ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

FEBRUARY 2018 | PUBLISHED BY RCPA ISSUE #077

IN THIS ISSUE

INTERESTING FACTS

5 g per day

The World Health Organisation's (WHO) maximum recommended salt intake for adults.[1]

1.9 billion

The number of people, worldwide, who remain at risk of insufficient iodine consumption.[2]

$36 billion

The estimated annual cost attributable to iodine deficiency

Welcome to the February 2018 edition of ePathWay

Pathology Update 2018 is nearly upon us, when hundreds of pathologists will once again congregate at ICC Sydney on 2 March 2018 for three days. This year, the conference will feature 14 outstanding international speakers and a contingent of over 140 Australasian speakers. The College would like to thank its international and local speakers for the time and efforts involved in preparing their presentations. Also, thank you to all of the delegates who will attend, making Pathology Update one of the foremost international pathology conferences.

In this month's issue of ePathWay, we will look at:

- The optimal balance between salt reduction and the elimination of iodine deficiency disorders;
- The best protection against the 2018 flu season is to get the vaccine;
- Proliferations of synthetic drugs – an emerging issue for toxicology in Australia; and
- Is it common to experience poisoning?

We hope you enjoy this issue of ePathway and we look forward to seeing you at Pathology Update 2018.

Remember to use #PathUpdate #pathology and #medicineispathology, when posting from the conference this year. You can also follow us on Facebook (@TheRoyalCollegeofPathologistsofAustralasia), Twitter (@PathologyRCPA) or on Instagram (@the_rcpa). CEO, Dr Debra Graves can be followed on Twitter too (@DebraJGraves).

The optimal balance between salt reduction and the elimination of iodine deficiency disorders

disorders in the developing world, compared with just $0.5 billion required to deliver effective salt iodisation programs.[3]

Source:

[1] World Health Organisation, Salt reduction Fact sheet, June 2016: www.who.int/mediacentre/factsheets/fs393/en

[2] Andersson M, Karumbunathan V, Zimmermann MB. Global iodine status in 2011 and trends over the past decade. J Nutr. 2012;142(4):744-50

[3] Horton S. The economics of food fortification. J Nutr. 2006;136(4):1068-71. Epub 2006/03/22

IMPORTANT MESSAGE

RCPA has an important message for you. Click to see the message!

SUGGEST TO A FRIEND

Know someone who might be interested in this website? Why not suggest the website to them.

PREVIOUS EDITIONS

Did you miss something from last month? You can view our previous editions at any time.

SUBSCRIBE NOW!

Subscription is easy! Simply fill in our subscription form.

LINKS

RCPA Manual

Lab Tests Online

Know Pathology Know Healthcare

Last month, the Medical Journal of Australia (MJA) reported on a study of more than 16,000 people, which found that the salt intake of Australian adults exceeds the World Health Organisation's (WHO) recommendation of a maximum of 5 g per day. The report showed that Australian men are ingesting 10.1 g daily, twice the recommended amount, with women not far behind at 7.34 g.

read more »

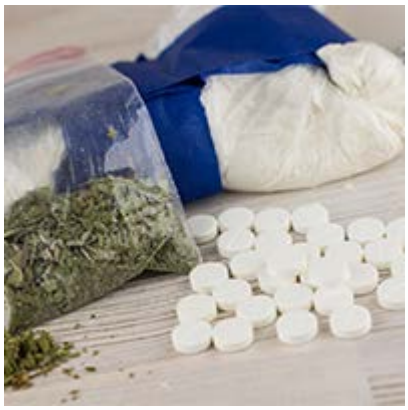
The best protection against the 2018 flu season is to get the vaccine

Professor William Rawlinson, Senior Medical Virologist with NSW Health Pathology, looks back on influenza in 2017 and discusses what we can expect in from the flu season this year:

"2017 was a year with the highest level of flu cases that we've had in the last five years. In NSW, we had almost twice as many outbreaks reported, when compared to 2016. When we look at the levels of flu, we're talking about it in terms of total numbers and the numbers of outbreaks, all of the figures were up last year."

read more »

Proliferations of synthetic drugs – an emerging issue for toxicology in Australia



Associate Professor Dimitri Gerostamoulos, Head of Forensic Science and Chief Toxicologist at the Victorian Institute of Forensic Medicine and Scientific Services, has been a representative of the United Nations Office of Drug and Crime (UNODC) for the past two years. Established in 1997, UNODC is a global leader in the struggle against illicit drugs and international crime. In his role with the UNODC, A/Prof Gerostamoulos is assisting in developing policies and procedures to reduce harm from new synthetic drugs.

read more »

Is it common to experience poisoning?

