



Senate inquiry into Industrial Chemicals Bill

The Industrial Chemicals Bill 2017 which establishes a new scheme, the Australian Industrial Chemicals Introduction Scheme (AICIS) to replace the current NICNAS scheme, is currently under examination by the Senate Community Affairs Legislation Committee.

The Bill encourages self-regulation for the use of lower risk chemicals and creates an independent office holder – the Executive Director of AICIS, who will have powers to create 'rules' that will be implemented via delegated legislation, administer the AICIS, carry out functions and powers under the Bill and consult with various bodies, including State environmental protection authorities and work health and safety authorities.

The Bill has attracted divergent views from stakeholders which were acknowledged by the Assistant Minister for Health, Dr Gillespie, as follows: "I think it is fair to say that our stakeholders do not share the same views about the level of regulation that should be applied to industrial chemicals – with some favouring a more restrictive approach and others favouring a more deregulatory approach."

All Monitor readers are strongly advised and encouraged to read the submission to the Senate Inquiry lodged by the National Toxics Network which identifies concerns of a public health and environmental nature in the proposed legislation contrasting it with the world leading EU Research chemical legislation.

The submission is available from www.ntn.org.au.



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Legislative/regulatory matters

WA Government moves to increase penalties for safety breaches in the workplace

Penalties for breaches of duty of care in West Australian workplaces are to be increased to the levels stipulated in the National Model Legislation.

- Level One penalties will increase from \$50,000 to \$456,000.
- First offences for body corporate offenders will increase dramatically with Level Four penalties increasing from \$500,000 to more than \$2.7m.
- Maximum terms of imprisonment will be increased from two to five years.

The Government announced its intention to introduce its amending legislation by mid-2019 and stated that the legislation will implement the optimal structure and content of the Model WHS Act.

Source: Office of the Premier, Media Release, 27 August 2017

Queensland Government restricts the use of a fly-in fly-out workforce

New mines in Queensland will no longer be able to use an entirely FIFO workforce if nearby towns have suitable candidates under legislation passed recently – Strong and Sustainable Resource Communities Act 2017.

The legislation is backed by penalties of up to \$244,000 per offence for corporations that advertise or advise that residents of nearby communities are ineligible for employment in projects. Several Inquiries in the past have highlighted the stresses on FIFO workers – with high levels of suicide and depression.





Queensland tougher health and safety laws for the construction industry

The Queensland government has strengthened workplace health and safety with tough new laws passing the Parliament. The new laws will see the Queensland Building and Construction Commission (QBCC) playing a greater role in ensuring safety in the building industry.

Under the new laws, the QBCC will take into account the conduct of a company, including their record of safety, when considering the suspension or cancellation of a licence. The laws also create an obligation on QBCC licencees to notify the QBCC about activities on a building site that might prevent a work health and safety issue.

Minister for Housing and Public Works, Mick de Brenni, said that “put simply, these laws mean that if you fail to protect workers, you will not have the right to hold a construction licence in this state.”

Source: Media release, Hon Mick de Brenni,

Tougher safety laws for Queensland mines

The Queensland Mines Minister has introduced legislation that proposes new powers to suspend or cancel individuals’ statutory certificates of competency.

A site senior executive notice (of appointment) may also be suspended or cancelled if that executive fails to meet their health and safety obligations.

The Bill also proposes:

- higher levels of competency for the statutory position of ventilation officer at underground coal mines;
- new requirements for ventilation officers at underground mineral mines;
- ongoing statutory certificates to maintain high standards of professional competence throughout their careers;
- upgrades to safety and health at mines with 11 or fewer workers;
- better protection for contract mine workers.

The Minister said that the Bill is needed to ensure mine workers are supported by legislation that is effective and contemporary.

Source: SafetySolutions, 16 September 2017



Continuing concerns with safety of pilot flight schedules

In the UK the pilot's union, BALPA, continues to express concern at the demanding schedules and lax control of pilots' hours of duty coupled with a failure to recruit adequate numbers of pilots.

The union says that it is analysing routes to identify those that could cause serious fatigue and is working with airlines and regulators to challenge these duties and adjust them to prevent already tired pilots becoming dangerously fatigued.

BALPA said it is seeing increasing numbers of pilots who are looking to go part-time or have become long-term sick as a result of fatigue and 'burn out' caused by inadequate rest and unworkable patterns of duty.

Source: TUC Risks 812, 12 August 2017

Cleanaway facing more charges

Cleanaway Operations Pty Ltd has been charged with work health and safety breaches and facing fines of up to \$4.5 m following a workplace incident in August 2015 when a recycling truck hit and killed a Cleanaway labour-hire employee.

The Director of Public Prosecutions will allege that Cleanaway failed to implement effective traffic management procedures, conduct a risk assessment or use Control Measures like barriers or exclusion zones.

The matter is to be dealt with in the Melbourne Magistrates Court.



Source: OHS Reps SafetyNetJournal 414, 9 August 2017



ISO 45001



ISO 45001: FOR HEALTHIER, SAFER ORGANISATIONS AND EMPLOYEES

ISO 45001 is the new international standard for occupational health and safety, providing a framework for managing the prevention of death, work-related injury and illness. Its intended outcome is improving and providing a safe and healthy workplace for workers and persons under an organisation's control.

ISO 45001 recognises other nationally recognised standards in this area such as those operating in the UK, Australia, USA and Canada. The standard is intended to help organisations regardless of size or industry to design systems to proactively prevent injury and ill health. All of its requirements are designed to be integrated into an organisation's management processes.

The second public ballot on the draft is now complete and the document has received a very high level of endorsement and is one step closer to its publication.

The standard is hopefully reaching its final stages, suggesting there will be a positive discussion on comments when Project Committee PC 283 meets in Malaysia in September.

Source: Auditor Online, 25 August 2017

Safety of young workers in Canada

When it comes to encouraging young workers to be safe on the job, the adults in their life at home and at work have the greatest impact, found a new study.

A national Canadian study conducted by Professor Nick Turner from the University of Calgary looked at six sources of influence on young workers - parents, siblings, teachers, friends, supervisors and co-workers — to see how they related to the workers' risk-taking behaviour and frequency of minor work injuries.

Their findings show that among the six sources of influence, parents, supervisors and co-workers had the largest positive effect. The study "Injunctive Safety Norms, Young Worker Risk-taking Behaviors and Workplace Injuries" was recently published in the journal *Accident Analysis & Prevention*.

Turner said **"Getting a sense that your manager actually cares about safety — whether it's part of your work conversations, that she or he is open to suggestions about how to improve safety, etc. — sends the message that your supervisor and your employer care about you. That's motivating. This is likely the same pathway for parents."**

The study appeared recently in the journal *Accident Analysis and Prevention*.

Source: COS Magazine, 20 July 2017



Nick Turner, Haskayne School of Business professor, has completed a research paper into the high rate of injuries among younger workers. Photo by Riley Brandt, University of Calgary



Valuable role of health and safety representatives acknowledged

The 'valuable' role and 'expert insight' of workers and their health and safety representatives has been recognised in a UK-HSE study of updated safety practices in the ports industry.

The report found that a positive example from the ports "leadership" was important in creating and sustaining effective worker engagement, adding "Listening and acting on workers' concerns and ensuring that feedback is provided on issues raised was also important in facilitating and/or sustaining worker engagement."

The report confirmed findings of earlier studies, concluding "involving employees and H&S representatives in assessing the risks at a workplace or work activity is valuable as they have an expert insight on the risks involved. **Further, workers are more likely to understand and comply with procedures in place to control risks if they have been involved in developing them.**"

Source: TUC Risks 814, 26 August 2017



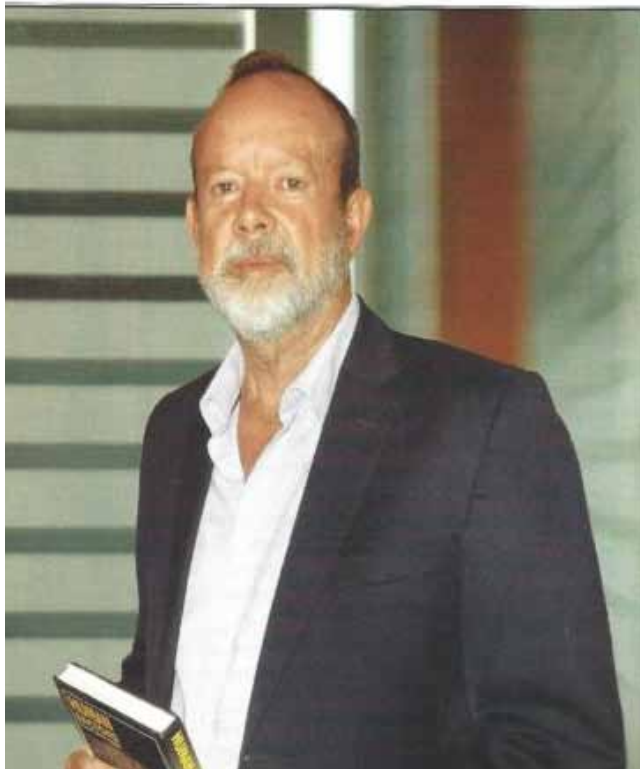
New Zealand orchard workers denied access to safe drinking water

The international union IUF affiliate, First Union, was astounded to discover that workers employed in kiwi fruit orchards in the north of New Zealand had been denied access to clean drinking water. When workers requested drinking water they were told they could drink the irrigation water, which is unfit for human consumption, from a tap situated next to toilets not connected to a sanitation system.

