



## Harnessing nanoparticles to purify drinking water

Theresa Dankovich, a Postdoctoral Research Associate in Civil and Environmental Engineering at Carnegie Mellon University has invented a bactericidal silver nanoparticle paper page which has significant potential for improving health standards in Africa, for her PhD in Chemistry at McGill University in Montreal, Quebec, Canada.

Dr Dankovich invented a 'green' method to produce the silver nanoparticles, using cheap and benign chemicals and processing and showed that the resulting papers worked in the laboratory.

She uses the nanotechnology to purify drinking water in Africa. By filtering water through paper embedded with silver or copper nanoparticles, 99.9% water purity is achievable.

She calls it "The Drinkable Book". Silver nanoparticles eliminate a wide variety of micro-organisms, including bacteria and some viruses. While some silver and copper will seep from the nanoparticle coated paper, the amount is minimal, Dankovich said, and is well below limits for metals put in place by the US-EPA and the World Health Organization.

Her non-profit company, pAge Drinking Paper, works together with the non-profit WATERisLIFE, to produce a book of this nanoparticle embedded paper, which is put in a special holding device that water is then filtered through. One page can filter 26 gallons of drinking water; one book can filter a person's water needs for four years.

The pAge filters have been tested with over 25 different water sources in five countries.

For further information visit <http://pagedrinkingpaper.com/> or <https://drinkablebook.tilt.com/the-drinkable-book>

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Archived editions of the Monitor are available online at [www.marcsta.com](http://www.marcsta.com)

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# Legislative/regulatory matters

## DMP stakeholder workshops

Stakeholder workshops on specific topics in the regulations will be conducted by the Department of Mines and Petroleum from late 2015 through to early 2016.

Details of the workshops will be circulated via the DMP website and the Resources Safety news alert email service. Interested persons can register for the alert emails on the website [www.dmp.wa.gov.au/ResourcesSafety](http://www.dmp.wa.gov.au/ResourcesSafety).

The first workshop on Safety Cases is scheduled for 26 November 2015.

The second workshop on Mine Safety Management Systems is scheduled for 3 December 2015.

## Update of OHS legislation from the Ministerial Advisory Panel on Safety Legislation Reform

### Work Health and Safety Bill 2014

Still awaiting an update on the status of the Bill from the Minister for Commerce, Michael Mischin

### Work Health and Safety (Resources) Bill

The legislation is on track to go into Parliament in early 2016.

The Act is to be implemented on 1 June 2017 in conjunction with the implementation of the Globally Harmonised System of Classification and Labelling of Chemicals which specifies requirements for the classification and labelling and safety data sheets of dangerous goods and chemicals.

## The value of retaining 'enforceable undertakings' in OHS legislation

As a result of breaches of the NSW WHS Act, Caltex Australia has committed to spending more than \$500,000 on developing an all-industry mobile app for managing contractors and another initiative, after already spending \$400,000 on improving workplace safety.

**The company entered into an enforceable undertaking with SafeWork NSW, instead of prosecution, after 157,205 litres of unleaded petrol was accidentally released from a storage tank in July 2013.**

Readers of the *Monitor* will remember that the Occupational Health Society of Australia (WA) has opposed the removal of the 'enforceable undertakings' from the draft Work Health and Safety Act.

*Source: OHS Reps, SafetyNetJournal, 343, 14 October 2015*

## Health and safety laws are not a costly burden

The conclusion of European Commission funded research into the practical implementation of all of the main 24 directives on occupational safety and health in the 27 member states is being “kept under wraps”, with the EC having no intention of publishing until at least next year, says Hugh Robertson, TUC head of safety.

However he says it is possible, by a “wonderful twist of bureaucracy” to see the findings, as they have been published online alongside an opinion on the report by the EC’s own Advisory Committee on Safety at Work, which includes government, employer and union representatives.

As well as noting no significant problems or burdens arising from the regulations, the advisory committee notes “strong evidence suggests that employee representation has noticeable influence on the proportion of establishments performing risk assessments and an even more pronounced impact on other key requirements.”

The opinion also stresses the importance of enforcement and inspection, adding that in the case of stress, musculo-skeletal disorders and aging workers, new action is needed.

The report comprehensively discredited the UK Conservative Government’s repeat refrain that European health and safety laws are a costly burden.

Source: TUC Risks, 724, 17 October 2015

## Another turn-about-face with HSR rights in the NT

The Northern Territory is moving to amend its work health and safety legislation to limit union rights of entry and health and safety representatives’ powers.

In seeking public comment on proposed amendments, WorkSafe NT states “the purpose of the amendments is to reduce regulatory burden on businesses and workers where the cost of compliance with the laws has increased without any tangible benefits to health and safety.”

The amendments include removing the powers of elected representatives to direct unsafe work to cease and requiring people wishing to enter sites to assist HSRs to give 24 hours prior notice.

Unions say that there is little or no evidence that these rights are currently being abused.

Source: OHSReps SafetyNetJournal, 344, 21 October 2015

## Queensland government restores HSR and union rights

Legislation reversing the changes made by the previous coalition government to the Work Health and Safety Legislation passed through the Queensland Parliament in mid-October.

Queensland Employment and Industrial Relations Minister Curtis Pitt told Parliament that reinstating HSR powers and immediate entry rights “restores consistency with the nationally harmonised model of work health and safety laws.” He said giving trained HSRs the ability to direct that unsafe work cease is particularly important because they are better placed than other workers -particularly young workers and those from non-English speaking backgrounds - to identify workplace hazards and risks.

Source: OHSReps SafetyNetJournal, 344, 21 October 2015



## Focused health and safety workplace inspections provide usual information

WorkSafe WA reports conducting a pro-active inspection program looking at construction sites in Perth’s northern suburbs where it found a high level of compliance in induction training and licencing but identified a number of concerns with electrical safety and scaffolding issues.

Of a total 44 construction sites visited, inspectors issued 29 improvement notices and five prohibition notices. Almost half of the improvement notices issued related to electrical problems (13 notices), with another 10 notices relating to scaffolding issues.

The inspectors were encouraged to find that the **regulatory requirements** to hold White Cards and High Risk Work Licences were being met.

It would appear that focused inspection programs carried out on a regular basis to address the range of health concerns becoming increasingly evident would be beneficial. Reducing the resources available to WorkSafe – as reported in September issue of the *Monitor* – is unlikely to achieve this objective.

Source: Department of Commerce, Media Release, 18 September 2015

# SAFETY

Picture of unsafe scaffolding practice, taken by member of the UK public



## Member of the UK public reports unsafe scaffolding

A scaffolder has been given a suspended sentence after ignoring official warnings about seriously unsafe work above a busy London street.

The company was prosecuted following concerns raised by a member of the public about scaffolding in central London. The person took photographs and videos and passed them to the Health Safety Executive UK.

HSE visited the site twice and found the incomplete scaffold to be poorly erected and that unsafe work practices were putting workers at risk. **As well, no measures had been taken to prevent any falling scaffolding equipment hitting members of the public below. The company ignored a prohibition notice to stop work and other warnings. The company's involvement only ended when a second prohibition notice was served and another scaffolder appointed to complete the work.**

The scaffolder pleaded guilty to two criminal charges and was given two prison sentences of 10 weeks to run concurrently, suspended for 12 months.

Source: TUC Risks, 721, 26 September 2015

## Failure to comply with risk management principles results in double fatality

Stena Drilling Australia has pleaded guilty to charges relating to the death of two drillers in Bass Strait in August 2012.

Australia's offshore safety regulator, NOPSEMA, identified that senior management failed to carry out a new risk assessment and toolbox talk after altering the original plan of works as required in the company's management of change principles. The company conceded that senior members of the drilling crew failed to ensure that a revised risk assessment had been carried out prior to implementing the new plan.

In September the Magistrates' Court of Victoria imposed a criminal penalty of \$330,000 against Stena Drilling for their failure to implement and maintain systems of work that were safe and without risk to health as required under clause 9(2)(d) of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGGS Act).

Since the accident occurred, the penalty amounts under the OPGGS Act have been significantly increased. The maximum penalty for an operator of a facility negligently breaching their duties relating to occupational health and safety under clause 9(2)(d) of the OPGGS Act is now \$1,487,500 for a body corporate, an increase of 170% on the previous maximum penalty of \$550,000.

