ehpa HEALTHY FOCUS
Newsletter for the Industry
Issue 11 - Spring 2018

President's Message

As we are come to the end of another busy year, I can say with certainty that life is never dull as an EHO, having said that you have to enjoy a job that provides so many different challenges every day.

On the EHPA front, you can look forward to some exciting changes early in the new year, along with a revamped Emergency Management Course in July 2019. We will also be running more courses in regional centre's following the success of our Public Health School in Mildura in May 2018.

On behalf of the Board and staff of EHPA I would like to thank all of our SIG Convenor's and Regional Group Secretaries for the great job they do, a special thank you to Leanne Johnson, Food SIG Convenor who is stepping down this year after many years in the role and all of our other volunteers who make EHPA an organisation to be proud of.

I wish all of you a very happy and safe Christmas and New Year and I look forward to catching up with members at one of the many events we will be holding in 2019.

Sarah Annells
President
Environmental Health Professionals Australia

NEWS

The Board of Environmental Health Professionals Australia would like to thank all our members for their support during the year, especially the Regional Group Secretaries and Special Interest Group Convenors.

MERRY CHRISTMAS

The EHPA Office will be closed from Monday 24 December 2018 - and will reopen on Monday 14 January 2019

We hope that you all have a wonderful Christmas and a happy New Year.

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SIGs and Regional Groups are run frequently and are a fantastic resource for keeping abreast of interesting issues. Contact Bernadet to make sure you don't miss the next one.

:03 9438 5960 **info@ehpa.org.au**

Update on the Food Safety Unit's "Food Safety Reform Program"

The **Department of Health and Human Services' Food Safety Unit** is currently working on a Food Safety Reform Program, introduced in response to the recommendations of the Small Business Regulation Retail Sector Review 2016-18.

Over the next three years the Program will implement a number of measures designed to make it easier for Victorian food businesses to understand and meet their obligations in relation to food safety. These include:

- the introduction of guidance materials to help businesses easily identify the food safety requirements and processes relevant to them when setting up and operating a food premises
- changes to the ways food premises are assessed and classified under existing food safety legislation
- technical upgrades to Streatrader, the online registration portal for mobile and temporary food businesses in Victoria, making it easier for businesses and community groups to register at short notice for events, and for organisers to quickly access and manage their event registration
- the development of an online platform for councils to support businesses in lodging their food premises registrations through a one-stop application service.

If you have any questions regarding any of the reforms please contact foodsafetyreforms@dhhs.vic.gov.au.

Marysville Symposium

WOW!

What a great couple of days, hosted by Murrindindi Shire Council and Hume Regional Group, Marysville was the perfect backdrop for our event. It was interesting how many people had not been to Marysville before the Symposium and most of them were blown away by what a great place it is and what a great venue the Vibe Hotel was for our event.

Day 1, our Keynote Speaker, Samuel Johnson OAM, was amazing, he challenged our preconceptions, he made us think about what we have and what other people do not, he bought a tear to many an eye in the room with his true stories, he is a master storyteller. He was funny, sad, over the top and shy all at the same time. I think we all learned something from his presentation. It was a very real raw look at life.

Day 2 and our Keynote was Brigitte Muir OAM, Brigitte Muir is the first Australian woman to have climbed Mount Everest and the first Australian, male or female to have climbed the highest mountain on each continent.

Brigitte showed us the challenges she faced in her time climbing Everest and how we can all climb the mountains in our lives. A very inspiring woman.

A big thank you to all our speakers over the two days, all the presentations were well received and the feedback we received from delegates was overwhelmingly positive.

During the Symposium, we awarded two members with Fellowships – Kirsten Jenkins and Sam Salamone were both upgrade to Fellows and Leanne Johnson was made a Life Fellow for her long term involvement as an EHPA Board Member and Food SIG Convenor, anyone who knows Leanne will know how well deserved it is.

Sarah Annells & Brigitte Muir OAM

Leanne Johnson, Sam Salamone & Kirsten Jenkins

The winner of the Robert L Handby Award was the City of Maribyrnong and the winner of the Young Environmental Health Professional 2018 was Shelly Kaur.

These awards will be presented at the 2019 Food Forum on 1st April 2019.

A big, big thank you to our Symposium committee, Natalie Stewart, Lisa Eade, Kelly Mahoney, Kellie Lewis and Jackie Sirett, they did an outstanding job and this amazing event would not have happened without them. Well done!

Shocked faces at the Skin Penetration Session

The 2019 Symposium will be held in Melbourne, if you are interested in being a part of this event please contact Bernadet Ferraro bernadet.ferraro@ehpa.org.au . As anyone who has worked on a Symposium Committee will tell you it's a great experience.

See you all in 2019!

Symposium Committee with Samuel Johnson OAM

NorthWest Metro Regional Group Meeting

A meeting of the Group was held at Banyule City Council on the 5 June 2018 at their new Greensborough offices which is part of the leisure centre WaterMarc.

Bernard Zupan from Banyule chaired the meeting. Sarah Annells, EHPA President was first speaker and discussed the recent issue of the discontinuance of the Swinburne University Technology Bachelor of Health Science (Public and Environmental) course at the end of the year with the alternative of a one year postgraduate course run by Swinburne.

The NorthWest Metro Regional Group needs a new Secretary.

Adele Sarrou from Melton City Council is currently acting in the role. Thanks to Gizem Biter who was the Group Secretary but has now relocated to the South East. There are many benefits from undertaking this position. Read the feedback from some of our current Regional Group Secretaries when they were asked, why they have taken on the role of Group Secretary and how they think these meetings benefit EHOs.

Bernard Zupan discussed their Councils migration from Authority to Health Manager and their experiences and challenges they faced. The integration occurred in 3 stages and now they have the ability to use Health Manager's inspection app, using the system as a portal and the ability to complete renewals online. The importance of a dedicated partnership with other departments within Council was vital for the success of the process.

The meeting then want to general business with various questions put by different members.

Annie Ryan

Annie Ryan from the City of Ballarat is the former Regional Group Secretary for the Grampians Region,

"I took on the role in 2014 to become more involved in the region and learn about successes and issues that the other councils within the Grampians were dealing with. I have also found it a valuable way to help provide the region with a central point for information to be shared.

"There is a large range of council municipal sizes throughout our region and the meetings provide time for everyone to collaborate and discuss ideas with their peers. It is also a great way to learn about new or unusual activities that EHO's come across throughout the region and working together to come up with solutions. Catching up is a great way to network and socialise as well!"

George Baker from the City of Greater Bendigo is the Regional Group Secretary for the Loddon-Mallee Regional Group,

"I took on the role of secretary for the Loddon Mallee Region in March 2017. It was an exciting opportunity for myself as Bendigo is one of the larger councils in the region and is in the position to help EHPA as we continue gaining momentum. There were some strong reasons for why I felt it was appropriate for me to take on the role. Our region is fast growing and it is important that our industry is in a strong, healthy position. It was important to me that we keep communication free flowing across boundaries in the region and this position provided a platform where I could contribute and help us to strengthen our links and bonds in the region.

"I felt that one way I could contribute to highlighting the importance and value of EHO's was to empower us as a region to remain strong and supportive of each other. Taking strong ownership of our role in protecting and promoting the health of our various communities for years to come is crucial in a time of change or uncertainty, like many councils have experienced. Helping officers to engage and feel empowered to become the best that they can be is a driver.

George Baker

"It's been incredible to see the momentum gained and the involvement of members throughout the region and I feel our meetings reflect this. The content that is brought to our meetings is beneficial to all who attend, there is real variety and ample opportunity to share successes or challenges, learn something new and enjoy the networking opportunities. We have a good balance of guest speakers that are directly linked to our region and allowing time for our members to share successes, challenges and general experiences.

"In addition to the content, there have been networking opportunities integrated into the meetings. These opportunities to put a face to the name, or meet a new face are incredibly valuable. As a relatively recent graduate myself, I appreciated the welcoming, relaxed environment of our meetings. I was fortunate enough to be mentored by many members in our region and I look forward to us continuing to provide development opportunities where our members assist each other for years to come. One area where we couldn't have anticipated the benefit to members, was the benefits beyond our meetings. We've focussed on showcasing our region as a fantastic place to live."

What are the benefits of attending a Regional Meeting?

Here is some feedback from some of the participants who attended this meeting:

"The main reason I attend the EHPA North-West meetings is to keep the networking with other council's officers and to discuss the recent emerging trends in various food areas."

Anna Grechina, Environmental Health Officer, City of Whittlesea

"I attend the regional meetings for the information transferred – often issues come up and it is helpful to get input or advice from colleagues at other Councils. We can all learn from others experience and so I find this very useful.

"Also as we spend a lot of time working independently, it is a good opportunity to catch up with people in person, get to know faces to names and have some casual conversations about what is happening in the Environmental Health field."