Clinical Professor David Ranson, Deputy Director – Head of Forensic Services, Victorian Institute of Forensic Medicine, explains, “Poisoning covers a wide spectrum of substances and encompasses a variety of very different circumstances. As a community, we talk about poisoning in a lay sense as being chemicals that are toxic to the body. Actually, poisoning covers a broad range of substances which can involve inorganic poisons, organic poisons, traditional illicit drugs, synthetic drugs, high levels of prescribed drugs, prescribed drugs in normal amounts which are toxic in some individuals, and prescribed drugs which are not toxic in others.

read more »

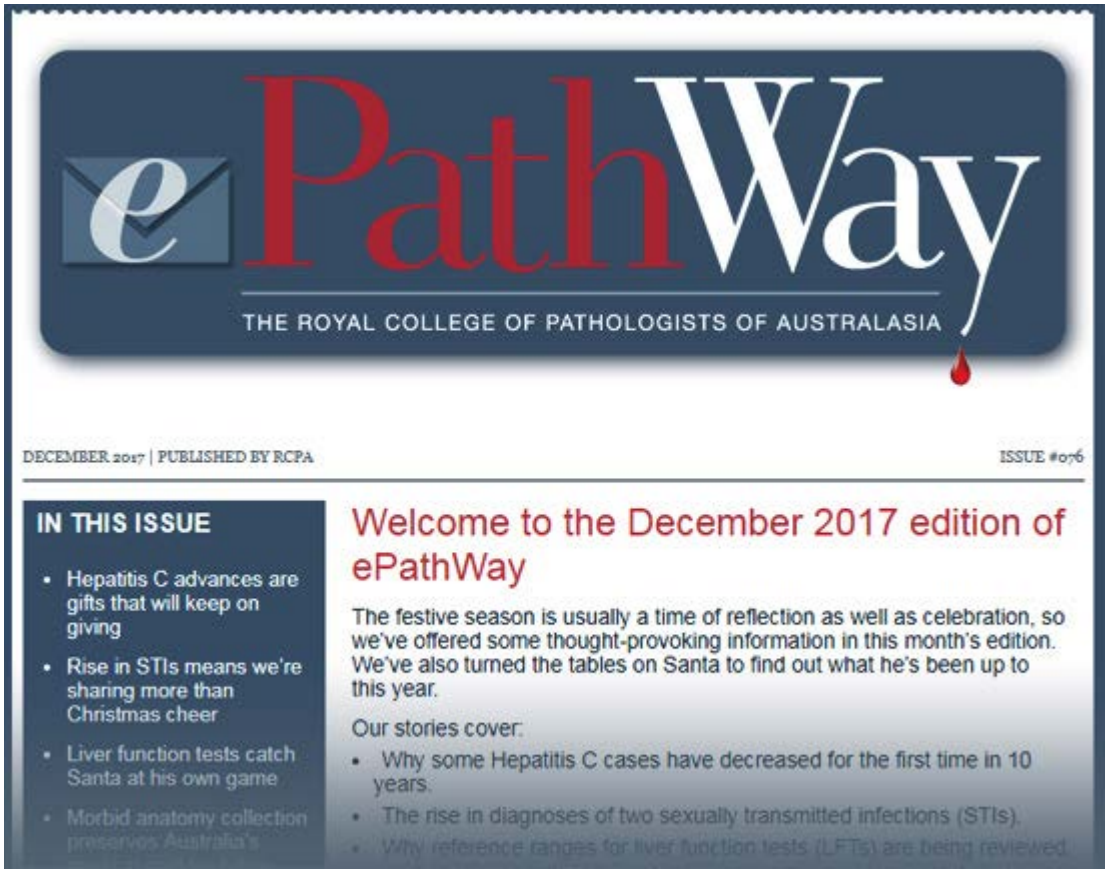
RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