Source: *The Maritime Executive*, 30 August 2015 / NOPSEMA Media Release, 3 September 2015

## Weekly safety report for NSW mining industry

The NSW Department of Industry, Resources and Energy will now be publishing a reportable incidents summary for mine safety **every week** which will show the total weekly:

- Level 1 to 3 incidents
- Injuries
- High potential incidents
- Fatalities

Incidents are categorised as level one, two or three according to the seriousness of the incident, with three being the most serious.

The new weekly summary has been developed to help the NSW mining industry identify the types of health and safety incidents that are occurring within the industry and to improve their risk management.

*Source: NSW Department of Industry News Release, 16 September 2015*

## Mines safety bulletins

The Department of Mines and Petroleum WA's most recent Mines Safety Bulletins are available on

- Compliance requirements for batch-type pneumatic filter presses used
- Inspection and re-certification of a roll-over or falling-object protective structure
- Maintaining the effectiveness of water-mist fire suppression systems on mobile plant

They are well-written and easy to follow.

All safety bulletins can be found at <https://srs.dmp.wa.gov.au/SRS/Public/PublicationSearch?publicationTypeEnum=SafetyBulletin>

## Company director sentenced to home detention for serious safety breaches

A New Zealand company director has been sentenced to four month's home detention and his company fined \$60,000 following a WorkSafe NZ submission that this level of recklessness was extraordinary and required a proportionate level of deterrence for others.

The defendant was driving a vehicle carrying a transportable house which came into contact with live overhead power lines. An employee climbed onto the roof and used a wooden stick to move the live power line into a ditch on the side of the road. A local farmer waited for the convoy to clear the road before moving his sheep out of a nearby paddock.

Seven of his sheep and two of his dogs were electrocuted as they walked into the nearby ditch. The farmer himself narrowly avoided electrocution and was the one who later alerted authorities.

Relevant safety failures in the judgment:

- It would have been clear to anyone that the power lines were live and uninsulated.
- The defendant was standing next to the employee who moved the power line and failed to instruct or prevent him from doing so.
- None of the employees were wearing any safety equipment that could have protected them from electrocution.
- No notification was made to the authorities in relation to what had occurred.

*Source: Safety Soapbox, 15 October 2015*





# AIR POLLUTION

## WHO urges global measures to cut black carbon

The World Health Organization, in a report titled *Reducing Global Health Risks Through Mitigation of Short-Lived Climate Pollutants*, says that short-lived climate pollutants (SLCPs), including black carbon, methane and ozone are responsible for a substantial fraction of climate change, as well as for a significant proportion of air pollution related deaths and diseases that kill some seven million people per year.

Reducing emissions of SLCPs which produce strong warming effects but only persist in the atmosphere for periods ranging from days to about a decade, can provide health benefits in three key ways:

- directly from reduced air pollution and related ill-health;
- indirectly from reduced ozone and black carbon effects on extreme weather and agricultural production (affecting food security); and
- from other types of health benefits that are not associated with air pollution but may accrue as a result of certain SLCP mitigation actions.

The report can be downloaded from [www.who.int](http://www.who.int)

Source: *Air Quality News*, 23 October 2015

## The contribution of outdoor air pollution sources to mortality on a global scale

Scientists in Germany, Cyprus, Saudi Arabia and Harvard University have calculated the most detailed estimates yet of the toll of air pollution, looking at what causes it. Their study also projects that if trends don't change, the yearly death total will double to about 6.6 million a year by 2050.

Air pollution is currently killing 3.3 million annually worldwide with farming playing a large role in smog and soot deaths in industrial nations.

About three quarters of the deaths are from strokes and heart attacks.

The problem with farms is ammonia from fertiliser and animal waste. The ammonia combines with sulfates from coal-fired power plants and nitrates from car exhaust to form the soot particles that are the big air pollution killers.

Lead author Jos Lelieveld from the Max Planck Institute for Chemistry in Germany said that in London, for example, the pollution from traffic takes time to be converted into soot, and then it is mixed with ammonia and transported downwind to the next city.

He added that if the world reduces a different pollutant – carbon dioxide – the main gas causing global warming – soot and smog levels will be reduced as well, in a win/win situation in both directions.

Source: *Environmental Expert*, 16 September 2015

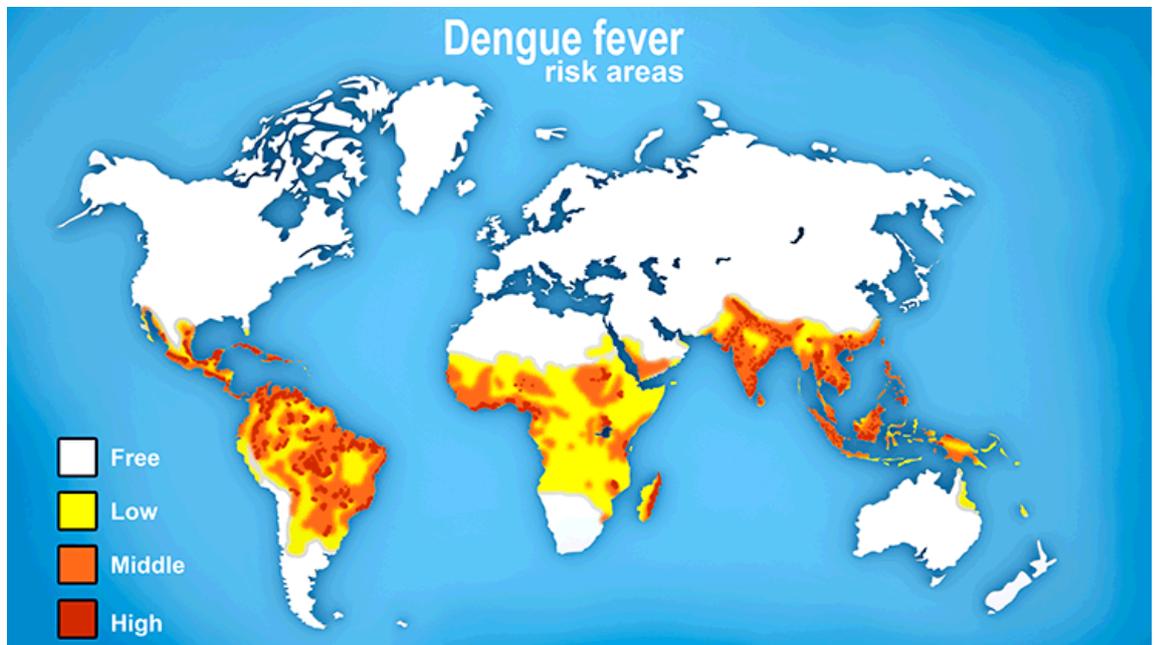
# HEALTH - PHYSICAL

## Mobile phone records can predict dengue epidemics

**More people around the world are becoming vulnerable to the deadly Dengue virus as climate change expands the range of the mosquito that transmits dengue and infected travellers spread the disease across borders.**

Researchers from Harvard's T H Chan School of Public Health analysed data from a large dengue outbreak in Pakistan in 2013 and compared it to a transmission model they developed based on climate information and mobility data gleaned from call records. Data from nearly 40 million mobile phone subscribers was processed in collaboration with Telenor Research and Telenor Pakistan, with the call records being aggregated and anonymised before analysis.

**The results showed that the in-country mobility patterns revealed by the call records could be used to accurately predict the geographical spread and timing of outbreaks in locations of recent epidemics and emerging trouble spots.**



Dengue virus is the most rapidly spreading mosquito-borne disease worldwide. Infection can lead to sudden high fever, bleeding and shock and causes significant mortality.

*Source: Drug Discovery and Development, 8 September 2015*

## Diabetes linked to bone health

Diabetes can cause serious health complications, including heart disease, blindness, kidney failure and lower-extremity amputations. A lesser-known but equally grave complication is the effect on bone health.

The findings of a study by the University of Delaware, reported in the July edition of the journal *Bone*, has demonstrated that exercise-induced bone formation was maintained in mildly diabetic mice at a similar level to non-diabetic controls, while the positive effects of exercise were nearly abolished in severely diabetic mice.

Researcher Liyun Wang commented "Our work demonstrates that diabetic bone can respond to exercise when the hyperglycaemia is not severe, which suggests that mechanical intervention may be useful to improve bone health and reduce fracture risk in mildly affected diabetic patients. Coming at it from the other side, our results stress the importance of maintaining good control of blood sugar in diabetic patients so that exercise can do its work in maintaining bone health."

*Source: Chemwatch, September 2015*

## Disease fact sheets

The Australian Institute of Health and Welfare has released four new cardiovascular disease fact sheets.