Carolyn Anderson, Team Leader, City of Yarra

So, if you are interested in taking on the role of Secretary of the North West Metro Regional Group contact Adele Sarrou on AdeleS@melton.vic.gov.au

More photos page 8 →

NorthWest Metro Regional Group Meeting

"I could have died"

Coeliac woman, 27, is rushed to hospital with kidney failure after a restaurant wrongly told her that her chicken and waffles were gluten-free

- Kate Smithies-Williams went out for breakfast and was served a meal with gluten
- She suffered a severe reaction including mild kidney failure as a result
- The restaurant claimed coeliacs shouldn't eat food from its gluten free menu

A woman with coeliac disease has suffered severe symptoms after a restaurant served her two meals it ensured were gluten free. Kate Smithies-Williams went out for breakfast with her husband, Scott Williams, at a Perth eatery two weeks ago where she ate a chicken dish followed by a plate of waffles.

Moments after the meal however, the 27-year-old began drifting in an out of consciousness and suffered mild kidney failure, the West Australian reported.

"If I was already sick or if I was an elderly person and I had this sort of reaction, I could have died," Ms Smithies-Williams said.

The couple were surprised given they had dined at the eatery previously and did not have an issue with the food.

The restaurant owner said while it offered a gluten free menu, it warned its coeliac customers not to order from it because there's a risk the meals may have been contaminated.

"If you're really coeliac or really gluten intolerant, we don't recommend that you eat the gluten-free. We only have one kitchen and flour is obviously airborne, so there's always the possibility of cross-contamination,"she said.

The young CrossFit fanatic was diagnosed a coeliac at just one-year-old and said if it weren't for her good health she might not have survived.

The incident followed revelations that nearly 10 per cent of food sold as gluten-free at cafes and restaurants across Melbourne contained gluten.

Ms Smithies-Williams intends to decline a $40 refund and confidentiality clause from the restaurant so she can warn other coeliacs about the dangers of dining out.

"If they're not prepared to put in that effort and time to make sure that it's gluten-free, then they shouldn't advertise it as such. I have lost faith in going out for dinner and it's going to take me a long time to be able to go out and do that without fear of this happening."

Coeliac Australia's Cathy Di Bella said it was unfair for restaurants to offer gluten free options then claim they may contain gluten. She claimed gluten was the 'forgotten allergen' so the organisation was helping to establish an accreditation program within the hospitality industry.

This article was first published Daily Mail and written by Brooke Rofle - Published jun 6, 2018

Emergency Management Workshop September 2018

Zoe Smith
EM SIG Committee Member

The Emergency Management Special Interest Group held an Emergency Management Workshop on Friday 14 September 2018 at the Angliss Conference Centre at the William Angliss Institute in Latrobe Street, Melbourne.

Further information and registration details will be sent to members and also be included on the EHPA website in the coming weeks.

Resilient Recovery Reform

Since early 2017 Emergency Management Victoria's Relief and Recovery team has been collaborating with stakeholders across the emergency management sector to develop a strategy that will guide the ongoing reform of relief and recovery in Victoria.

Over the past few months, Emergency Management Victoria, in partnership with the Department of Health and Human Services facilitated a series of workshops across the state with local government, community, industry, regional and local stakeholders to test initial ideas and further develop a strategy for sector-wide reform.

For further information and to view the Discussion paper go to:

Engage Victoria and Emergency Management Victoria.

Or subscribe to the Resilient Recovery Newsletter.

SIGs and Regional Groups are run frequently and are a fantastic resource for keeping abreast of interesting issues.

Contact Bernadet to make sure you don't miss the next one.

03 9438 5960
info@ehpa.org.au

Cold Weather

Do you know you can receive **cold weather alerts** and not just heat health alerts? These alerts are targeted for networks and agencies to support those sleeping rough.

For further information go to: Cold Weather Alert - Health Victoria

Emergency Management Forum – follow up

This year's EM Forum was a huge success with presenters from Emergency Management Victoria, Department of Health and Human Services and Local Government discussing key issues including consequence management, resilient recovery and impact assessment and a practical exercise utilising Crisisworks.

For those that attended and those wanting to know more about Crisisworks, the below are links are provided to assist with further on-line training in the use of Crisisworks.

People can register to watch all of the training videos via: videos.crisisworks.com.au
Field Inspections Mobile App Quickstart video - provides details for inspectors to get started in the field quickly.

Also if you would like more practical experience, your Council and many regional collaboration groups run annual Emergency Exercises. Make sure you talk to your EM officer to show your interest in attending and observing these exercises. They are great learning tool.

Council's and Emergencies Project - Phase 2

Local Government Victoria (LGV) has been working with the phase two project reference group and a consultant to develop a maturity model into a tool that will assist each council to identify their capability and capacity in emergency management. The model has two components - an actual maturity and a target maturity. The actual maturity is based on the responsibilities and activities identified in phase one of the Councils and Emergencies Project.

The tool will enable councils to consider their capacity and capability to undertake each responsibility. The target maturity looks at council as an organization, and is based on Victoria Grants Commission data and self-assessed risk data. Once councils complete the tool, they will be provided with an indication of where they are currently operating against their target.

The tool will be piloted with four councils in November 2018. Once the tool is finalised, LGV will arrange a regional workshop to give each council additional information prior to them completing the tool.
(MAV EM Update 10 Oct 2018)

Seasonal Preparedness

In preparation for the summer season, the following websites may be useful:

Bureau of Meteorology - Seasonal Outlooks - On the left hand side of the page provides the Outlook Video link.

Vic Emergency Website (also available as an app)- provides information on current incidents and warning, also includes preparation and recovery information.

DHHS - Extreme Heat and Heatwaves page includes links to the Department's Heat Health Alerts, subscription and current status, planning, information and resources. Within the Heat resources page is a link to the on-line order form.

The better health channel provides community information on a range of health topics and includes the Heat Health Campaign information.

The State Extreme Heat Sub-plan - found on the Emergency Management Victoria (EMV) Publications page.

DHHS - Epidemic thunderstorm asthma page provides links to the Department's Forecast system, resources, campaign toolkit and multicultural resources. Information videos are also available

Better Health Channel - Community campaign

HEALTHY FOCUS

Bedbug Plague Hits British Cities

The parasites, picked up on planes, trains and in hotels, are spreading into homes

The UK is facing an exponential increase in bedbug infestation as a result of this summer's hot weather, which is exacerbating a major problem in densely populated cities, experts are warning.

In higher temperatures, the reproductive cycle of the bugs – Cimex lectularius – shortens from 18-21 days to eight or nine days, according to David Cain, of extermination company Bed Bugs Limited.

The problem is compounded by social stigma which often results in a reluctance to seek help, and because a significant proportion of the population have no physical reaction to bedbug bites so may be unaware of an infestation. "The problem has been spreading globally since the late 1990s, and there is literally no country on the face of the planet that hasn't had a bedbug problem," said Cain.

"In the UK there has been a year-on-year increase since 2006, which shows no sign of plateauing,"' he added. "And in the next month or two, we will see a ramping up of activity related to the higher temperatures, which make breeding massively more efficient."

Tony Lewis, head of policy at the Chartered Institute of Environmental Health, said the persistent bedbug presence in the UK was made worse in the summer by higher temperatures and people returning from holiday with bedbugs in their luggage. "It doesn't matter if they've been staying in a five-star hotel or a dingy B&B, the chances of encountering bedbugs are equal," he said.

Bedbugs – flat, rust-coloured parasites about 5mm long – were common in the UK 100 years ago, but their numbers were greatly reduced by the use of insecticides such as DDT. Now, the bugs have developed resistance to chemical treatments, making the eradication harder.

Their source of nourishment is human blood.

'This insect has developed to be the most efficient and adaptive hunter of human beings that we've probably ever had," said Cain. "If people are fearful of sharks, the answer is to stay out of the water. When it comes to bedbugs, the answer is to be permanently on guard."

Jacqueline Smith, a London professional in her 30s who didn't want her real name used, had been scratching her arms and legs for about a month before she summoned professional help last week.

"I was waking up every morning with bites which I thought were from mosquitoes, although no one else was suffering. My boyfriend mentioned bedbugs, but I completely dismissed it. In my mind, bedbugs were found in crusty backpackers' hostels in other countries – I didn't think it could happen to us," she said.

When she finally lifted her mattress to find a handful of bugs crawling beneath it "I cried. I was totally repulsed and panicked".

Bedbugs can leave irritating bites, but a significant number of people have no reaction. Facebook Twitter Pinterest Bedbugs can leave irritating bites, but a significant number of people have no reaction. She is now in the middle of a 14-day programme of eradication and monitoring, which involves washing bedding and clothes at 60 degrees, and a deep clean of the couple's bedroom. Her partner's office has been identified as a potential source.

Cain said: "Bedbugs can happen to anyone. I've been into some awesome Knightsbridge apartments where behind the front door there's a massive bedbug problem. Lots of people equate bedbugs with dirt, but dirt has nothing to do with it."

Most people carried the bugs home with them from public transport or workplaces, he said. Bedbugs were commonly found in seats on London buses and tubes, but there were particular "hubs and spokes".

"There's a west-to-east corridor that follows the Central line. There's another hotspot running from Elephant and Castle down to Lewisham and New Cross. And yet another from Elephant and Castle to Brixton, then Norwood, and then on to Croydon."