ePathWay

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

PUBLISHED BY RCPA

Previous Editions



2017

066 - February 2017 | 067 - March 2017 | 068 - April 2017

069 - May 2017 | 070 - June 2017 | 071 - July 2017

072 - August 2017 | 073 - September 2017 | 074 - October 2017

075 - November 2017 | 076 - Dec 2017/Jan 2018

2016

055 - February 2016 | 056 - March 2016 | 057 - April 2016

058 - May 2016 | 059 - June 2016 | 060 - July 2016

061 - August 2016 | 062 - September 2016 | 063 - October 2016

064 - November 2016 | 065 - Dec 2016/Jan 2017

2015

044 - February 2015 | 045 - March 2015 | 046 - April 2015

047 - May 2015 | 048 - June 2015 | 049 - July 2015

050 - August 2015 | 051 - September 2015 | 052 - October 2015

053 - November 2015 | 054 - Dec 2015/Jan 2016

2014

033 - February 2014 | 034 - March 2014 | 035 - April 2014

036 - May 2014 | 037 - June 2014 | 038 - July 2014

039 - August 2014 | 040 - September 2014 | 041 - October 2014

042 - November 2014 | 043 - Dec 2014/Jan 2015

2013

022 - February 2013 | 023 - March 2013 | 024 - April 2013

025 - May 2013 | 026 - June 2013 | 027 - July 2013

028 - August 2013 | 029 - September 2013 | 030 - October 2013

031 - November 2013 | 032 - Dec 2013/Jan 2014

2012

010 - Dec 2011/Jan 2012 | 011 - February 2012 | 012 - March 2012

013 - April 2012 | 014 - May 2012 | 015 - June 2012

016 - July 2012 | 017 - August 2012 | 018 - September 2012

019 - October 2012 | 020 - November 2012 | 021 - December 2012

2011

001 - March 2011 | 002 - April 2011 | 003 - May 2011

004 - June 2011 | 005 - July 2011 | 006 - August 2011

007 - September 2011 | 008 - October 2011 | 009 - November 2011

« Back to Home Page

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

FEBRUARY 2018 | PUBLISHED BY RCPA ISSUE #077

The optimal balance between salt reduction and the elimination of iodine deficiency disorders

Last month, the Medical Journal of Australia (MJA) reported on a study of more than 16,000 people, which found that the salt intake of Australian adults exceeds the World Health Organisation's (WHO) recommendation of a maximum of 5 g per day. The report showed that Australian men are ingesting 10.1 g daily, twice the recommended amount, with women not far behind at 7.34 g.

Earlier this month, during a radio interview on 5 AA, Talking Adelaide, Pete Evans, the MKR presenter and TV chef warned listeners of the dangers of the use of common table salt, describing it as a "poison".

"If you are using table salt that you would get in a supermarket that is iodised… I would suggest you throw it in the bin right now."… "Seriously, if you've got the old school table salt that a lot of people have, I would call that a poison. I would never put that anywhere on my plate or on my children's plates…"

Evans added, *"There are really good quality salts that have trace minerals that are essential for us. It depends on the quality of the salt that you use. You have to dig a little bit deeper,"*

Professor Creswell J Eastman from Sydney Medical School, Chair of the Australian Centre for Control of Iodine Deficiency Disorders (ACCIDD), says,

"Opinions such as those expressed by Pete Evans, undermine the several decades of work by public health advocates who are seeking an optimal balance between salt reduction and the elimination of iodine deficiency disorders through salt iodisation.

These types of claims can cause serious harm to our population by providing inaccurate and dangerous information. In addition, encouraging the use of non-iodised 'Himalayan salt' is not recommended as it is not regulated and contains other minerals, some of which could be injurious to our health when taken in excess quantities."