- Prevalence of coronary heart disease in Western Australia
- Prevalence of heart failure in Western Australia
- Prevalence of stroke in Western Australia
- Prevalence of valvular heart disease in Western Australia

They are available for download at the AIHW website.

*Source: AIHW.*

## Long working hours – the risk of stroke and coronary disease

People who work at least 55 hours a week are significantly more likely to eventually suffer a stroke than people who work 35 to 40 hours a week, according to a study published in the *Lancet* in August.

The researchers pooled the data from 25 studies in Europe, the US and Australia that tracked more than 600,000 workers for an average of seven to eight years. Participants had no history of stroke or coronary heart disease when they enrolled in the studies.

As working hours got longer, stroke risk increased, the researchers found. Working at least 55 hours per week increased stroke risk by 33% compared to working a standard full time job 40 hours a week, even when age, sex and socio-economic status were accounted for.

There was also an increase in heart disease risk, but the association was weaker and the risk was smaller.

Source: *European Trade Union News*, 17 September 2015

## Diet is critical to brain development and function

In a first-of-its-kind study conducted by Australian scientists, diet has been identified as critically important to mental as well as physical health throughout life for humans.

In a cohort study of community-based older adults, lower intakes of nutrient-dense foods and higher intakes of unhealthy foods were each independently associated with smaller left hippocampal volumes.

The hippocampus is a brain structure associated with both learning and memory as well as mood regulation and is specifically implicated in depression. Reduced hippocampus size has been shown to correlate to depression and related brain disorders.

The findings suggest the potential for dietary intervention to promote hippocampal health, decrease age-related atrophy and prevent negative health outcomes associated with hippocampal atrophy.

Lead researcher, Felice Jacka, says that the study sheds light on at least one of the pathways by which eating an unhealthy diet may influence the risk for dementia, cognitive decline and mental disorders such as depression and anxiety in older people.

Source: *Bioscience Technology*, 14 September 2015

## Have we discovered a key to improve our health and live longer?

New research led by University of California scientists may produce a new way to understand why some people remain healthy into their 80's and beyond, while others age faster and suffer serious diseases earlier.

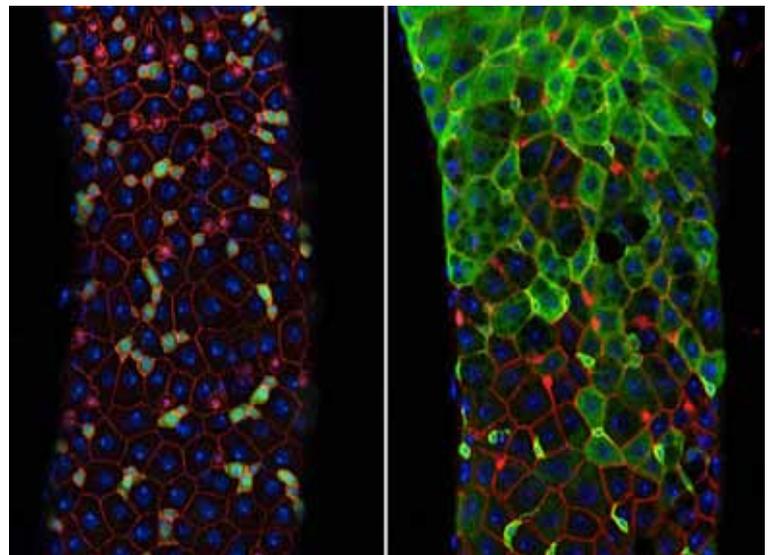
Specifically, the study suggests that analysing intestinal bacteria could be a promising way to predict health outcomes as we age.

The study used fruit flies because, although their typical lifespan is just eight weeks, some live to the age equivalent of humans' 80's and 90's, while others age and die much younger. In addition, scientists have identified all of the fruit fly's genes and know how to switch individual ones on and off.

The biologists also showed that reducing bacterial levels in old flies can significantly prolong their life span.

David Walker, the senior author, said "when we prevented changes in the intestinal microbiota that were linked to the flies' imminent death by feeding them antibiotics, we dramatically extended their lives and improved their health."

Walker said that the study could lead to realistic ways for scientists to intervene in the aging process and delay the onset of Parkinson's disease, cancer, stroke, cardiovascular disease, diabetes and other diseases of aging – although such programs could take many years.



*Pic: In young fruit flies (left), the intestinal tissues are highly organized, as shown by the even distribution of different cell types, each represented by a different colour. As flies age, this order breaks down, caused by unregulated stem cell activity and inability to form cells with specialised functions. The Salk scientists and their collaborators discovered that activating the fruit fly version of the PCG-1 gene delayed this aging process, while simultaneously extending lifespan. Pic credit: Courtesy of Salk Institute for Biological Studies*

Source: *Bioscience Technology*, 11 September 2015

# More frequent hand-washing reduces infections

A web-based programme encouraging people to wash their hands more frequently could reduce the risk of catching and passing on infections, suggest researchers who tested it on around 16,000 households in the UK during the winter flu season.

They found a 14% reduction in general risk of infection and a 20% lower risk of catching flu in those who used it. This group also visited their GP less and needed fewer antibiotics.

Most people wash their hands five or six times a day, but Professor Paul Little from the University of Southampton, who led the research, said that **if that could be increased to 10 times a day it would have an important effect on reducing the spread of viruses and infections.**

The programme, called PRIMIT, has four weekly sessions, which explains the medical evidence behind regular hand-washing. It encourages users to learn simple techniques to avoid catching and passing on viruses and to monitor their own hand-washing behaviour.

Source: *Chemwatch*, September 2015



# Can an internal sensor fight obesity?

In Melbourne at the Walter and Eliza Hall Institute researchers have identified an internal 'sensor' that helps fight obesity by instructing cells to burn their fat stores. The finding could play a major role in the fight against obesity and metabolic diseases, including type 2 diabetes.

In the study, researchers showed a protein called NLRP1 is switched on when increasing dietary energy (food) intake triggers the cell to become 'unstable'. Activating the protein sets off a chain of events that instructs cells to use up their energy or fat stores to prevent excess fat accumulating.

The research, led by Dr Seth Masters and Dr Andrew Murphy and Dr Michael Kraakman from the Baker IDI Heart and Diabetes Institute, with obesity expert Mark Febbraio from the Garvan Institute, was published in the journal *Cell Metabolism*.

Dr Murphy said that "this study provides compelling evidence that the immune system is activated not only during infection, but also in response to the loss of metabolic 'equilibrium' associated with a high-energy diet."

Source: *ScienceDaily*, 22 October 2015



Above: Researchers from the Walter and Eliza Hall Institute. (L-R) Mr Man Lee, Dr Andrew Murphy, Dr Helene Kammoun, Ms Dragana Dragoljevic, and Dr Seth Masters.

# AT AGE 50 EACH BMI UNIT INCREASE HASTENS ALZHEIMER'S

A new study has found a robust relationship between obesity at age 50 – as measured by body mass index (BMI) – and both earlier age and severity of Alzheimer's disease (AD).

In particular, a National Institute of Aging (NIA) team found that each unit increase in midlife BMI predicts earlier age onset of AD by 6.7 months.

Kaarin Anstey, director of the Australian National University Dementia Collaborative Research Centre, said "this paper reports analysis of a very well characterised cohort to identify how midlife obesity influences risk of late-life dementia. Importantly, the authors showed that high BMI in midlife predicted age of onset of dementia. This is a novel finding – before this article, we knew that high BMI increased the overall risk of dementia, but we did not know that it also meant that people would develop the disease at a younger age.

The study was conducted by the US National Institute of Aging team which looked at a Baltimore Longitudinal Study on Aging data on 1,394 cognitively healthy people who underwent neuro psychological assessments on average every two years for some 14 years.

Source: Bioscience Technology, 4 September 2015

## New treatment for obesity developed

Researchers at the University of Liverpool, working with a global health care company, have helped develop a new treatment for obesity.

The treatment, which is a once-daily injectable derivative of a metabolic hormone called GLP.1 conventionally used in the treatment of type 2 diabetes, has proved successful in helping now-diabetic obese patients lose weight.

The drug has been approved in the European Union but has not yet launched in the UK.

Source: Drug Discovery and Development, 8 October 2015

# RESEARCH ON TELOMERASE COULD LEAD TO NEW STRATEGIES FOR TREATING DISEASE

An enzyme called Telomerase plays a significant role in aging and most cancers but until recently many aspects of the enzyme's structure could not be clearly seen.

