of five variables into the remainder. Low tolerance in the measured variables was rejected by a multiple regression test. Residuals scatter plot demonstrated homoscedasticity in the dependent variables and confirmed the outlier cases.

Conclusion
With the changes proposed in this paper, this questionnaire can be considered as a standardized and validated instrument for measuring the perceived expectation and attendance of healthcare staff in the event of pandemic flu. Future work will involve using this questionnaire in a multi-centre study with a larger sample size to increase the reliability of the result and to develop a scoring model for the questionnaire.
43. Downsizing and restructuring within financial institutions following a major depression and its association with sleep disturbances among employers and laid-off employers.

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Background
In October 2008 Iceland fell into a major economic depression following the simultaneous collapse of the country’s three major banks. The recession’s most prominent consequences are seen in growing unemployment rate from 1% up to 8% in the first 2 years of the recession. Major changes have occurred in the financial institutions following their collapse. With downsizing, restructuring and closing it is estimated that 20% of the bank’s employees were laid off. Research has indicated job loss to be a stressful incident and a possible trigger of long lasting stress reactions. Also it has been shown that those who keep their jobs following downsizing and restructuring are likely to suffer from i.e. increased job insecurity. Therefore downsizing and restructuring is likely to affect the well being of both the stayers and the leavers. The aim of this poster presentation is to observe the association of job insecurity with sleep disturbances for those who remained working in the financial institutions after downsizing and restructuring and to observe the association of job status following lay-off with sleep disturbances for those employees who lost their jobs.

Methods
The study design is cross-sectional. In March 2009 data was collected among employees who remained in the financial institutions. A total of 1880 employees returned a completed questionnaire (response rate 66%). Also during June/July 2009 we collected survey data from employers who were laid off from the financial institutions. A total of 426 individuals responded to a questionnaire (response rate 56%).

Results
Result indicate that among those who were laid off sleep disturbances is associated with not being re-employed after job-loss for women but not for men. Among those who remained employed in the financial institutions sleep disturbances are associated with job insecurity among both men and women and also among men who experienced salary reductions.

Conclusion
This study indicates that downsizing and restructuring within organisations can significantly alter the quality of sleep among employers and former employers.
44. Risk factors associated with longterm musculoskeletal pain and disability among nurses in Bosnia and Herzegovina: a cross-sectional study

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Introduction
The musculoskeletal pain (MSP) comprise significant occupational injuries and disabilities within the hospital nursing occupation. A number of studies have shown associations between musculoskeletal pain (disorders) and work-related risk factors. Although, their aetiological roles remain inconclusive, psychosocial risks may also contribute. The aim of this paper is to describe the MSP among hospital nurses; to determine physical, psychosocial and individual work-related predictive performance for chronic persistent MSP and work disability.

Methods
A cross-sectional study was conducted in 2010 in University Clinical Centre Tuzla. Questionnaires were distributed to a convenience sample of 400 hospital nurses. The response rate was 75% (n = 300). Data were collected using the Örebro Musculoskeletal Pain Screening Questionnaire. The screening questionnaire provides a sum score that can easily be interpreted into rough estimates of risk (a score >105 indicates a relatively high level of risk for longterm pain and disability).

Results
The mean score of Örebro questionnaire was 93.48±34.14 and the relative high level of risk for longterm pain and disability (over score 105) was presented 118/300 (39%) examiners. The prediction rule for chronic MSP had intensity of pain 0.62 (95% CI =-2.46 to 1.73) and frequency of recurrent episode of MSP 0.51 (95% CI = -0.31 to 0.82); and MSP increase with physical activity 0.60 (95% CI = 5.81 to 8.28) respectively. The prediction rule of work-related stress factors included shift work with night work, symptoms of anxiety, depression and low level of satisfaction with present work (P=0.001). Significant predict role among individual factors were age and duration of working experience.