Turners and Growers, a subsidiary of the German based international training and services group BAYWA, initially responded to the union demand for drinkable water by defending its offer of irrigation water to its employees. However, the workers through their union insisted that the universal right to clean drinking water be respected and the company has since installed filters at five locations at the site.

Source: IUF News Report

Society member receives Engineers Australia Innovation Award



OHSA(WA) member, Craig Power, has received recognition from Engineers Australia as one of the “Most Innovative Engineers – 2017” in the General Industry category for his safety related innovation – iSOL8 – a digital Lock and Tag isolation process.

iSOL8 is an integrated system, comprising a database, web application mobile app, lockbox integration and a set of processes, procedures and services.

ILO head calls for global coalition to address occupational injuries and disease

The head of the ILO, Guy Ryder, told the World Congress on Safety and Health at Work in Singapore on 3rd September that global action is needed to address the massive human and economic cost of occupational injuries and disease.

The new global estimates on work-related illnesses and injuries represent 3.94 per cent of global GDP per year, or 2.99 trillion US dollars.

According to the ILO, in human lives that means 2.78 million workers continue to die each year from work-related injuries and illnesses.

2.4 million of these deaths can be attributed to work-related diseases alone.

Source: ILO News release, 7 September 2017

New safety and health representative audit available

The Department of Mines, Industry, Regulation and Safety have developed a new audit to assist sites in growing and supporting a key resource - their safety and health representatives.

The audit covers matters such as employer obligations, whether employees representatives are allocated the time and resources to carry out their functions, their training and involvement in investigations.

The audit template and supporting guide is available from www.dmpe.wa.gov.au/mineshreps



Young worker safety program aims to reduce construction injuries

Young workers will be the focus of a cross-border safety program being run by WorkSafe Victoria and SafeWork NSW.

The Cross Border Construction Program will see inspectors from both organisations visiting construction sites, to promote strategies that will reduce the risk of young workers being hurt.

There were 538 young construction workers that were injured during 2016, a figure which is higher than any other industry.

Safety inspectors in the program will discuss with workers the similarities between the Victorian and NSW work health and safety regulations, and address any perceived differences that employers and workers may have observed.

“Workers aged 15–24 are vulnerable. They often lack experience, are still developing physically and mentally, are eager to make a good impression and can be reluctant to ask questions,” said WorkSafe Victoria Executive Director of Health and Safety Marnie Williams.

“Employers need to ensure their young workers not only receive the correct training and supervision, but are empowered to speak up. For young workers our message is that if you are not sure about something, stop and ask.”

SafeWork NSW Group Director of Regional and Response Operations Tony Williams said with many students leaving school in a few months, it was timely to reinforce the importance of young worker safety.

“Thousands of young workers are about to enter the region’s workplaces, with many commencing a building apprenticeship, so it’s imperative that we remind construction companies about the work health and safety risks that must be considered when employing young workers,” he said.

Chinese building suppliers forging safety certificates

A Senate inquiry has been warned that Chinese building suppliers are forging safety certificates to get shonky products into apartment towers.

The Australian Institute of Architects warned a Senate inquiry into substandard building products that “fraudulent documents abound” in the construction sector and demanded third-party certification of products by independent testing laboratories. They said that product substitution during construction is common practice.

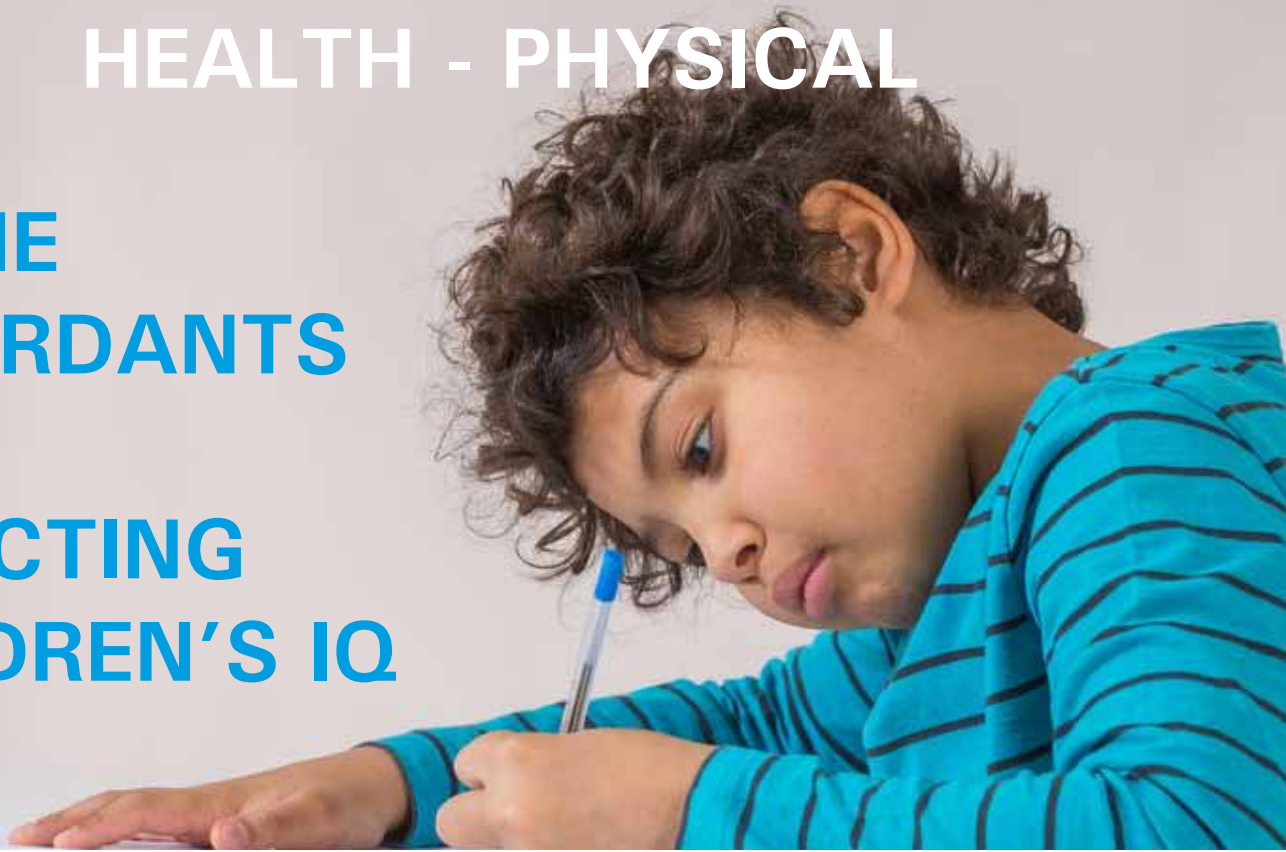
The CFMEU reported those manufacturers to the ACCC, which can prosecute suppliers for misleading and deceptive conduct. However, the Commission chairman, Rod Sims, said **that they did not have the resources to do the work of state building regulators.**

He called for independent inspections to stop builders and product suppliers “self-certifying” on safety, adding that the **ACCC had no power to prosecute dodgy builders or suppliers because homes and building materials were not technically a “consumer good”.**

Source: Daily Telegraph, 18 September 2017



FLAME RETARDANTS STILL AFFECTING CHILDREN'S IQ



Researchers from the University of California, San Francisco, have found that the presence of polybrominated diphenylesters (PBDEs), a chemical used in furniture and household products, has a negative impact on children's IQ.

After reviewing data from various studies from around the world of 3,000 mother-child pairs, the researchers found a tenfold increase in a mother's PBDE levels led to a 3.7 IQ point drop in the child.

"A 3.7-point decrease in IQ might not sound like a lot, but on a population-wide level it means more children who need early interventions and families who may face personal and economic burdens for the rest of their lives," said the study's lead author Juleen Lam.

Concerns with the chemical began circulating in 2003 leading to several US states and international bodies imposing bans or phase-outs for some of the most common PBDEs.

Patricia Sutton, co-author of the study said in a statement: "The bans, restrictions, and phase out were forward progress towards protecting people's health, but the problem is that people are still exposed. Reservoirs of PBDEs can be found in dust, old furniture, and electronic equipment. It's the horrible gift that keeps on giving."

Source: RD Magazine, 5 August 2017

Cambodian female workers suffer mass faintings

Over the past year more than 500 female workers in four factories supplying NIKE, Puma, Asics and VF Corporation have been hospitalised following mass faintings linked to working conditions. The brands confirmed the incidents. The women had worked 10 hour days, six days a week and reported feeling exhausted and hungry. Excessive heat with temperature of 37 degrees C was also an issue. Cambodia sets no heat limit, though if temperatures reach a "very high level" causing difficulties for workers, employers must install fans or air conditioning.