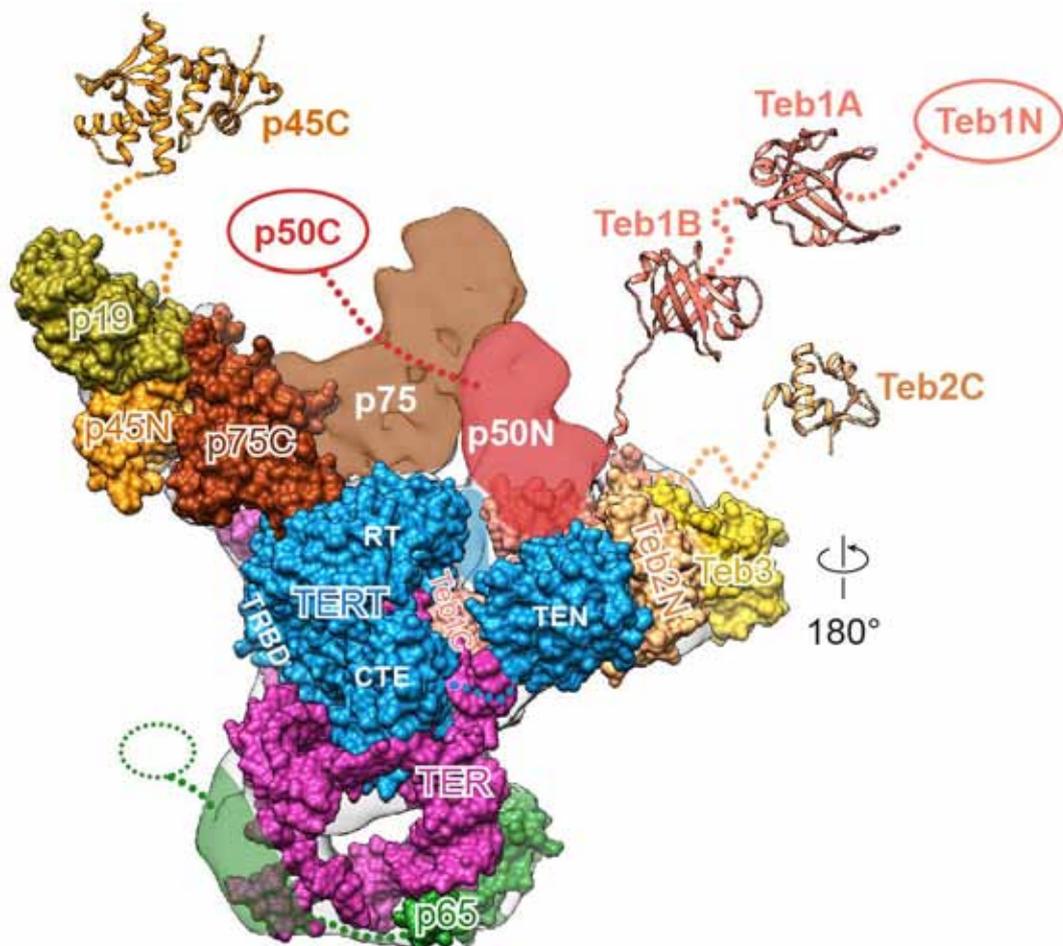
Now, scientists from UCLA and UC Berkeley have produced images of telomerase in much higher resolution than ever before, giving them major new insights about the enzyme. Their findings published online by the journal *Science* (15 October 2015) could ultimately lead to new directions for treating cancer and prevent premature aging.

Telomerase's primary job is to maintain the DNA in telomeres, the structures at the ends of our chromosomes that act like the plastic tips at the ends of shoelaces. When telomerase isn't active, each time our cells divide, the telomeres get shorter. When that happens, the telomeres eventually become so short that the cells stop dividing or die.

Telomerase is particularly active in cancer cells, which helps make them immortal and enables cancer to grow and spread. Scientists believe that controlling the length of telomeres in cancer cells could be a way to prevent them from multiplying.

Senior author of the study, Juli Feigon, and her colleagues are working to fill in even more details of the telomerase puzzle. Their research could lead to the development of pharmaceuticals that target specific sub-units of telomerase and disrupt interactions between proteins.

"There is so much potential for treating disease if we understand deeply how telomerase works," Feigon said.



Pic: Sub-units of telomerase. Credit UCLA department of chemistry and biochemistry.

**“ There is so much potential for treating disease if we understand deeply how telomerase works.”**

## Working while sick is on the increase

New research has found long hours and a focus on operational demands over employee well-being is fuelling an increase in the numbers working while sick.

In the UK a survey of 600 employees conducted by CIPD People Management has found that 31% of them had seen an increase in presenteeism in the last 12 months. **It also showed that presenteeism was more likely to have increased when there was a culture in which working long hours was seen to be the norm, and where operational demands took precedence over employee well-being.**

Employers that had noticed an increase in presenteeism were nearly twice as likely as those that hadn't to report an increase in stress-related absence and more than twice as likely to report an increase in mental health problems amongst their staff.

Head of public policy at CIPD said "the message to businesses is clear; if you want your workforce to work well, you have to take steps to keep them well, and this means putting employee health above operational demands."

Source: *TUC Risks*, 724, 17 October 2015



## Is there a bio-marker for premature death

A single blood test could reveal whether an otherwise healthy person is unusually likely to die of pneumonia or sepsis within the next 14 years. Based on an analysis of 10,000 individuals, researchers have identified a molecular by-product of inflammation called GlycA, which seems to predict premature death due to infections.

The findings of researchers at the University of Melbourne and published in *Cell Systems* on 22 October suggest that high GlycA levels in the blood indicate a state of chronic inflammation that may arise from low-level chronic infection or an overactive immune response. That inflammation damages the body, which likely renders individuals more susceptible to severe infections.

The researchers note that additional studies are needed to uncover the mechanisms involved in GlycA's link to inflammation and premature death and whether testing for GlycA levels in the clinic might someday be warranted.

Source: *ScienceDaily*, 22 October 2015

# HEALTH - PSYCHOLOGICAL



## Major reform agenda should address mental health

Leading economists have called on the federal government to embrace mental health as its next major reform agenda, warning it is costing the economy more than \$60b each year and 12 million working days in reduced productivity.

They have backed calls for a road-safety-type campaign to target smoking, alcohol, exercise, obesity, diet and family violence, claiming that improvements to the system would dwarf gains from tax or microeconomic reform.

The chairman of the National Mental Health Commission, Allan Fels, said that much of the federal government's \$10b spending on mental health and suicide prevention was being wasted on "downstream programmes" that were "neither effective or efficient".

*Source: The Australian Financial Review, 25 August 2015*

## Could depression be a physical disease?

Researchers from the University of Michigan Medical School and the Pritzker Neuropsychiatric Disorders Research Consortium have discovered that people with major depression had 32% more of a protein called fibroblast growth factor 9 (or FGF9) in a key part of their brain than people without the condition. The discovery goes against previous findings that depressed brains often have less of key components than non-depressed brains.