Last month, Air India grounded two planes after passengers in business class complained they had seen bedbugs in their seats. The airline called in exterminators to fumigate upholstery and carpets.

Bedbugs have also frequently been found in hotel bedrooms, even ones as prestigious as the Waldorf Astoria in Manhattan. The Bedbug Registry, which monitors infestations in North America, said there had been a 44% increase in reports of bugs in New York hotels between 2014 and 2015.

Bedbugs can leave irritating bites, but a significant number of people have no reaction. Photograph: Getty

Cain inspects every hotel bedroom he books into before unpacking and estimates that 5% are infested. He said: "The only way a hotel can protect itself is to close its doors to guests."

His advice to the public is: never sit down on buses, trains or tubes; check office chairs, plane seats and hotel mattresses before contact; and monitor and vacuum your bed once a month.

According to Lewis, the growing prevalence of bedbugs is partly because a lack of awareness. "The time was when people regularly aired bedding, and that was partly to do with guarding against pests. No one does that any more. Now when people find bedbugs, there's a shame, a stigma around it."

This year's annual Global Bed Bug Summit in Denver, Colorado, heard that the eradication industry could be worth $1bn within five years. But, writing on the news and analysis website The Conversation, one academic, Heather Lynch of Glasgow Caledonian University, has suggested that bedbugs may have become so endemic that people need to learn to live alongside them.

Cain, who left a career in the City to launch Bed Bugs Limited, admitted that he "may have become slightly obsessed" with the pests. Had he ever had an infestation at home? "Yes. An ex refused to follow my advice about never sitting down on public transport. That's one of the reasons why she became an ex."

This article was written by Harriet Sherwood and first appeared on [The Guardian] August 19, 2018

HEALTHY FOCUS

Brisbane flu virus one of the most dangerous in the world

THE World Health Organisation has bestowed a rather dubious honour on the Sunshine State's capital.

BRISBANE may be known for its sunny weather and XXXX beer, but it has been given an inglorious honour by the World Health Organisation (WHO) today.

The global health body says a deadly flu strain, which originated in the Queensland capital, is one of the most dangerous in the world.

It means the killer influenza B bug, dubbed the Brisbane virus, will be included in this season's four-strain vaccination.

It follows a horrific influenza season in Australia last year, which killed 1100 people. Australian Medical Association president, Michael Gannon told news.com.au said the unenviable title given to Brisbane shows how bad last year's flu outbreak was.

AMA president Michael Gannon said this year's flu shot includes vaccination against the 'Brisbane' B-strain. Picture: AAP Image/Mick TsikasSource:AAP

"The WHO give the name of a regional area or city to a new form of virus and that enables them document them," he said.

"It does reflect the fact that last year's flu season in Queensland was a particularly bad one.

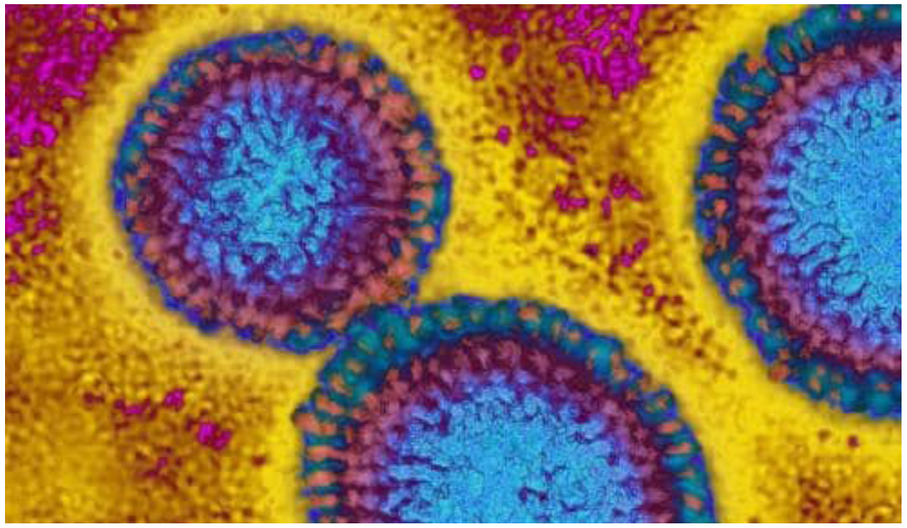
"However, it is just a name and the truth is that influenza is always dangerous and it is constantly mutating and changing.

"That is why we need an influenza vaccination every year. And, because of the capacity of the virus to mutate, we see different types of influenza in different parts of the world at different times."

Along with the Brisbane strain, the Michigan A strain, Singapore A strain and Phuket B strain will also be covered in vaccinations.

The updated vaccination comes after 3200 people in Queensland alone have been diagnosed with influenza so far this year.

Queensland has seen more than 36 people struck down by the virus every day since the start of the year, threatening to eclipse last year's rampant outbreak, according to official statistics.



Queensland has seen more than 36 people struck down by the virus every day since the start of the year. Picture: BSIP/UIG via Getty Images.Source:Supplied

"The Brisbane strain is a 10-year old strain but because of the evolving nature of influenza the vaccines are evaluated every six months and it is back in the spotlight," said Professor Robert Booy, head of the clinical research team at the National Centre for Immunisation Research and Surveillance, told The Courier-Mail.

"Decisions (on which strains to include in the vaccine) are made depending on what strains are the most widespread and the most dangerous."

Doctors around the country have been urging Australians to be vaccinated — with the Victorian government even setting aside $50 million for state hospitals.

"We're giving families peace of mind that if another horror flu season hits this winter our hospitals will be ready," Victorian Premier Daniel Andrews said on Sunday.

In 2017, more than 56,000 cases of influenza were diagnosed in Queensland alone, making it one of the state's worst seasons on record, with 2961 cases between January 1 and April 1.

But statistics show that this year, 3242 people have already been laid low by the bug, almost 300 more than this time last year, making it the busiest start to a year since 2008.

Health officials are urging residents that the time to get vaccinated is now. And Brisbane GP Dr Deb Mills warned delaying getting the vaccine was "a bit like Russian roulette".

"Basically you can't tell when the flu is going to hit," she told The Courier-Mail.

Queensland Health insists it is trying to prevent another upsurge similar to last season and was pumping in more than $2.3 million to help communities.

"The number of year-to-date cases of influenza in 2018 is higher than previous years, but it is too early to tell if this flu season will be worse than previous years," a spokesman said.

"Our message remains the same: get vaccinated every year because it is the best way of protecting yourself against the flu.

"Although getting vaccinated is the most effective way of avoiding the flu, we should not ignore basic practices such as proper hand washing, covering a cough with a tissue or our arm and staying home when we're sick."

This article was written by Ben Graham and first appeared on news.com.au April 11, 2018

Updates from the Environment SIG

ehpa Environment SIG

In addition to meeting four times in 2017, our SIG made submissions, participated in external groups and organised professional development events as listed below:

- Submission to the NHMRC's Recreational Water Guidelines Targeted Consultation Survey 2017.
- Joint submission with the Public Health & Wellbeing SIG to the EPA Victoria's Draft Environmental Health practice note: Asbestos 2017.
- Input to City of Hobart's 'Hobart Climate Change Information for Decision Makers' prepared by the Antarctic Climate Ecosystems Cooperative Research Centre's Climate Future Tasmania.
- Participation in the Municipal Association of Victoria's On-site Domestic Wastewater Working Group to provide advice on the Waters of Victoria State Environment Protection Policy Review.
- Participation in the Standards Australia Committee review of AS 4766 Polyethylene storage tanks for water and chemicals.
- Assistance to M+K Lawyers in planning the targeted discussion on legal aspects of on-site wastewater management systems.
- Engagement with the Public Health & Wellbeing SIG to deliver the "Public Health & Wellbeing and Environment, a Cause-Effect Relationship Forum",
- Engagement with Brüel & Kjær to deliver the **Noise Meter Hands-On Pilot Course**.

Our 2018 meetings details are available from the EHPA website events calendar. Attendance in person is most common, but phone conference participation is usually an option.

We invite you to join us and make a contribution to the health of the environment!

Enquiries: ehpaenvirosig@gmail.com

SIGs and Regional Groups

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Contact Bernadet to make sure you don't miss the next one.

:03 9438 5960
info@ehpa.org.au

2018 Public Health & Wellbeing Forum

ehpa Public Health & Wellbeing SIG

There was a full house for the Forum organised by the Public Health & Wellbeing SIG at the William Angliss Institute in La Trobe Street Melbourne.

The line up of speakers presented on a wide variety of information on emerging trends, update of legislation and guidelines as well as case studies. Roger Sayce, EHO from the City of Melbourne and EHPA Board Member was MC for the event ensuring the day ran to schedule.

The Forum was opened by Professor Charles Guest, Chief Health Officer from the DHHS. The Department is in the process of identifying regulatory gaps with other regulators through a taskforce. One of these gaps is how to deal with hybrid premises that offer beauty and medical procedures.
Karen Fletcher and Dr Michael Taylor from the Department discussed managing the sunset review of the Public Health & Wellbeing Regulations.