Source: SafetyNetJournal 413, 2 August 2017





PROLONGED STANDING AT WORK LIKELY TO LEAD TO HEART ATTACK

Workers who stand on the job most of the time are at greater risk of heart disease than workers who predominantly sit, according to a new study.

Even after taking into account a wide range of personal, health and work factors, people who primarily stand on the job are twice as likely as people who primarily sit on the job to have a heart attack or congestive heart failure, found the study by the Institute for Work and Health and the Institute for Clinical Evaluative Sciences located in Toronto, Canada.

Researchers who followed 7,300 workers aged from 35-74 and who were initially free from heart disease for 12 years said "Our results suggest that workplaces need to pay attention to the health effects of prolonged standing and target their prevention programs accordingly."

Source: TUC Risks 814, 26 August 2017

AGGRESSION IN WA'S RESIDENTIAL AGED CARE

WorkSafe WA will conduct a proactive inspection program to look at the management of violence and aggression in residential care facilities.

The program will focus on reducing musculoskeletal and psychological injuries suffered by employees as a consequence of workplace violence.

WorkSafe acting Director, Sally North, said that inspections would primarily look at how employers prevented and responded to aggressive incidents and injuries, and how they are being dealt with on a long-term basis. Over the past five years (2011-12 to 2015-16) violence and bullying accounted for nearly one third of all lost time injuries in WA residential aged care facilities.

The program coincides with a WorkSafe Victoria Public Awareness campaign launched recently addressing similar issues.

Source: Commerce WA



CLEANING WORKFORCE AT PARTICULAR RISK OF PULMONARY DISEASES

Researchers in Belgium investigated the causes of mortality in a population of males and females aged between 30 and 60 who worked in the cleaning sector during the period 1991-2011.

Using a population of executive and non-executive employees as a point of reference, Laura Van den Borre, a doctoral student in sociology discovered that **the mortality rate from pulmonary disease was 45% higher for men who had formerly worked in the cleaning sector, and 16% higher for women in the same position compared to the rest of the population.**

Van den Borre cited as probable causes the workers' exposure to chemicals in cleaning products and the biological risks associated with exposure to mould and dust.

Source: ETUI News, 30 August 2017

Regular use of bleach linked to COPD

A study by Harvard University and the French National Institute of Health and Medical Research (Inserm), using data from more than 55,000 nurses in the US, has found that using disinfectant cleaning products such as bleach once a week potentially increases a person's chance of development chronic pulmonary disease (COPD) by nearly one third.

The researchers looked at exposure to specific disinfectants, including bleach, hydrogen peroxide, alcohol and chemicals known as quaternary ammonium compounds which are often used to disinfect surfaces.

They found all of them were associated with an increased risk of COPD of between 24-32 percent.

Researcher Dr. Orianne Dumas said "further research is needed to clarify the impact of disinfectant use in the home and, in particular, the impact on COPD of lifetime occupational exposure to chemical and clarify the role of each specific disinfectant.

Source: The Guardian, 10 September 2017



A slow walking pace is a good predictor of heart-related disease

Middle-aged people who report that they are slow walkers could be at higher risk of heart disease compared to the general population say researchers at the NIHR Leicester Biomedical Research Centre, UK.

The data analysed was collected between 2006 and 2010 by the UK Biobank from nearly half a million middle-aged people across the UK. 420,727 people were included in the research because they were free from cancer and heart disease at the time of collecting their information.

In the following 6.3 years after the data was collected there were 8,598 deaths with the sample population being studied: 1,654 from cardiovascular disease and 4,850 from cancer.

Principal Investigator for the study Professor Tom Yates said: "Our study was interested in the links between whether someone said they walked at a slow, steady or brisk pace and whether that could predict their risk of dying from heart disease or cancer in the future.

"Slow walkers were around twice as likely to have a heart-related death compared to brisk walkers. This finding was seen in both men and women and was not explained by related risk factors such as smoking, body mass index, diet or how much television the participants in the sample watched. This suggests habitual walking pace is an independent predictor of heart-related death.

"We also found that self-reported walking pace was strongly linked to an individual's objectively measured exercise tolerance, further suggesting walking pace is a good measure of overall physical fitness.

Source: *Science Daily*, 30 August 2017

Do telephone consultations reduce GP's workloads?

As UK general practices struggle with rising demand from patients, more work being transferred from secondary to primary care, and increasing difficulty in recruiting general practitioners, one proposed potential solution is a 'telephone first' approach, in which every patient asking to see a GP is initially phoned back by their doctor on the same day. At the end of this phone call the GP and the patient decide whether the problem needs a face-to-face consultation, or whether it has been satisfactorily resolved on the phone.

Two commercial companies provide similar types of management support for practices adopting the new approach, with claims that the approach dramatically reduces the need for face-to-face consultations, reduces workload stress for GPs and practice staff, increases continuity of care, reduces emergency hospital admissions, and increases patient satisfaction.

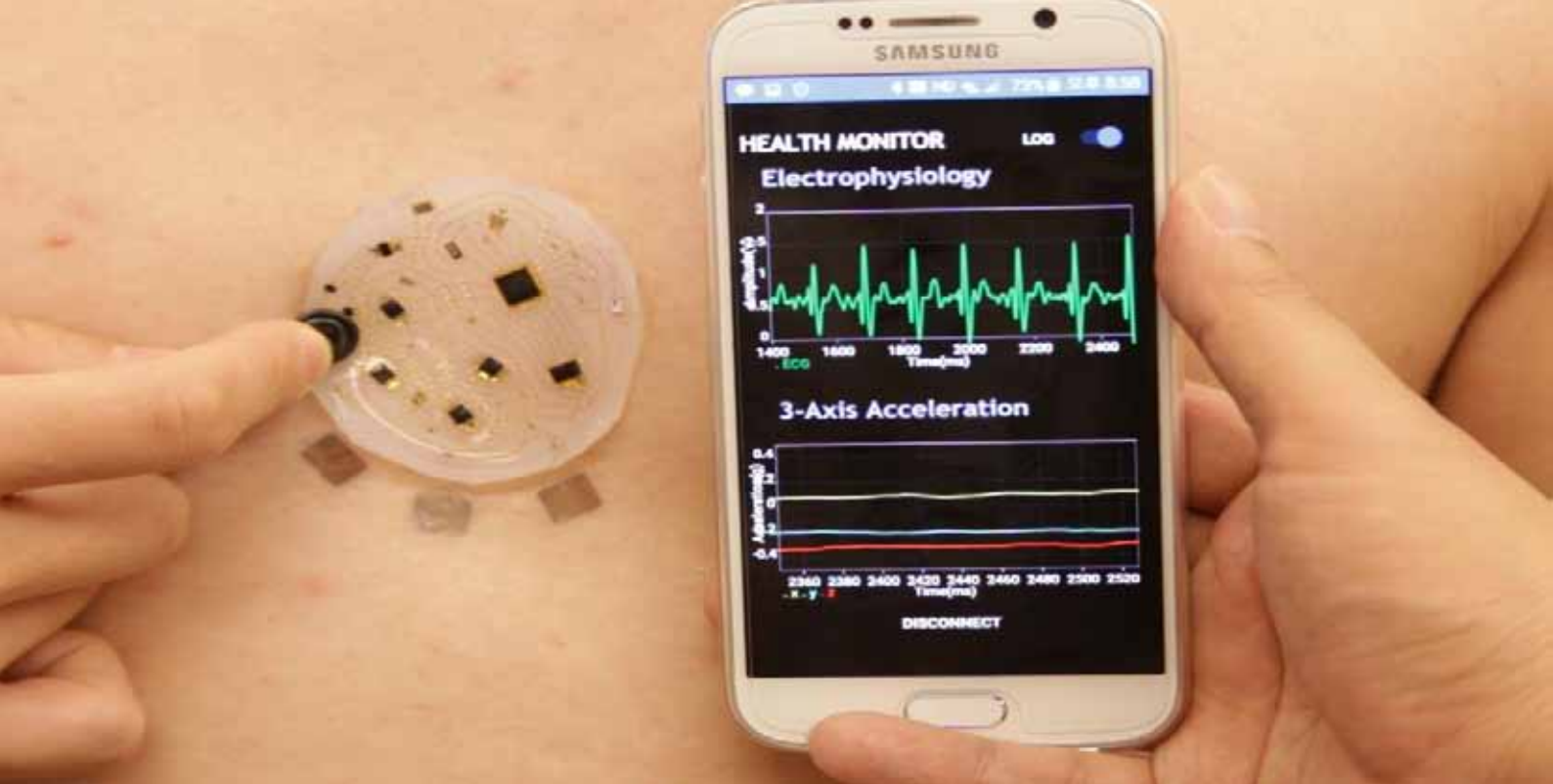
The National Institute of Health (NIHR) acknowledge the need for robust and independent evaluation of current services and commissioned a team led by Martin Roland, Emeritus Professor of Health Services Research at the University of Cambridge. The results were published in the *British Medical Journal* on 1st October.

