

Occupational health for health Care workers
Santé au travail des personnels de santé
Literature Follow-up – Veille documentaire
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MeSH Terms for Occupational Health for Health Care Workers

("occupational diseases"[MESH] OR "Disease Outbreaks"[MESH] OR "Accidents, Occupational"[MESH] OR "Occupational Exposure"[MESH] OR "Air Pollutants, Occupational"[MESH] OR "multiple chemical sensitivity"[MESH] OR "Universal Precautions"[MESH] OR "Blood-Borne Pathogens* "[MESH]) AND "Health Personnel"[MESH]) OR "Disease Transmission, Patient-to-Professional"[MESH] OR "Needlestick Injuries"[MESH] OR "Disease Transmission, Professional-to-Patient"[MESH] OR "Nursing Staff/psychology"[MESH]

Methodology/ Méthodologie

Medline search using above mentioned key-words
Systematic follow-up of some major periodicals

Biological hazards/Risques biologiques

Blood exposures/AES

Risk of hepatitis C virus transmission from infected sanitary staff to patients.

Montella M, Crispo A.

Arch Intern Med 2003 Feb 24;163(4):495; author reply 495-6

Indirect hyperbilirubinemia with indinavir.

Satija P, Parikh F, Aggarwal V, Sharma B, Hakim A, Pai-Dhungat JV.

J Assoc Physicians India 2002 Oct;50:1316-7

Indinavir is a protease inhibitor used in the treatment of HIV infected individuals and as post-exposure prophylaxis. Indinavir is associated with various adverse effects including gastrointestinal, a lipodystrophy syndrome and nephrolithiasis. We describe indirect hyperbilirubinemia as an adverse effect of indinavir in a person on post-exposure prophylaxis (PEP).

Use of needle safety devices by clinical laboratories in North Carolina hospitals.

Bamberg R, Rivers C, Moore C.

Clin Leadersh Manag Rev 2003 Jan-Feb;17(1):21-5

Laboratories across the U.S. have implemented needle safety devices to varying degrees and are making efforts to comply with the most recent legislation in this area, The Needlestick Safety and Prevention Act. A survey was conducted among hospital clinical laboratories in North Carolina, with a 70% response rate. Of 86 responding laboratories that offered either inpatient and/or outpatient phlebotomy, 88% reported currently using safety devices, and only two of the nonusers indicated no plans for adoption of such devices. The most commonly reported types of venipuncture safety devices in use or being adopted were the modified vacuum-tube holder for either one-handed needle release or needle retraction and sheathing, followed by needle clips. Despite studies demonstrating reduced needlestick rates and cost savings with use of needle safety devices, respondents' concerns included added cost, staff

dissatisfaction with devices because they were cumbersome, and being uncertain that the devices would reduce needlesticks.

Viral hepatitis in health service workers in the Province of Wielkopolska.

Bilski B, Wysocki J, Hemerling M.

Int J Occup Med Environ Health 2002;15(4):347-52

Viral hepatitis is the most frequent occupational disease in the health service workers. On the ground of epidemiological data on certifications of occupational diseases, an analysis of morbidity of viral hepatitis was performed. Among viruses that can cause occupational hepatitis there are HAV, HBV and HCV. However, occupational HDV and HGV infections are also possible. In Poland, the number of hepatitis diagnosed as occupational diseases became more stable in the years 1996-1998, whereas morbidity of hepatitis C significantly increased. Such an epidemiological situation could be observed in the area of Wielkopolska and throughout the country. In the former province of Poznan and in the present province of Wielkopolska, occupational hepatitis occurred mostly in nurses. In the nineteen sixties and seventies, the most dramatic increase in the incidence of hepatitis B was noticed in the population of nurses and midwives at the age between 21 and 30 years. This can provide evidence of especially high exposure to infectious factors in this occupational group and of high HBV infectivity. Nowadays, an average age at the time of diagnosis of hepatitis C is somewhat higher. Hepatitis C is usually recognized at the age between 30 and 39 years. A relatively low infectivity of HCV and mostly asymptomatic course of the infection, which delays diagnosis, may provide some explanations of these phenomena. The geographical distribution of stated cases of hepatitis C is difficult to predict and may suggest that some non-medical factors also play a role. Since no specific measures to prevent the incidence of hepatitis C have been developed, a good recognition of HCV reservoir in the population of health service workers (particularly nurses) is one of possible methods to improve the epidemiological situation. It might also be necessary to discuss some limitations in work ability of infected persons. In addition, good training in occupational hygiene and how to handle infectious materials is essential for health service workers.

Bloodborne viruses and occupational exposure in the dental setting.

Webber LM.

SADJ 2000 Sep;55(9):494-6

Occupational hazards in dentistry are most commonly associated with physical, chemical and biological agents. Bloodborne viruses, notably hepatitis B virus and human immunodeficiency virus (HIV), pose a risk for occupational exposure among oral health care workers in South Africa. Although post-exposure prophylaxis can be prescribed after exposure to either or both these viruses, universal precautions and strategies must be implemented in order to protect the oral health care professional.

Clinical practice. Occupational exposure to HIV in health care settings.

Gerberding JL.

N Engl J Med 2003 Feb 27;348(9):826-33

Transmission of drug-resistant HIV after an occupational exposure despite postexposure prophylaxis with a combination drug regimen.

Beltrami EM, Luo CC, de la Torre N, Cardo DM.

Infect Control Hosp Epidemiol 2002 Jun;23(6):345-8

We documented a case of occupational human immunodeficiency virus (HIV) despite postexposure prophylaxis (PEP) with a combination drug regimen after percutaneous injury with a needle from a sharps disposal container in the hospital room of an HIV-infected patient. This failure of PEP with a combination drug regimen may have been related to antiretroviral drug resistance, other factors, or both. This case highlights the importance of preventing injury to prevent occupational transmission of HIV.

Occupational risk of blood-borne viruses in healthcare workers: a 5-year surveillance program.

Baldo V, Floreani A, Dal Vecchio L, Cristofolletti M, Carletti M, Majori S, Di Tommaso A, Trivello R.

Infect Control Hosp Epidemiol 2002 Jun;23(6):325-7

OBJECTIVE: This study presents the results of a 5-year surveillance program involving the prospective follow-up of healthcare workers (HCWs) in the Veneto region of Italy exposed to blood-borne viruses. **DESIGN:** All HCWs who reported an occupational exposure to blood-borne infection joined the surveillance program. Both HCWs and patients were tested for viral markers (hepatitis B surface antigen [HBsAg], antibody to hepatitis B surface antigen [anti-HBs], antibody to hepatitis B core antigen [anti-HBc], antibody to hepatitis C virus [anti-HCV], HCV RNA, and antibody to human immunodeficiency virus [HIV]) and had these markers plus transaminases assayed at 3, 6, and 12 months and then yearly thereafter. Moreover, a program of hepatitis B virus (HBV) prophylaxis was offered to those whose anti-HBs levels were less than 10 IU/mL. **PARTICIPANTS:** Two hundred forty-five HCWs (156 women and 89 men) with a mean age of 37 (+/- 10) years who reported occupational exposure during the 5-year period. **RESULTS:** At the time of exposure, 1 HCW was positive for HBsAg (0.4%) and 2 were positive for HCV RNA (0.8%). Among the patients involved, 28 (11.4%) were positive for HBsAg, 68 (27.8%) were positive for HCV RNA, 6 (2.4%) were positive for HIV, and 147 (60.0%) were negative for all viral markers (4 patients were positive for both HCV and HIV). During the follow-up period after exposure (mean, 2.7 [+/- 1.6] years), there was no increase in transaminases or seroconversions to any of the viral markers. **CONCLUSION:** Our accurate postexposure follow-up revealed a lack of transmission of HBV, HCV, and HIV.

Anxiety in health care workers after exposure to potentially HIV-contaminated blood or body fluids.

Meienberg F, Bucher HC, Sponagel L, Zinkernagel C, Gyr N, Battegay M.

Swiss Med Wkly 2002 Jun 15;132(23-24):321-4

In order to measure anxiety in health care workers (HCWs) reporting occupational exposures to potentially contaminated body fluids, we enrolled 55 HCWs in a prospective study. Percutaneous and mucous membrane exposures were most frequent. 27% of study participants estimated their risk of HIV-infection as above 1%. Personality bound anxiety was not high, but acute anxiety showed a high variability. In a multiple regression model high personality bound anxiety, lower age and being a HCW other than physician independently predicted higher acute anxiety scores. No HIV or hepatitis C virus infection occurred. HCWs

encounter significant anxiety after occupational exposure to potentially contaminated body fluids despite the possibility of potent post exposure prophylaxis.

Vaccination/Vaccination

Statement on thimerosal

Canada Communicable Disease Report Volume 29 (ACS-1) 1 March 2003

<http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/ccdr-rmtc/03vol29/acs-dcc-1/index.html>

Vaccines for persons at high risk due to medical conditions, occupation, environment, or lifestyle, 2003.

Zimmerman RK, Middleton DB, Smith NJ.