"Of course, excessive intakes of ordinary salt (sodium chloride) can be a contributor to the development of cardiovascular disease. High salt intakes are a primary cause of high blood pressure, one of the main risk factors for heart attack, kidney disease and stroke – the leading causes of death and disease worldwide[1]. The WHO promotes the implementation of programs to lower population salt intake as a cost effective strategy to reduce the burden of non-communicable diseases[2]; however, it also recommends universal salt iodisation (USI) to prevent and control iodine deficiency disorders (IDD).

Nutritional iodine deficiency causes a variety of mental and physical disorders collectively known as IDD. USI is the process by which all salt for human consumption is iodised, and is the preferred approach of the WHO, UNICEF and International Council for Control of Iodine Deficiency Disorders (ICCIDD) to prevent or correct iodine deficiency in a population.

IDD's are a major global health problem causing impaired cognitive development, reduced IQ, congenital anomalies, cretinism, endemic goitre and other thyroid disorders[3]. It is estimated that 1.9 billion people worldwide remain at risk of insufficient iodine consumption[4]. The WHO, United Nations Children's Fund (UNICEF) and the International Council for the Control of Iodine Deficiency Disorders - Global Network (ICCIDD-GN) recommend an intake of 150 µg iodine/day for non-pregnant, non-lactating adults and children and 250 µg/day for pregnant and lactating women.

Food grade salt is the primary vehicle for dietary iodine fortification[5] and is preferred because the technology is simple, iodine levels in salt can be easily monitored, salt consumption is mostly stable throughout the year and salt is affordable. The estimated annual cost attributable to IDD's in the developing world is $36 billion, compared with just $0.5 billion required to deliver effective salt iodisation programs[6].

"The important message to the community is that the first 1,000 days of life are critical to brain development and maturation. Any deficits during this time are likely irreversible. A public health education campaign is long overdue to correct this sinister threat to the intelligence of current and future generations of Australian children."

Iodine deficiency (ID) in utero and in early childhood damages the developing brain and, according to the WHO, is "the leading global cause of preventable loss of intellectual performance"[7]. Moderate to severe iodine deficiency, occurring during pregnancy and early childhood, can result in an irreversible loss of 10 to 15 IQ points[8]. Lesser degrees of dietary iodine deficiency have lesser impacts.

ID reemerged in Australia in the 1990s as a serious public health problem[9,10] and could have contributed to the problem of declining educational performance. Remedial action, by way of mandatory iodisation of all salt used in the manufacture of bread, was implemented in late 2009 and has made a difference to the population's iodine nutritional status as a whole, but iodine intake in pregnant and lactating women remains suboptimal, thus putting their offspring at risk of loss of IQ unless women correct the deficiency by taking a supplement[11].

This is well illustrated by a study from the Menzies Institute in Hobart which found that NAPLAN scores of nine-year-old children born to mildly iodine deficient mothers were around 10 per cent lower than a control group of mothers who had sufficient iodine intake during pregnancy[12]. Similar studies have been reported elsewhere in the developed world[13].

References:

[1] Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859):2224-60. Epub 2012/12/19.

[2] World Health Organization and World Economic Forum. From Burden to “Best Buys”:Reducing the Economic Impact of Non-Communicable Diseases in Low- and Middle-Income Countries. World Economic Forum 20112011.

[3] Zimmermann MB, Jooste PL, Pandav CS. Iodine-deficiency disorders. Lancet. 2008;372(9645):1251-62. Epub 2008/08/05.

[4] Andersson M, Karumbunathan V, Zimmermann MB. Global iodine status in 2011 and trends over the past decade. J Nutr. 2012;142(4):744-50.

[5] The World Health Organization. Assessment of iodine deficiency disorders and monitoring their elimination: a guide for programme managers. 3rd edition Geneva. 2007.

[6] Horton S. The economics of food fortification. J Nutr. 2006;136(4):1068-71. Epub 2006/03/22.

[7] Zimmermann MB, Jooste PL Pandav CS. Iodine deficiency disorders. Lancet 2008;372:1251-1262.