The study found that adoption of the 'telephone first' approach had a major effect on patterns of consultation: the number of telephone consultations increased 12-fold, and the number of face-to-face consultations fell by 38%. However, the study found that the 'telephone first' approach was on average associated with increased overall GP workload; there was an overall increase of 8% in the mean time spent consulting by GPs, but this figure masks a wide variation between practices, with some practices experiencing a substantial reduction in workload and others a large increase.

The researchers found no evidence that the approach substantially reduced overall attendance at A&E departments or emergency hospital admissions.

Professor Roland adds: "Importantly, we found no evidence to support claims made that the approach resulted in substantial cost-saving or reduced hospital referrals. These claims resulted in some clinical groups buying consultancy services based on unsubstantiated claims. The NHS must be careful to ensure that it bases its information and recommendations on robust evidence.

Source: *Science Daily* 1 October 2017



Electronic skin helps monitor health

Researchers from South Korea's Daegu Gyeongbuk Institute of Science and Technology and Northeastern University, Illinois USA, have developed a new, electronic skin microsystem that tracks heart rate, respiration, muscle movement and other health statistics.

The microsystem sticks to the skin and transmits data on movement and respiration, as well as electrical activity in the heart, muscles, eyes and brain to a user's smartphone.

Kyung-In Jang, a professor of robotics engineering at DGIST, said: "Combining big data and artificial intelligence technologies, the wireless biosensors can be developed into an entire medical system which allows portable access to collection, storage and analysis of health signals and information. We will continue further studies to develop electronic skins which can support interactive telemedicine and treatment systems for patients in blind areas for medical services such as rural houses in mountain villages."

The study was published in Nature Communications.

Source: *RD Mag*, 8 September 2017

The need to address long term workplace related ill-health

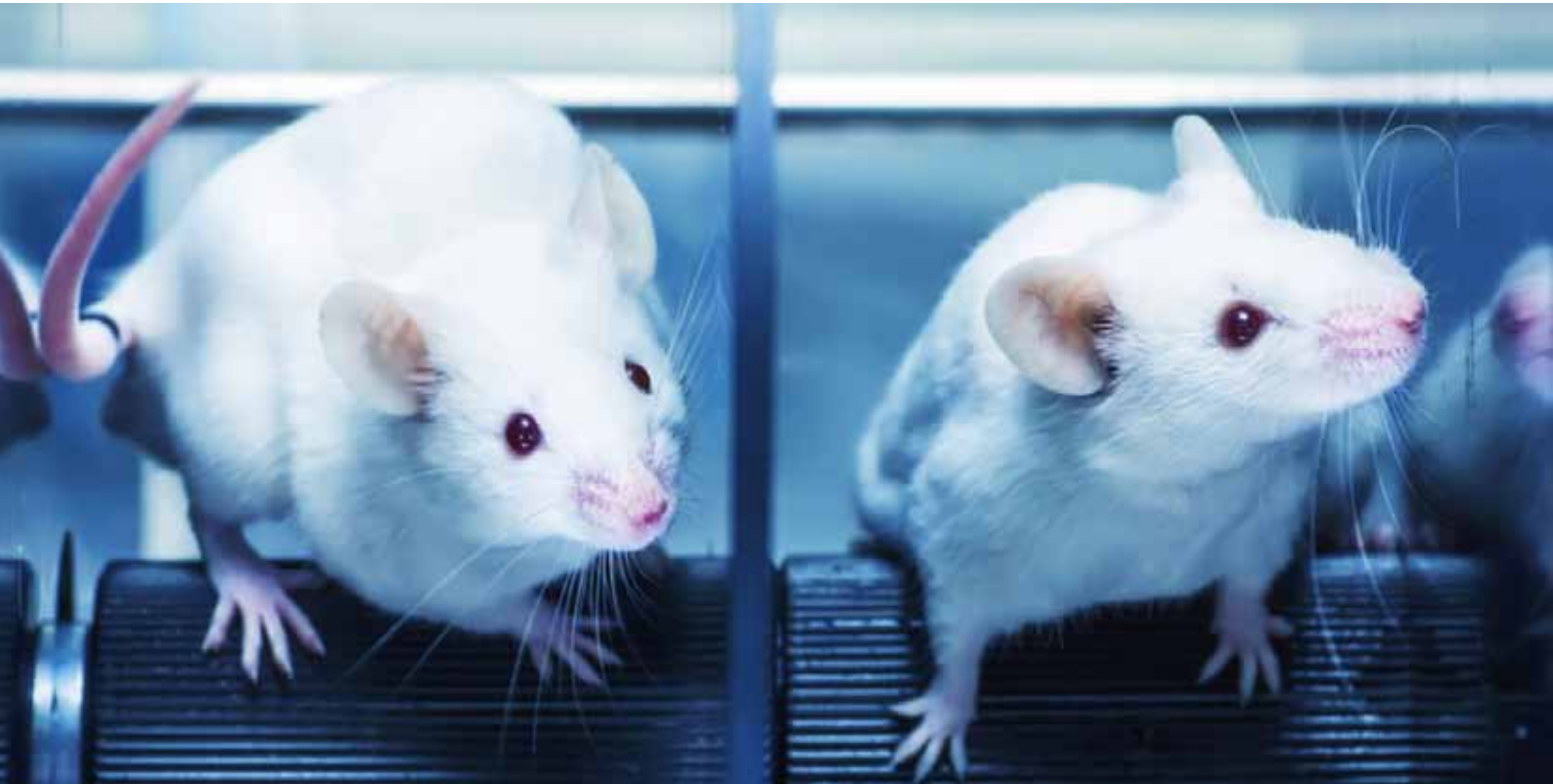
New research from the UK Health and Safety Executive (HSE) has found that more than 40 percent of businesses are reporting a rise in cases of long-term ill-health with the majority, 80 percent, saying tackling this growing problem is a priority within their organisation.

The regulator (HSE) sought the views of 300 "major business leaders" and 40 percent of respondents said their industry was not doing enough to raise awareness and tackle the causes of long-term work related ill-health.

The HSE has initiated a new national campaign "Go Home Healthy" to reduce cases of work-related health "by shining a light on the causes and encouraging employers to do the right thing to protect their workers' health."

Health and Safety Minister, Penny Mordaunt, said "Work related health is a costly issue for individuals, businesses, and the whole economy. This campaign will encourage employers to operate healthier workplaces and ensure workers get the support they need."

Source: *TUC Risks*, 818, 23 September 2017



Of mice and men: why animal trial results don't always translate to humans

Ri Scarborough, the manager of the Cancer Research Program at Monash University, has published an informative and relevant article in *The Conversation*, which discusses the use of animals to develop and test therapies before they are tested in humans.

In addition to examples of successful applications of animal experimentation, she also provides examples of negative – in some cases, disastrous – results for humanity.

Importantly, the author provides an explanation of why human and animal drug trials sometimes disagree and discusses the ethical question of subjecting animals to suffering for human benefit.

She concludes as follows:

“The challenges, and indeed the obligations, for medical researchers are to use animals as sparingly as possible, to minimise suffering where experimentation is required and to maximise their predictive value for subsequent human trials. If we can increase the predictive value of animal trials – by being smarter about which animals we use, and when and how we use them – we will use fewer animals, waste less time and money testing drugs that don't work, and make clinical trials safer for humans.”

Readers are encouraged to read the article in its entirety. <http://theconversation.com/of-mice-and-men-why-animal-trial-results-dont-always-translate-to-humans-73354>

Source: *The Conversation*, 30 August 2017

Lifting equation mobile app

The National Institute for Occupational Safety and Health (NIOSH) has released a lifting equation mobile application, NLE Calc - one of the first mobile apps that can calculate the CLI and overall risk index for multiple manual lifting tasks, to help reduce the incidence of low back injuries in workers.