J Fam Pract 2003 Jan;52(1 Suppl):S22-35

The safety and efficacy of current vaccines are reviewed for high-risk populations, such as those with underlying medical conditions or occupational or lifestyle circumstances. The morbidity and mortality from vaccine-preventable diseases are high among persons with underlying medical conditions; thus, influenza and pneumococcal polysaccharide vaccines are recommended for those with cardiac disease, diabetes mellitus, or chronic obstructive pulmonary disease. For the same reasons, influenza vaccine is recommended for pregnant women and for persons with asthma. Health-care workers are at risk for acquiring and transmitting hepatitis B, measles, and influenza; hence, vaccination against these diseases is recommended.

Factors influencing decisions regarding influenza vaccination and treatment: a survey of healthcare workers.

Steiner M, Vermeulen LC, Mullahy J, Hayney MS.

Infect Control Hosp Epidemiol 2002 Oct;23(10):625-7

Surveys conducted in our healthcare facility evaluated factors associated with acceptance of influenza vaccination and opinions regarding influenza prevention and treatment and willingness to pay. Avoiding lost work and low risk were primary reasons for vaccine recipients and non-recipients, respectively. One-third of vaccine recipients would refuse vaccination if asked to pay at least \$10.

Risk of cutaneous vaccinia from health care workers who receive smallpox vaccine.

Mermel LA.

JAMA 2003 Feb 19;289(7):844-5 author reply 845

Airborne transmission/Transmission aérienne

Infection control and public health aspects of a case of pertussis infection in a maternity health care worker.

McCall BJ, Tilse M, Burt B, Watt P, Barnett M, McCormack JG.

Commun Dis Intell 2002;26(4):584-6

Isoniazid-resistant cavitary tuberculosis in a physician following isoniazid prophylaxis.

Karchmer TB, Phipps JD, Giannetta ET, Farr BM.

Infect Control Hosp Epidemiol 2002 Oct;23(10):622-5

Single-drug prophylaxis is recommended after tuberculin skin test conversion, but not when there is active disease on chest radiograph because resistance develops frequently. Isoniazid-resistant tuberculosis developed in a physician receiving prophylaxis despite "faint left upper lobe soft tissue density" on chest radiograph. Ignoring active disease on chest x-ray renders this strategy counterproductive and cost ineffective.

Tuberculosis among adult visitors of children with suspected tuberculosis and employees at a children's hospital.

Munoz FM, Ong LT, Seavy D, Medina D, Correa A, Starke JR.

Infect Control Hosp Epidemiol 2002 Oct;23(10):568-72

OBJECTIVE: Few children with tuberculosis (TB) have communicable disease, and most do not require isolation within the hospital. However, parents or adult visitors with unrecognized pulmonary TB may be a threat to hospital staff and other patients. We prospectively evaluated adults accompanying children hospitalized for suspected TB at a children's hospital to determine the frequency of undiagnosed, potentially contagious disease. METHODS: From 1992 to 1998, chest radiographs were obtained from adult caretakers accompanying 59 consecutive children admitted to Texas Children's Hospital with suspected TB. A child and his or her family were placed under Airborne Precautions only if the child or the accompanying adult exhibited characteristics of potentially contagious disease. Annual rates of tuberculin skin test conversion in hospital employees were obtained for the same period. RESULTS: Of the 105 screened adults, 16 (15%) had previously undetected pulmonary TB. These adults were associated with 14 (24%) of the 59 children. In all instances in which the adult was the patient's parent, he or she was the source of infection to the child. Only 8 (13.5%) of the 59 children required isolation. Tuberculin skin test conversion from a negative to a positive reaction occurred in 127 employees (8 per 1,000 employee-years at risk). Only 4 of these 127 employees performed activities involving direct patient contact. None was in contact with families with a known potentially contagious adult or pediatric patient. CONCLUSIONS: The risk of infection of healthcare workers from pediatric patients with primary TB appeared to be minimal, and most children with TB did not need isolation. Infection control efforts should be focused on accompanying adults and adult visitors.

Factors associated with tuberculin conversion in Canadian microbiology and pathology workers.

Menzies D, Fanning A, Yuan L, FitzGerald JM; Canadian Collaborative Group in Nosocomial Transmission of Tuberculosis.

Am J Respir Crit Care Med 2003 Feb 15;167(4):599-602

The risk of occupational tuberculosis (TB) infection and associated factors was estimated among all microbiology and pathology technicians and compared with a sample of nonclinical personnel in 17 Canadian acute care hospitals. Participants underwent tuberculin skin testing and completed questionnaires. Prior skin tests and vaccinations and all patients with TB hospitalized in the preceding 3 years were reviewed. Of the work areas where direction of air flow and air changes per hour were measured, only 51% were adequately ventilated. Among participating lab workers the average annual risk of tuberculin conversion was 1.0%. This was associated with lower hourly air exchange rates (16.7 versus 32.5 in workers with no

conversion, $p < 0.001$) work in pathology (adjusted odds ratio [OR]: 5.4; [95% confidence interval: 1.3, 22], higher proportion of patients with missed diagnosis in the first 24 hours (per 20% increase-OR: 2.0; [1.3, 3.2], treatment delayed 1 week or more (per 20% increase-OR: 2.0; [3.2, 3.2]), and higher mortality (per 20% increase-OR: 2.5; [1.1, 5.6]). We conclude that laboratory workers, with no direct patient contact, have increased risk of tuberculin conversion in hospitals where a greater proportion of patients with TB die, or have delayed, or missed diagnosis, although this may be modified by workplace ventilation.

Prevalence of methicillin-resistant Staphylococcus aureus colonization among healthcare workers and healthy community residents.

Saxena S, Goyal R, Das S, Mathur M, Talwar V.
J Health Popul Nutr 2002 Sep;20(3):279-80

Contact transmission/Transmission de contact

Helicobacter pylori infection in surgical personnel.

Upile T, East C, Paun S, Patel N, Battacharyya A.
Clin Otolaryngol 2002 Oct;27(5):310-3

Helicobacter pylori can be isolated from oro-gastric secretions. Surgical personnel through their clinical practice are exposed to oro-gastric secretions either directly or in aerosolized form during oro-gastric examination and are at an increased risk of this occupationally acquired infection. The sero-prevalence of Helicobacter pylori antibodies in 70 surgical personnel was examined and found to be higher than a published control group. This may suggest that surgical personnel, through their practice, are at increased risk of infection, which poses important public and occupational health problems and may call for precautionary guidelines in clinical practice to prevent occupational infection and vector carriage.

Disease transmission, professional to patient/Contamination soignant-soigné

Preventing transmission of hepatitis B virus from surgeons to patients.

Chiarello LA, Cardo DM.
Infect Control Hosp Epidemiol 2002 Jun;23(6):301-2

Protecting patients from surgical hepatitis C virus infection.

Infect Control Hosp Epidemiol 2002 Jun;23(6):297-8

HIV testing for all nurses is unlikely.

Mulholland H.
Nurs Times 2002 Dec 17-2003 Jan 6;98(51):3

Description of an HIV patient notification exercise in Essex involving a dental healthcare worker.

Irwin DJ, Millership S.
Commun Dis Public Health 2002 Dec;5(4):276-81

During 2000, one of the Consultants in Communicable Disease Control (CsCDC) for North Essex Health Authority was advised that a healthcare worker (HCW) in dentistry had recently

been diagnosed as HIV positive. As a result of the HCW's history and taking account the Guidance on HIV infected healthcare workers of the United Kingdom Expert Advisory Group on AIDS, North and South Essex Health Authorities embarked on the largest patient notification exercise in the United Kingdom, to date. This involved an examination of 36,000 patient records and resulted in the identification of 5,929 exposed patients. Of these 5,929 patients, 3,825 contacted the health authority helpline and 3,096 were counselled and screened for evidence of HIV infection. All tests were negative. This was also the first patient notification exercise to use salivary samples for patient screening. The exercise cost in excess of 300,000 Pounds, ignoring the opportunity costs of staff having to devote time to the exercise.

Other/autres

Clostridium difficile infection and concurrent vancomycin-resistant Enterococcus stool colonization in a health care worker: Case report and review of the literature.

Ray AJ, Donskey CJ.

Am J Infect Control 2003 Feb;31(1):54-6

Clostridium Difficile diarrhea was noted in a previously healthy health care worker from the study institution after receiving oral clindamycin therapy; the worker also had vancomycin-resistant Enterococcus stool colonization. Health care workers should be aware that antibiotic therapy may place them at increased risk for colonization and infection with nosocomial pathogens such as Clostridium difficile and vancomycin-resistant Enterococcus

Physical hazards/Risques physiques

Ionizing radiations/Rayonnements ionisants

Sister chromatid exchanges in lymphocytes of nuclear medicine physicians

Mutation Research/Genetic Toxicology and Environmental Mutagenesis 2003;535(2,3):205-213.

Gokay Bozkurt, Mahmut Yukselb, Goksel Karabogaza, Necdet Sutc, Fatma Oguz Savrand, Sukru Palanduze, Omer Necmi Yigitbasib and Cetin Algunesa.

Objective: The aim of this study was to assess whether occupational exposure to chronic, low doses of Iodine 131 (I-131) and Technetium 99m (Tc-99m) may lead to genotoxicity. Medical personnel occupied in nuclear medicine departments are occupationally exposed to low doses of I-131 and Tc-99m. The determination of the frequency of sister chromatid exchanges (SCEs) and of cells with a high frequency of SCEs (HFC) is considered to be a sensitive indicator for detecting genotoxic potential of mutagenic and carcinogenic agents. Therefore, we examined peripheral lymphocytes from nuclear medicine physicians for the presence of both SCE and HFC.