Conclusion
High risk for MSP of the study results obtained (higher than refered by other authors) among Bosnia and Herzegovina hospital nurses means always negative outcome. High risk means that the problem is psychological in nature. The nurses ergonomic and organisational environment should be continuously evaluated and improved. Örebro MSP questionnaire is very useful tool.

Keywords: back pain, general practice, prediction rule, prognosis, screening questionnaire
Objective
Vocal cord dysfunction (VCD) is an entity that is often misdiagnosed as asthma. The pathogenesis of VCD has not clearly defined. This report presents one case of irritant vocal cord dysfunction secondary to specific alkaline persulfate occupational challenge in a hairdresser.

Method
We report the case of a 38-year-old woman, who complained cough and dyspnoea after customer’s coloration. She was diagnosed with bronchial asthma and she was treated with bronchodilators. Due to the persistence of symptoms, several test were performed, including measurements of total serum immunoglobulin E, skin prick and patch tests with common pneumoallergens and hairdressing’ battery, pulmonary function studies, methacholine challenge testing, specific inhalation challenge performed with suspected agent and fiberoptic rhinolaryngoscopy.

Results
During the specific inhalation challenge to alkaline persulfate the patient showed dysphonia, chest tightness and no significant decreases in the level of forced expatory volume in spirometry. Fiberoptic rhinolaryngoscopy was then performed before and after methacholine challenge and confirmed the diagnosis of vocal cord dysfunction.

Conclusion
This is the first report of VCD onset following exposure to alkaline persulfate. It is important to know that alkaline persulfate that can cause occupational asthma can also cause vocal cord dysfunction.
Secondary pulmonary alveolar proteinosis: a case report of a mechanic involved in nondestructive testing of engine parts

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Pulmonary Alveolar Proteinosis is a rare condition characterized by an accumulation of surfactant in the lung alveoli. PAP can be congenital, acquired (as an auto-immune disease with antibodies against GM-CSF) or secondary to malignancy, certain infections, and exposure to occupational agents, most notably crystalline silica (“acute silicoproteinosis”) and, as recently published, also Indium Tin Oxide (ITO). A 44-year old, currently smoking man was referred to our clinic for occupational and environmental medicine with a productive cough, shortness of breath, fatigue, weight loss and clubbing. He was a mechanic and his job involved the nondestructive testing of aircraft engine parts using an oil-based emulsion containing iron particles and a fluorescent agent (magnetic particle testing). He had a mild restrictive impairment but severely impaired gas exchange. Chest CT scan showed a crazy paving pattern, a typical feature of PAP. The fluid obtained by bronchoalveolar lavage was turbid and examination under UV revealed the same fluorescence as the product he used at work. The diagnosis of PAP was confirmed by histopathology of lung tissue obtained by transbronchial biopsies. There was no respiratory disease among his fellow workers. The patient underwent therapeutic whole-lung lavages of both lungs. This led to substantial clinical, radiologic and functional improvement and he was able to resume his work under much improved hygiene conditions. He is in follow-up to this day. This case suggests that PAP may be caused (or precipitated) by heavy occupational exposure to aerosolized hydrocarbons.
Occupational exposure and the need for sinus surgery

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Background
Functional endoscopic sinus surgery (FESS) is an effective treatment when medical therapy for recurrent acute sinusitis, chronic rhinosinusitis or nasal polyps fails. However, some patients are not cured by FESS and revision surgery is needed in about 15%. We hypothesized that occupational exposure to dusts, irritants or allergens may be associated with the need for revision FESS.

Methods
We performed a large-scale retrospective study of patients having undergone FESS in a single tertiary centre (2004-2008). A postal questionnaire was sent to 890 adult patients of working age who had undergone a FESS procedure, and 182 patients who had had vocal cord surgery (controls) to assess their current or past occupational and recreational exposures. The outcome of interest was the occurrence of one or more FESS interventions. Three independent specialists assessed exposures blindly to the outcome. The possibility of recall bias and the validity of the replies were verified by a telephone interview of 10% of those who had been sent the questionnaire.