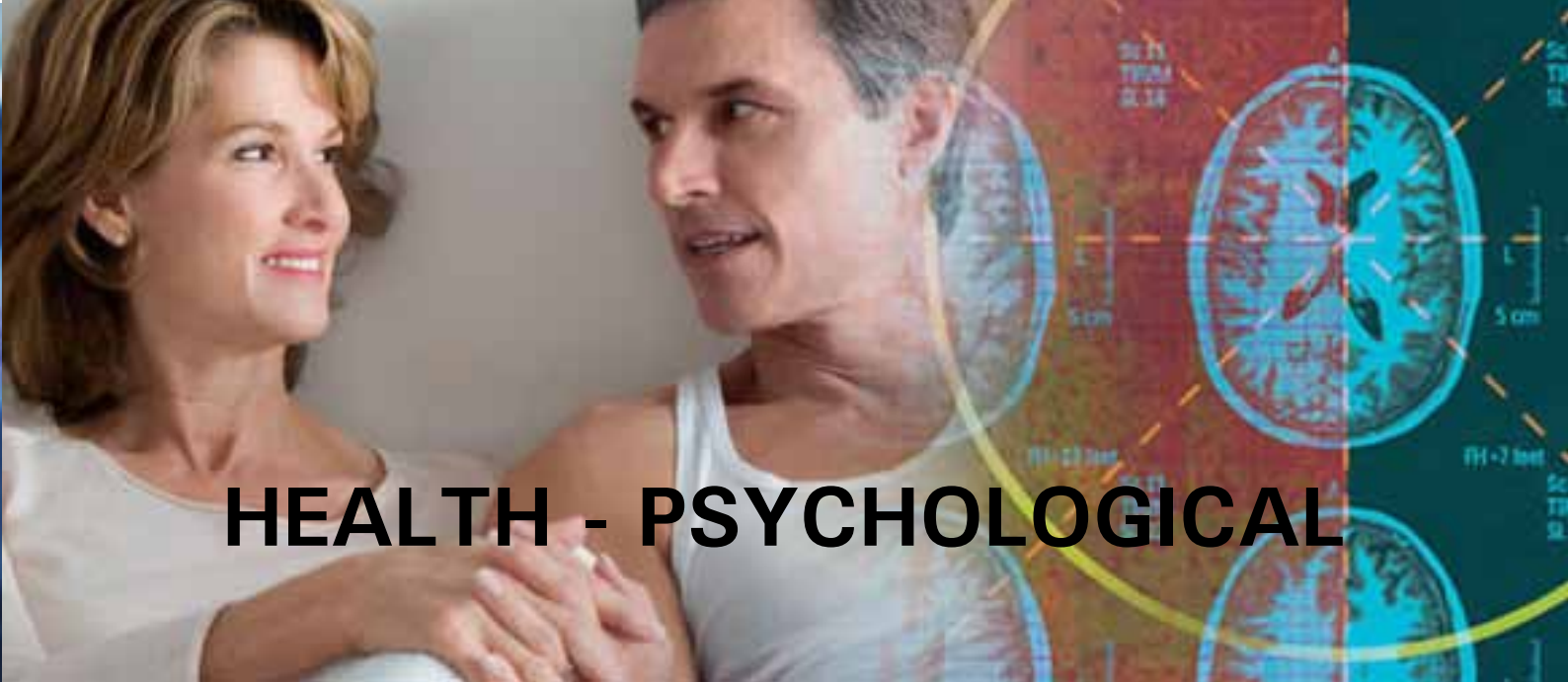
Key benefits of the app:

- Calculates the composite lifting index (CLI) for multiple lifting tasks
- Uses equations approved by NIOSH ergonomists, who were the original creators of the NIOSH Lifting Equation (NLE)
- Promotes better musculoskeletal health and prevention benefits
- Raises workers' awareness about their job tasks
- Helps workers make informed decisions about the potential hazards to their musculoskeletal health
- Serves as job design guidelines for manual lifting tasks
- Can be used as a research tool to collect manual lifting data

Workers in healthcare, manufacturing, transportation, warehousing, agriculture, public safety, retail trade, and other industries are often responsible for manually lifting and moving objects on the job. Research shows that exposure to repetitive motion, force, vibration, and awkward positions puts workers at risk for developing work-related musculoskeletal injuries.

Copies of the app can be downloaded from iTunes or Google Play; search for NLE Calc.

Source: *ISHN*, 2 September 2017



HEALTH - PSYCHOLOGICAL

Study finds women may have more active brains than men

A new study on the brain differences between men and women may shed some light on why the different sexes are more susceptible to different diseases.

Researchers compared 46,034 brain single photon emission computed tomography (SPECT) imaging studies - which can measure blood perfusion in the brain - to quantify the differences between the brains of men and women, analysing a total of 128 brain regions.

The researchers found that the brains of women were significantly more active in many more areas of the brain than men. The differences were particularly stark in the prefrontal cortex—which is involved with focus and impulse control and the limbic or emotional areas of the brain—which are related to mood and anxiety.

On the other hand, the visual and coordination centres of the brain were more active in men.

The data was used was from 119 healthy volunteers and 26,683 patients with a variety of psychiatric conditions including brain trauma, bipolar disorder, mood disorders, schizophrenia/psychotic disorders and attention deficit hyperactivity disorder (ADHD).

Understanding the differences in the brains is crucial because women have significantly higher rates of Alzheimer's disease, depression and anxiety disorders, while men have higher rates of ADHD, conduct-related problems and incarceration.

The researchers found the increased prefrontal cortex blood flow in women may explain why women tend to exhibit greater strengths in the areas of empathy, intuition, collaboration, self-control and appropriate concern.

They also found increased blood flow in the limbic areas of the brain for women, which could help explain why women are more vulnerable to anxiety, depression, insomnia and eating disorders.

The study was published in the *Journal of Alzheimer's Disease* on August 7, 2017.

Source: RD Magazine, 12 August 2017

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Being in a good mood for your flu jab boosts its effectiveness

A University of Nottingham based study is the first to examine several psychological and behavioural factors that have been shown to affect how well vaccinations work.

The researchers set out to understand which factor, or combination of factors has the greatest impact on the ability of vaccinations to protect against disease.

The team measured negative mood, positive mood, physical activity, diet and sleep three times a week over a 6 week period in a group of 138 older people due to have their flu jab. Then they examined how well the jab was working by measuring the amount of influenza antibody in the blood at 4 weeks and 16 weeks after the vaccination.

The results showed that of all of the factors measured, only positive mood over the 6 week observational period predicted how well the jab worked – with good mood associated with higher levels of antibody.

In fact, when the researchers looked at influences on the day of vaccination itself, they found an even greater effect on how well it worked, accounting for between 8 and 14% of the variability in antibody levels.

Professor Kavita Vedhara, from the University's Division of Primary Care, said: "Vaccinations are an incredibly effective way of reducing the likelihood of catching infectious diseases. But their Achilles heel is that their ability to protect against disease is affected by how well an individual's immune system works. So people with less effective immune systems, such as the elderly, may find vaccines don't work as well for them as they do in the young."

We have known for many years that a number of psychological and behavioural factors such as stress, physical activity and diet influence how well the immune system works and these factors have also been shown to influence how well vaccines protect against disease.

Source: Science Daily, 26 September 2017

Research finds significantly higher rate of mental disorders among first responders

Results from Canada's first national survey looking at operational stress injuries among first responders such as police, paramedics, firefighters and 911 [000] operators suggest they are much more likely to develop a mental disorder than the general population.

The research was conducted by a group of mental health experts from across the country. It is published in the *Canadian Journal of Psychiatry*.

Of the 5,813 participants, 44.5 per cent "screened positive for clinically significant symptom clusters consistent with one or more mental disorders."

Statistics Canada has reported that the rate for the general population is 10 per cent.

The research team also found women were more likely than men to screen as positive for a mental disorder, especially among firefighters.

"It may be that women experience these kinds of careers differently than men, it may be that women are more likely to report than men. It may be that there's another variable that we have failed to identify entirely at this point that causes or explains some of the differences between men and women," said University of Regina psychology professor Nick Carleton, who led the team of researchers.

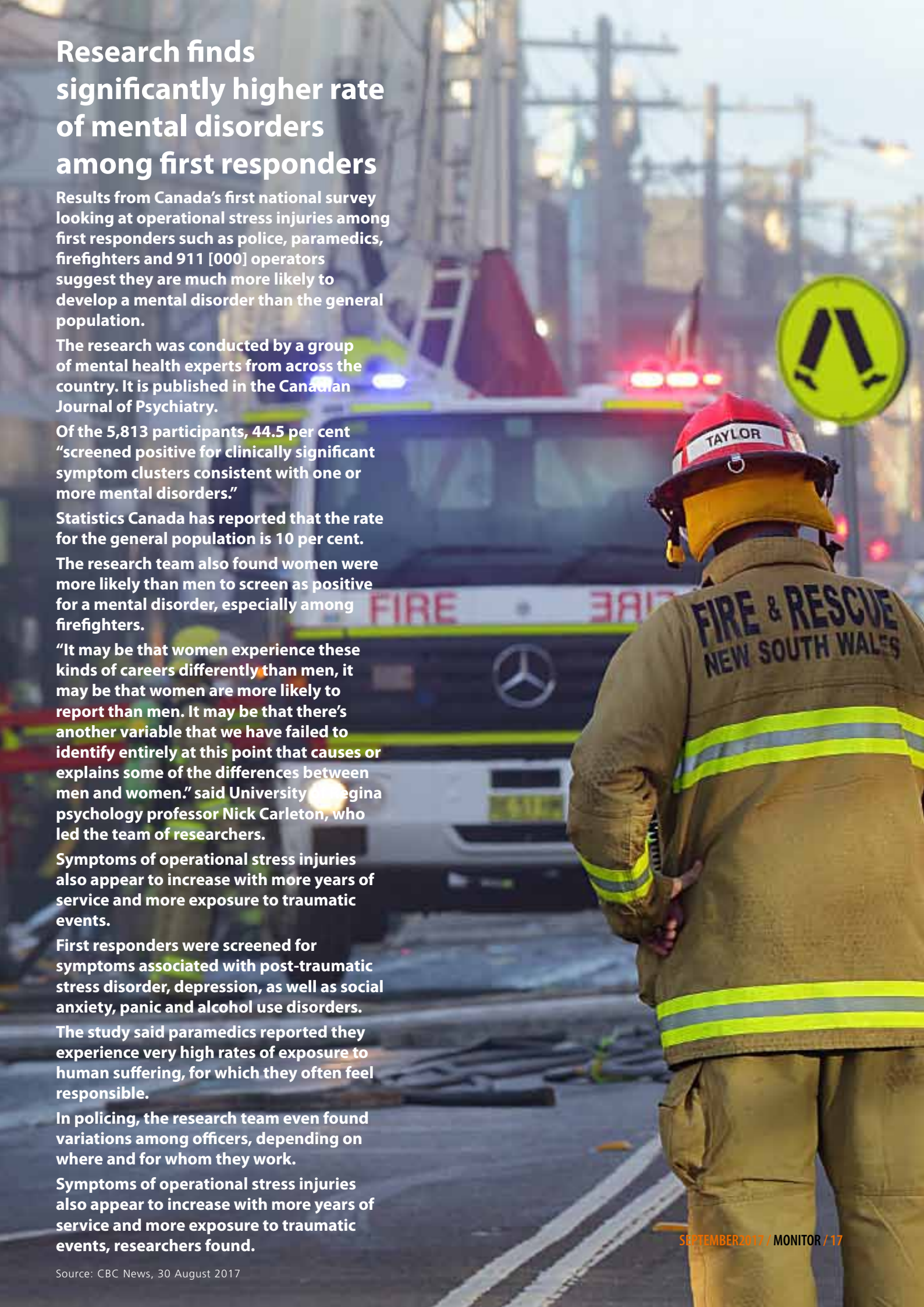
Symptoms of operational stress injuries also appear to increase with more years of service and more exposure to traumatic events.