Methods: Sixteen exposed nuclear medicine physicians (non-smokers) were compared to 16 physicians (non-smokers) who had not been exposed to chemical or physical mutagens in their usual working environment at the same hospital.

Results: A statistically significant difference was found between SCE frequencies and HFC percentages measured in lymphocytes from the exposed and control groups.

Conclusions: The present observation on the effect of chronic low doses of I-131 and Tc-99m indicates the possibility of genotoxic implications of this type of occupational exposure. Hence, the personnel who work in nuclear medicine departments should carefully apply the radiation protection procedures and should minimize, as low as possible, radiation exposure to avoid possible genotoxic effects.

Increased incidence of haematological cancer among physicians in a University Hospital

Anne Maître, , Marc Colonna, Carine Gressin, François Menegoz and Régis de Gaudemaris
Int Arch Occup Environ Health (2003) 76: 24-28

Objectives. The oral report of eight cases of cancer over a period of 3 years among physicians working in a French University Hospital led us to conduct a retrospective cohort study to compare the incidence of cancer in these physicians with that of the general population living in the same area.

Method. The cohort consisted of 940 physicians (72% male, 28% female) who had worked for at least 1 year in this hospital between 1945 and 1994 (a total of 10,693 person-years). The incidence of cancer among physicians was compared with that of the general population using a local cancer registry which has recorded all cancer cases occurring in the Department between 1979 and 1994. Standardised incidence ratio (SIR) was calculated for all causes of cancer and site by site.

Results. Although the global incidence of cancer did not differ from that of the general population (SIR=0.97; 95% confidence interval (CI) 0.59-1.5), a significantly increased incidence of haematological malignancy was found among physicians (SIR=5.45; 95% CI 2-11.9).

Conclusions. These findings pointed out the risk of lymphatic and haematopoietic cancer among physicians who started working after 1945 when the first rules pertaining to protection from ionising radiation came into effect. However, limitations of this study such as limited statistical power and lack of individual exposure data should be considered in the interpretation of these findings. Possible aetiological factors responsible for these risks are discussed. Education about general safety protection programmes against carcinogenic risk factors including physical, biological and chemical agents still remains a priority among physicians.

Micronuclei frequencies in hospital workers occupationally exposed to low levels of ionizing radiation: influence of smoking status and other factors.

Maffei F, Angelini S, Forti GC, Lodi V, Violante FS, Mattioli S, Hrelia P.
Mutagenesis 2002 Sep;17(5):405-9

In the context of a medical surveillance program aimed at preventing cancer risk from exposure to ionizing radiation, we investigated chromosomal damage in peripheral lymphocytes from 37 hospital workers exposed to low levels of ionizing radiation and 37 controls. The micronucleus (MN) assay was used as a biomarker of genetic damage. The influence of confounding factors like smoking status, age and gender was investigated by multiple regression analysis. The results indicated that, overall, MN frequency was higher in exposed workers than in controls, although the difference was not statistically significant. Interestingly, smoking status significantly raised MN frequency among the exposed workers but not among controls. This suggests that smoking can influence chromosomal damage induced in humans by ionizing radiation. Among both exposed workers and controls, MN

frequency was found to increase with age. Female gender influenced the increase in MN frequency in the exposed group. Our results suggest that the effect of cigarette smoking should be carefully factored into genetic monitoring studies assessing the risks associated with low level radiation exposure.

Mortality patterns in British and US radiologists: what can we really conclude?

Brenner DJ, Hall EJ.
Br J Radiol 2003 Jan;76(901):1-2

Mortality from diseases of the circulatory system in radiologic technologists in the United States.

Hauptmann M, Mohan AK, Doody MM, Linet MS, Mabuchi K.
Am J Epidemiol 2003 Feb 1;157(3):239-48

Although increased mortality from diseases of the circulatory system has been observed in patients treated with radiotherapy, the effects of chronic low-dose radiation exposure are not clear. Among 90,284 US radiologic technologists who responded to a mailed questionnaire during 1983-1989, the authors evaluated mortality from circulatory system diseases through 1997 in relation to job history and work procedures as surrogates for radiation exposure. They used Poisson regression models stratified for sex, race, age, and calendar year and adjusted for smoking, body mass index, alcohol intake, marital status, parity, menopausal status, and history of myocardial infarction. A total of 1,107,100 person-years accrued, and 1,070 subjects died from circulatory system diseases. Relative risks for first employment during 1950-1959, 1940-1949, or before 1940, compared with 1960 and later, were 1.01 (95% confidence interval (CI): 0.78, 1.30), 1.14 (95% CI: 0.86, 1.50), and 1.42 (95% CI: 1.04, 1.94), respectively (trend $p < 0.001$). For the subset of deaths from cerebrovascular disease ($n = 174$), the respective relative risks were 0.90 (95% CI: 0.45, 1.78), 1.54 (95% CI: 0.74, 3.23), and 2.40 (95% CI: 1.09, 5.31) (trend $p = 0.004$), and for deaths from ischemic heart disease ($n = 633$), the relative risks were 0.98 (95% CI: 0.71, 1.35), 1.00 (95% CI: 0.71, 1.42), and 1.22 (95% CI: 0.81, 1.82) (trend $p = 0.026$). The relative risks for mortality from circulatory system diseases and the subset of cerebrovascular disease increased significantly with the number of years worked before 1950 (trend $p = 0.007$ and < 0.001 , respectively). The data suggest increased mortality from diseases of the circulatory system with occupational radiation exposure before 1950 when radiation doses were likely high.

Acute bronchospasm due to exposure to polymethylmethacrylate vapors during percutaneous vertebroplasty.

Kirby BS, Doyle A, Gilula LA.
AJR Am J Roentgenol 2003 Feb;180(2):543-4

Risk of melanoma among radiologic technologists in the United States.

Freedman DM, Sigurdson A, Rao RS, Hauptmann M, Alexander B, Mohan A, Morin Doody M, Linet MS.

Int J Cancer 2003 Feb 10;103(4):556-62

Our study examines the risk of melanoma among medical radiation workers in the U.S. Radiologic Technologists (USRT) study. We evaluated 68,588 white radiologic technologists (78.8% female), certified during 1926-1982, who responded to a baseline questionnaire

(1983-1989) and were free of cancer other than nonmelanoma skin at that time. Participants were followed through completion of a second questionnaire (1994-1998). We identified 207 cases, 193 subjects who reported first primary melanoma and 14 decedents with melanoma listed as an underlying or contributory cause of death. We examined risks of occupational radiation exposures using work history information on practices, procedures, and protective measures reported on the baseline questionnaire. Based on Cox proportional hazards regression, melanoma was significantly associated with established risk factors, including constitutional characteristics (skin tone, eye and hair color), personal history of nonmelanoma skin cancer, family history of melanoma and indicators of residential sunlight exposure. Melanoma risk was increased among those who first worked before 1950 (RR = 1.8, 95% CI = 0.6-5.5), particularly among those who worked 5 or more years before 1950 (RR = 2.4; 0.7-8.7; p (trend) for years worked before 1950 = 0.03), when radiation exposures were likely highest. Risk was also modestly elevated among technologists who did not customarily use a lead apron or shield when they first began working (RR = 1.4; 0.8-2.5). Clarifying the possible role of exposure to chronic ionizing radiation in melanoma is likely to require nested case-control studies within occupational cohorts, such as this one, which will assess individual radiation doses, and detailed information about sun exposure, sunburn history and skin susceptibility characteristics.

Musculoskeletal disorders/Troubles musculo-squelettiques

Low back pain and lumbago-sciatica in nurses and a reference group of clerks: results of a comparative prevalence study in Germany.

Hofmann F, Stossel U, Michaelis M, Nubling M, Siegel A.

Int Arch Occup Environ Health 2002 Sep;75(7):484-90

OBJECTIVES: To gain more conclusive evidence on the question of work-related low-back disorders in German nurses, a comprehensive study with several methodological approaches was performed. **METHODS:** As part of this project, a cross-sectional study on working conditions and prevalence of low back pain, a sample of 3,332 nurses and 1,720 clerks as reference group was investigated by a questionnaire. In this article, final results referring to a sub-sample of 2,207 nurses and 1,177 clerks who had always worked in their profession, so that we could exclude confounding effects of former occupations, will be presented. Excluding the confounding effects of several covariates by logistic regression, we computed relative risks for different pain symptoms. **RESULTS:** The data suggest a considerably higher risk of low back pain for nurses than for the reference population of clerks. Results, however, differ markedly when specific pain symptoms are considered. With respect to lumbago-sciatica and sciatica - which have to be regarded as indicators for possible disc herniation - the study group's relative risk is the most elevated (2.88 for point prevalence of lumbago-sciatica/sciatica). Adjusting the results for several confounders and covariates leads to still higher estimations of nurses' relative risk.

Strategies to reduce work-related musculoskeletal disorders in dental hygienists: two case studies.

Sanders MA, Turcotte CM.

