



MONASH University



# RESIDENTIAL AGED CARE COMMUNIQUE

## VOLUME 4. ISSUE 3.

December 2009

ISSN 1834-318X

### CONTENTS

Editorial	1
Case #1 Looking out for your neighbor	2
List of Resources	2
Case #2 I thought it was heat exhaustion	3
The heat is on in Emergency Departments	3
Health effects of Extreme Hot Weather	4
Climate and urban heat islands	4

### EDITORIAL

Welcome to the third and final issue of 2009. This edition focuses on the health effects of hot weather and heatwaves.

This issue should assist you in ensuring the health, safety and comfort of residents as we approach summer. Given the experiences of last summer and the recent early and extreme start to this summer we expect many of you have already put strategies in place. There is a wealth of information about Extreme Hot Weather being published so make sure to use the latest information.

There are commentaries about how to mitigate the health effects of Extreme Hot Weather, interesting facts about the climate and urban heat islands and the experiences of Emergency Departments.

The two cases highlight the complexity of the health effects of hot weather and have important lessons for Residential Aged Care Services (RACS) in caring for their residents and staff.

Next year will be busy for the editorial team. As well as publishing the RAC Communiqué, the Department of Health (Aged Care Branch) has commissioned educational material describing practical examples of innovation and changes to practice in RACS. These will be published as two short reports in the style and format similar to the RAC-Communiqué.

You may recall completing a survey last year to evaluate the RAC-Communiqué. A detailed report will soon be available when the Journal of the American Geriatric Society publishes an article Ibrahim JE, Ehsani JP, McInnes JA "*The impact of printed educational material from the Coroner in Victoria, Australia, on changing aged care health professional practice: a subscriber survey.*"

For those who just want the take home message: - 778 subscribers were invited to participate, 426 (54.8%) responded. One half of these people reported making a change to their professional practice as a result of reading the RAC-Communiqué.

We hope all our subscribers and readers have a happy and safe festive season.

### FREE SUBSCRIPTION

The Department of Forensic Medicine, Monash University will publish the RESIDENTIAL AGED CARE COMMUNIQUE on a quarterly basis. Subscription is free of charge and the Communiqué is sent to your preferred email address.

If you would like to subscribe to RESIDENTIAL AGED CARE COMMUNIQUE, please email us at: [racc@vifm.org](mailto:racc@vifm.org)

**Next Edition: February 2010**

## PUBLICATION TEAM

**Editor in Chief:** Joseph E Ibrahim  
**Consultant Editor:** Rhonda Nay  
**Managing Editor:** Fiona Kitching  
**Designer:** Caroline Rosenberg

**Address:** Department of Forensic Medicine,  
Monash University  
57-83 Kavanagh St, Southbank  
**Telephone:** +61 3 9684 4444

## ACKNOWLEDGEMENTS

This initiative has been made possible by the collaboration of a diverse range of organisations: Monash University, Department of Justice, the Victorian Institute of Forensic Medicine, La Trobe University and Department of Health - Aged Care Branch.

## REPRODUCTION & COPYRIGHT

This document may be reproduced in its entirety for the purposes of research, teaching and education and may not be sold or used for profit in any way. You may create a web link to the electronic version. Permission must be obtained for any modification or intended alternative uses of this document. If referring to this publication, the following citation should be used:

Residential Aged Care Communiqué [electronic resource]: Department of Forensic Medicine, Monash University, Available at: <http://www.vifm.org/n963.html>

## FEEDBACK

The editorial team is keen to receive feedback about this communication especially in relation to changes in clinical practice. Please email your comments, questions and suggestions to: [racc@vifm.org](mailto:racc@vifm.org)

## LOOKING OUT FOR YOUR NEIGHBOR

### CASE NUMBER 113/04 WA

Case Precis Author: Prof Joseph E Ibrahim, Monash University

### CLINICAL SUMMARY

Mr. X was a male in his 70's with a past medical history that included dementia and excessive alcohol use. Friends visited Mr. X at his home on a summer's evening

When Mr. X's friend left they asked his neighbor to "keep an eye on him". The following day when the neighbor looked in, Mr. X was not at home. Mr. X's friends reported that he was missing to the police. The next day Mr. X was found dead on an open track in the bush.

### PATHOLOGY

The cause of death following an autopsy was (1a) Unascertained. The pathologist commented that the findings were consistent with dehydration and heat exhaustion.

### INVESTIGATION

Information gathered for the Coroner appeared to indicate that Mr. X had wandered away from his home at the height of summer. A potential contributing factor was the underlying confusion that led to Mr. X wandering bare foot on a hot day and becoming dehydrated.

### CORONER'S COMMENTS AND FINDINGS

The coroner concluded that the cause of death was unascertainable.