They are currently gathering data on enforcement actions by Councils and administrative issues.

They are also reviewing issues around prescribed accommodation priorities.

Donna Cameron form the Department presented the current review of the Health Guidelines for Personal Care and Body Art Industries. Donna spoke about the consultation process and survey response and elaborated on some of the feedback received and issues that will be included in fact sheets for EHOs.

Rebecca Schack from the Department discussed emerging trends and registering skin penetration practices. Stephanie Bower from Maddocks Lawyers discussed the enforcement of guidelines.

There were two case study presentations from EHOs. Adele Sarrou and Roy Russell from the City

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Karen Fletcher and Dr Michael Taylor from the Department discussed managing the sunset review of the Public Health & Wellbeing Regulations.

They are currently gathering data on enforcement actions by Councils and administrative issues. They are also reviewing issues around prescribed accommodation priorities.

Donna Cameron form the Department presented the current review of the Health Guidelines for Personal Care and Body Art Industries. Donna spoke about the consultation process and survey response and elaborated on some of the feedback received and issues that will be included in fact sheets for EHOs.

Rebecca Schack from the Department discussed emerging

Some of the feedback received from participants about the Forum.

- **I really liked the case study presentations eyelash, kids with ink and foot spa.**
- **Great to hear from EHOs with case studies**
- **The case studies, and processes that were conducted were very interesting.**
- **The Environment Protection Amendment Bill 2018 and the food was amazing.**
- **Hearing the cases and experiences of other officers was great. Also hearing about the changes that are coming up and having the chance to actually to talk to the people that are making the changes.**
- **Great use of Sli.do also audience participation encouraged further discussions.**

Food Act Allergens Case Study Sessions

Louisa Dicker
Senior Associate
Macpherson Kelley Lawyers

In March this year I presented two discussion groups on Victorian allergens case studies that had been handled by Macpherson Kelley Lawyers over the last couple of years.

These sessions were presented following requests from a number of council environmental health professionals for further guidance on this high-risk and complex area of law.

Food allergies are prevalent in Australia, especially in Victoria. This year alone has seen a number of media articles on allergen related deaths, hospital investigations and coronial inquests. I have also received requests for advice from a number of councils on allergen incidents and training.

The case studies I presented on at these sessions were predominately from allergen incidents that occurred at restaurants and cafes, where a severe anaphylactic reaction was had by the victim. These allergen incidents arose often from a failure of internal processes, lack of training, staff error, misunderstandings between an intolerance and an allergy, or a combination of the above.

Where enforcement action was taken, the charges have, for the most part, included the following:

- **Section 10(1)** of the Food Act 1984 (Vic), knowingly falsely describing food – cause (indictable charge);
- **Section 10(2)** of the Food Act, knowingly falsely describing food – sell (indictable charge);
- **Section 10A(1)** of the Food Act, falsely describing food in other circumstances - a person must not cause food intended for sale to be falsely described if the person ought reasonably to know that a consumer of the food who relies on the description is likely to suffer physical harm (indictable charge);
- **Section 10A(2)** of the Food Act, falsely describing food in other circumstances - a person must not sell food that the person ought reasonably to know is falsely described and is likely to cause physical harm to a consumer of the food who relies on the description (indictable charge);

- **Section 14** of the Food Act, sale of food not complying with purchaser's demand;
- **Section 16(1)** of the Food Act, Food Standards Code 3.2.2 3(1)(a), food handling (skills in food safety);
- **Section 16(1)** of the Food Act, Food Standards Code 3.2.2 3(1)(b), food handling (knowledge of food safety);
- **Section 16(1)** of the Food Act, Food Standards Code 3.2.2 7(1)(b)(i), food processing (contamination).

A number of the above listed charges are alternatives and subject to negotiation in prosecution proceedings.

Some of the hurdles that council officers face in these types of matters include:

a. Being brought in to the investigation late, meaning the evidence has been thrown out;

b. The tension between the proprietor/employer and food handler/employee, impacting the willingness of witnesses to cooperate;

c. The willingness of victims to provide evidence;

d. The legislation not having a specific or tailored offence, reflective of the seriousness of these matters.

Despite these hurdles, many councils have shown their uncompromising commitment to allergens enforcement and safety, with great results.

Council environmental health professionals are encouraged to watch this space, allergens are, and will remain, a serious food safety risk requiring ongoing education and enforcement.

ehpa Environment SIG

On-site Wastewater Forum

On 22 June 2018 the City of Ballarat hosted the On-site Wastewater Forum, convened by the Environment SIG.

Local Governments, South East Water, Macpherson & Kelley, Paul Williams & Associates, Van De Graaff & Associates and Sanae Services shared approaches and case studies about on-site wastewater management systems.

Presentations included strategies to manage on-site wastewater systems, cost recovery options, wastewater pre-treatment, legal cases, biological treatment of wastewater as well as land capability assessment focused on science and compliance.

Further to supporting the event, sponsors talked about their innovative solutions to more than 60 forum delegates.

A significant number of responses have been collected from a post-forum service survey. This feedback will allow for improvements on how the Environment SIG offer professionals development opportunities and support the building of capacity within the environmental health sector.

Giuliano Marcon
Environment

Undercover study of Melbourne cafes catches them serving up harmful levels of gluten

A STUDY has found Melbourne cafes are selling popular items that can't match their claims — and it's putting people at risk

THEY'RE usually some of the most expensive items at hipster, health-conscious cafes.

But now a study has found customers aren't even getting what they've paid for when it comes to gluten-free snacks.

What's worse is researchers even detected potentially harmful levels of gluten in foods at cafes across Melbourne, putting diners at risk.
The first-of-its-kind undercover study revealed one in 11 samples of 'gluten-free' food tested were contaminated with gluten at levels which could prove harmful to those with coeliac disease.

Previous evidence was only anecdotal, with patients reporting getting sick after eating out.

Gluten-free remains one of the top dietary requests.

A Cacao Chia Pudding that is gluten-free, dairy-free and vegan, a meal popular among trendy cafes.Source:Brisbane News

Led by Walter and Eliza Hall Institute scientists and City of Melbourne environmental health officers, 127 food businesses were visited and 158 'gluten-free' items tested.

Dr Jason Tye-Din, who leads coeliac disease research at the Walter and Eliza Hall Institute and is a gastroenterologist at the Royal Melbourne Hospital, said that gluten contamination was a serious health-risk to those with coeliac disease.

"For people with coeliac disease a strict gluten-free diet is their treatment, not a lifestyle choice," Dr Tye-Din said.

"Small amounts of gluten - even just a few crumbs - can be harmful over time and lead to issues such as osteoporosis or impaired growth."

He said the study provided the first objective evidence that foods offered by businesses as "gluten-free" could be contaminated with gluten.

"It is fantastic to see so many businesses offering gluten-free options in Melbourne and with the right awareness, training and practices this can be done safely and in line with the Food Standards Australia New Zealand (FSANZ) Code," he said.

"We want everyone who visits a food business across the City of Melbourne to feel safe and to know that if something says it's gluten-free, it actually is."

Coeliac Australia has developed a suite of resources to help food businesses prepare gluten-free options that comply with national food regulations.

The resources include a gluten-free online training module offering practical solutions for busy kitchens.

City of Melbourne councillor Beverley Pinder said the results served as a reminder to food businesses to train staff, investigate their suppliers closely, and to take important measures to avoid gluten contamination.

"This study is all about education — we want to safeguard members of the public who need to follow a gluten-free diet, as well as business owners who want to provide this option," Cr Pinder said.

"The City of Melbourne is working with the food businesses found to have potentially harmful levels of gluten to help them ensure customers' safety in the future.

"Gluten-free remains one of the top dietary requests and we urge all food businesses to treat gluten-free requests seriously," Coeliac Australia President Michael Bell said.

"The Coeliac Australia online training module was developed to educate hospitality staff and it highlights how even small changes to processes can help eliminate the risk of gluten contamination."

This article was written by Stephanie Bedo and first appeared on news.com.au May 28, 2018

THAT'S NOT ICE!

Stomach-churning moment woman sees a rodent tail sticking out of the ice lolly she's eating. The woman can only get up to £113 in compensation for rodent in her ice lolly under Chinese food safety laws.

A WOMAN was disgusted to find a frozen mouse in her ice lolly - while she was eating it. Ms Yang bought the sweet treat from a supermarket in Eastern China and only noticed the furry tail sticking out of it after taking several bites.

Furious at her discovery she demanded the shop pay her £11,300 in compensation but the store refused her request.

Under food safety regulations in China the store can only compensate Ms Yang up to 1,000 yuan (£113).

According to Global Times, Ms Yang bought the ice lolly from a local supermarket in Huai'an, Jiangsu Province on April 24.

She said: "I took a few bites then I could feel something furry and I thought it might be a small caterpillar."

Ms Yang called a friend and then tried to remove the tail using a pair of tweezers, which is how she made the grim discovery.

She added: "It was stuck deep in the ice lolly and later we noticed it was actually a tail of a mouse."