Results
The response rate was 51% for FESS patients (n=451) and 36% in controls (n=66). The proportion of subjects with substantial occupational exposure to dusts, irritants or allergens was significantly (p<0.05) higher among the FESS patients (25%) than among controls (12%). Moreover, the proportion of subjects with substantial occupational exposure increased significantly (p<0.01) with the number of interventions, from 21% in those who underwent FESS only once (n=266) to 27%, 33% and 44% in those who underwent FESS twice (n=118), three times (n=40) or more than 3 times (n=27), respectively. There was no evidence for confounding by smoking, allergy or asthma.

Conclusion
We conclude that occupational exposures may influence the outcome of sinus surgery with higher risk of revision surgery. Further prospective studies are needed to confirm the contribution of occupational factors to the pathophysiology of rhinosinusitis and postoperative healing after FESS.
48. Aerotoxic syndrome in two airline pilots?

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The term “aerotoxic syndrome” was proposed in 1999 to describe the association of symptoms observed among cockpit and cabin crew and allegedly caused by in-flight exposure to fumes originating from burnt hydraulic fluid or engine oil. Reported adverse health effects include short-term irritant, skin, gastrointestinal, respiratory and nervous system effects, and persistent neuropsychological and immunological effects.

At our clinic for occupational and environmental medicine, we made a tentative diagnosis of aerotoxic syndrome in two Belgian airline pilots. They both flew a type of aircraft that has been implicated in many cases of toxic fume complaints.

A 35-year old pilot reported the following symptoms during or just after flying a well-defined type of aircraft: headache, tinnitus, ictus, sleep disturbance and joint problems. His chronic symptoms included concentration difficulty, palpitations, muscle fasciculations, chest tightness and increased allergic symptoms. Because of the re-appearance of extreme fatigue upon resumption of work after a work-free period of 6 months, we advised against further flying with that type of aircraft.

A 30-year old pilot, with 4 years flying experience with the same type of aircraft as the previous subject, presented with cough, shortness of breath, eye, nose and throat irritation and memory impairment as acute symptoms. Chronic symptoms were diarrhea and cough. Pulmonary function testing showed a mild obstructive impairment and the PC20 on histamine provocation test was 1.48 mg/ml. He changed to another type of aircraft and his neurological and respiratory symptoms resolved.

Aerotoxic syndrome is a controversial entity of unclear etiology and pathogenesis. The clinical presentation shows similarities with multiple chemical sensitivity and other medically unexplained conditions. The apparent specificity for a well-defined type of aircraft suggests that exposure to irritants (or other contaminants) inside the cabin plays a role in its occurrence, although supporting exposure data are still not available.
The aim of the project ‘Infectious disease control and occupational health’ is to improve on prevention and control of infectious diseases in the occupational setting and, as a result, in public health (PH) in general. The project focuses on improving the interactions between public health care and occupational healthcare (OH) as the employee is targeted through both public and occupational health care for prevention and control of infectious diseases.

Specifics
Since 2006 the project is carried out by the Centre for Infectious Disease Control (CIb) of the National Institute for Public Health and the Environment (RIVM) by order of the Ministry of Social Affairs and Employment (SZW). This Centre has been appointed as National Focal Point for the WHO and is liaison body for organizations such as the EU and ECDC. Its mission is to detect, control and prevent infectious diseases for the benefit of the PH.

Emerging infectious diseases are detected through a structured surveillance system. In the course of the project an OH officer was assigned to the national outbreak management team (OMT) during the swine flu pandemic and the Q-fever outbreak, thus ensuring that working conditions were included in the recommendations to the government. Since 2010 structural occupational input is achieved by setting up an occupational health management team (AMT).

Arbo-inf@ct, a communication platform, was set up to provide OH professionals with the latest information relating to outbreaks of swine flu and Q-fever. As of 2010 this platform has a structural status. In the CIb’s weekly early warning and response meeting, specific attention to the interests of employees health is promoted. These meetings aim to recognize potential threats to the PH at an early stage and to inform the government when needed. OH-related questions were added to the Osiris infectious diseases registration system in order to have an additional source of information on trends on (emerging) occupational infectious diseases. (2)

References

Aerotoxic Syndrome in aircrew and passengers: A new occupational disease?