The case was closed without any recommendations.

## AUTHOR COMMENTS

This case highlights important issues about the dangers of Extreme Hot Weather to vulnerable persons. It also demonstrates the challenges Coroners and Pathologists face in determining or attributing the cause of death to Extreme Hot Weather.

How many risk factors are present that put Mr. X at harm during hot weather? There are at least four risk factors. Mr. X was (1) an older person i.e., 65 years and older, (2) with mental health needs, (3) who lived alone and (4) engaged in outdoor activity. He may also have been taking medications that affect fluid balance, reduce sweating or cause drowsiness. The maximum daytime temperatures were 32°C and 35°C on the two days in question.

The cause of death was "unascertained" even though both the Coroner and Pathologist commented the circumstances were consistent with dehydration and heat exhaustion. The reason for this approach is that there are very few, if any, specific or distinctive changes that occur to the body from Extreme Hot Weather that can be detected at autopsy.

It is also for this reason that there is always debate about the true harmful effects of Extreme Hot Weather. For example if we count the degree of harm according to autopsy confirmed cases we will under-estimate the effects; however in contrast if we count according to our opinion of the circumstances we will over-estimate the harm.

Finally, this case illustrates the importance for RACS to be aware of the whereabouts of their residents and the nature of activities the residents are doing.

## LIST OF RESOURCES

1. Department of Health. December 2009. Residential Aged Care Services Heatwaves ready resource. Available December 2009
2. Department of Human Services. January 2009 Heatwave in Victoria: an assessment of health impacts [document on the internet]. Victorian Government Department of Human Services, Melbourne, Victoria, 2009. Available from: [http://www.health.vic.gov.au/chiefofficer/download/heat\\_impact\\_rpt.pdf](http://www.health.vic.gov.au/chiefofficer/download/heat_impact_rpt.pdf)

## I THOUGHT IT WAS HEAT EXHAUSTION

### CASE NUMBER 1859/01 NSW

Case Precis Author: Prof Joseph E Ibrahim, Monash University

### CLINICAL SUMMARY

Ms Y was a female in her 80's who lived in the community, was quite healthy and the only medication she was taking was for the treatment of osteoporosis.

In mid-October Ms Y was on one of her usual walks around the local neighborhood.

At mid-day Ms Y stopped and sat on the neighbors fence appearing quite exhausted. The neighbors assisted Ms Y home by car and turned the air conditioner on to help cool her down, as she appeared to be suffering heat exhaustion. On arrival home Ms Y collapsed unconscious in the driveway. The ambulance was called, arriving shortly after but the paramedics were unable to revive Ms Y.

### PATHOLOGY

The cause of death following an autopsy was (1a) Massive pulmonary thrombo-emboli. Other features noted at the autopsy were the presence of coronary atherosclerosis, an old cerebral infarct and granular scarred kidneys.

The case was closed as a natural causes death.

### AUTHOR COMMENTS

This case is even more difficult than described in Case #1, in determining if the weather contributed to the death. The autopsy clearly identified a natural disease process i.e., a pulmonary thrombo-emboli. However, the underlying cause of why a thrombus would occur in an otherwise healthy woman could not be identified.

Clinical conditions due to over-heating are usually described along a spectrum from "heat cramps", "heat exhaustion" and "heat stroke" which is life threatening. However, most of the deaths and illness from Extreme Hot Weather are usually due to worsening of existing diseases such as heart disease, kidney disease, Parkinson's disease, respiratory disease, cancer and diabetes mellitus.

What are the other possible risk factors for older people? They may be (1) Hot weather early in summer, (2) physical activity in the middle of the day (3) a limited oral intake, and (4) age-related physiological changes may contribute to a risk of dehydration. You will recognise many of these are present in people who live at RACS.

In this case we may speculate but would not be able to prove that these factors could have led to dehydration and thickening the blood, therefore increasing the risk of a pulmonary embolus occurring.

The neighbor's observation of "heat exhaustion" led to a search on the Internet for Australian meteorological data. Two things surprised me. First the data is actually available and the maximum daily temperature record on the day was 24°C.

Obviously the neighbor thought it was hot enough to cause illness. Defining what is Extreme Hot Weather is quite complex and is vigorously debated.

In Melbourne, Victoria there is an increase in mortality amongst people aged 65 years and over when the mean daily temperature (that is, the average of today's maximum temperature and tonight's minimum temperature) exceeds 30°C or when the overnight minimum temperature exceeds 24°C.

## COMMENTARY: THE HEAT IS ON IN EMERGENCY DEPARTMENTS

Dr Diana Egerton-Warburton, M Clin Epi, FACEM Chair Public Health Committee ACEM

Last summer Victoria experienced its' worse heat wave for over 100 years. Over the week from 26th January to 1st February temperatures soared, including three days of over 43°C with high overnight temperatures.