[8] Qian M, Wang D, Watkins WE, Gebski V, Yan YQ, Li M, et al. The effects of iodine on intelligence in children: a meta-analysis of studies conducted in China. Asia Pac J Clin Nutr. 2005;14:32-42.

[9] Eastman CJ. Where has all our iodine gone? Med J Aust 1999; 171: 455-456.

[10] Li M, Eastman CJ, Waite KV et al. Are Australian children iodine deficient: results of the Australian National Iodine Nutrition Study. Med J Aust 2006; 184:165-169.

[11] Australian Bureau of Statistics: Iodine http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4364.0.55.006Chapter1202011-12.

[12] Hynes K, Otahal P, Hay I, Burgess JR. Mild iodine deficiency during pregnancy is associated with reduced educational outcomes in the offspring: 9-year follow up of the Gestational Iodine Cohort. J Clin Endocrinol Metab 2013;98: 1954-62.

[13] Bath SC, Steer CD, Golding J, et al. Effect of inadequate iodine status in UK pregnant women on cognitive outcomes in their children: results from the Avon Longitudinal Study of Parents and Children (ALSPAC). Lancet 2013;382:331-7.

« Back to Home Page

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

FEBRUARY 2018 | PUBLISHED BY RCPA ISSUE #077

The best protection against the 2018 flu season is to get the vaccine

Professor William Rawlinson, Senior Medical Virologist with NSW Health Pathology, looks back on influenza in 2017 and discusses what we can expect in from the flu season this year:

“2017 was a year with the highest level of flu cases that we’ve had in the last five years. In NSW, we had almost twice as many outbreaks reported, when compared to 2016. When we look at the levels of flu, we’re talking about it in terms of total numbers and the numbers of outbreaks, all of the figures were up last year.”

“Almost two thirds of outbreaks were the H3 sub-type (A/H3 type) and yet, this is something we have been seeing causing infections globally for over 30 years. Unfortunately, the A/H3 component of the 2017 vaccine didn’t match the circulating wild virus very well and, although that may have contributed to the increase in infections, it’s extremely unlikely that this was the only cause, as every year other factors such as mass gatherings, the weather, co-circulating viruses and unexpected events contribute.”

Prof Rawlinson explains that Australia is not seeing a rise in the cases of influenza year on year. In fact 2016 was a very quiet year.

“What we typically see is a busy year, followed by a quieter year, probably because there’s a lot of population immunity, especially evident for the B strains. I attended an influenza meeting earlier this week, discussing the summary of the 2017 season and the planning for 2018. Part of this is assessing how the vaccines can be optimised and how we can protect the population who are most at risk, such as the elderly, people of any age with underlying conditions such as diabetes, asthma, cancer and heart disease, and

pregnant women."

"The importance of vaccinating people in institutions such as nursing homes, both those who live there and health care professionals, and how best we can vaccinate the elderly, are all critical to the discussion in order to reduce the number of outbreaks. Health care workers' vaccination rates are only 30-40%. It is vitally important that we increase this rate Australia-wide and encourage health care professionals to get yearly vaccine, as not only will it benefit them personally and their families, but also they really will be doing the best to help their patients."

An important point is that, even though vaccines may not always prevent influenza, flu vaccinations provide some protection against other illnesses and also prevent deaths.

"If you look at the population who are vaccinated repeatedly, they often do much better if they have had four or more years of vaccination. Also, influenza vaccinations reduce the rate of heart attacks. This is due to the protection against the effects of the flu such as increased heart rate and inflammation. When you have the flu, the reason you get sore joints, headaches and other symptoms is due to virus-induced inflammation. If you imagine the same thing is happening in your heart, it's easy to understand how preventing influenza by getting a flu vaccine can offer protection against other illnesses and even death, which is a very important message."

"There are also interesting discussions taking place regarding the possibility that immunity wanes more quickly in the elderly; therefore, for these people, it might be better to judge the timing of their vaccines more carefully, receiving their vaccine as close to the start of the flu season as we can provide. This should be addressed in talking with their GP. Alternatively, providing the elderly, who are at very high risk, with a double-dose of vaccination or vaccines on two occasions before and during winter, is also being discussed."