J Hand Ther 2002 Oct-Dec;15(4):363-74

Nurses and back injuries.

Brown DX.
Medsurg Nurs 2002 Dec;11(6):280

Ergonomics in the dental office.

Pollack-Simon R.
Dent Today 2000 Jun;19(6):92-5

Ergonomic principles of safe patient handling.

Healthc Hazard Manage Monit 2003 Jan;16(5):1-7

Chemical hazards/Risques chimiques

Uptake of antineoplastic agents in pharmacy and hospital personnel. Part I: monitoring of urinary concentrations

Angelika Pethran, Rudolf Schierl, Karlheinz Hauff, Carl-Heinz Grimm, Karl-Siegfried Boos, Dennis Nowak

Int Arch Occup Environ Health (2003) 76: 5-10

Objectives. There is a risk of adverse health effects for personnel with occupational exposure to antineoplastic agents. The aim of the present longitudinal study was to identify, quantify, and evaluate potential health hazards of occupationally exposed workers in pharmaceutical and oncological departments with central processing units for drug preparation.

Methods. One hundred operatives in 14 German hospital pharmacies and oncological departments underwent biological monitoring by providing urine samples up to four times over a period of 3 years.

Results. All antineoplastic agents that were considered (cyclophosphamide, ifosfamide, doxorubicin, epirubicin and platinum from cisplatin and carboplatin), were found in urine samples in up to 40% of participants.

Conclusions. Despite standard safety precautions, such as the use of vertical laminar air flow safety cabinets, and personal protective clothing, incorporation of drugs was detected. Therefore, an environmental monitoring strategy should be developed in order to detect contamination and attempt to improve hygiene during work.

Uptake of antineoplastic agents in pharmacy personnel. Part II: study of work-related risk factors

Claudia Schreiber, Katja Radon, Angelika Pethran, Rudolf Schierl, Karlheinz Hauff, Carl-Heinz Grimm, Karl-Siegfried Boos, Dennis Nowak:

Int Arch Occup Environ Health (2003) 76: 11

Objectives. This study aimed to find working conditions related to internal exposure of substances handled in centralised cytostatic drug preparation units in hospitals. Recommendations to avoid this uptake should be deduced from the results.

Method. In a longitudinal study over 3 years, 87 pharmacy technicians and pharmacists of 14 different hospitals in Germany provided 24-h urine samples separately up to three times (three sampling cycles: cycles 1-3) at the end of a working week. Additional samples were taken after 2 days and after at least 3 weeks of absence. Cyclophosphamide and ifosfamide, doxo-

dauno-epi-, and idarubicin, and platinum deriving from cis- and carboplatin were determined in urine samples by gas chromatography/mass spectrometry, liquid chromatography (HPLC) and voltammetry. The following working conditions were assessed by questionnaire: working tasks, different ways that the workbenches were run, cleaning conditions, waste disposal, number of preparations, amount of substances handled, and use of gloves (material, thickness and changing interval).

Results. Two-thirds of the subjects showed at least one positive result with regard to all three cycles (56 of initially 87 subjects). Employees who only pass material that is needed for processing are affected, just as are those who only prepare administrations and those alternating in both functions (25% vs. 24.1% vs. 50.6%, respectively). The storage of waste in containers that could be opened to add waste tends to increase the risk of internal exposure of ifosfamide and cyclophosphamide (odds ratios (95% confidence interval): 0.08 (0.013-0.5) and 0.19 (0.03-1.12), respectively). The amount handled and number of preparations of cyclophosphamide for "manufacturers" were associated with internal exposure of cyclophosphamide (28.04 (1.75-448.74) and 1.22 (1.03-1.44), respectively). The total number of preparations handled by assistants seemed to increase the risk of intake of any of the substances under study [1.04 (1.00-1.08)].

Conclusion. Since employees who pass materials are affected in the same way as those who prepare administrations, both have to be included in reviewing protective measures. Further studies must be carried out to verify the generated hypotheses of factors related to internal exposure found in this study.

Assessment of genotoxic damage in nurses occupationally exposed to antineoplastics by the analysis of chromosomal aberrations.

Burgaz S, Karahalil B, Canhi Z, Terzioglu F, Ancel G, Anzion RB, Bos RP, Huttner E.
Hum Exp Toxicol 2002 Mar;21(3):129-35

To estimate the genotoxic risk of occupational exposure to antineoplastic drugs, chromosomal aberration (CAs) frequencies in peripheral lymphocytes were determined for 20 nurses handling antineoplastics and 18 referents matched for age and sex. Urinary cyclophosphamide (CP) excretion rates, which are used as a marker for drug handling, were also measured on these nurses. We have observed significant frequencies of CAs (about 2.5-fold increase) including chromatid breaks, gaps, and acentric fragments for nurses handling antineoplastics as compared to control subjects ($p < 0.05$, $p < 0.01$, excluding and including gaps, respectively). The mean value of CP excretion rate for 12 nurses was 1.63 microg/24 h, suggesting that when the nurses handled CP (and other antineoplastic drugs) this particular compound was absorbed. Our study has shown that increased genetic damage was evident in nurses, at population level, due to occupational exposure to antineoplastics. Until the effects of handling antineoplastics from low-level exposure are known, it will be important to keep the exposure to a minimum.

Exposure to anti-cancer drugs during preparation and administration. Investigations of an open and a closed system.

Nygren O, Gustavsson B, Strom L, Eriksson R, Jarneborn L, Friberg A.
J Environ Monit 2002 Oct;4(5):739-42

Systems for the preparation and administration of drugs are designed to ensure that the drug is not contaminated. They do not necessarily consider the work environment for the medical staff and new techniques are therefore desirable. The aim of this work is to compare a new closed system for the preparation and administration of drugs with the traditional technique

with regard to airborne emission and surface spillage of drugs. Platinum, determined using adsorptive voltammetry, was used as the tracer for airborne emission. Air samples were collected during the preparation and administration, and the collected platinum on the filters was determined by adsorptive voltammetry. For determination of spills and leakage onto surfaces the radioisotope ^{99m}technetium was used as a tracer. The radiation from the isotope was determined on protective gloves and bench covers after preparation and administration. The mean airborne emission was 6 ng m⁻³ with the closed system and 15 ng m⁻³ with the traditional pump technique. The average surface spillage using the closed technique was 0.005 microL. This is significantly smaller than with the traditional technique, which resulted in an average spillage of 64 microL. Our results also show that the dominant part of the leakage is surface spillage. Inexperienced nurses could also adequately handle the closed system.

Personnel exposure to waste sevoflurane and nitrous oxide during general anesthesia with cuffed endotracheal tube.

Li SH, Li SN, Shih HY, Yi HD, Chiang CY.

Acta Anaesthesiol Sin 2002 Dec;40(4):185-90

BACKGROUND: Waste anesthetic gases may have adverse effects on the health of operating room personnel. To reduce the risk of exposure, the United States National Institute of Occupational Safety and Health (US-NIOSH) recommends a time-weighted average (TWA) of 25 ppm (part-per-million) for nitrous oxide (N₂O) and a ceiling of 2 ppm for sevoflurane (SEV). This study investigated the concentrations of these two gases in the atmosphere of operating room to which the working personnel (anesthetists) were exposed during anesthetic practice. **METHODS:** An extractive Fourier transform infrared (FTIR) spectrometer, with an optical path length of 10 meters, was used to monitor the concentrations of waste general anesthetics in the operating rooms. The FTIR in application could simultaneously determine the concentrations of several gases in a near real-time manner, which helped to accurately obtain the varying concentrations of gases in different anesthetic condition. The sampling Teflon tube of the FTIR was conveniently installed in the breathing zone of the anesthetic personnel to obtain the personal exposure concentrations of N₂O and SEV. **RESULTS:** Nitrous oxide (N₂O) and sevoflurane (SEV) concentrations for five surgeries in four different operating rooms were determined. In normal condition during maintenance, the SEV concentrations as measured were less than 2 ppm but the average N₂O concentration was greater than 25 ppm. In addition, in three abnormal or specific conditions, the N₂O and SEV concentrations increased dramatically. Firstly, at the end of maintenance (right before emergence), peak concentrations of 751 ppm for N₂O and 26 ppm for SEV were measured. These unusually high concentrations resulted from flushing the tubing of the anesthetic machine to speed up the emergence of wakefulness of the patient from anesthesia. Secondly, when the cuff of the endotracheal tube was not well inflated or unserviceable, peak concentrations of 631 ppm for N₂O and 32 ppm for SEV were measured. Thirdly, malfunction of or loose connection (or disconnection) between the anesthetic machine and the exhaust venting system of operating theater almost doubled the N₂O and SEV concentrations. **CONCLUSIONS:** To decrease the exposure of the operating personnel to waste anesthetics, minimization of the use of N₂O is recommended. Besides, the three extraordinary conditions as disclosed in this study were tubing flushing, illy managed endotracheal tube cuff and disconnection of scavenging system, the first of which sometimes is unavoidable but the last two of which should be avoided.

Multiple sclerosis in nurse anaesthetists.

Flodin U, Landtblom AM, Axelson O.