The footage, uploaded to Pear Video, shows her examining the mouse tail in front of the camera.

Ms Yang returned to the supermarket and asked for compensation of more than 100,000 yuan (£11,300) but they refused.

Instead, the store manager offered to compensate her with boxes of ice lollies and later suggested a payment of £230.

According to Global Times Ms Yang said: "I just licked the mouse in the tail! It has cast a shadow on me. How can that little money compensate my psychological loss?"

She has complained to the local market quality supervision after the supermarket refused her substantial compensation request.

Officials examined the lolly and confirmed it was a rodent.

But Office Zhu Conglai told Ms Yang that the supermarket is only a medium to sell lollies to customers.

He said: "The ice lolly manufacturers are set in Shandong Province and it is out of our administrative area."

This article was written by Thea Jacobs and first appeared on thesun.co.uk April 26, 2018

South Africa Currently Experiencing Worst Listeria Outbreak Ever

South Africa has been in the grip of a listeria outbreak since January 2017 with almost 1000 cases reported and over 180 deaths.

The World Health Organisation (WHO) are reporting that it's the worst listeria outbreak ever recorded. According to Peter K. Ben Embarek, who manages the WHO International Food Safety Authorities Network, "this is the largest ever recorded outbreak of this severe form of listeriosis globally".

Until recently, the source of the outbreak hadn't been determined and South African health authorities were coming under fire for taking so long to find the source of the problem. However, recent reports indicate that a local cold meat product, known as 'polony' seems to be the cause. Of 93 victims that have been interviewed, 85% remember eating ready-to-eat meat products such as polony or cold sausages.

As a result, South African Health Minister Aaron Motsoaledi had told citizens not to eat any ready-to-eat processed meat (not just polony) due to the risk of cross-contamination. He's even told pregnant women to avoid processed meats "like the plague".

Reaction to the Crisis

The two major producers of polony in South Africa have both denied any link between their products and the outbreak. However, both have suspended operations until a full investigation is performed.

Supermarkets throughout the country are clearing, cleaning and sanitising shelves - not just of polony, but of all ready-to-eat meat products due to the possible risk of cross-contamination, as advised by the Health Minister.

"While we know that polony is definitely implicated, there is a risk of cross-contamination of other ready-to-eat processed meat products, either at production, distribution or retail," the Minister's statement said.

"This is because Listeria on the exterior casing (packaging) of polony can be transferred to other products it comes into contact with, including viennas, russians, frankfurters, other sausages, and other 'cold meat' products that are typically not cooked before eating."

Neighbouring countries are also cracking down. Zambia, Mozambique and Namibia have all halted imports of processed meats from South Africa. Botswana are recalling products from South Africa, and Malawi has stepped up screening of imports.

What Is Listeria?

Listeria is the same bacteria that recently caused four deaths in Australia through contaminated rockmelons.

Whilst most people who contract listeria don't have any adverse symptoms, it's particularly dangerous for the elderly, sick people, pregnant women and unborn children.

Symptoms of listeriosis include fever, headache, tiredness, aches and pains. Less common symptoms are diarrhoea, nausea and abdominal cramps.

To learn more about listeria, check out "A Lesson In Listeria - Everything You Need to Know".

Sampling soy latte coffee for milk contamination

AUTHOR: Environmental Health Unit, City of Ballarat)
PUBLISHED: 22 May 2018

Abstract

Coffee is consumed by nearly half the Australian population (46%) (ABS 2011-12). The styles and types of coffee consumed are expanding with the introduction of new types of milk such as rice, almond and coconut. Some ingredients may pose a risk to public health given their capacity as known allergens.

A literature review highlighted an absence of data regarding the potential for cross contamination in the dine in and takeaway coffee market. As such the City of Ballarat's Environmental Health team believed there was merit in sampling take away coffee. With no base line data on the likelihood of cross contamination from the coffee making process the data collected may be useful for informing the food industry and regulators on the potential risks.

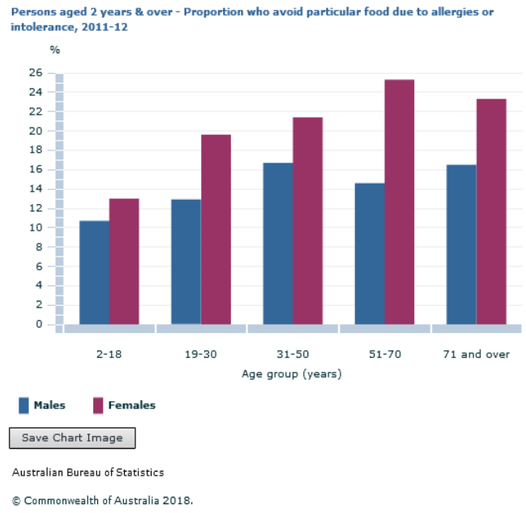
Introduction

The purpose of this investigation was to examine the risk of cross contamination within the coffee making Industry and adopt an educational approach with any potential findings.

A food allergy is almost always due to an immune response to a food protein. The most common allergens are cow's milk, soy, peanut, tree nut, egg, wheat (not gluten), fish and shellfish. Symptoms can include hives, swelling, vomiting, diarrhoea, difficulty breathing and/or collapse which can be life threatening. A food intolerance is not due to an immune response nor is it life threatening. Symptoms can include stomach pain, bloating, nausea, diarrhoea, or vomiting. (Allergy and Anaphylaxis Australia 2011)

An allergy to cow's milk and related dairy products affects one in 50 babies and is different to lactose intolerance. Most children outgrow cow's milk allergy by the age of 3-5 years, in some people cow's milk allergy may not resolve. (Australian Society of Clinical Immunology and Allergy, 2017) The most common food reported causing allergy or intolerance is Cow's milk/Dairy (4.5%), followed by Gluten (2.5%), Shellfish (2.0%) and Peanuts (1.4%) (ABS 2011-12). People who are allergic to cow's milk can also be allergic to goat, sheep and buffalo milk. Symptoms of milk allergy range from mild reactions to a severe allergic reaction (anaphylaxis). Some people experience symptoms immediately, but in others, symptoms can take time to develop.

In 2011-12, 17% of Australians aged 2 years or over (or 3.7 million people) reported avoiding a food due to allergy or intolerance (ABS 2011-12).



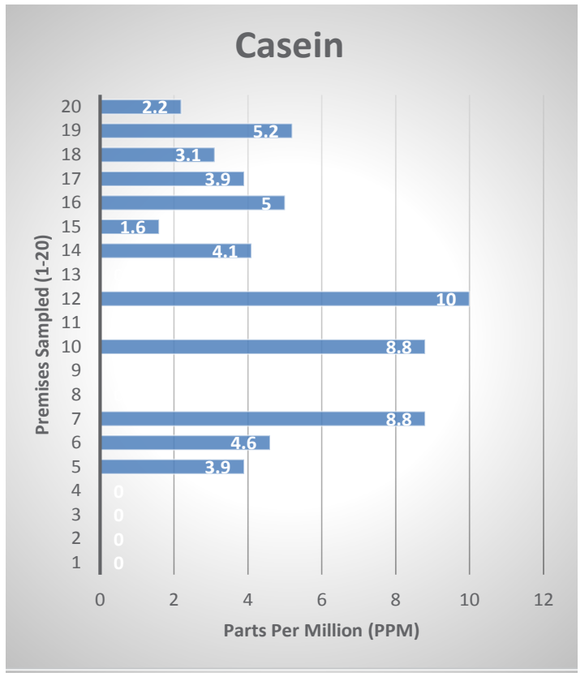
The Australian Bureau of Statistics reports coffee is consumed by two in three (66%) of the population aged 51-70 years and one in three (34%) people aged 19-30 years. Among those who consume coffee, the median amount of daily consumption was 330 ml.

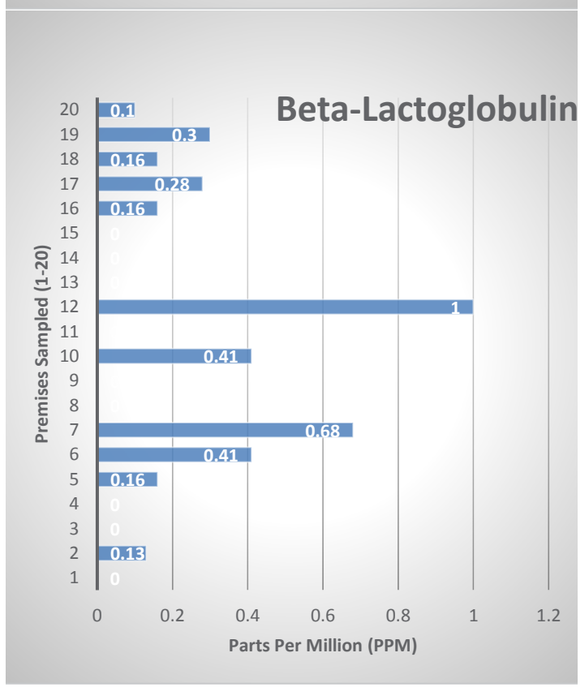
Australians predominantly drink lattes with Victoria having the strongest demand with 47% of coffees consumed being lattes. (Square Up 2017)

Current trends show greater innovations in coffee culture with increasing demand for soy, rice and almond milk latte. The expanding range of coffee ingredients on offer within the coffee industry points to an increasing number of known allergens being introduced as ingredients and is the basis for further investigation for the protection of public health.