First responders were screened for symptoms associated with post-traumatic stress disorder, depression, as well as social anxiety, panic and alcohol use disorders.

The study said paramedics reported they experience very high rates of exposure to human suffering, for which they often feel responsible.

In policing, the research team even found variations among officers, depending on where and for whom they work.

Symptoms of operational stress injuries also appear to increase with more years of service and more exposure to traumatic events, researchers found.



SLEEP / FATIGUE

Asleep on the job – the cost of inadequate sleep in Australia

A Sleep Health Foundation report by Deloitte Access Economics has provided some disturbing findings:

Four in 10 Australian adults - 7.4 million people - frequently suffered from inadequate sleep in the 2016-17 financial year. This includes:

- 1.1 million people with sleep disorders like insomnia and obstructive sleep apnea
- 2.5 million people with health problems that affect their sleep
- 3.8 million people who routinely fail to get enough sleep, often suffering side effects of sleep deprivation

The total cost of inadequate sleep in Australia was estimated to be \$66.3 billion in 2016-17 which includes \$26.2 billion in financial costs made up of health system costs, productivity losses, informal care costs and other financial costs.

The report recommends increased policy effort be devoted to:

- Conducting research on the causes of primary sleep disorders
- Encouraging prevention and early detection
- Enhancing development and implementation of cost-effective treatment for sleep problems
- Reducing smoking, obesity and other lifestyle causes of daytime sleepiness
- Raising awareness of the importance of sleep hygiene
- Improving occupational health and safety regulations that reduce circadian rhythm disruption from shift work and fatigue from excessive work hours - possibly including restrictions on driving without adequate sleep beforehand
- Ensuring building design standards increase natural light
- Promoting the benefits of switching away from blue light on screens at night

The report contains a range of important and valuable information for health professionals, particularly those who work in the occupational health field.

The report is available from https://www.sleephealthfoundation.org.au/files/Asleep_on_the_job/Asleep_on_the_Job_SHF_report-WEB_small.pdf



Muscle – not brain – may hold answers to some sleep disorders

Scientists exploring the brain for answers to certain sleep disorders may have been looking in the wrong place.

A new animal study shows that a protein in the muscle can lessen the effects of sleep loss in mice, a surprising revelation that challenges the widely accepted notion that the brain controls all aspects of sleep.

“This funding is completely unexpected and changes the ways we think sleep is controlled” said Dr Joseph S Takahashi, Chairman of Neuroscience at UT South Western Medical Center and investigator with the Howard Hughes Medical Institute.

The research, published in eLife demonstrates how a circadian clock protein in the muscle – BMAL1 – regulates the length and manner of sleep.

While the protein’s presence or absence in the brain had little effect on sleep recovery, mice with higher levels of BMAL1 in their muscles recovered from sleep deprivation more quickly. In addition, removing BMAL1 from the muscle severely disrupted normal sleep, leading to an increased need for sleep, deeper sleep, and a reduced ability to recover.

Dr Takahashi added “These studies show that factors in muscles can signal to the brain to influence sleep. If similar pathways exist in people, this would provide new drug targets for the treatment of sleep disorders.”



Source: *BioscienceTechnology News*, 12 August 2017

Dr. Joseph S. Takahashi, Chairman of Neuroscience. Credit: UT Southwestern

DIESEL

UK legal claims following exposure to diesel fumes

UK unions are warning that toxic air in the workplace is a ticking time bomb on a par with asbestos.

Royal Mail and at least one local authority are among major employers who are being sued over their alleged failure to protect staff from the damaging health effects of diesel pollution from vehicles. More cases are lined up, according to lawyers and unions involved in supporting workers.

Health and safety director for the GMB union, said: “We strongly believe it is a major problem. It needs a test case and then there will be an increase in claims. It’s almost like the early days of asbestos.”

“There are potentially lots of people who have unnecessarily suffered premature death and who may have been affected by industrial exposure. We are now with diesel in the same place we were with asbestos in the 1930s.”

Five years ago the International Agency for Research in Cancer (IARC) classified diesel engine exhaust emissions as carcinogenic to humans. That classification, combined with growing awareness over the damaging effects of diesel air pollution, the revelations in the VW emissions scandal, and research that shows some diesel cars have been emitting about six times more NOx on the road than is allowed in lab tests, has led to increasing numbers of employees considering action.

Source: *The Guardian*, 18 September 2017



HAZARDOUS MATERIALS

US politics delay chemical safety laws

The non-profit organisation WHO.WHAT.WHY, which embodies a form of investigative reporting that is rigorous, relentless and scientific, has published a report on the progress of legislation passed by the US Congress in the Obama period which gave the US EPA new tools, new authority and new responsibilities required to meet certain deadlines and address thousands of hazardous chemicals on the market in a systematic manner.

The EPA would be able to focus on high priority chemicals, those that were likely to be the greatest risk to health. If the EPA lacked enough information to gauge that risk, it had the power to ask chemical companies to disclose more data.

Importantly, Congress left many crucial decisions about the implementation of the legislation to the EPA itself.

With the election of Donald Trump, the administration of the EPA has undergone a dramatic change.

An industry insider who assumed the post after a five year stint with the powerful lobby trade group, the American Chemistry Council, has been appointed to help oversee chemical safety at the agency. The appointee is adopting positions that appear to contradict what was intended by Congress which was to assess all the ways chemicals could affect people, from the way a chemical is produced to its use, and its disposal, including the toxic by-products that get into the air, water and soil.

In June, the EPA issued final rules that will give the agency the discretion to pick and choose what conditions of use it will consider when determining the risk a chemical poses.

Robert Sussman, an environmental lawyer and consultant who was a principal policy advisor to Obama's EPA Administration notes that the Obama legislation passed after years of activist pressure, studies documenting the harm of toxic chemicals and bad publicity for the chemical industry, was pretty good law. But making the law work in the real world requires a commitment of impartiality, staying the course and going where the science leads. He concludes that in a few years we may look at the law as a failure.

Source: Chemwatch, 30 August 2017



Canadian prison staff on high alert after exposure to highly potent opiate

A highly potent opiate – Fentanyl – which is 100 times more powerful than morphine - has become a major health concern for Canadian prison staff.

While there have been no reported fatalities involving Canadian correctional officers, there have been several inmate deaths owing to fentanyl exposure.

Union of Canadian Correctional Officers (UCCO) vice-president Ryan DeBack said that the problem with fentanyl is that it's so small that it can be easily hidden or mixed in with substances.

In mid-July, several Correctional Service staff members were exposed while inspecting inmate mail. "Someone was sending fentanyl through institutional mail," Mr DeBack said. "There were drugs in one letter that was opened on a desk and, minutes later, six staff were exposed. An opioid antidote naloxone was administered to two of the workers."

UCCO national president Jason Godin said. "The problem with fentanyl is that just something the size of a grain of salt can harm you."

Staff have requested more training about how to perform certain vital tasks in the possible presence of fentanyl.

Source: TUC Risks 813, 19 August 2017



THE POISON PAPERS

Documenting the Hidden History of
Chemical and Pesticide Hazards

THE POISON PAPERS

A project called the Poison Papers makes available to the public decades of newly digitised data on the dangers of industrial chemicals – and the practices of the companies that make them.

Most of the documents – which include scientific studies and summaries of studies, internal memos and reports, meeting minutes, strategic discussions and sworn testimonies exposing the goings-on behind chemical regulation – were amassed by veteran investigative journalist Carol van Strum.