Currently, WA, NSW and QLD all offer free vaccines to children under the age of five years. Professor Rawlinson says, "This is mainly due to the fact that we're now recognising that complications in children with influenza are more frequent than many previously thought. There are some diseases, such as EBV infection (a cause of glandular fever), where young children get a bit of a fever, but usually they have fewer symptoms than adults. Historically, we hadn't fully explored that kids can get really quite sick on the severe end of the spectrum with influenza. In New Zealand, influenza vaccinations are free for people who are most at risk[1]. "

"In one Australian paediatric study of severe cases of flu where hospital admission was required, almost 10% of the children suffered from neurological complications, which is surprising to most people. Almost half of the children admitted for influenza suffered from seizures and further complications, with approximately half of the children suffering from these complications as a result of the flu having another underlying health issue."

"There's always lots of discussion in relation to matching the vaccine to the circulating strains and how that can be done more accurately. One of the things we do is to study those viruses circulating and causing infections in the northern hemisphere towards the end of the northern winter. We look at their viruses, and we base our vaccine production with these viruses in mind. We have already looked at their viruses and designed our vaccines around what they have been seeing. Canada seems to be having a busy year - they are also seeing the H3 sub-type circulating. The U.S. has seen a lot of the troublesome A/H3, whilst Europe and China are seeing a lot of influenza B. So it does vary from country to country, by hemisphere and by season."

"The vaccine changes in subtle ways each year. It's particularly when the virus shifts and has a major change that we need to make a major change in the vaccine. The vaccine for this year has changed the H3 component; however, the B component of the vaccine has not changed so much."

"The start of the flu season varies from year to year. It's usually in May or June and the season runs into September or October. The best thing for all patients to do is to talk to their own GP about the timing of their vaccination to ensure they are protected. Also, everyone should seek advice from their GP to ensure no-one is at an unnecessary risk.

For instance, pregnant women have a very low vaccination rate, but they can suffer badly from influenza any year and they have a high risk factor for severe influenza and even death, particularly during pandemics as we saw in 2009."

"It's important that everyone, particularly those at risk of severe complications, receives a flu vaccination, to protect themselves but also those around them. Of course, it's true that no vaccine is 100% effective. But, when people say that if people are getting the flu, then the vaccine isn't working at all – that simply isn't true. The best way to prevent the flu is to take sensible hygiene precautions, and to get the vaccine every year."

References:

[1] https://www.fightflu.co.nz/.

« Back to Home Page

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

FEBRUARY 2018 | PUBLISHED BY RCPA ISSUE #077

Proliferations of synthetic drugs – an emerging issue for toxicology in Australia

Associate Professor Dimitri Gerostamoulos, Head of Forensic Science and Chief Toxicologist at the Victorian Institute of Forensic Medicine and Scientific Services, has been a representative of the United Nations Office of Drug and Crime (UNODC) for the past two years. Established in 1997, UNODC is a global leader in the struggle against illicit drugs and international crime. In his role with the UNODC, A/Prof Gerostamoulos is assisting in developing policies and procedures to reduce harm from new synthetic drugs.

In relation to drug overdoses, A/Prof Gerostamoulos says that positive tests are split about 50/50 between prescription drugs and illicit drugs. He explains that traditional illicit drugs such as methylamphetamine, cannabis, and heroin still remain prevalent and dominate in terms of their presence and their harm; however there is a significant rise in the use of novel synthetic drugs.

“Synthetic drugs are certainly increasing in prevalence not only in Australia but across the globe. Forensic laboratories have the capacity to measure some of these; however more than 750 new synthetic drugs have been identified and this list grows weekly. As a result, it is extremely difficult for laboratories to have standardised and validated methods to try to keep up with the proliferation of these new psychoactive substances.