Occup Environ Med 2003 Jan;60(1):66-8

BACKGROUND: Volatile anaesthetics are chemically related to organic solvents used in industry. Exposure to industrial solvents may increase the incidence of multiple sclerosis (MS). **AIM:** To examine the risk among nurse anaesthetists of contracting MS. **METHODS:** Nurses with MS were identified by an appeal in the monthly magazine of the Swedish Nurse Union and a magazine of the Neurological Patients Association in Sweden. Ninety nurses with MS responded and contacted our clinic. They were given a questionnaire, which was filled in by 85 subjects; 13 of these were nurse anaesthetists. The questionnaire requested information about work tasks, exposure, diagnosis, symptoms, and year. The number of active nurse anaesthetists was estimated based on information from the National Board of Health and Welfare and The Nurse Union. Incidence data for women in the region of Gothenburg and Denmark were used as the reference to estimate the risk by calculation of the standardised incidence ratio (SIR). **RESULTS:** Eleven of the 13 nurse anaesthetists were exposed to anaesthetic gases before onset of MS. Mean duration of exposure before diagnosis was 14.4 years (range 4-27 years). Ten cases were diagnosed in the study period 1980-99, resulting in significantly increased SIRs of 2.9 and 2.8 with the Gothenburg and the Danish reference data, respectively. **CONCLUSION:** Although based on crude data and a somewhat approximate analysis, this study provides preliminary evidence for an excess risk of MS in nurse anaesthetists. The risk may be even greater than observed, as the case ascertainment might have been incomplete because of the crude method applied. Further studies in this respect are clearly required to more definitely assess the risk.

Allergy/Allergies

Health hazards posed by exposure to latex.

American Association of Nurse Anesthetists.

Dent Assist 2002 Nov-Dec;71(6):36-7

Clinical and occupational outcomes in health care workers with natural rubber latex allergy.

Bernstein DI, Karnani R, Biagini RE, Bernstein CK, Murphy K, Berendts B, Bernstein JA, Bernstein L.

Ann Allergy Asthma Immunol 2003 Feb;90(2):209-13

BACKGROUND: There is limited information pertaining to clinical outcomes and economic consequences of natural rubber latex (NRL) allergy in health care workers (HCWs). **OBJECTIVE:** To evaluate retrospectively health and economic outcomes in HCWs identified with NRL allergy and percutaneous reactivity to NRL. **METHODS:** Sixty-seven HCWs with NRL allergy, confirmed by percutaneous reactivity to non-ammoniated latex (NAL) extract, were administered a detailed questionnaire to evaluate clinical and economic outcomes of active work and environmental interventions subsequent to recognition of work-related symptoms associated with NRL gloves. **RESULTS:** Diagnoses based on predetermined case definitions associated with direct or indirect exposure to NRL gloves included contact urticaria in 67 (100%); work-related rhinitis in 23; work-related asthma symptoms in 25; and work-related anaphylaxis in 4 workers. Work related symptoms reportedly resolved in 44 of

49 (90%) of NAL skin test-positive workers who had reported skin, respiratory, and/or systematic symptoms and remained in their current work area and who switched to non-NRL gloves. Four of 24 (17%) workers with work-related asthma symptoms were compelled to change employment to NRL-safe workplaces, resulting in a mean 24% reduction in annual income. CONCLUSIONS: Clinical outcomes in this group of HCWs with NRL allergy were favorable after institution of interventions but incurred deleterious consequences in a minority of workers.

The effects of interventions and glove changes in health care workers with latex allergy.

Sussman G.

Ann Allergy Asthma Immunol 2003 Feb;90(2):179-80

Recent developments in latex allergy.

Turjanmaa K, Alenius H, Reunala T, Palosuo T.

Curr Opin Allergy Clin Immunol 2002 Oct;2(5):407-12

PURPOSE OF REVIEW: Immediate allergic reactions to natural rubber latex continue to be an important medical and occupational health problem. In this review we focus on progress made in understanding the significance of occupational exposure and epidemiology, risk groups, diagnosis and prevention of natural rubber latex allergy. We also discuss methods aimed at quantification of clinically relevant natural rubber latex allergens and studies on B-cell epitopes of major natural rubber latex allergens. RECENT FINDINGS: Prospective studies have been published focusing on the prevention of natural rubber latex allergy. Efforts to identify and characterize new natural rubber latex allergens were continued in several research groups. The use of purified allergens or proteins produced by recombinant DNA technology was assessed in studies aimed at improving the diagnosis of natural rubber latex allergy as well as in developing quantitative methods for the measurement of specific natural rubber latex allergens. For the first time, conformational immunoglobulin E epitopes were identified in a major natural rubber latex allergen, hevein, using a novel chimera-based allergen epitope mapping strategy. SUMMARY: Measures taken in health care to reduce exposure to natural rubber latex products seem to be effective in reducing the number of new sensitizations. A few new minor natural rubber latex allergens, probably important in allergen cross reactions, were identified, and some nonmedical natural rubber latex products were found to be potentially dangerous to natural rubber latex-allergic patients. Sensitive and specific immunoassays for quantification of clinically relevant natural rubber latex allergens in manufactured products were developed in some laboratories. These assays may eventually replace the nonspecific total protein measurement, currently advocated by health authorities in the indirect estimation of allergen amounts in natural rubber latex products. Knowledge about conformational immunoglobulin-binding B-cell epitopes of major allergens is expected to be helpful in designing optimal reagents to specific immunotherapy.

Prevalence of latex sensitization in health care workers of a general hospital in Palermo, Sicily.

Di Lorenzo G, Vitale F, Pacor ML, Pellitteri ME, Drago A, Cucchiara R, Seroni G, Intonazzo V, Romano N, Caruso C.

J Investig Allergol Clin Immunol 2002;12(2):114-9

STUDY OBJECTIVE: To assess the prevalence of latex sensitization in a group of hospital employees in a general hospital. **DESIGN:** Cross-sectional study on hypersensitivity to latex gloves among health-care workers. **SETTING:** A general hospital in Palermo, Sicily. **PATIENTS:** 196 health-care workers answered a questionnaire about their case history of allergic diseases (i. e., rhinitis and/or asthma) and about symptoms after wearing latex gloves. All subjects were tested by skin prick test (SPT) with commercial latex extract and aeroallergens and had blood draw for total serum IgE and latex-specific IgE testing and glove-use test. **MAIN RESULTS:** 42% of the subjects who answered the questionnaire reported at least one symptom after wearing latex gloves. All symptoms were local, and none of the subjects reported systemic reactions. The most common symptom was itching, but none of subjects with only itching presented a positive SPT or specific serum IgE to latex. The SPT to latex was positive in 19 of 196 subjects (9.7%). Specific IgE to latex were found in 15/196 subjects (7.6%). Glove-use test was positive in 14/196 (7.1%). **CONCLUSIONS:** The overall prevalence of latex sensitivity in health-care workers in our epidemiological setting is 7.1%. An accurate diagnosis must take in account the integration of in vivo and in vitro tests with previous history of allergic disease.

Prevalence of symptoms, sensitization to rats, and airborne exposure to major rat allergen (Rat n 1) and to endotoxin in rat-exposed workers: a cross-sectional study.

Lieutier-Colas F, Meyer P, Pons F, Hedelin G, Larsson P, Malmberg P, Pauli G, De Blay F. Clin Exp Allergy 2002 Oct;32(10):1424-9

OBJECTIVE: To analyse the relation between airborne exposure to major rat allergen and to endotoxins in exclusively rat-exposed workers and the prevalence of rat-related symptoms and sensitization. **METHODS:** A total of 113 workers answered a standardized questionnaire on their atopy status, occupational exposure to rats, and possible work-related symptoms. Specific IgE against rat urinary proteins (RUP) was measured for 73 subjects. Individual airborne exposure to Rat n 1 and endotoxin were determined with static (n = 256) samplings. Rat n 1 was measured with enzyme-linked immunosorbent assay (ELISA) and endotoxin by the Limulus method. **RESULTS:** Forty-four of 113 subjects (38.9%) reported at least one rat-related symptom: asthma (4.4%), rhinitis (34%) and conjunctivitis (16%). Twelve per cent were sensitized to RUP (specific IgE > 0.35 KU/L). But only 30.8% of all symptomatic subjects were sensitized to rat allergens. Airborne Rat n 1 levels were not related to symptoms in workers. Symptomatic patients not sensitized to rats were exposed to higher endotoxin levels, but airborne exposure to endotoxins did not significantly protect against or increase sensitization to RUP or rat-related symptoms. **CONCLUSION:** Most symptomatic workers were not sensitized to rat allergen; but no significant relation between rat-related symptoms and endotoxin levels was found. This suggests that more studies are needed to determine causes other than rat allergens or endotoxins that may be responsible for symptoms in rat-exposed workers.

Exposure-response relations among laboratory animal workers exposed to rats.

Nieuwenhuijsen MJ, Putcha V, Gordon S, Heederik D, Venables KM, Cullinan P, Newman-Taylor AJ.