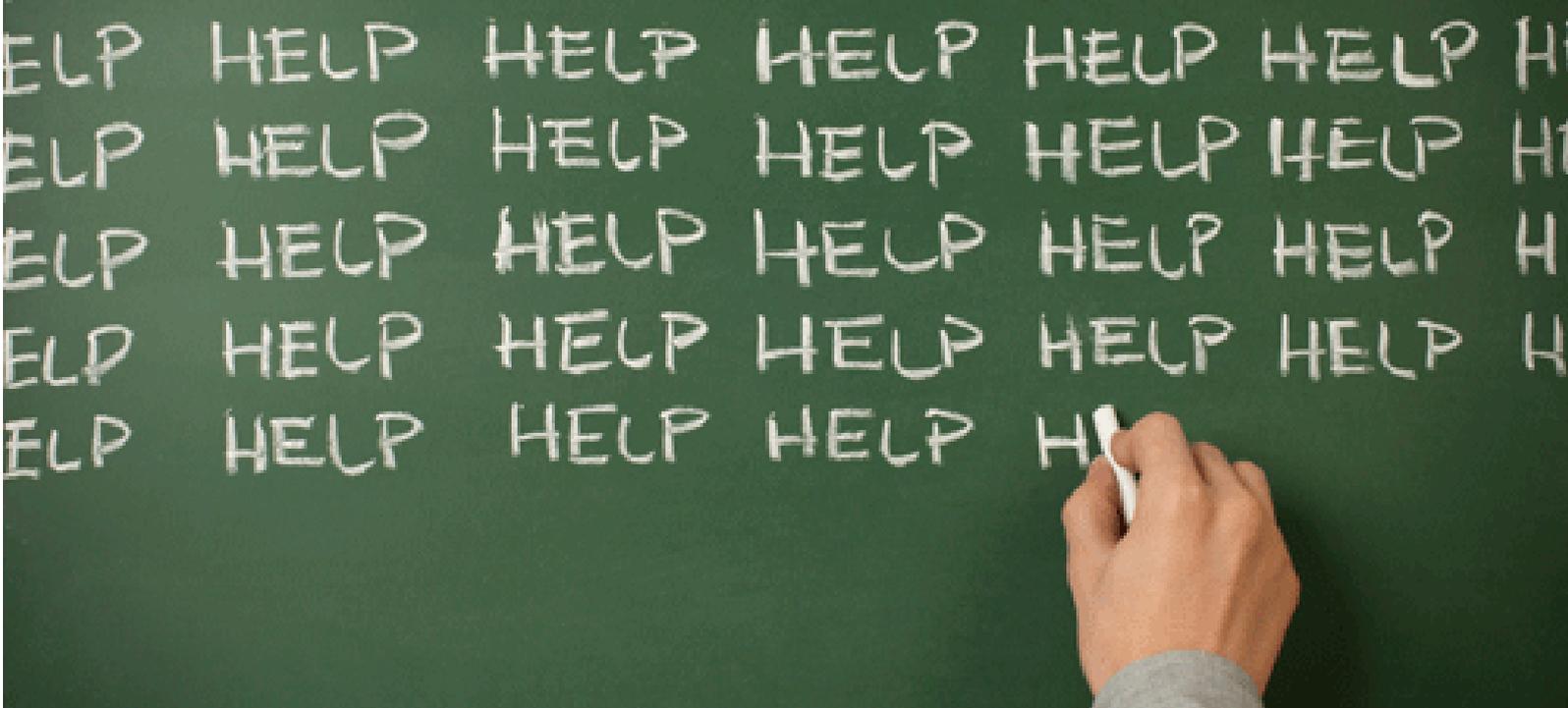
**In rats, raising FGF9 levels artificially led to depression-like behaviour changes and repeated social stress caused brain FGF9 levels to rise.**

**Taken together, the findings provide more evidence that depression is a physical illness. If FGF9 or its effects prove to be a good target for drugs, the findings could eventually help lead to better medications for the mental health condition that affects millions of people.**

**Fibroblast growth factors are molecules involved in cell groups and maintenance in the brain, and in other areas of the body.**

**The researchers are already performing more experiments to determine why FGF9 production rises, as well as to study it in other brain regions and to see how it affects communication among brain cells.**

*Source: ScienceDaily, 8 September 2015*



## Nearly half of Welsh teachers “think of quitting”

Half of the teachers surveyed in Wales say they are considering leaving the job in the next two years.

The main reasons were unreasonable demands from managers, workload and seeking a better work-life balance.

Many teachers also raised concerns about their mental and physical health as the reason for considering their future.

The survey also found budget cuts have led to fewer support staff, fewer courses on offer in the curriculum and a reduction in activities such as school trips.

*Source: TUC Risks, 721, September 2015*

## More evidence of the increasing stress placed on school teachers

NSW teachers from Hunter and the Central Coast appear to be feeling the psychological strain, claiming workers' compensation over the past 18 months amounting to millions of dollars.

Data shows that last calendar year 60 workers' compensation claims were lodged at a cost of \$3.8 million.

The Teachers' Federation says the data highlights the stress teachers are under. Spokesman Jack Galvin-Waight says he is worried workloads are increasing due to cutbacks to regional and head office support resources.

*Source: ABC News, 1 September 2015*

## Mental health services in Canada have similarities to those in Australia

A survey by the Mood Disorders Society of Canada has found that the Canadian health-care system continues to critically under-perform for individuals with mental illness.

The Associate National Executive Director of the Society said “what has been made abundantly clear by respondents is that significant gaps and shortages in community mental health care continue to be ignored and dedicated investments in mental health services remain a strong priority for Canadians”.

Of great concern, said the Society, is the finding that **one-third of those with an undiagnosed mental illness ignored their condition or self-medicated.**

Coping strategies for those dealing with an undiagnosed mental illness varied across age groups. Specifically, younger individuals were more likely to ignore/deny existence of their mental illness, whilst middle-aged individuals were more likely to self-medicate and older individuals more likely to rely on friends and family for support. These findings suggest a need for greater access to support services, particularly for youth who are more inclined to engage in maladaptive behaviours to manage undiagnosed mental illness.

*Source: Cos Mag, 2 September 2015*

# SLEEP/FATIGUE



## Light from smart phones/ tablets may lower sleep hormones in children

New research offers a compelling reason for parents to ban smartphones, tablets and laptops in their children's bedrooms at night. The bright light of these devices may lower levels of melatonin, a hormone that prompts sleep.

The effect was more pronounced for children just entering puberty with night-time melatonin levels suppressed by up to 37% in some cases, the investigators found.

Study co-author Mary Carskadon from Brown University said "The message is that we really have to be careful about protecting our especially-young teens from light at night, which means parents need to get all screens out of the bedroom, because ultimately they can be quite damaging to a child's capacity to get enough sleep."

The study did not prove that bright light before bedtime causes adolescents to get less sleep.

Carskadon said "we cannot say we found a sleep disturbance. But what we did find was that young children exposed to light at bedtime saw their melatonin production suppressed. And this could cause sleep rhythms to be affected in a way that causes children to stay up later, which is exactly what adolescents need not to be doing."

Source: *MedicineNet*, 2 September 2015

## More evidence of the health consequences of inadequate sleep

A new study led by a University of California, San Francisco, sleep researcher supports what parents have been saying for centuries: to avoid getting sick, be sure to get enough sleep.

The team, which included researchers at Carnegie Mellon University and the University of Pittsburgh Medical Center found that people who sleep six hours a night or less are four times more likely to catch a cold when exposed to the virus, compared to those who spend more than seven hours a night in slumberland.

The findings add to the growing evidence of the importance of sleep for our health, said the lead author Aric Prather, assistant professor of psychiatry.

Scientists have long known that sleep is important to health, with poor sleep linked to chronic illnesses, disease susceptibility and even premature death.

Prather added "in our busy culture, there's still a fair amount of pride about not having to sleep and getting a lot of work done." **We need more studies like this to begin to drive home that sleep is a critical contributor to our wellbeing.**

Source: *ScienceDaily*, 31 August 2015

## Study on rewarded learning and napping

A new study by the University of Geneva reveals that memories associated with a reward are preferentially reinforced by sleep. Even a short nap after a period of learning is beneficial.

Thirty-one healthy volunteers were randomly assigned to either a sleep group or a 'wake' group and the sensitivity of both groups to reward was assessed as being equal. Participants' brains were scanned while they were trained to remember pairs of pictures. Eight series of pictures were shown and volunteers were told that remembering pairs in four of them would elicit a higher reward.

Following a 90-minute break of either sleep or rest, they were tested on their memory for the pairs and asked to rate how confident they were about giving a correct answer. Participants were also asked to take part in a surprise test of exactly the same nature three months later.

Both groups' performance was better for highly rewarded picture pairs, but the sleep group performed better overall. Strikingly, during the surprise test three months later participants who had slept after learning were selectively better for the highly rewarded pairs.

The people who slept were also more confident of achieving a correct answer during the memory tests, even after three months.

Lead researcher, Dr Kinga Igloi, says that "rewards may aid as a kind of tag, sealing information in the brain during learning. During sleep, that information is favourably consolidated over information associated with a low reward and is transferred to areas of the brain associated with long-term memory."

She adds that the findings are relevant for understanding the devastating effects that lack of sleep can have on achievement.

*Source: ScienceDaily, 16 October 2015*

## New insights into REM sleep crack an enduring mystery

REM sleep -- the phase of night-time mammalian sleep physiology where dreams occur -- has long fascinated scientists, clinicians, philosophers, and artists alike, but the identity of the neurons that control REM sleep, and its function in sleep have been controversial due to a lack of precise genetic methods to study the sleeping brain. Now, in a remarkable demonstration of a recent brain technology, neuroscientists provide the first answers to both questions, identifying a neural circuit in the brain that regulates REM sleep, and showing that REM sleep controls the physiology of the other major sleep phase, called non-REM (NREM) sleep.