“We know synthetic drugs are popular in terms of their use and distribution and, as a result, there are a number of deaths that have been reported due to their consumption. The amounts of new synthetic drugs required to have an effect have become much smaller, which is one of the reasons they have become popular. This is particularly true

of some of the newer opioid derivatives. Instead of grams or kilograms, these drugs are available in the milligram level, which means they are far easier to shift in drug markets. I'm involved with the U.N. to try to establish an early warning system to raise awareness of the dangers of using these types of drugs, particularly where they have been identified in fatalities or overdoses."

Fentanyl derivatives are far more dangerous than traditional illicit drugs. Their potency ranges from 100 to 1000 times greater than that of morphine. A/Prof Gerostamoulos explains that, although many of these fentanyl analogs are not in Australia as yet, and there isn't any indication that they are coming to our shores, he recognises that Australia tends to follow a similar drug pattern to the U.S. in terms of opioid mortality and illicit drugs.

"This is the greatest surge in synthetic drugs that has been seen since these drugs were first characterised in 2008; this is especially true for the fentanyl derivatives over the past 12 to 18 months. It's been suggested that there may be not hundreds, but thousands of possible fentanyl derivatives that might be chemically synthesised. Most of these fentanyl derivatives come from China and some from European and local markets. In a recent toxicology meeting I attended in Florida, the U.S. Drug Enforcement Agency (DEA) are quite concerned by the rapidity of distribution and uptake of many of these fentanyl derivatives.

"There have been a large number of deaths in North America due to overdoses involving these more potent fentanyl derivatives. There are hundreds of fentanyl derivatives that are being synthesised and have been distributed, mainly in Canada and in some parts of the U.S. These countries have experienced thousands of fentanyl-related deaths due to these very potent drugs.

"While we might not have the same level of cocaine use in Australia as that experienced in the U.S, we certainly have similar issues with all the other drugs, including opioids and benzodiazepines. The use of fentanyl analogs may become a significant issue in Australia in the future. There is some progress in relation to identifying if these drugs that are present in an overdose or in a fatality as well as seized material; however this is an emerging issue for toxicology and law enforcement in this country."

A/Prof Gerostamoulos warns, "The messages and dangers surrounding traditional illicit drugs still stand; however, for people who are seeking the use of novel opioid derivatives which are very toxic indeed, they need to be aware of the high level of risk involved. These drugs are not just potent, but extremely toxic and potentially fatal, even at very low concentrations."

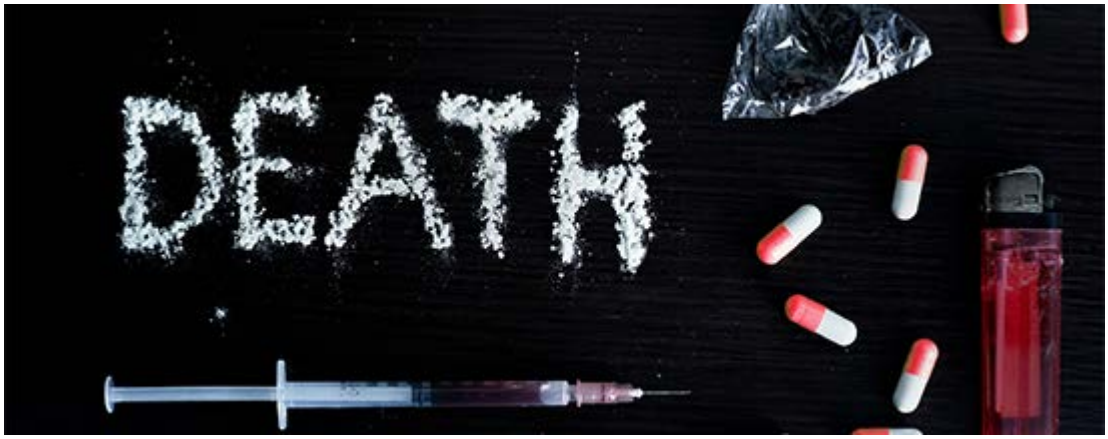
This article appeared in the February 2018 Edition of ePathWay which is an online magazine produced by the Royal College of Pathologists of Australasia (http://www.rcpa.edu.au/Library/Publications/ePathway).