Occup Environ Med 2003 Feb;60(2):104-8

AIM: To explore exposure-response relations in a cohort of laboratory animal workers. **METHODS:** Exposure-response modelling was carried out in a cohort of 342 laboratory

animal workers. Three exposure indices, divided into different exposure categories, were used in the analyses: intensity of exposure to rat urinary aeroallergen (RUA, the main allergen workers were exposed to), weekly duration of exposure to rats, and the product of the intensity and weekly duration of exposure. Outcomes studied were work related chest, eyes and nose, and skin symptoms that had started after employment at the sites, specific sensitisation, and a combination of symptoms and sensitisation. Cox proportional hazard modelling was used to explore exposure-response relations. Smoking, atopic status, age, and gender were taken into account. RESULTS: We observed the clearest exposure-response relations for the intensity of exposure to RUA and the various endpoints. No clear exposure-response relations were observed for the weekly duration of exposure or the product of the intensity and weekly duration of exposure. The strongest and clearest exposure-response relations for symptoms were observed among rat sensitised workers, while the non-sensitised workers only showed small increased risks of developing symptoms without clear exposure-response relations. Sensitised workers were almost four times more likely to go on to develop chest symptoms compared to non-sensitised workers.

Infection Control/Hygiène

Evaluation of aloe vera gel gloves in the treatment of dry skin associated with occupational exposure

Dennis P. West, Ya Fen Zhu.

Am J Infect Control 2003;31:40-2

Objective: An examination glove that delivers aloe vera (AV) gel to the gloved hand was studied in 30 adult females with bilateral occupational dry skin with or without irritant contact dermatitis (with or without erythema, fissures, and excoriations).

Methods: All participants were factory assembly-line workers with repeated superficial skin trauma who attributed their dry, irritated, emollient-dependent skin to a common cause (occupational exposure). Participants were sequentially enrolled (after written informed consent, n = 29 evaluable participants) into an open, contralateral comparison study to evaluate efficacy of AV glove use 8 h/day to one hand versus no use to the opposite hand for 30 days, followed by 30 days rest, followed by 10 days of repeated use. Participant's dorsal hands were documented by standardized photos at baseline, during, and at the end of study.

Results: Unblinded investigator baseline assessment rated dry skin as mild to moderate (n = 27), or moderate to severe (n = 2). Mean time to noticeable improvement for the AV glove hand was 3.5 days (range: 2-6 days) whereas marked improvement was 10.4 days (range: 7-17 days) for the AV glove hand. No improvement was detected for nonglove hands.

Blinded photo assessment was rated independently by dermatology research staff. End-of-study mean global assessment of AV glove hands versus nonglove hands was 1.3 for AV glove hand (0 = no change, 1 = good [10%-89% global improvement], 2 = marked improvement [90%-100% global improvement]) versus 0 for nonglove hand (P < .0001). Mean global end-of-study assessments by the participants = 2.0 for AV glove hand versus 0 for nonglove hand.

Conclusion: Dry-coated AV gloves that provide for gradual delivery of AV gel to skin produced a uniformly positive outcome of improved skin integrity, decreased appearance of fine wrinkling, and decreased erythema in the management of occupational dry skin and irritant contact dermatitis.

Adverse reactions associated with an alcohol-based hand antiseptic among nurses in a neonatal intensive care unit.

Cimiotti JP, Marmur ES, Nesin M, Hamlin-Cook P, Larson EL.

Am J Infect Control 2003 Feb;31(1):43-8

BACKGROUND: Alcohol-based hand antiseptics are strongly recommended in the 2002 Centers for Disease Control and Prevention's hand-hygiene guideline. In a study comparing 2 hand-hygiene regimes, an alcohol-based (61% ethyl) antiseptic and a detergent containing 2% chlorhexidine gluconate in 2 neonatal intensive care units, we noted adverse reactions associated with the alcohol-based antiseptic. **METHODS:** A prospective study was conducted of the skin condition of 58 nurses using an alcohol-based product from March 2001 to January 2002. Adverse reactions to the alcohol-based product were noted and the Fisher exact test was used to determine factors associated with these reactions. Nurses with reactions to the alcohol product who were available to follow-up were patch tested to the product. **RESULTS:** Of 58 (1.1/100 nursing mo) nurses, 7 were evaluated by occupational health services for dermatologic symptoms that varied from mild to severe after use of the alcohol product, but 4 of 7 have resumed use. Nurses who had adverse reactions develop had been employed on the study unit and in the nursing profession for significantly less time than those with no reactions ($P = .037$ and $P = .002$, respectively), and were significantly more likely to report a history of itchy, sore skin ($P = .047$). A positive patch-test result was noted in 3 of 4 nurses with a previous reaction to the product. **CONCLUSION:** This case series will alert users in the United States and elsewhere to the nature of reactions to alcohol products and how these reactions differ from reactions to traditional hand antiseptic products.

Dermal tolerance and effect on skin hydration of a new ethanol-based hand gel.

Kampf G, Muscatiello M, Hantschel D, Rudolf M.

J Hosp Infect 2002 Dec;52(4):297-301

We studied the dermal tolerance (repetitive occlusive patch test; ROPT) and the skin hydrating properties of a new ethanol-based gel [85% (w/w)], Sterillium Gel. For the ROPT, 53 participants were studied. Gel was applied to one site on the back under an occlusive patch during an induction phase (nine applications over three weeks) and two weeks later to a virgin site on the back during a challenge phase (one application). Twenty-four hours after the removal of the patches (induction phase and challenge phase), then 48 and 72 h later (challenge phase) sites were graded for skin reactions using a standardized scale. In the induction phase none of the 53 participants had a skin reaction. In the challenge phase one participant had a barely perceptible skin reaction, and one had mild erythema at one time point. To evaluate skin hydrating properties of the gel, treated skin of 21 participants was compared to untreated skin. The gel was applied twice a day to the forearm for 14 days. Control corneometer values were taken before application of the gel (mean: 32.7 +/- 5.0) and after one (36.3 +/- 4.4) and two weeks (36.1 +/- 5.4). Relative skin hydration on treated skin in comparison with an untreated control field was significantly higher after one week by 6.85% ($P = 0.0031$; paired t -test for dependent samples) and after two weeks by 4.47% ($P = 0.0153$). Sterillium Gel did not demonstrate a clinically relevant potential for dermal irritation or sensitization, and significantly increased skin hydration after repetitive use, and so could enhance compliance with hand hygiene among healthcare workers

An investigation of the effect of prolonged glove wearing on the hand skin health of dental healthcare workers.

Boyle DK, Forsyth A, Bagg J, Stroubou K, Griffiths CE, Burke FJ.

J Dent 2002 Jul-Aug;30(5-6):233-41

OBJECTIVES: Glove wearing during patient treatment has been central to dental surgery infection control for over 15 years. However, little is known about the cutaneous effects of glove wearing on the hands of dental healthcare workers (DHCWs). The objective of this project was to assess the hand skin health of DHCWs before and after wearing gloves of two types and to compare this with a control group of non-DHCWs. **METHODS:** Following a mailing to all dentists in the West of Scotland, 50 DHCWs who wore gloves during dental treatment procedures for a minimum of 8h daily for at least 4 days per week were invited to participate in the project. The control group comprised 25 subjects who did not routinely use surgical or examination gloves. Hands were assessed by clinical examination and by transepidermal water loss at baseline, 1 month and 3 months. **RESULTS:** Of the 50 DHCWs, 26 wore a non-powdered latex glove (Microtouch Powder-free: Johnson and Johnson, Arlington, TX, US), and 24 wore a nitrile glove (Hartalega SDN BHD, Malaysia) from the time of the baseline examination until the 3-month examination. No differences were observed in hand skin health between the control group and the DHCWs at baseline, nor between those wearing the latex or nitrile gloves during the 3 month period of the study. **CONCLUSION:** It is concluded that the hand skin health of the DHCWs examined were no different from those of a control group of non-DHCWs, and that the wearing of the two types of gloves used in the 3 month study had no significant effect.

Goggles are more important than face masks.

Staiano JJ.

Ann R Coll Surg Engl 2003 Jan;85(1):71

Stress – Mental disorders/Stress – psychopathologie

Work stress and posttraumatic stress disorder in ED nurses/personnel.

Laposa JM, Alden LE, Fullerton LM.

J Emerg Nurs 2003 Feb;29(1):23-8

INTRODUCTION: Work-related stress in the emergency department previously has been linked to depression and burnout; however, these findings have not been extended to the development of anxiety disorders, such as posttraumatic stress disorder (PTSD). Three sets of factors have been shown to contribute to stress in ED personnel: organizational characteristics, patient care, and the interpersonal environment. The current study addressed whether an association exists between sources of workplace stress and PTSD symptoms. **METHOD:** Respondents were 51 ED personnel from a hospital in a large Canadian urban center. The majority of respondents were emergency nurses. Respondents completed questionnaires measuring PTSD and sources of work stress and answered a series of questions regarding work-related responses to stress or trauma. **RESULTS:** Interpersonal conflict was significantly associated with PTSD symptoms. The majority of respondents (67%) believed they had received inadequate support from hospital administrators following the traumatic incident and 20% considered changing jobs as a result of the trauma. Only 18% attended critical incident stress debriefing and none sought outside help for their distress. **DISCUSSION:** These findings underscore the need for hospital administrations to be aware of the extent of workplace stress and PTSD symptoms in their employees. Improving the interpersonal climate in the workplace may be useful in ameliorating PTSD symptoms.

Posttraumatic symptoms and disability in paramedics.