The findings have implications for how and why sleep in mammals evolved to its current two-phase structure. It is known that novel experiences during wakefulness are stored in the brain during subsequent NREM sleep, and that slow waves play an important role in this process. Based on the current study, REM sleep also contributes to this process, because the generation of slow waves during NREM sleep relies on REM sleep. The authors plan to continue using brain research technologies being developed by neuroscientists to try to determine the actual evolutionary role of REM sleep in mammals and find the answers to other mysteries. Among these, they caution that laboratory mice do not have measurable dreams, although they can replay sequences of activity from the prior waking day in NREM. The relationship between REM sleep and the replay of experience in NREM is a future area of interest.

*Source: ScienceDaily, 22 October 2015*

## It's not just the quantity of sleep but also the quality

In another study by Washington State University, researchers found that the timing of an animal's sleep can be just as important as how much it gets.

The study is a rare look into the circadian process, a brain-driven clock that controls the rhythms of various biological processes, from digestion to blood pressure, heart rate to waking and sleeping. **The cycle is found in most everything that lives more than 24 hours, including plants and single-celled organisms.**

The researchers used mice whose body clocks run at about 24 hours and housed them in a shorter 20-hour day. This forced their biological clocks out-of-sync with the light-dark cycle. After four weeks they infected the mice with a molecule found in bacteria that can make an animal sick without being contagious.

**The researchers saw that the disrupted animals had blunted immune responses in some cases or an overactive response in others, suggesting the altered circadian cycle made them potentially less able to fight illness and more likely to get sick.**

Lead researcher, Ilija Karatsorios, said that "this represents a very clear dysregulation of the system which is not responding in the optimal manner. Over time, this could have serious consequences for an organism's health."

To his surprise, the mice in the 20 hour cycle were getting the same amount of sleep as they did on the 24 hours cycle. **But the sleep wasn't as good.** The mice woke more often and the pattern of electrical activity in their brains related to restorative sleep was greatly reduced.

*Source: Bioscience Technology, 2 September 2015*

# NOISE

## Can a drug prevent hearing loss?

An experimental drug trial is underway at a military base in South Carolina to find a way to help military members dealing with noise-induced hearing damage as a result of constantly firing loud weapons.

Southern Illinois University School of Medicine professor and audiologist Kathleen C.M. Campbell has developed a liquid micro-nutrient called d-methionine\* in a randomised Food and Drug Administration study which works as follows:

A soldier undergoes a hearing test.

He/she is monitored for 18 days especially during time spent at the firing range. The soldier drinks either a liquid filled with the drug or a placebo through this time period.

At the end of this phase, soldiers take another hearing test to evaluate their ability to detect varying tone frequencies along with gauging potential changes in their hearing thresholds.

The trial began in late 2013 and is spread over three years, designed to enrol up to 600 subjects.

\* Methionine is an amino acid that is typically found in meat, fish and dairy products.

*Below: Juan Ospina, a soldier at Fort Jackson, S.C., swallows a liquid in the clinical trial of an experimental drug to prevent hearing loss, conducted among soldiers who repeatedly fire a loud weapon during their training.*

*Source: Bioscience Technology, 2 September 2015. Pics Courtesy Andy McMillan, Wall Street Journal*





# SCIENTISTS IDENTIFY PROTEINS CRUCIAL TO LOSS OF HEARING

Almost 40m Americans suffer from hearing loss and there is, right now, no way to reverse this condition; largely because auditory hair cells, which sense sound and relay that information to the brain, do not regenerate.

A new study at the University of Maryland School of Medicine has found a key clue to how these hair cells develop. It identified a new role for a particular group of proteins, known as RFX transcription factors, in the development and survival of the hair cells.

Principal investigator, Ronna P Hertzano said that “this discovery opens up new avenues, not only for understanding the genetics of hearing, but also, eventually for treating deafness.”

Although the experiments were done in mice, Hertzano says that it is likely that the genes in hair cells work similarly in humans. Eventually, she says, it might be possible to use our increased understanding of RFX transcription factor to treat hearing loss, by either protecting hair cells from death or fostering their growth. In addition, she and her colleagues think that they will be able to identify other genes that have an important role in the hair cell function.

*Source: Drug Discovery and Development, 15 October 2015*

## Strong association found between bilateral high-frequency hearing loss and coronary heart disease

The association between bilateral high-frequency hearing loss and the presence of coronary heart disease (CHD) has been investigated by researchers at the University of Kentucky College of Public Health. They studied 5,223 participants, aged 20-69 years, who participated in the audiometry examination of the National Health and Nutrition Examination Survey 1999-2004.

Compared with those with normal high-frequency hearing, participants with bilateral high-frequency loss were more likely to have coronary heart disease **with the association particularly strong for currently employed workers who were exposed to loud occupational noise**. For this sub-group, there was no significant association of CHD with unilateral high-frequency hearing loss and unilateral or bilateral low-frequency hearing loss. Furthermore, there was no significant association of CHD with any types of hearing loss for participants who were not exposed to loud noise.

Researchers concluded that on basis of an objective indicator for personal chronic exposure to loud noise the study confirmed that exposure to loud occupational noise is associated with the presence of CHD.

*Source: OHS Reps, SafetyNetJournal, 30 September 2015*

# HAZARDOUS MATERIALS

## More evidence of Roundup's link to kidney and liver damage

Long-term exposure to tiny amounts of Roundup, thousands of times lower than what is permitted in US drinking water, may lead to serious problems in the liver and kidneys according to a new study.

The study looked at the function of genes in these organs and bolsters a controversial 2012 study that found rats exposed to small amounts of the herbicide Roundup in their drinking water had liver and kidney damage.

The findings, while in rats, are concerning for people. These tests are the kind used to test what chemicals may do to humans, said senior author Michael Antoniou, head of the Gene Expression and Therapy Group of Kings College, London, which is concerning given glyphosate's widespread use. "Normally when you see the negative effects in these rats from a chemical treatment, then you get very worried," he said. And normally you would consider whether to approve the use of the chemical, or not.

Readers of the *Monitor* will recall the article in the February 2015 edition (p18) which reported that over the past two decades more than 20,000 farm workers in Western Nicaragua and El Salvador – mostly men and many of them in their 20's and 30's – have died of a mysterious form of kidney failure. Sugar cane workers blamed their kidney failure on agricultural chemicals.

Source: *Chemwatch Bulletin*, October 2015

Pic: Workers harvest sugar cane in Chichigalpa, Nicaragua.

Source: NPR News



## Safe Work Australia - express your views about workplace chemical exposure standards

Safe Work Australia is inviting interested parties to express their views about workplace exposure standards for hazardous chemicals in a public consultation process that will be open for a period of six weeks from 9 November 2015 until 18 December 2015.

The agency would particularly like to hear views about:

- how exposure standards are currently used
- the impacts of compliance for business and workers
- the role of exposure standards in the regulatory framework; and
- how Australia's exposure standards can be reviewed and maintained in a timely and efficient way.

A Discussion Paper is available on Safe Work Australia's website <https://submissions.swa.gov.au/SWAforms/wes/pages/form>.

# Mesothelioma incidence rising in the ACT

An Australian National University investigation into the toxic legacy of Mr Fluffy has found mesothelioma cases have increased in Canberra over the past three decades.

Mr Fluffy refers to widespread asbestos contamination that occurred in the suburbs of Canberra during the 1960-70s. Two companies, referred to collectively as Mr Fluffy (a nickname coined in the 1990s), imported and installed fibrous, loose-fill amphibole asbestos as an insulation by blowing the product into roof spaces of homes. As well, the companies are believed to have sold sacks of asbestos fibre direct to homeowners to insulate their own homes, and other operators may have also used the hazardous material trying to copy the companies' business model.

Cases in the ACT increased from nine in 1994-1996 to 32 in 2009-2011, one of the biggest increases in the country. Since 1982, 140 mesothelioma cases have been reported to the ACT Cancer Registry (113 men, 27 women).

ACT Health Minister, Simon Corbell, said he was worried by the increase although the incidence in the ACT was now similar to other jurisdictions. "While that jump is a cause for concern it is also important to note that in the ACT, similar to the rest of the country, this cancer is mainly diagnosed in older males suggesting the cause may be more likely due to occupational exposures."