Mulder M

Guest Researcher Dutch Center for Occupational Diseases

Introduction
The term Aerotoxic Syndrome refers to the short term and long-term health effects which are attributed to short time intense (fume incident) or long term low level exposure to cabin air that has been contaminated with atomized engine oils and other chemicals. Reported alleged health effects include cognitive problems, various other neurological problems particularly related to the autonomic nervous system, chronic fatigue syndrome and multiple chemical sensitivity.

Exposure
Turbine engines require a lubricant which only decomposes at high temperatures. TriCresylPhosphate (TCP), is added in order to raise the flame point of the oil compound. To keep the oil in its specific compartment is difficult. Different techniques are used like wet seals, labyrinth seals and carbon discs. There is a structural leaking of oil in each turbine engine of up to 1 liter/hour (B777). A portion of the escaping oil fumes enters the high pressure compressor and is pyrolized into isomers at temperatures up to 700 °C. Bleed air, which is taken from this airflow is used to pressurize and provide air for the cockpit and cabin. This bleed air is not filtered and therefore may contain different neurotoxic isomers of TCP. Absorption of TCP is possible by inhalation and by skin contact.

Risk assessment
There are hardly well defined clinical and epidemiological studies on the aerotoxic syndrome with both qualitative and quantitative data of exposure and clinical data of signs of neurotoxicity. The “Solvent Team” in Amsterdam has started a “pilot” project examining 20 air(wo)men with neurological complaints. Each candidate has undergone:

- Assessment by interview of involvement in fume incidents and exposure years.
- Neurological, neurophysiological and neuropsychological investigations.
- Serum analyses on the presence of auto-antibodies against neurofilaments, emanating from braincells after apoptosis, caused by neurotoxic compounds according to Prof. Abou Donia - Duke University NC, USA.
- Assessment of TCP exposure by separate cabin-air sampling.

Results of the neuro(psychological) investigations are presented in the poster of de Graaf. So far they don’t indicate neurotoxic damage, however neurological symptoms and cognitive impairment have been reported. The investigations will be extended with fMRI imaging techniques, which have shown changes in brain structure after low level exposure to organophosphate compounds in war veterans. In addition we will investigate cabin crew and passengers which recently were involved in a fume incident.

Discussion
The possibility of exposure to TCP in cabin crew might indicate a hazard for neurotoxic damage. However, so far the data are inconclusive to draw conclusions on the risk. There is a need for more research, which has to separate the real neurotoxic part of the aerotoxic syndrome from the part consisting of unexplained somatic symptoms. This is important because the last one needs a different therapeutic approach, while evidence for neurotoxicity warrants the need for preventive solutions.

Article III.
51. Evidence for contested occupational diseases, does it change our beliefs?

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In the Evidence-based Medicine (EBM) approach, we use the results of scientific studies to improve the quality of health care. The idea is that policy and practice consist of many decisions such as “does this therapy work”. This professional decision making process can be improved by using evidence. Evidence forms part of the input into the decision making process in addition to values and expertise.

For recognition of occupational diseases, evidence from scientific studies has always played an important role in policy making. We could say that occupational medicine was evidence-based avant la lettre. However, many examples from the past show that the role of values is very influential in the decision making process.

For policy decisions, we need evidence for the work-related etiology of an occupational disease. The decision to recognise a disease as occupational has usually important preventive and financial consequences both for employers and employees. Silicosis and breast cancer due to shift work are examples of how contested occupational diseases can become recognised.

Silicosis was a recognised occupational disease in the 1930s in the UK but the occupational origin of emphysema in coal workers was still contested and no compensation was paid. Evidence, among others provided by the work of Archie Cochrane, played a role in the recognition of coal workers’ pneumoconiosis and in setting a maximum to dust exposure in mines.