« Back to Home Page

ePathWay
THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

FEBRUARY 2018 | PUBLISHED BY RCPA ISSUE #077

Is it common to experience poisoning?



Clinical Professor David Ranson, Deputy Director – Head of Forensic Services, Victorian Institute of Forensic Medicine, explains, “Poisoning covers a wide spectrum of substances and encompasses a variety of very different circumstances. As a community, we talk about poisoning in a lay sense as being chemicals that are toxic to the body. Actually, poisoning covers a broad range of substances which can involve inorganic poisons, organic poisons, traditional illicit drugs, synthetic drugs, high levels of prescribed drugs, prescribed drugs in normal amounts which are toxic in some individuals, and prescribed drugs which are not toxic in others.

“Although the media and television dramas tend to imply that deliberate homicidal poisonings happen all the time, the truth is that these cases are extremely rare in the real world. Excluding all cases of suicidal drug overdoses, in terms of forensic practice and the coroner’s cases, it is relatively uncommon to see poisoning as a cause of death, either deliberately or accidentally.”

However, when investigating the circumstances of poisonings, we see that this happens in a variety of ways. Prof Ranson says that poisoning is more common in cases of suicide by drug overdose, when a person addicted to drugs suffers an accidental overdose, when the wrong dose of a drug (or the wrong drug) was administered by medical staff, or when the wrong dose of a prescribed drug was taken by a patient.

“When we talk about poisons, we need to consider all these different categories of poisoning. There can also be cases when an individual experiences poisoning when taking a prescribed drug which has never caused complications previously, but a change in their disease status has made them more vulnerable to the drug.”

Prof Ranson explains that there are some diseases (liver or kidney disease) where a patient may experience an increase in their blood level of a particular drug if they are no longer able to metabolise or excrete that drug in the normal way. “A dose that may be perfectly safe for someone in their 40’s, suddenly becomes a dangerous dose to someone in their 80’s with liver dysfunction or kidney dysfunction. Pathology is absolutely crucial in understanding the nature of the disease and establishing a person’s level of risk in relation to developing a toxic effect from a drug.

“In addition, nursing homes can sometimes be an environment where an individual takes or is given a drug accidentally that belonged to someone else and it is a hazard to them. This can be the case, particularly where you have an individual who is on a pain medication with a narcotic agent, such as morphine. Due to the patient’s pain level, they may be on a substantial amount of prescribed drugs; however they can cope with it because they have been taking it regularly. If someone else takes or is given that drug accidentally when they are not used to receiving it, they can die from a massive overdose or suffer severe consequences.”

Prof Ranson explains that the poison control system in Australia, and in most western countries, is sophisticated in terms of detecting poisoning and also dealing with a clinical setting in which poisoning occurs.

“The poison centres provide urgent information to emergency departments and intensive care departments on the nature of a drug. Occasionally, if it is an unusual drug that may have been taken, and the clinician wants real levels of the drug, they may send specimens to forensic centres for analysis as they normally have a greater capacity to look at a wider range of toxic substances. In hospitals and in clinical settings, the focus is on what needs to be tested in order to manage the patient. In other words, it may not be that important to know the level of the drug, as a patient is often best managed symptomatically.

Prof Ranson explains that understanding the nature of the pathology of different disease states at autopsy can be crucial as what is found in a death investigation may well alter how a drug level in the body is interpreted.

The redistribution of drugs is an extremely important issue for the forensic pathologist and the forensic toxicologist.

“Forensic testing or testing after death can be problematic in terms of the levels recorded. The clinical level in life may not always represent the level you will see in post mortem blood. After death, due to the redistribution of some drugs from body tissues back into the blood, the blood levels of a drug can artefactually increase, therefore it can look like someone has taken a very significant drug overdose, but in fact it’s due to the redistribution of drug after death.”

« Back to Home Page

RCPA - Durham Hall - 207 Albion St Surry Hills NSW 2010 AUSTRALIA | (+61) 2 8356 5858 | www.rcpa.edu.au