Methodology

A total of 20 soy lattes were randomly sampled from Ballarat cafes, specialty coffee shops, drive thru coffee shops, juice bars and fast food outlets over a two-week period. None of the businesses were aware they were being sampled at the time. All samples were analysed by a NATA accredited laboratory for the presence of dairy in the form of (Lisa Systems) beta-lactoglobulin and casein. Once the Soy Lattes were purchased they were transferred to laboratory supplied containers, chilled then packed on ice for delivery to the laboratory the next day via courier (within 24hrs of sampling).





Findings

Of the 20 premises sampled, 65% were positive for the presence of dairy (beta-lactoglobulin and/or casein). The limit of detection was 0.1 ppm for Elise Systems beta-lactoglobulin and 1.0ppm for Elisa Systems Casein. Identifying either casein or beta-lactoglobulin in a sample confirmed the presence of dairy.

Of the positive samples, 10 were positive for Casein and 13 for beta-lactoglobulin. Ten samples were found to be positive for both identifiers. The range of contamination was between 0.2ppm – >10ppm for Casein and 0.1ppm - >1.0ppm for beta-lactoglobulin.

Observations made of baristas making the sampled soy lattes identified several inconsistencies in the use of equipment to produce the soy latte. It was also found there were issues with the efficacy of cleansing of equipment and in some cases a reliance on jug rinse systems to effectively remove milk contaminants. Awareness and time pressures also appeared to play a part with the likelihood of cross contamination between types of milk used.

All sampled businesses were sent an individual report explaining the results regarding allergens and issues of cross contamination. A high proportion of business proprietors were motivated to contact council to discuss the results.

Environmental Health Officers conducted follow up visits with the businesses to raise awareness. Proprietors were predominantly supportive of the feedback and education provided. They found value in understanding the potential risk to their customers. They were accepting of the need to modify procedures to minimise the risk for cross contamination. Discussions also raised the increasing risks posed by the introduction of coffee ingredients such as almond milk and other fad ingredients possibly containing allergens.

Conclusion

Whilst this program did not identify at what level milk contamination would trigger an allergic reaction, it is acknowledged that individuals differ regarding susceptibility to the proteins that cause an allergic reaction, or even an intolerance.

Procedures used by baristas have the potential to introduce cross contamination with the potential to impact on public health. Regulators should have regard to allergen management within food businesses including the coffee making process.

Baristas need to be aware of possible sources of contamination including:

- understanding known allergens handled at the premises;
- labelling milk jugs by type;
- issues for cross contamination including;
  - use of thermometers;
  - thorough cleaning and/or segregation of equipment;
  - use of cloths for cleansing of food contact surfaces; and,
  - purging of steam wands.

This innovative sample program provided a valuable and wider lesson for the regulator in engaging with the food proprietor and mutual understanding on both the management of allergens and controlling cross contamination of food products.

REFERENCES

Allergy and Anaphylaxis Australia (2011) Food allergy basics, Help sheet, downloaded from: https://allergyfacts.org.au/images/pdf/FOODALLERGYBASICS516.pdf (accessed on 9 April 2018)

Australian Bureau of Statistics (2011-12) Australian Health Survey: Nutrition First Results - Food and Nutrients, downloaded from: http://abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.007~2011-12~Main%20Features~Food%20avoidance%20due%20to%20allergy,%20intolerance%20or%20ethical%20religious%20reasons~600 (accessed on 9 April 2018)

Australian Society of Clinical Immunology and Allergy (2017) Food allergy, Cows milk dairy allergy, downloaded from: https://www.allergy.org.au/patients/food-allergy/cows-milk-dairy-allergy (accessed on 9 April 2018)

Square Up (2017) The 2017 Square Australia Coffee Report, downloaded from: https://squareup.com/au/townsquare/2017-square-australian-coffee-report (accessed on 13 March 2018)

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Investigating Oxidation Reduction Potential in Public Swimming Pools

Nick Ives, Environmental Health Officer, Northern Sydney Public Health Unit; and
Geoffrey Prendergast, Environmental Health Manager, Northern Sydney Public Health Unit

Background

Oxidation Reduction Potential (ORP) systems have been used in swimming pools and spa pools around the world since the 1970's to monitor and control water quality by measuring the oxidation reduction potential of disinfectants in pool water. ORP levels indicate the efficacy of disinfection, wherein higher ORP readings signify greater oxidation and disinfection, with increased inactivation of micro-organisms. [1] [2] [3] To operate effectively ORP systems require good operator knowledge and operational attention, such as regular maintenance and consistent monitoring. [4] [5]

Authorities and countries throughout the world recommend different ORP criteria for public swimming pools. For example, the World Health Organization (WHO) recommends an ORP value of at least 720 mV, measured using a silver/silver chloride electrode, for swimming pools; however other jurisdictions recommend minimum ORP levels ranging from 600 mV to 700 mV. [6] [7] [8] [9] [10] In New South Wales (NSW), public swimming pools with ORP systems are required to maintain an ORP level of at least 720 mV, and if this is met are not required to measure and maintain minimum chlorine and bromine disinfection levels. [11] In the United Kingdom no minimum ORP value is recommended. [12] The Centres for Disease Control and Prevention (CDC), recommends in the Model Aquatic Health Code that automated controllers including an ORP system, is set at a level that targets minimum disinfectant and pH levels. [13]

The Northern Sydney Public Health Unit (PHU) studied the performance of ORP systems in local public swimming pools to determine whether setting a standard reference ORP level is an appropriate approach for regulating disinfection of public swimming pools.

Methods

Study design

The study was conducted in two parts, comprising a cross-sectional and a longitudinal component. Swimming pools included in the study were selected from registers maintained by local authorities within the Northern Sydney Local Health District. Only pools with ORP systems that used chlorine as the primary disinfectant were eligible for inclusion.

The PHU contacted eligible swimming pool operators to recruit study sites and provide further information about the study. Questions about the study raised by participants were addressed in individual interactions and pool visits.

Swimming pools participating in the study were visited and assessed by the PHU to confirm that testing procedures were undertaken in accordance with manufacturers' instructions for the measuring kit used and that record keeping complied with the NSW Public Health Regulation 2012. [11]

The longitudinal component of the study involved collecting data on five pools (one outdoor and four indoor) over a three month period between November 2014 and May 2015. The cross-sectional component involved twenty pools (17 indoor & three outdoor) with data collected daily on three consecutive days in the period October to December 2017. The 20 pools included in the cross sectional study were located at a total of 14 sites although no pools shared a common water treatment system.

Swimming pool water samples were collected and analysed by pool operators using their own photometric testing equipment. The study only included results for pool water tests performed before pools opened for swimming and tests measured Free Available Chlorine (FAC), pH and cyanuric acid parameters. ORP readings were taken at the same time as water tests for FAC and pH. Daily water testing records for the longitudinal study were collected retrospectively and prospectively for the cross-sectional study in accordance with a standardised protocol (Attachment 2). Swimming pool operators provided pool water testing records to the PHU. All pools were provided with reticulated water from Sydney Water Corporation.

The effects of cyanuric acid levels above 50 ppm were not considered in the study since indoor pools do not utilise this chemical and the three outdoor pools maintained cyanuric acid levels below 20 mg/L. [1] [4] [14]

Statistical analysis

Mean levels for ORP (rounded to the nearest 5 mV), FAC and pH were calculated for each pool in the cross-sectional study. Predicted ORP levels based upon these means were calculated using Steininger's model. [15] This model uses experimental data to demonstrate the relationship between ORP, FAC and pH. The relationship between predicted and measured ORP levels was explored graphically and the correlation tested by calculating a Pearson's correlation co-efficient.