For decades, the more than 100,000 pages of these documents have been gathering dust in her barn in rural Oregon. For van Strum it was time to pass on her collection of documents, some of which relate to battles that are still being fought, so “others can take up the fight.”

The documents are hosted on the DocumentCloud, an open-source platform that allows users to upload, analyse, annotate, collaborate on and publish primary source documents.

Does a bunch of old documents really matter?

Yes, because they tell, as a matter of public record, the story of regulatory failures which have led to all of us being exposed to harmful chemicals – via our food, our water and our air – on a daily basis.

The files, for instance, cover numerous agricultural compounds, industrial chemicals and ingredients of household products, many of which are still on the market even though the studies which led to their approval have been discredited. The health fallout from that may be almost too big to measure.

But beyond the story of regulatory failure, they also highlight the lengths that regulators went to, to do the bidding of chemical companies, even at the expense of human health.

Source: *NY Natural News*, 27 July 2017



Pics: Carol Van Strum and the 'Poison Papers'



HAZARDOUS MATERIALS

Rise in asbestos imports reverses long term decline

Asbestos imports to the US nearly doubled in 2016, reversing a long-term decline, latest figures have shown.

The US Department of Commerce and the US International Trade Commission estimate that 705 metric tonnes of raw asbestos were imported last year, compared to 343 metric tonnes in 2015. The asbestos was imported from Brazil and Russia.

The only remaining user of raw asbestos in the US is the chloralkali industry, which uses it to “manufacture semipermeable asbestos diaphragms”.

Much of the surge in imports came late in 2016 following the passage of the Toxic Substances Control Act.

Lobbyists from the American Chemistry Council are now pushing, on behalf of the chloralkali industry, for an exemption from the new chemical law that would allow it to continue to import and use asbestos.

Linda Reinstein, president of the Asbestos Disease Awareness Organization said “Opponents of an asbestos ban have long argued that asbestos use is shrinking in the US, but now we know just the opposite is true. The EPA needs to ban asbestos with no exceptions. There is no safe or controlled use of asbestos in mining or manufacturing.”

Source: Cancer Hazards, 22 September 2017

Recognising the health costs of asbestos exposure

Canadian researchers have estimated the lifetime cost of newly diagnosed lung cancer and mesothelioma cases associated with occupational asbestos exposure for the year 2011, including healthcare, productivity and output and quality of life costs.

They said in the year there were 427 cases of newly diagnosed mesothelioma cases and 1,904 lung cancer cases attributable to asbestos exposure.

They estimated the economic burden at C\$831 million in direct and indirect costs for the 2,331 newly diagnosed cases and \$C1.5 billion in quality of life costs. They add that the estimate does not include other occupational diseases that are associated with asbestos exposure such as pleural plaque, several other cancers and non-occupational exposure, so the estimate is likely to be a conservative one.

Source: TUC Risks, 26 August 2017

Asbestos risk in building materials

In Canada, WorksafeBC is ramping up its direction to asbestos-abatement, demolition and general contractors to stop exposing construction workers to asbestos and to meet their legal obligation to manage asbestos safely and responsibly.

The regulatory consequences of contractors not identifying asbestos properly, not removing it safely and not following safe work procedures include stop-work orders and fines. This year to date, WorksafeBC has issued more asbestos-related stop-work orders and fines than in all of 2016 – resulting in lost hours, blown deadlines and cancelled projects.

In homes built before 1990, asbestos can potentially be found in more than 3,000 building materials. Asbestos can be released into the air when these building materials are drilled, sawed, sanded or broken up during a renovation or demolition.

There is a long latency period (10 to 40 years on average) between the time a worker breathes in asbestos fibres and when a disease can develop. In the 10 years from 2007-2016, there were 605 workers in British Columbia who died from asbestos-related diseases.

Source: Cos Magazine, 1 September 2017

New Australian study offers some hope for mesothelioma sufferers

Researchers from Sydney University’s Concord Clinical School have identified that mesothelioma sufferers’ cancerous cells were missing important nucleotides (organic molecules) called micro RNA.

This genetic information present in all normal cells, not only controls cell function but prevents cancer growth. Armed with this knowledge, the team began injecting patient’s deficient cells with micro RNA.

After four years of trials they discovered that replacing the missing micro RNA nucleotides stopped cancer growth and could reduce tumour size.

However, Professor Nico van Zandwijk the study’s principal investigator, says more clinical trials are required over at least six years before the treatment can be registered.

Currently, only 40 percent of patients respond to standard chemotherapy which adds just months to their lives.

The results were published in the latest issue of *Lancet Oncology*.

Source: OHS Repts SafetyNetJournal, 6 September 2017.



ASBESTOS: ONGOING RISK FROM HOME RENOVATIONS

While discoveries of this toxic substance near schools, homes, or high-profile landmarks make headlines, there is still far too little community awareness of the scale of the asbestos scourge and the ongoing risks it poses to millions of Australians in their own homes.

It is estimated that one in three homes built before 1985 contained asbestos.

The end result is that Australia continues to have the highest per capita rates on earth of diseases caused by asbestos exposure, including the aggressive cancer mesothelioma, asbestosis, and cancers in the lung, larynx and ovaries. While safety laws require the location of asbestos in workplaces, schools and hospitals to be recorded, with strict rules around how it is handled and removed, **there are currently no regulations covering the identification of asbestos in the residential sector.**


Few home renovators have the skills or knowledge to identify asbestos products. While some are easy to spot, like the iconic James Hardie corrugated fibro roofing used on factories, warehouses and garages, few people realise that asbestos found its way into thousands of products. Everything from tiles and linoleum to oven mitts and toasters contained asbestos.

Before 1978, there was no identification of asbestos on products. Renovations, natural weathering, or the impacts of disasters like floods and bushfires can all result in products being broken down and the deadly asbestos fibres released into the air.

Readers are reminded of the availability of the Curtin University free ACM check which offers a step-by-step guide to assessing the level of risk that your home contains asbestos (see Issue 4, Vol 21, July/August 2017 *Monitor*).

Source: Tanya Segelov, The Sydney Morning Herald, 30 August 2017

Pic: An emergency HAZMAT crew respond to dumped building material found on a Sydney suburban back street in May. Photo: TNV



US NIOSH study reveals chemical exposures of printers in the workplace

A study, published in the *Journal of Occupational and Environmental Hygiene*, measured printer emissions using a specially designed stainless steel chamber that can be set to simulate realistic office conditions in terms of temperature and humidity.

Researchers tested the most commonly used type of desktop 3-D printer, called the FDM, and two models of black and white laser printers. For the 3-D printers, the researchers printed a hair comb using one of two types of plastic filaments. The printing time for each comb was about 14 minutes.

They found that certain chemicals, known as volatile organic compounds, were significantly lower with laser printers compared to 3-D printers. At the same time, the 3-D printers emitted 14 chemicals that laser printers did not emit.

In addition, 3-D printer emissions likely combined to form other chemicals. Even after printing, 3-D printed objects emitted the chemical styrene, indicating that exposure beyond the actual process of printing may be a concern in the work place. Both the 3-D printer, using a certain type of plastic filament called ABS, and the laser printers emitted ultrafine particles that contained the toxic chemical chromium. The results of this research can help inform future studies aimed at measuring and controlling work-related exposure to 3-D printer emissions.

Source: EHS Research, 18 August 2017

Pic: Using the test chamber, above, researchers found that 3-D printers emit 14 chemicals that laser printers do not. Photo from NIOSH

Authorised pesticide products likely to contain endocrine disrupting substances listed by French Government

On 13 July, the French government published two lists of pesticides likely to contain endocrine disruptors so that citizens, farmers and professionals can, in anticipation of the practical entry into force of the European exclusion, guide their purchasing choices.

These two lists contain only the names of the commercial specialties and include about 1,000 biocides* for the first list (pesticides for domestic use from powder to wood preservative against mould) and nearly 600 phytosanitary agents (fungicides, herbicides, insecticides) for the other.

The products listed are currently authorised to be placed on the market.

* (a chemical substance or microorganism intended to destroy, deter, render harmless or exert a controlling effect on any harmful organism by chemical or biological means)

Source: Agriculture France, 13 July 2017



NIOSH ADDS NINE CHEMICALS TO SKIN NOTATION PROFILES

US NIOSH has added nine new chemical profiles to alert workers and employers to the health risks of skin exposures to chemicals in the workplace.

NIOSH director John Howard said that the profiles are meant to “inform the audience” – mostly occupational health practitioners, researchers, policy- and decision-makers, employers, and workers in potentially hazardous workplaces – **so that improved risk-management practices may be developed to better protect workers from the risks of skin contact with the chemicals of interest.**

NIOSH’s hazard identification ensures that the assigned skin notations reflect the contemporary state of scientific knowledge.

A complete list of skin profiles can be found on NIOSH’s website.