More recently, breast cancer, as an occupational disease caused by or related to exposure to shift work, was discussed heavily in the literature with more articles that report expert views than primary studies. So far, this has led to the recognition of breast cancer as an occupational disease due to shift work in Denmark but this is still quite controversial.

I will discuss which aspects of the available evidence will help in changing beliefs about the occupational origin of diseases and thus help in getting them recognised.
Emerging occupational lung diseases in emerging economies

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In the past two decades, new occupational lung diseases have arisen, often in emerging economies, as a result of the utilization of old materials for novel applications or as a result of the utilization of new materials or technologies.

The Ardystil syndrome is an organizing pneumonia that occurred in the early 1990’s among workers engaged in air-spraying textiles, first in Spain (1) and, after factories had been closed in Spain, also in Algeria (2). The causative agent was identified as a type of paints that had been used safely as pastes for many years. However, severe lung disease occurred when these paints were applied by spraying. Also in the 1990’s, high exposure to nylon microfibres led to outbreaks of interstitial lung disease (“Nylon flock workers’ lung”) among exposed workers in Canada and the USA (3), but flock worker’s lung also emerged later among workers exposed to other synthetic microfibers (polyethylene, polypropylene) in Spain (4) and Turkey (5).

In the early 21st century, cases of silicosis in young men began to be reported from various locations in Turkey (6;7). It appeared that the patients had worked, generally under very poor hygiene conditions in unregistered workshops where denim clothes were sandblasted (“jeansblasting”) to give them a worn-out appearance (8).

Recently, occupational exposure to Indium Tin Oxide (ITO), used for the manufacture of flat screens, has led to interstitial lung disease and pulmonary alveolar proteinosis in Japan (9;10) and in the United States (11). Also recently, severe pleuropulmonary disease was described in young women who had worked in a print plant in China (12). The condition was attributed to polyacrylate “nanomaterials” that were air-sprayed without exhaust ventilation. Although there is no good evidence that the disease was really caused by nanoparticles, this represents yet another instance of interstitial lung disease caused by aerial exposure to an inhaled polymeric material.

New occupational respiratory diseases continue to emerge in both established and emerging economies. One of the important implications of these outbreaks is that compounds must not be assumed to be safe for the respiratory tract until they have been tested by appropriate inhalation tests.


53. **Dampness in primary schools and health effects: first lessons**


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**Introduction**
HITEA (Health Effects of Indoor Pollutants: Integrating microbial, toxicological and epidemiological approaches) is a collaborative project of the 7th framework programme of the European Union and in The Netherlands also supported by the Asthma Foundation.

The overall aim of the HITEA study is to identify the role of indoor biological agents in development of long term respiratory, inflammatory and allergic health impacts among children. The focus is on microbial exposures due to dampness problems of buildings;

The project includes a cross-sectional and a longitudinal study in school buildings in Spain, Finland and The Netherlands.

**Methods**
Within the Dutch arm of the HiTea study, moisture damage, dampness and visible mould in schools was assessed by both questionnaire and trained inspections in 10 schools. Five schools affected by moisture/dampness/mould, i.e. index schools were compared to 5 reference schools. In a parent-administered questionnaire survey among 1403 children (response rate 65%), information was obtained on asthma, respiratory symptoms and potential determinants.

As an extension of HITEA project airborne dust was sampled in 10 schools with moisture/dampness problems (index) and reference schools, as well as in 169 children bedrooms from index and reference schools.

**Results**
Average endotoxin levels ranged from 4355 to 12101 EU/m$^2$ in schools, and from 923 to 2570 EU/m$^2$ in homes, adjusted to a two week sampling period. School endotoxin levels were higher in index schools as compared to reference schools. Home endotoxin levels tended to be higher in the index than in the reference category (average ratio~1.35). For index and reference categories variation between schools was higher within than between both categories. Variations for home endotoxin levels were less. Asthmatic and other respiratory symptoms tended to be more common in children from index schools, although not statistically significant (p>0.10).