Regehr C, Goldberg G, Glancy GD, Knott T.

Can J Psychiatry 2002 Dec;47(10):953-8

OBJECTIVE: The concern that secondary gain may result in an overreporting of trauma symptoms in those seeking compensation or taking stress leave from work has raised questions about the relation between posttraumatic stress and disability. This study attempts to examine the relation between traumatic stress symptoms and the use of work leave in an anonymous sample of emergency-service workers who are not currently seeking compensation. **METHOD:** A total of 86 paramedics completed questionnaires that addressed exposure to traumatic events, use of mental health stress leave, social support, current level of distress, and personality patterns. Comparisons were made between groups who had used mental health stress (MHS) leave and those who had not. Logistic regression was used to determine the best predictors of using leaves. **RESULTS:** Current levels of social support were associated with previous use of mental health stress leave. In addition, significantly more individuals who had taken MHS leave in the past reported posttraumatic stress symptoms in the high or severe range. People with personality patterns characterized by suspiciousness, hostility, and isolation and having a tendency toward demanding, controlling, and manipulative behaviour in relationships were also more likely to have taken an MHS leave. **CONCLUSION:** Although social support and trauma symptoms were associated with the use of MHS leave, in this study, personality style was the strongest factor differentiating those individuals who took MHS leave from those who did not.

Modernising the 12-hour shift.

Lea A, Bloodworth C.

Nurs Stand 2003 Jan 22-28;17(19):33-6

AIM: To evaluate a year-long trial of a nursing shift pattern involving two 12-hour and two six-and-a-quarter-hour shifts. **METHOD:** Twenty four nurses, four night sisters and two ward therapists were asked to complete a semi-structured questionnaire, and there was a 100 per cent response rate. Data on ward sickness, use of agency nurses, and 'untoward incidents' during the year were also analysed. **RESULTS:** Every nurse and therapist involved in the trial gave positive feedback regarding the new shift pattern. There was also a significant drop in sporadic sickness rates and agency nurse use during the year. **CONCLUSION:** A shift pattern involving two 12-hour and two six-and-a-quarter-hour shifts appears to hold benefits for nurses' health, wellbeing and job satisfaction.

Repercussions of work schedule congruence among full-time, part-time, and contingent nurses.

Havlovic SJ, Lau DC, Pinfield LT.

Health Care Manage Rev 2002 Fall;27(4):30-41

Prior studies on alternative work schedules have focused primarily on the main effects of compressed work weeks and shift work on individual outcomes. This study explores the combined effects of alternative and preferred work schedules on nurses' satisfaction with their work schedules, perceived patient care quality, and interferences with their personal lives.

Workload pressures in rural general practice: a qualitative investigation.

Iversen L, Farmer JC, Hannaford PC.

Scand J Prim Health Care 2002 Sep;20(3):139-44

OBJECTIVE: To examine whether there are workload pressures, as reported by healthcare professionals, which are unique to rural general practice. **DESIGN:** Semi-structured face-to-face interviews with staff from general practice teams located in different geographical areas. **SETTING:** The north-east of Scotland (Grampian). **PARTICIPANTS:** 16 GPs, 14 practice nurses, 9 practice managers and 14 administrative staff from 14 general practice teams. **MAIN OUTCOME MEASURES:** Recurrent themes were identified by the systematic analysis of interview transcripts. **RESULTS:** Workload pressures experienced at aDI locations included continual change, increased volumes of administration and dealing with rising patient expectations. Workload pressures particular to rural areas were long periods on-call and difficulties in taking time off from the practice, the "specialist-generalist" role of rural practitioners and feelings of responsibility, including a pastoral role within the community. **CONCLUSION:** Although some workload pressures exist regardless of location, rural practices appear to have some unique difficulties. Solutions which help practices cope with change and demand will be useful to both rural and urban practices. Staff from rural practices, however, also need location-specific solutions, such as those for reducing stress from being on-call for prolonged periods.

The effectiveness of current approaches to workplace stress management in the nursing profession: an evidence based literature review.

Mimura C, Griffiths P.

Occup Environ Med 2003 Jan;60(1):10-5 The effectiveness of current approaches to workplace stress management for nurses was assessed through a systematic review. Seven randomised controlled trials and three prospective cohort studies assessing the effectiveness of a stress management programmes were identified and reviewed. The quality of research identified was weak. There is more evidence for the effectiveness of programmes based on providing personal support than environmental management to reduce stressors. However, since the number and quality of studies is low, the question as to which, if any, approach is more effective cannot be answered definitively. Further research is required before clear recommendations for the use of particular interventions for nursing work related stress can be made.

A comparative study of stress and burnout among staff caregivers in nursing homes and acute geriatric wards.

Cocco E, Gatti M, de Mendonca Lima CA, Camus V.

Int J Geriatr Psychiatry 2003 Jan;18(1):78-85

OBJECTIVE: To compare levels of stress and burnout among staff caregivers in nursing homes and acute geriatric wards of general hospitals. **METHODS:** A cross-sectional survey was conducted in three nursing homes (total of 522 beds, 270 caregivers) and nine geriatric sections of general hospitals (total of 371 beds, 280 caregivers). Staff caregivers were asked to answer a four-part questionnaire made up of socio-demographic data, the General Health Questionnaire (GHQ-12), the Maslach Burnout Inventory (MBI) and the Stressful Events Questionnaire (SEQ). **RESULTS:** 355 carers (172 from nursing homes, 183 from acute geriatric wards) answered the questionnaire (response rate 66%). Bivariate analysis reveals that general hospital carers show higher GHQ scores, higher MBI-Depersonalisation (DP) and Emotional Exhaustion (EE) sub-scores and lower MBI-Personal Accomplishment sub-scores.

Stressful Events (as revealed by the SEQ) are more frequently reported by general hospital carers, particularly events related to patients' behavioural disorders. Multivariate analysis shows that general hospital work-setting, professional role, female gender and patient/carer ratio are significant explanatory variables of a high MBI-EE sub-score, while general work setting and disability are the best explanatory variables of a high MBI-DP sub-score. Professional role and general hospital work-setting are independent factors in a low MBI-Personal Accomplishment (PA) sub-score. CONCLUSION: These results appear to show that levels of stress and burnout among staff caregivers are moderate in acute geriatric wards, but significantly higher than in nursing homes. This suggests that increasing the rate of trained staff and improving staff support-for instance by the implementation of Consultation-Liaison (C-L) Psychiatry and/or continuing education programmes-could be needed mostly in acute geriatric wards.

[Physicians and nurses subjected to disciplinary actions because of substance abuse. Ten years of experience with supervision in Copenhagen]

Hansen ET, Fouchard JR, Hoffmeyer JH, Rosdahl N.

Ugeskr Laeger 2002 Nov 18;164(47):5505-9

INTRODUCTION: Medical Health Officers supervise medical staff on behalf of the Danish National Board of Health. The Board can impose disciplinary action on registered providers of health care. MATERIAL AND METHODS: This retrospective investigation was based on case reports from 1 January 1989 to 31 December 1995 on medical staff under individual supervision because of alcohol or drug abuse, with a 3-year follow-up to 31 December 1998 in Greater Copenhagen (about 1.25 million inhabitants). RESULTS: Altogether 173 health personnel were identified. Of these, 47 physicians and 91 nurses had disciplinary actions imposed on them because of abuse. In well over a third the abuse had lasted less than two years, whereas in a third it had lasted more than five years before admission to individual supervision. Half of both physicians and nurses had undergone psychiatric treatment before that time. Frequent disciplinary actions imposed were examination of urine passed without prior warning and controlled treatment of alcohol abuse. Difficulties in adhering to these conditions were found in one third to half of the cases. The Medical Health Officers notified the National Board of Health of breaches in 64%, often several times for each person. At the end of the follow-up period, 49% were still working. There was a statistically significant excess mortality in the group. Of the 26 dead, four had committed suicide and in a further 12 cases poisoning or abuse was a contributory cause of death. DISCUSSION: Earlier detection, a tightening of sanctions, and improved treatment are recommended.

Violence/Violence

Legal remedies for employees if they are injured in the workplace.

Dimond B.

Br J Nurs 2003 Feb 13-26;12(3):154-6

Other/Autre
Miscellaneous/Divers

Accommodating medical school faculty with disabilities.

Steinberg AG, Iezzoni LI, Conill A, Stineman M.
LDI Issue Brief 2002 Dec-2003 Jan;8(4):1-4

More than ten years have passed since the Americans with Disabilities Act (ADA) mandated that all employers provide "reasonable accommodations" for employees with disabilities. This mandate applies to medical schools, but no systematic information is available to assess the accommodations provided to medical school faculty with disabilities. This Issue Brief summarizes anecdotal evidence from several medical schools about the experiences of faculty with disabilities, and the barriers they face in establishing and maintaining their careers. It also recommends practical steps medical schools can take to provide a welcoming and accessible academic medical environment.

Occupational health hazards among health care workers in an obstetrics and gynaecology unit of a Nigerian teaching hospital.