Data from individual pools obtained in the longitudinal study were graphed and inspected for variations in parameter levels, and associations between levels at individual time points. Data were compared with levels prescribed in the NSW Public Health Regulation 2012. [11]

Results

Cross-sectional Study

Figure 1 describes the measured pool parameters for the pools included in the cross-sectional study and predicted ORP levels based on Steininger's model. [15]

Figure 1: Cross-sectional study

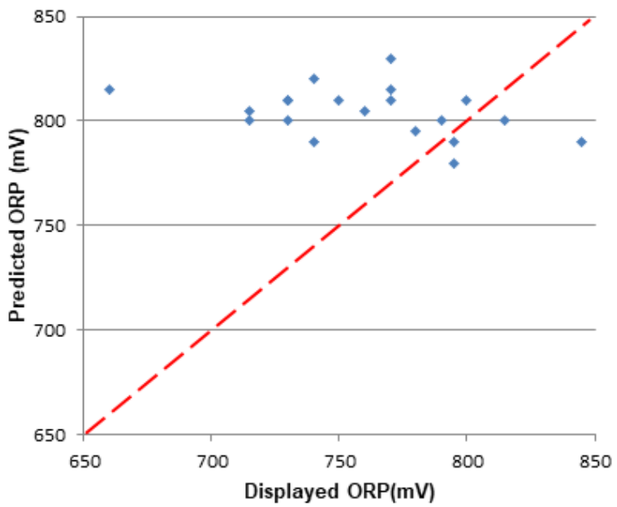
Site (Pool)	Indoor / Outdoor	Mean ORP (mV) (a)	Predicted ORP (mV) (b)	Difference (b)-(a)	Mean FAC (mg/L)	Mean pH	Secondary Disinfection
1a	Indoor	740	790	50	3.3	7.7	UV
2a	Indoor	770	810	40	2.6	7.4	UV
3a	Indoor	770	815	45	4.3	7.5	nil
4a	Outdoor	770	830	60	3.3	7.2	nil
5a	Indoor	815	800	-15	3.7	7.6	nil
5b	Outdoor	845	790	-55	2.1	7.5	nil
6a	Indoor	660	815	155	5.4	7.6	nil
7a	Indoor	715	800	85	1.8	7.3	nil
8a	Indoor	795	780	-15	1.9	7.6	UV
8b	Indoor	790	800	10	2.8	7.5	nil
8c	Indoor	760	805	45	3.1	7.5	UV
9a	Indoor	795	790	-5	4.1	7.8	UV
10a	Indoor	715	805	90	3.2	7.5	UV
11a	Indoor	780	795	15	1.1	7.2	Ozone
12a	Indoor	800	810	10	2.6	7.4	UV
13a	Indoor	750	810	60	2.5	7.3	nil
14a	Indoor	730	810	80	3.1	7.4	UV
14b	Indoor	730	800	70	2.9	7.5	UV
14c	Indoor	730	810	80	4.0	7.5	UV
14d	Outdoor	740	820	80	4.2	7.4	nil

Public swimming pools with the same ORP levels had substantial differences in FAC concentrations despite pH levels being within the prescribed range. This was observed in Pools 1a and 14d, 2a and 3a, 7a and 10a, 8a and 9a, and 14a, 14b and 14c.

Pools 8a and 11a recorded satisfactory ORP levels, of at least 720 mV, however the concentration of FAC was lower than the level prescribed by the Public Health Regulation 2012 for pools operating without ORP systems. Conversely, Pools 6a and 10a, which had non-compliant ORP levels, maintained satisfactory FAC and pH levels.

The relationship between predicted and measured ORP is described in Figure 2. The mean difference between displayed and predicted ORP levels was 55 mV and the largest difference was 155 mV. The Pearson's correlation coefficient between measured ORP and predicted ORP was -0.39 (p=0.09).

Figure 2: Relationship between predicted and measured ORP levels using Steininger's model.



Expected relationship between displayed ORP and Predicted ORP

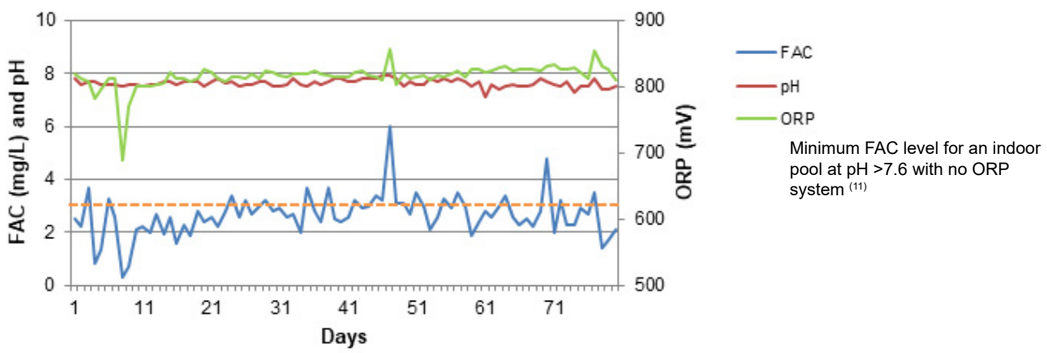
Longitudinal Study

Among the five pools studied ORP levels were mostly above 720 mV although FAC was often below the minimum concentration prescribed by the Public Health Regulation 2012 for pools operating without ORP systems with pH within the range of 7.0-7.8.

ORP levels changed concurrently with FAC levels particularly during noticeable increases and decreases in FAC levels, however this relationship was not always evident. ORP levels were generally found to comply with the minimum requirement of 720 mV, however one pool calibrated the ORP level to satisfactory FAC and pH levels resulting in ORP levels below 720 mV.

Figure 3 displays data from one pool demonstrating a general relationship between ORP and FAC. Figure 3 includes pH since it is a significant factor that affects the effectiveness of chlorine disinfection.

Figure 3: Longitudinal Study



Discussion

Cross-sectional Study

ORP levels are expected to show minor variation between swimming pools as ORP technology and probes have limitations and are adversely affected by a number of factors. For example, ORP is affected by variations in background redox potential of introduced water and chemicals (known as "poise"), presence of other contaminants in pool water, contaminated probes, incorrectly calibrated and malfunctioning probes, variations in electrode potential, and purity of reagents. (16) Furthermore probe fabrication, temperature and pH level differences may also explain additional minor variations in ORP readings (a summary of factors affecting ORP is provided in Attachment 1). (5) (17) (16)

However, the recorded ORP levels observed varied considerably more than expected across pools with a range from 660 to 845 mV. This variation suggests implementing a standard reference ORP level across all public swimming pools is problematic and challenging for pool operators, regulators and/or pool service companies.

ORP should increase logarithmically with increasing FAC concentration, however this relationship was not obvious among pools even though consistent pH levels were maintained. Similarly the relationship between ORP and pH corresponds to the chlorine disassociation, therefore ORP decreases with increasing pH, however this relationship was not always evident in the study.

The study did not find the expected positive correlation between observed and predicted ORP recordings. Although not statistically significant the negative correlation observed is of concern and implies that ORP as measured by pool operators cannot be relied upon to ensure a suitable FAC level after adjusting for pH. The predicted ORP readings are relatively constant across pools and consistent with adequate disinfection. By contrast measured ORP levels vary considerably across pools suggesting that prescribing a standard compliance level to be used for all pools is not appropriate. Nonetheless measured ORP levels in individual pools could still be used to maintain adequate disinfection provided an individual reference level is established for each pool based upon FAC and pH levels.

Longitudinal Study

The longitudinal study provided data on variation of ORP levels to assess its ability to control disinfectant levels over time. ORP levels were observed to change concurrently with FAC levels when noticeable increases and decreases in FAC levels occurred, which indicates that ORP systems respond to predictable changes in hypochlorous acid and hypochlorite ion concentrations in pool water. The apparent change in ORP level with a change in FAC levels after adjusting for pH suggests that, although the observed ORP level may not reflect the absolute level of effective disinfection, monitoring changes in ORP may be useful. Once an ORP level is established that reflects a suitable level of disinfection then maintaining this level (irrespective of its absolute value) should ensure adequate control of microbiological hazards.

Limitations

A limitation of the methodology used in this study was the reliance on data measured and reported by pool operators rather than by an independent researcher. However, the use of a standard protocol and initial onsite assessment by PHU staff would have minimised the potential measurement bias that this may have produced.

Another limitation included the use of Steininger's Variation of ORP of Free Chlorine with pH model, (15) which only compares ORP levels under certain conditions. Steininger's model does not consider pool operation (eg bather load) and all water quality parameters. To address this issue the protocol for the study required water quality measurements to be taken prior to the opening of pools to bathers.

Finally, although a total of 20 pools were included in the cross sectional study three sites contributed more than one swimming pool to the study raising the possibility that the data for these pools cannot be considered to be independent. The greatest concern would be if the pools on an individual site had a common ORP and water

circulation system. However, this was confirmed not to be the case for any site at initial inspections by PHU staff.

Conclusion

The study demonstrated that meeting a standard reference ORP level would not necessarily result in a satisfactory FAC level after adjusting for pH. However, once a satisfactory FAC level is established in an individual pool and its corresponding ORP level established, the ORP level can be used to maintain a satisfactory disinfection level for the pool. This approach will result in individualised ORP levels for different pools rather than setting a standard level to be used across all pools.

Bibliography

1. **NSW Health.** Public Swimming Pool and Spa Pool Advisory Document. *NSW Health.* [Online] 2013. [Cited: March 21, 2018.] http://www.health.nsw.gov.au/environment/Publications/swimming-pool-and-spa-advisory-doc.pdf.

2. *The Oxidation Potential Concept of Inactivation of Poliovirus in Sewage.* **Lund, Ebba.** No. 2, s.l. : American Journal of Epidemiology, 1965, Vol. Vol 81.

3. *PPM or ORP: Which should be used?* **Steininger, Jacques.** s.l. : Swimming Pool Age & Spa Merchandiser, 1985, Vol. November 1985.