**Conclusion**
Average endotoxin levels were higher in schools with dampness problems and were higher in schools than in homes.

Asthmatic and other respiratory symptoms tended to be more common in children from index schools, although not statistically significant (p>0.10).
54. Iteration and evaluation of Quantitative Structure Activity Relationships to identify novel occupational asthmagens

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The University of Manchester

Introduction
In the absence of an accepted in vivo or in vitro model for toxicological screening for respiratory sensitisation hazards, an ‘in silico’ method was developed to predict occupational asthma hazard from a chemical’s structure. Validations have shown this Quantitative Structure Activity Relationship (QSAR) model to predict asthmagenicity of low molecular weight (LMW) organic compounds with high sensitivity and specificity: http://www.medicine.manchester.ac.uk/oeh/asthma

Methods
The latest evaluation consisted of an updated search of the peer reviewed literature to identify previously unrecognised LMW asthmagens, together with appropriate controls. Additionally novel asthmagens not published in the peer reviewed literature were identified through the Surveillance of work-related and occupational respiratory disease (SWORD) scheme (1995-2010) of The Health and Occupation Reporting Network. Finally, after ethical approval, a group of occupational respiratory disease specialists is being recruited to evaluate the utility of the QSAR model in the clinical investigation of potentially novel LMW causes of occupational asthma.

Results
A total of 28 external validation asthmagens and 129 control chemicals were identified. The QSAR resulted in a sensitivity of 79% and specificity of 93%. For prior probability likely in a clinical context i.e. ranging from 1:20 to 1:3, the negative predictive value (PV) was 0.91–0.99 while the positive PV was 0.39–0.85. The 22 novel asthmagens identified by SWORD appeared to cluster into two groups – including some very likely to be asthmagens as judged by the QSAR model. The results of piloting by UK respiratory disease specialists are favourable as determined by recently published case reports in the literature. However further iteration and evaluation of the model is limited by small numbers in one country.

Discussion
The success shown by this QSAR model so far supports the importance of further international iteration and evaluation of the model. The PVs of the model based on peer-reviewed data suggest that it is likely to be of clinical value in investigating occupational asthma potentially caused by novel LMW sensitisers (as well as in regulatory toxicological screening). Physicians who may see such cases are invited to participate in an international collaboration: martin.seed@manchester.ac.uk
55. A Brief History of Occupational Disease: The Paradigm of Respiratory Illness

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Background
The goal of this presentation is to provide a succinct aural and visual primer to the long and rich history of occupational disease.

Methods
This history is comprised of multiple threads continually interwoven over time into a single historical cord. One thread is formed by the clinicians and researchers who have contributed to the development of this discipline. Many brief summaries of occupational medical history take this as the beginning and end of the story. Yet as important as these biographical elements are, other factors have come into play that make the evolution of this discipline distinct from that of other branches of medicine.

Results
First, advances in technology have played a driving role in occupational and medicine that is unparalleled in other fields of health. It is true that advances in diagnostic and therapeutic modalities, from the microscope to the laser, demonstrate the powerful impact that technologic innovation can have on medical practice as a whole. But despite the role that such inventions have played in clinical care, the underlying pathologic processes of concern to practitioners have not changed because of them. This has not been the case with occupational diseases. Second, the history of occupational medicine reflects of the impact of larger social movements outside the narrow confines of medicine. I would not argue that other branches of medicine are entirely immune to such forces. For example, the course of modern medicine still reflects the impact of the French revolution, transmitted down through the influential work of French medical scientists working at the end of the 18th and in the first half of the 19th centuries. Nevertheless, occupational medicine, more than any other health discipline in the last 200 hundred years, has tended to wax and wane as a consequence of societal forces.

Conclusions
Thus, the history of occupational medicine should be viewed within the context of three disparate, yet interrelated themes: the historical figures that contributed to the development of the field, the technologic changes that have led to ever-shifting patterns of new and old diseases, and the sociopolitical forces that drive priorities in prevention and control.
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