Orji EO, Fasubaa OB, Onwudiegwu U, Dare FO, Ogunniyi SO.
J Obstet Gynaecol 2002 Jan;22(1):75-8

The occupational health hazards among health-care workers in an obstetrics and gynaecology unit were investigated. A total of 78 pretested questionnaires were administered to the doctors, nurses and ward orderlies in the unit of Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria. The common occupational health hazards were work-related stress (83.3%), needle-stick injuries (75.6%), bloodstains on skin (73.1%), sleep disturbance (42.3%), skin reactions (37.2%) assault from patients (24.3%) and hepatitis (8.9%). Nearly half of the staff used diazepam, lexotan or alcohol to cope with the stress of work. A greater percentage of doctors compared to nurses and ward orderlies used safety precautions such as gloves, facemasks and aprons. All the staff employed regular handwashing after various procedures. However no category of staff adopted regularly proper disposal of needles and sharps into separate puncture-resistant containers. About 59% of the staff recap used needles. The implications of the findings were discussed and recommendations made appropriately.

Smoking behavior, initiating and cessation factors among Japanese nurses: a cohort study.

Kitajima T, Ohida T, Harano S, Kamal AM, Takemura S, Nozaki N, Kawahara K, Minaowa M.
Public Health 2002 Nov;116(6):347-52

The prevalence of smoking among Japanese nurses, specially in their twenties, is higher than that among the general female population. To examine smoking behavior, smoking initiating and cessation factors, we conducted a cohort study through questionnaire survey, targeting nurses (n=1572) working at 11 hospitals located in Tokyo metropolitan area. The first survey was conducted using a confidential questionnaire on smoking, followed by a second survey conducted in the same manner on the same subjects two years later. As to smoking status after two years, 8% (95%CI=1.5%) started smoking and 6% (95%CI=1.4%) quitted resulting in a 2% increase in the prevalence of current smoking. The average nicotine dependence for nurses who were smokers in the two surveys rose from 3.9 to 4.3 (P<0.05). Smoking behavior

of mother, friends, or superiors at work had a significant influence on smoking behavior of nurses. As to smoking cessation factors, the idea that women and medical workers should not smoke, and living with family each had a significant influence. Considering the fact that 6% of nurses in this study succeeded in quitting smoking within two years, it is required that anti-smoking education be conducted at medical institutions to decrease the prevalence of current smoking among the nurses in Japan.

[Occupational diseases among personnel of Polish hospitals, 2001]

Peplonska B, Szeszenia-Dabrowska N.
Med Pr 2002;53(5):369-74

The paper presents the data provided by the Central Register of Occupational Diseases in Poland on the compensated occupational diseases among hospital personnel, registered in 2001. The trends in the incidence of occupational diseases in this population over the period 1994-2001 are also discussed. In total, 394 new cases of occupational diseases among the hospital personnel were registered in 2001, which makes up 52.1% of all cases recorded under the "Health and social work" section of occupational activities, according to the Nomenclature des Activités de Communauté Européenne. Most of these cases were found among nurses (47%), followed by physicians (15%), laboratory analysts (11.5%), orderlies (11%), and dentists (3%) and referred mainly to females (84.8%). Contagious and invasive diseases prevailed, constituting 73.9% of all cases. Viral hepatitis made up 72.5% of all registered contagious and invasive diseases: HBV was diagnosed in 46%, HCV in 50.2% and HBV + HCV in 1.8% of all viral hepatitis cases. Dermatoses, mostly of allergic etiology, were the second most prevalent diseases (11.4%), and were most frequently associated with exposure to latex, thiurams, mercaptobenzothiazole and non-specified rubber compounds-73% of all factors causing allergic dermatoses. Chronic diseases of locomotor system, chronic diseases of peripheral nervous system, chronic diseases of bronchi, chronic inflammation of nose, pharynx, larynx and trachea, and intoxications were also reported. Almost twofold decrease in the incidence rate in the population of workers referred to "Health and social work" activity section was observed in 2001 compared to 1994. The decrease in the number of the registered occupational diseases seen in the hospital employees was mostly due to the effective anti HBV prevention programs carried out in Poland among health care personnel since 1989.

Evidence Based Medicine

British Guideline on the Management of Asthma
is now available (free) online at:

http://thorax.bmjournals.com/content/vol58/suppl_1/

Documents en Français

Reglementation

Avis du Conseil supérieur d'hygiène publique de France : calendrier vaccinal 2003

BEH n° 6 (4 février 2003)

http://www.invs.sante.fr/beh/2003/06/beh_06_2003.pdf

Décret n° 2003-109 du 11 février 2003 relatif à la vaccination antivariolique

J.O n° 36 du 12 février 2003 page 2590

Article 1

La vaccination antivariolique des personnes affectées, au niveau national, à la prise en charge des premiers cas de variole en cas de réapparition de la maladie, quelle qu'en soit l'origine, est rendue obligatoire.

La liste de ces personnes est dressée par arrêté du ministre chargé de la santé.

[Articles & documents en Français](#)

Faut-il arrêter le BCG ?

Lévy-Bruhl D, Barrault Y, Decludt B, Schwoebel V.

Médecine et Maladies Infectieuses 2003;33(Suppl 3):188-92.

La situation épidémiologique actuelle de la tuberculose en France rend nécessaire une réévaluation de la pertinence de la politique de vaccination BCG. En effet, elle est proche des critères proposés au niveau international pour envisager la suppression de la vaccination systématique des enfants. Les données de la littérature, en particulier les expériences de pays européens, et les analyses menées à partir des données françaises sont en faveur d'un impact extrêmement limité de la pratique de revaccination des sujets tuberculino-négatifs. Ces mêmes sources plaident en faveur d'une augmentation de l'incidence de la tuberculose en cas d'interruption de toute activité de vaccination BCG, affectant particulièrement les populations les plus à risque de tuberculose. L'importance de cette augmentation varie en fonction des hypothèses retenues concernant le pouvoir protecteur du BCG. Le Conseil supérieur d'hygiène publique de France s'est prononcé en juin 2002 en faveur de la suppression des activités de revaccination et de tests tuberculiques systématiques et devrait rendre un avis définitif à ce sujet en novembre 2002. La décision concernant la primovaccination nécessite au préalable la mise en œuvre d'une analyse bénéfice/risque prenant en compte les effets négatifs de la vaccination et d'une réflexion sur la faisabilité et l'acceptabilité de différentes modalités de restriction éventuelle de la population cible de la vaccination BCG.

Après la Bourgogne, la Champagne-Ardenne. Peut-on parler d'épidémie de burn-out chez les médecins?

Panorama du Médecin, 27 mars 2003

Après la Bourgogne, la Champagne-Ardenne. Peut-on parler d'épidémie de burn-out chez les médecins? Deux enquêtes, l'une en Champagne-Ardenne, l'autre en Bourgogne, commandées par les Urml, aboutissent au même résultat: les généralistes de ces régions sont littéralement «crevés» et le diagnostic est sans appel: «burn-out». A Saint-Priest, dans la banlieue lyonnaise (lire le reportage de notre envoyé spécial en pages 18 et 19), un praticien, apparemment surmené, s'est donné la mort. Dans notre courrier nous avons reçu le témoignage émouvant d'un généraliste éprouvé par le suicide de l'un de ses confrères. «Les exigences du métier font oublier que les médecins sont aussi des êtres humains», dit le Dr Jean-Marie Hadler, de Saint-Priest. Cet autre praticien, cité dans l'enquête de l'Urml de Champagne-Ardenne (à lire), explose:

«La croissance exponentielle de la connerie humaine fait que je n'ai désormais qu'un objectif, la retraite.» Dans le dossier que nous avons consacré aux médecins qui craquent («Panorama du Médecin» du 27 février dernier), nous ne mesurons pas encore à quel point nous étions en deçà de la vérité. Surcharge de travail, manque de temps consacré aux patients, pressions administratives: l'explication de ce syndrome, aux conséquences parfois tragiques, est connue. Est-elle seulement comprise?

Et admise? Nombre de confrères se plaignent ainsi de la désinvolture croissante des patients. Mais, plus profondément, c'est l'aspect harassant de leur travail que les généralistes dénoncent aujourd'hui: on a simplement oublié que l'une des principales revendications de la grève de l'année dernière touchait à un droit essentiel: celui de vivre

Paludisme a *P. falciparum* apres accident exposant au sang (AES) : a propos d'un cas, une revue de litterature et considerations pour la chimioprophylaxie post-exposition

Tarantola A, et al.

http://www.invs.sante.fr/beh/2003/07/beh_07_2003.pdf

[Rights and responsibilities in cases of blood exposure accidents]

Cohen A, Eymard N.

Soins 2002 Dec;(671):47-9

[Evaluation of a prevention measure against blood exposure accidents]

Louis N, Vella G.

Soins 2002 Dec;(671):45-6

[Blood exposure accident prevention and education-action]

Cantineau A, Brauer G, Deiss V, Guillet N, Hecht MT.

Soins 2002 Dec;(671):42-4

[HIV infection prophylaxis after exposure]

Bouvet E.

Soins 2002 Dec;(671):39-41

[Blood exposure accidents study in Franche-Comte in 2001]

Minary-Dohen P, Talon D.

Soins 2002 Dec;(671):34-8

[HIV and hepatitis C seroconversions in nurses]

Lot F, Miguères B, Yazdanpanah Y.

Soins 2002 Dec;(671):32-3