*Source: Canberra Times, 14 September 2015*

# Asbestos-related deaths in UK continuing to occur in general industry

According to specialist lawyers in the UK, research is revealing that the areas of England and Wales with the highest rates of deaths linked to asbestos-related disease are a tragic reminder of the materials' devastating legacy.

A total of 11,011 deaths where mesothelioma was found to be an underlying cause were recorded across the four-year period analysed, with the number of fatalities increasing every year.

While the majority of the cases have developed many years after exposure to asbestos during work in environments with a strong industrial or shipping heritage, such trends may not last.

Lawyers point out that they are now seeing a growing number of people come forward seeking help regarding exposure they believe occurred in

public buildings such as hospitals and schools, where the material may have been present. With this in mind, the current landscape in England and Wales regarding asbestos-related deaths could soon change significantly.

This situation is similar to that in Australia with an increasing incidence of asbestos-related disease occurring in the construction sector.

*Source: Irwin Mitchell, 26 August 2015*

# Asbestos continues to be imported into Australia

The Asbestos Safety and Eradication Agency (ASEA) has advised the Senate Inquiry into non-conforming building products that building products containing asbestos are being imported to Australia contrary to Australian law.

At least eight shipments have been stopped in recent times but it is unclear how many have not been detected.

Labour is calling for penalties to be significantly increased – the present penalty is only a fine of \$170,000.

Previous Senate inquiries have found that around 30,000 to 40,000 Australians will be diagnosed with asbestos related injuries over the next 20 years.

*Source: Media Release, Hon Bill Shorten, MP, Leader of the Opposition, 25 October 2015*

# Young farm workers exposure to pesticides

The USA Environmental Protection Agency has established the first minimum age requirement (18) for farm workers applying pesticides to fields. This seems to be directed at preventing an estimated US\$10-15m in annual health costs due to chemical exposure among the nation's two million agricultural workers.

The decision follows a revision of pesticide rules and also changes the certification process, increases the training requirements, requires tighter record keeping and protects workers from retaliation should they report safety violations.

The United Farm Workers Union noted that the changes fell short of requiring active medical monitoring, including blood tests, of workers who mix and apply chemicals.

*Source: LA Times, 28 September 2015*

# Silica emerging again as cause of workplace deaths

The rates of disease-caused deaths for British Columbia, Canada workers has increased dramatically over the last 20 years as the population catches up with the effects of inhaled asbestos.

Now, a new type of dust similar to the insulation material is attracting the attention of WorkSafe BC. The new exposure to silica dust is found commonly in quartz, concrete, masonry, granite, blasting abrasive or asphalt containing rock or stone.

Al Johnson, vice president of prevention services at WorkSafe BC says that "we have seen a number of silica-related deaths and we also believe that the number of silica deaths is under-reported. In the construction industry you often see a worker cutting a stone block, paving stone or cement blocks which contain silica. That works similar to asbestos – not exactly the same – but it does cause lung damage."

Johnson added that ensuring safety could be as simple as putting on a respirator before cutting blocks but the industry has yet to regard silica with the same awareness as asbestos.

In 1987 the International Agency for Research on Cancer (IARC) classified crystalline silica as a probable carcinogen and in 1997 reclassified it as a Group 1 carcinogen.

Source: WorkSafe BC, 30 September 2015

## Deadly silica exposures are not being controlled

The HSE in the UK has admitted that some companies are continuing to expose workers to excessive levels of silica dust which can cause lung diseases and cancer. It has urged the stone industry to do more to protect workers' health after an inspection initiative in the south of England found failure to control the potentially lethal dust was commonplace.

HSE inspectors visited 60 stone businesses including work surface manufacturers, stonemasons and monumental masons, in the period June to September 2015.

Serious breaches were detected at over half the premises visited with inadequate control of respirable silica one of the common areas of concern found throughout the initiative.

The HSE said that a number of the businesses visited were unaware of the exposure standard of 0.1 mg/m<sup>3</sup>.

A 2009 baseline study by the HSE had found that all the major industries with a potential for high silica exposures, including the stone industry, were failing to control the risks effectively.

A report in the workers' safety magazine *Hazards* criticises HSE for resisting a union-backed call for it to halve the current exposure limit for the common workplace dust. And it says the government-imposed hands-off HSE enforcement policy combined with resourcing cutbacks means that the current standard is not being enforced effectively.

Source: TUC Risks 723, 10 October 2015





## Dupont face trial over contamination of drinking water

Chemical giant Dupont will face the first trial in litigation from residents near one of its plants in West Virginia who have accused the company of sickening them by emitting a toxic chemical that leaked into their drinking water.

Approximately 3,500 plaintiffs have sued Dupont saying they contracted one of six diseases linked to perfluorooctanoic acid.

The first case to go to trial will be Carla Bartlett who said she developed kidney cancer from contaminated water. The trial will be an early test of potential liability for the allegedly decades-long leak.

Dupont said it believes that Ms Bartlett's exposure was insufficient to cause health problems and that other factors may be to blame for her cancer e.g. obesity.

Source: *Chemwatch*, 10 October 2015

## Important conclusions reached on the risks of fracking chemicals

Another warning that greater attention should be paid to the potential health risks posed by fracking chemicals has been identified by researchers from the University of Minnesota's School of Public Health.

The study investigated potential health risks posed by chemicals used by 2,850 wells in North Dakota in the three years to November 2013. **They found some of the most hazardous chemicals were also some of the most commonly used.** Eleven of the constituents listed in the top 30 by total hazard count were also in the top 30 by reports of use.

The authors concluded "The constituents of hydraulic fracturing fluids present occupational health risks because workers may be directly exposed to them and general public health risks because of potential air and water contamination."

Importantly, they added: **"This study serves as a point of departure for future investigations into the risks and management of hydraulic fracturing, ranging from life-cycle assessments to risk assessments that incorporate environmental and occupational exposure, and environmental fate and transport modelling."**

Source: *TUC Risks*, 717, 29 August 2015

## Further evidence that fracking chemicals can cause endocrine disruption and illness

Researchers at the University of Missouri studied data to determine whether residential populations living near what they called "unconventional oil and gas operations" were at a higher risk of endocrine disruption. They examined case studies and peer-reviewed publications and concluded that each of the chemicals needed a more intensive case-by-case study when used near human populations.

Susan C Nagel, a professor in obstetrics, gynaecology and women's health said that "more than 700 chemicals are used in the fracking process and many of them disturb hormone function."

The studies were directed at understanding the human impact of endocrine disrupting chemicals that were released as a result of chemical spills.

Source: *OHS Reps, SafetyNetJournal*, 23 September 2015

# LEGAL/ILLEGAL DRUGS

## Drug and alcohol testing – does it improve workplace safety?

In a study by researchers at Flinders University SA which the authors say is the most comprehensive and systematic qualitative review of evidence concerning the effectiveness of workplace drug testing as a workplace safety strategy undertaken to date.

A systematic qualitative review of relevant research published between January 1990 and January 2013 was undertaken. **Inclusion criteria were studies that evaluated the effectiveness of drug testing in deterring employee drug use or reducing workplace accident or injury rates.**

Of a total of 23 studies reviewed and assessed, six reported on the effectiveness of testing in reducing employee drug use and 17 reported on occupational accident or injury rates.

**Only one study was assessed as demonstrating strong methodological rigour. That study found random alcohol testing reduced fatal accidents in the transport industry.**

The majority of studies reviewed contained methodological weaknesses including:

- inappropriate study design
- limited sample representativeness
- the use of ecological data to evaluate individual behaviour change; and
- failure to adequately control for potentially confounding variables.

The authors say that the latter finding is consistent with previous reviews and indicates the evidence base for the effectiveness of testing in improving workplace safety is at best tenuous.

Better dissemination of the current evidence in relation to workplace drug testing is required to support evidence-informed policy and practice.

There is also a pressing need for more methodologically rigorous research to evaluate the efficacy and utility of drug testing.

*Source: NCBI, October 2014*

## New requirement for drug and alcohol testing in the construction industry

The Australian Government has introduced amendments to the Building Code to ensure higher standards of workplace safety for construction sites which will now require drug and alcohol testing.

Fair Work Building and Construction will be responsible for auditing contractors to ensure those subject to the Code have in place a fitness for work policy that is compliant with the Building Code.

The fitness for work policy including employees of the principal contractor, sub-contractors and their employees and others, must address the use of an objective testing method to detect the presence of drugs or alcohol in a worker's system and outline the detection method to be used on the project.