4. **DM Gray, RRJain & RH Meeker Jr.** *Process Control and Optimization Volume II Instruments Engineers' Handbook 4th Ed.* Florida : CRC Press Taylor & Francis Group - Bela G Liptak, 2006.

5. **Suslow, Trevor.** Oxidation-reduction potential (ORP) for water disinfection monitoring, control and documentation. *Division of Agriculture and Natural Resources, University of California.* [Online] 2004. [Cited: August 24, 2017.] http://anrcatalog.ucanr.edu/pdf/8149.pdf.

6. **World Health Organization .** Guidelines for safe recreational water environments. Volume 2, Swimming pools and similar environments. [Online] 2006. [Cited: June 20, 2018.] http://www.who.int/water_sanitation_health/bathing/srwe2full.pdf.

7. **Health, County of Los Angeles Department of Public.** Recommended Chemical Levels in Swimming Pools and Spas. *Environmental Health - Recreational Waters Program.* [Online] Undated. [Cited: June 21, 2018.] http://publichealth.lacounty.gov/eh/EP/rw/rw_chemlevel.htm.

8. **Health, Florida Department of.** Florida Administrative Code. *Public Swimming Pools and Bathing Places - Operational Code.* [Online] 2016. [Cited: June 20, 2018.] https://www.flrules.org/gateway/RuleNo.asp?title=PUBLIC SWIMMING POOLS AND BATHING PLACES&ID=64E-9.004.

9. **Iowa Department of Public Health.** 641 IAC Chapter 15 - Swimming Pools and Spas. [Online] 2015. [Cited: June 21, 2018.] http://idph.iowa.gov/Portals/1/userfiles/97/641_15%202015%20version.pdf.

10. *Health Protection and Promotion Act - R.R.O. 1990, Reg. 565: PUBLIC POOLS* . [Online] 1990. [Cited: June 20, 2018.] https://www.ontario.ca/laws/regulation/900565#BK9.

11. **NSW Government.** Public Health Regulation 2012. *NSW Legislation.* [Online] 2012. [Cited: March 21, 2018.] https://www.legislation.nsw.gov.au/#/view/regulation/2012/311.

12. **Pool Water Treatment Advisory Group.** The PWTAG Code of Practice. *Pool Water Treatment Advisory Group.* [Online] 2018. [Cited: June 21, 2018.] https://www.pwtag.org.uk/knowledge/code_of_practice.php.

13. **US Department of Health and Human Services.** 2016 Model Aquatic Health Code. *Centres for Disease Control and Prevention.* [Online] 2016. [Cited: May 16, 2018.] https://www.cdc.gov/mahc/pdf/2016-mahc-code-final.pdf.

14. *Do Traditional Measures of Water Quality in Swimming Pools and Spas Correspond with Beneficial ORP?* **Tiana Bastian, Jack Brondum.** March-April 2009, s.l. : NCBI Public Health Reports, 2009, Vol. 124.

15. *ORP Sensor Response in Chlorinated Water.* **Steininger, Jacques.** Phoenix, AZ : NSPI Water Chemistry Symposium, 1996.

16. **Amjad, Zahid.** *The Science and Technology of Industrial Water Treatment.* London : IWA Publishing and CRC Press, Taylor and Francis Group LLC, 2010. 13:978-1-4200-7145-0.

17. **James, Cheryl, Copeland, Rachel and Lytle, Darren.** Relationships between Oxidation-Reduction Potential, Oxidant, and pH in Drinking Water . [Online] 2004. [Cited: April 20, 2018.] https://pdfs.semanticscholar.org/81f8/4a82fb386e8d03057e6df7f107e9e86b983d.pdf.

Attachment 1 - Factors that affect ORP

Factor		General Effect on ORP	Comment
Pool Water Chemistry	Increasing disinfectant	↑	ORP measures all oxidising and reducing species in a solution. Higher concentration of oxidisers will generally increase the ORP level and the response speed of the sensor.
	Disinfectant type(s)	↑ or ↓	Most disinfectants are oxidisers. The effect on ORP depends on the strength of the disinfectant. The more powerful the oxidant the more positive the ORP level.
	Increasing pH	↓	The ratio of HOCl to OCl^- depends on pH. As pH increases, the stronger fast acting HOCl dissociates into weaker OCl^-. OCl^- has a much lower ORP level than HOCl, consistent with its much lower activity as a sanitiser.
	Increasing cyanuric acid	↓	Cyanuric acid forms weak bonds with HOCl which reduces its disinfection power. ORP decreases as cyanuric acid increases. It is recommended that 20mg/L not be exceeded.
	Increasing organic load/ pollutants	↓	Increasing organic load/pollutants reduces the amount of available disinfectant. Ammonia products also react with chlorine to form chloramines which are less effective oxidants.
	Increasing combined chlorine	No noticeable change if FAC is present	Combined chlorine is a much less effective oxidant than free chlorine, therefore it would have a lower ORP level. However, if free chlorine is still present, particularly in the form of HOCl, the influence on ORP from combined chlorine is 'masked'. Any reduction in ORP would be due to a reduced available disinfectant.
	Increasing temperature	↓	Temperature increases oxidation speed and the formation of OCl^- As temperature increases the potential decreases.
	Increasing total alkalinity	No change	Alkalinity itself does not affect ORP; however, alkalinity affects pH which does have an impact on ORP. If the alkalinity is too high, it can make pH adjustment difficult. If alkalinity is too low it can result in rapid pH bounce.
	Increasing total dissolved solids (TDS)	No change	As TDS increases from 500 to 3500ppm there is no reduction of ORP. At very low TDS levels (0-500ppm) ORP may be slightly reduced.

Factor		General Effect on ORP	Comment
Maintenance	Unclean probe	↓	A contaminated probe may exhibit an inaccurate ORP level that may never change until the contaminant is removed. Probes should be cleaned regularly as necessary. Follow manufacturer's instructions for the method of cleaning.
	Aged probe	↓	A new unconditioned ORP electrode will show different levels than an OPR electrode that has been conditioned and considered in use. Overtime probes lose their efficiency.
	Calibration	↑ or ↓	ORP sensors are calibrated against standardised buffer solutions or a known reference and are adjusted. Buffer solutions, which most have to be made fresh, are not available in the millivolt range used for swimming pool water treatment and have wide tolerances of +/- 35mV. Some ORP systems are adjusted to ORP-FAC-pH conversion charts. Different service companies may use different calculations/ conversion charts which can also provide variations. The frequency of calibration and knowledge of person performing calibration can also have an effect.
System	System technology/ quality	↑ or ↓	ORP should be determined using a high quality probe and meter. The typical accuracy of an ORP measurement is between 5-20mV. ORP sensors depend on quality control during the manufacturing process and the output can be influenced by small changes in the manufacturing and assembly process. Identical ORP sensors may produce considerably different outputs (50-100mV).
Operator Knowledge	Pool operator, staff and service & pool service companies	↑ or ↓	ORP is a difficult concept to understand and limited knowledge may lead to poor water quality conditions. Users should know how to set up ORP to satisfactory disinfectant and pH levels and how to respond when ORP deviates from the set point. Better knowledge of ORP will improve frequency and method of servicing, calibration and maintenance.

Attachment 2 – ORP Survey water sampling information page

ORP survey

Swimming Pool Water Sampling Procedures

For the purposes of this ORP Study it is essential that the procedures detailed below are followed.

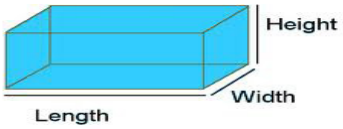
When to conduct water testing

- Conduct water sampling ***before*** the pool is opened to swimmers at the same time each morning.
- Do not sample following an overnight superchlorination.

Where to conduct water testing - sampling location

- Collect the water sample from the side and centre of the pool - away from the inlets (returns) at a depth of at least 450mm

Sample location
Side and centre
450mm depth



How to conduct water testing

Person conducting the water sampling:

- The same person should conduct the water sampling each day and be skilled at using the pool test kit.

Test kit:

- An accurate (recently calibrated) digital photometric test kit must be used.

Method of collecting the sample and performing water testing:

- Collect the pool water sample in a clean plastic beaker.
- Plunge the plastic beaker into the pool 450mm deep, invert and lift in one scoop.
- Test in the testing kit away from direct sunlight.
- Check tablet reagent packaging is sealed and not out-of-date.
- Perform tests as soon as possible after sample collection.
- Strictly follow the test methodology specified by the manufacturer of the test kit.
- Rinse and clean all test tubes and beakers after use.

If you have any enquiries regarding the above procedures please contact Northern Sydney Public Health Unit on 9477 9188.

Upcoming Events

Mark Your Diary Now!

01 Feb - Barwon SW Regional Group Meeting
01 April - 2019 Food Forum, Angliss Conference Centre
22- 25 July - Emergency Management for Public Health Professionals
Date TBC - Skin Penetration & Infection Control Workshops
Date TBC - Melbourne 3 workshops
Date TBC - Shepparton Workshop
Date TBC - Ararat Workshop
Date TBC - Traralgon Workshop

For more events

--> EHPA Event Calendar <--