The new chemicals include:

- Arsenic and inorganic arsenic containing compounds
- Disulfoton
- Heptachlor
- 1-Bromopropane
- 2-Hydroxypropyl acrylate
- Dimethyl sulfate
- Tetraethyl lead
- Tetramethyl lead
- Trichloroethylene

Source: EHS Today, 11 September 2017



CANCERS

More evidence that light at night is linked to breast cancer

Women who live in areas with higher levels of outdoor light at night may be at higher risk for breast cancer than those living in areas with lower levels

A Harvard University large, long-term study has also found a stronger association among women who worked night shifts. The results suggest that this widespread exposure to outdoor lights during night-time hours could represent a novel risk factor for breast cancer.

The study looked at data from nearly 110,000 women enrolled in the Nurses' Health Study II from 1989 to 2013. The researchers linked data from satellite images of Earth taken at night-time to residential addresses for each study participant, and also considered the influence of night shift work. The study also factored in detailed information on a variety of health and socioeconomic factors among participants.

Women exposed to the highest levels of outdoor light at night – those in the top fifth – had an estimated 14 per cent increased risk of breast cancer during the study period, as compared with women in the bottom fifth of exposure, the researchers found. As levels of outdoor light at night increased, so did breast cancer rates.

The link was stronger among women who worked night shifts, suggesting that exposure to light at night and night shift work contribute jointly to breast cancer risk.

Source: Cancer Hazards, 30 August 2017

New research – body fat and cancer

Researchers at the University of Utah in Salt Lake City say that it appears that adipose tissue may affect cancer development in multiple ways depending on the type of fat and the location in the body.

Study author Cornelia M. Ulrich, at the Huntsman Cancer Institute at the University of Utah said in a statement: "Obesity is increasing dramatically worldwide, and is now also recognized as one of the major risk factors for cancer, with 16 different types of cancer linked to obesity. We urgently need to identify the specific mechanisms that link obesity to cancer."

Obesity increases the risk of inflammation, which has long been associated with cancer, and obesity is believed to affect cancer cell metabolism and immune clearance, all of which can contribute to the growth and spread of tumours.

For the study, Ulrich and her team, including researchers from the University of North Carolina, reviewed literature from January 1946 to March 2017 to find studies that explored crosstalk between adipose tissues and carcinomas.

"We are just beginning to unravel the ways crosstalk (the ways cells react) occurs and the substances involved. The more we understand this process, the better we can identify targets and strategies for decreasing the burden of obesity-related cancer."

Source: DD Magazine, 2 September 2017

New EU occupational cancer protection in sight after trade union pressure

Members of the European Parliament are being urged by trade unions to back an agreement, between the European Council and Parliament (and supported this week by the Parliament's Employment Committee), to give workers more and better protection against occupational cancer.

The agreement reached by the EU institutions, on the first revision of the Directive on Carcinogens and Mutagens, approves the introduction of binding occupational exposure limits (OELs) for an additional 11 cancer-causing substances including chromium (VI) compounds and crystalline silica, and goes far beyond what the European Commission originally proposed.

For instance, Member States will now have to organise lifelong health surveillance for workers exposed to carcinogens. The agreement also requires the European Commission to explore the possibility of extending the scope of the Directive to include reproductive toxicants by 2019.

The European Trade Union said that occupational cancers are the leading cause of work-related deaths: with more than 100,000 deaths every year in the EU.

Source: ETUC, 1 September 2017

Queensland government commits additional \$25 million to implement Black Lung recommendations

The Queensland Government has accepted in principle most of the recommendations of the Coal Workers' Pneumoconiosis Committee including the establishment of an independent Mine Safety and Health Authority in Mackay.

Other recommendations, provisionally accepted, include health assessments for all coal workers — removing the exception for so-called low risk tasks — and expanding the definition of coal workers to cover train loaders, port crews, and power station workers.

The Queensland Government will also invest up to \$21 million over two years, on top of an existing commitment of \$3.7 million, for the establishment of the new regulator, to improve oversight and enforcement of respirable dust monitoring, and to improve health arrangements, and workers compensation and rehabilitation for workers.

CFMEU President, Steve Smyth, said he wanted to see more detail about where the State Government's additional \$21 million was going to be spent. He asked whether the health screening would be world class and the quality of doctors screening miners assured.

The Mines Minister, Anthony Lynham, said that due to the complexity of some of the 68 recommendations, additional analysis and consultation is required to implement the recommendations.

Source: ABC Net, 20 September 2017



NANO

Nanoparticles from tattoos can travel to lymph nodes

The elements that make up the ink used for tattoos can travel inside the body in the form of micro- and nanoparticles and reach the lymph nodes, according to a study published in scientific reports.

German and French scientists have found analytical evidence of the transport of organic and inorganic pigments and toxic element impurities as well as doing an in-depth characterisation of the pigments *ex vivo* in tattooed tissues.

First author, Bernhard Hesse said: "We already knew that pigments from tattoos would travel to the lymph nodes because of visual evidence. The lymph nodes become tinted with the colour of the tattoo. It is the response of the body to clean the site of entrance of the tattoo. What we didn't know is that they do it in a nano form, which implies that they may not have the same behavior as the particles at a micro level. And that is the problem: we don't know how nanoparticles react."

The scientists report strong evidence for both migration and long-term deposition of toxic elements and tattoo pigments, as well as for conformational alterations of biomolecules that are sometimes linked to cutaneous inflammation and other adversities upon tattooing. The next step for the team is to inspect more subjects with adverse effects from tattoos in order to find links with chemical and structural properties of the pigments used to create their tattoos.

Source: *RD Magazine*, 12 September 2017

Latest EC report regarding manufactured nanomaterials

The European Commission has released "In-Depth Report 14, Assessing the environmental safety of manufactured nanomaterials" which brings together the latest science on environmental safety considerations specific to manufactured nanoscale materials and the possible implications for policy and research.

The aim of the In-Depth Report is to present the most promising strategies and most significant challenges of nanomaterial characterisations, exposure, fate and behaviour of ecotoxicological hazards and risk assessment.

It presents examples and case studies of both the scientific developments and the knowledge gaps.

The complete report is informative and well-illustrated and is available from http://ec.europa.eu/environment/integration/research/newsalert/pdf/assessing_environmental_safety_nanomaterials_IR14_en.pdf

Readers are encouraged to obtain the Executive Summary as a minimum resource.

Source: European Commission



Science for Environment Policy

IN-DEPTH REPORT 14

Assessing the environmental safety of manufactured nanomaterials

August 2017

Workers' Compensation

South African miners proceeding with silicosis class action

South African multi-national Anglo American has set aside \$101m to cover potential damages claims from former employees who contracted silicosis.

This follows the Court ruling in May that former employees could proceed with a class action.

Up to half a million former miners are expected to participate in the class action.

The miners accuse 30 subsidiaries of seven companies of knowingly and systematically failing to protect workers against the disabling and potentially fatal lung-scarring disease.

An Anglo American spokesman said that "The figure is an estimate at this stage and the company will see where the negotiations land in the months ahead."

Source: TUC Risks 812, 12 August 2017

SAFEWORK AUSTRALIA KEY WORK HEALTH AND SAFETY STATISTICS FOR AUSTRALIA 2016

	Serious Injury	
Industry of Employer	Incidence Rate*	Fatality Rate ⁺
Agriculture, Forestry, Fishing	17.5	14.0
Construction	16.0	3.2
Manufacturing	15.5	0.7
Transport, Postal, Warehousing	14.4	7.5
Wholesale Trade	12.3	0.0
Health Care and Social Assistance	10.7	0.3
Public Admin and Safety	10.2	0.7
Arts and Recreation Services	9.7	2.2
Administration and Support Services	9.2	1.8
Mining	9.2	2.7
Electricity, Gas, Water, Water Services	8.2	5.8
Accommodation and Food Services	7.4	0.0
Other Services	7.4	0.8
Retail Trade	7.3	0.3
Education and Training	6.5	0.2
Rental, Hiring and Real Estate Services	4.8	0.9
Information, Media and Telecommunications	2.5	0.5
Professional, Scientific and Technical Services	1.8	0.1
Financial and Insurance Services	1.4	0.0
	* Per 1,000 employees	⁺ Per 100,000 employees



Occupational Health Society of Australia (WA)



Membership of the Society is open to all those interested in occupational health and safety.

\$50 ordinary membership

\$20 student membership.

Simply email safety@marcsta.com with your details.

Incorporated in 1978, the Occupational Health Society of Australia (WA Branch) is a non-profit association which provides a forum for the wide range of disciplines engaged in the occupational health profession in Western Australia.

The aims of the Society are:

- to develop effective occupational health practice within Western Australia
- to encourage awareness by individuals, organisations and other bodies, of the role of occupational health
- to provide a forum for professional contact between persons interested in, and working in, occupational health
- to express an independent, professional viewpoint on all aspects of occupational health considered desirable in the public interest
- to seek the improvement or an extension of the existing legislation for the promotion of safety and health at work in order to ensure uniform principles are applied in all occupational activities.

Visit www.ohswa.marcsta.com for more information.



Occupational Health Society of Australia (WA)

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Ms Joyce Blair	Next Health Group	Mr Peter McMahon	Safety Expertise Australia
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