All the following substances are to be tested for:

Alcohol, opiates, THC, cocaine, benzodiazepines, amphetamine, methamphetamines

Specific requirements for the frequency and periodic testing (at least once per month) of the workforce are as follows:

- Where there are less than 30 workers on site at least 10% of the workforce
- Where there are 30 to 100 workers on site – a minimum of five workers per month
- Where there are greater than 100 workers on site – a minimum of 10 workers per month

*Source: SafetyAtWorkBlog, 25 September 2015*

# CANCERS

## Link identified between asbestos exposure and digestive cancers

A study appearing in the journal *Occupational and Environmental Medicine* to estimate the incidence of digestive cancers within a cohort of asbestos-exposed workers has found a link between long-duration asbestos exposure and colorectal cancer in men.

The researchers also suggest a relationship between asbestos exposure and cancer of the oesophagus in men and a possible association with small intestine and liver cancer in men.

Source: *Occupational Environmental Medicine* doi: 10.1136/oemed-2015-102871

## Colourful potatoes may help kill cancer cells

Compounds found in purple potatoes may help kill colon cancer stem cells and limit the spread of the cancer, according to a team of researchers.

The researchers, who released their findings in the *Journal of Nutritional Biochemistry*, used a baked purple potato because potatoes are widely consumed and typically baked before they are consumed, especially in western countries. They wanted to make sure the vegetables maintained their anti-cancer properties even after cooking.

In the initial laboratory study, the researchers found that the baked potato extract suppressed the spread of colon cancer stem cells while increasing their death. Researchers then tested the effect of whole baked purple potatoes on mice with colon cancer and found similar results. The portion size for a human would be about the same as eating a medium size purple-fleshed potato for lunch and dinner, or one large purple-fleshed potato per day.

According to the researchers, there may be several substances in purple potatoes that work simultaneously on multiple pathways to help kill the colon stem cells, including anthocyanins, chlorogenic acid and resistant starch.

The next step would be to test the whole food approach, using purple potatoes in humans for disease prevention and treatment strategies. The researchers also plan to test the purple potatoes on other forms of cancer.

Source: *Drug Discovery and Development*, 27 August 2015

## Cancer growth could be slowed by little-known pigment in rhubarb

Cancer spreads fast, fuelled by various chemical pathways that can overtake natural processes quickly. But according to a new study by Emory University, Atlanta, it may be possible to block one of the key steps using a potential drug from a pigment in rhubarb.

Called parietin or physcion the orange compound appears to have potential to suppress 6-phosphogluconate dehydrogenase, or 6PGD.

The parietin killed half the leukemia cells over two days in the laboratory. The pigment also slowed the growth of other human cancer cells in mouse models.

The compound also appears to be non-toxic to healthy cells and is naturally occurring in rhubarb stems and in some orange-coloured lichens.

Source: *Drug Discovery and Development*, 23 October 2015



# WORKERS' COMPENSATION

## New medical and allied health fees

Amendments to the Workers' Compensation and Injury Management (Scales of Fees) Regulations 1998 come into effect on 1 November 2015.

The amendments apply a 2.15% increase to all medical and allied health fees, based on application of WorkCover WA's composite index.

A compilation of all medical and allied health fees is available on the WorkCover WA website.

Please direct any queries regarding medical and allied health fees to Duane Poi, Senior Policy Officer, Policy and Legislative Services, on 9489 4773 or email [duane.poi@workcover.wa.gov.au](mailto:duane.poi@workcover.wa.gov.au).

## Looking back

A March 1982 issue of the OH Society's journal has emerged. It included an article by Dr Ron Hicks of the WA Health Department questioning the value of personal hearing protection.

Another article recorded a talk given to the WA branch by Dr Peter Elmes of the Pneumoconiosis Research Unit in Wales.

The Victorian Branch had a talk by Dr John Mathews of the ACTU on reproductive hazards, the NSW branch-to-be had a talk by JM Devine, a HSE specialist factory inspector, and the WA branch had visits to James Hardie and Alcoa.



## Preliminary Notice Annual General Meeting Occupational Health Society of Australia (WA)

The AGM of the Society will be conducted in late January 2016 at which all officers will be elected for the ensuing year.

The exact date and location will be advised to all members and potential members in December.

All readers of the *Monitor* are urged to consider membership - for which there is a nominal amount - and attendance, as ***the future of the Society is dependent on the membership it is able to attract.***

Joe Maglizza  
President  
Occupational Health Society of Australia (WA)

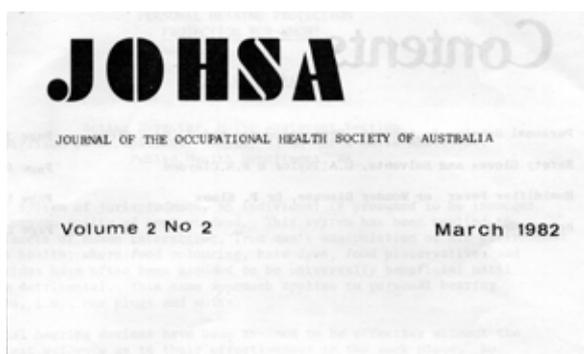
Membership to the Society is open to all those interested in occupational health and safety.

\$50 ordinary membership

\$20 student membership.

Simply email  
[safety@marcsta.com](mailto:safety@marcsta.com)  
with your details.

**Subscription invoices for 2015/16 will be emailed to existing members in October.**





## Occupational Health Society of Australia (WA)



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 WA
- 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](http://www.ohswa.marcsta.com) for more information.

### Members

Matthew ATKINS  
Anitha ARASU  
Emma BARRETT  
Joyce BLAIR, Next Health  
Alan CLARKSON (Snr)  
Allaine COLEMAN, CGU Workers' Compensation  
Terry CONDIPODERO, GR Engineering Services  
Maria DANIEL  
Roslyn DAWSON, Northwest Aviation Services  
Diana GEMMELL  
Lynette GILBERT, QHSE Consultant, Tidehill Pty Ltd  
Patrick GILROY AM, MARCSTA  
Matthew GIPP, Cooke & Dowsett P/L  
Ross GRAHAM  
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Dr Janis JANSZ, Curtin University  
Ralph KEEGAN, Frontline Safety and Training Services  
Cheryl KELLY, Viento Group Limited  
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Alison MARTINS, OH&S Consulting  
Eoghan MCKENNA  
Peter McMAHON, Main Roads WA  
Mike MORRIS, Liquid Limit Strategic Consulting  
Rosalee MORRIS, Disability Services Commission  
Peter NICHOLLS, FMR Investments  
Dr Nicol ORMONDE, Ormonde Health Consulting  
Terence PESTANA  
Craig POWER, OH&S Consulting  
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Peter ROHAN, Department of Mines and Petroleum  
Sherrilyn SHAW, Return to Work Solutions

Dr John SUTHERS, Occupational Physician  
Prof Geoffrey TAYLOR, Curtin University  
Dr Christine TEAGUE, Edith Cowan University  
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Said ABDILAH, Student, Curtin University  
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Alayna CAMPBELL, Student, Curtin University  
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Deepak MARU, Student, Curtin University  
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Claire PRENDEVILLE, Student, Curtin University  
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## **MARCSTA develops and implements work health and safety training programs relevant to all workplaces.**

Under the new Work Health and Safety Laws, employers have a duty of care to provide a healthy and safe workplace for workers and contractors.

MARCSTA training programs are now available to organisations wishing to conduct occupational health and safety training of employees.

All our courses underpin relevant units of competency from nationally accredited training packages.

The courses are based on adult learning principles, are interesting, engaging, relevant and current. The information presented is based on solid research by MARCSTA, independent experts and regulatory bodies.

Training materials are supplied in a non-editable PDF format at a cost of

**\$40 per person.**

If required, your organisation's details and logo can be included as well as any other custom content you require.

## **Programs . . .**

- **Work Health and Safety Induction**
- **Workplace Health and Well-being**
- **Extended Working Hours and Your Health and Safety**
- **OHS Training for Supervisors and Managers**

## **All the work is done for you.**

You can print as many manuals as you require, when you need them. (Dependent on a signed agreement authorising production of specified numbers of training manuals).

Generally, each course comes complete with downloadable PDF versions of:

- **Training Manual**
- **PowerPoint Presentation (ppt format)**
- **Assessments**
- **Assessments Scoring Guide**

**Should you wish to take advantage of this arrangement please contact MARCSTA on [safety@marcsta.com](mailto:safety@marcsta.com) or 6272 6120.**

visit [www.marcsta.com](http://www.marcsta.com) for complete program content and course details