Ambulance Victoria had to cope with a 25% increase in emergency cases, which jumped to almost 50% during the three hottest days. This resulted in ambulances queuing to get into Emergency Departments (ED). The large case load led to blocking of automatic doors from closing. Emergency Departments had to set up emergency cooling areas in corridors with spray bottles and fans. Some departments lost power and air conditioning.

Many of these patients were older, with multiple medications and isolated social circumstances. While some presented with heat related illness, a large number had problems related to their chronic medical problems, such as renal failure or drug toxicity.

Many of the patients presenting to the ED needed admission for intravenous fluids and stabilisations of their chronic medical conditions. Some people were well enough to go home after receiving treatment in ED, others required hospital admission as they didn't have a safe and cool place to return.

While most people had minor reversible illness, some required critical care treatment, and an estimated 374 extra deaths occurred across Victoria.

Emergency Medicine needs to be part of a whole systems approach to heat emergencies. Many of the deaths and illness was preventable.

## LIST OF RESOURCES CONTINUED

3. Department of Human Services, Better Health Channel. Heat stress – preventing heat-related illness. Available at: [http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Heat\\_stress\\_and\\_heat-related\\_illness?open](http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Heat_stress_and_heat-related_illness?open)

4. Continence Foundation of Australia 2008. Water for wellbeing. Promoting adequate fluid intake for the frail older person: a resource kit for HACC and residential aged care. <http://www.continencevictoria.org.au/>

## COMMENTARY: CLIMATE AND URBAN HEAT ISLANDS

Author: Dr. Margaret Loughnan, PhD Research Fellow, School of Geography and Environmental Science, Faculty of Arts, Monash University

Victorian summers are getting hotter because of Climate Change with predictions that Extreme Hot Weather will occur more often, reach higher temperatures and last longer.

The human body is well adapted to maintain a stable body temperature and copes well with the ambient conditions around 28°C, which is often the average summer temperature we see in Melbourne.

Heat-related illness occurs when the body is unable to adequately cool itself. Therefore understanding the level and duration of daily temperatures is

important when assessing if someone is at an increased risk of heat-related illness.

The risk of death in older people increases when: (1) the overnight minimum temperature is equal to or exceeds 24°C or (2) the combination of a hot day followed by hot night creates an average temperature equal to or exceeds 30°C.

One effective way our bodies' cool is through sweating. However, high humidity reduces this effect and increases the risks of heat-related illness. Another important protective mechanism is acclimatization. Therefore, Extreme Hot Weather that occurs in late spring or early summer is more dangerous.

The physical environment we live in is an important and often under-recognised factor contributing to the

risk of heat-related illness. The physical environment may limit the ability of dwellings to cool down during the night contributing to hotter overnight temperatures. Factors include: air pollution, living in or near industrial areas, areas of high-density housing, areas with few parks or gardens. Also, industry emits heat and impervious surfaces such as roads, car parks and buildings actually store heat during the day and release it slowly overnight; all of which contributes to what is known as the 'urban heat island'. This increases the risk of heat related illness in cities.

The building type and construction may also contribute to the risk of heat-related illness. Examples include buildings with poor insulation, poor ventilation, and north facing windows without shades or awnings and bedrooms under the roofline.

---

## COMMENTARY: HEALTH EFFECTS OF EXTREME HOT WEATHER

Ms. Judith McInnes, BSc (Hons), MPH Research Officer, Department of Epidemiology and Preventive Medicine, Monash University Victoria, Australia

In Australia, over the past 200 years, episodes of Extreme Hot Weather ("Heatwaves") have caused more deaths than any other type of natural hazard except for disease. In Victoria, during January 2009, Extreme Hot Weather led to 374 deaths, a 12% increase in Emergency Department attendances, and a three-fold increase in people 'dead on arrival' at hospital.

We are all at risk of harm from exposure to Extreme Hot Weather. However, people most at risk are: aged over 65 years; already unwell; taking certain types of medications; have difficulty caring for themselves; are socially isolated; and have limited access to resources such as

secure housing, air-conditioners and transportation.

Older people are particularly vulnerable because they often have multiple risk factors and age-related changes reduce their ability to maintain a normal body temperature and adequate hydration.

Many deaths that occur during Extreme Hot Weather are not inevitable. The deaths occur quickly, usually within the first days of a heatwave, and are mostly due to a worsening of pre-existing illness. Developing measures to eliminate and reduce the risks to health posed by heatwaves will save lives and prevent harm.

Important long-term prevention measures include using appropriate building design and materials to reduce heat exposure, the establishment of vegetation for shade, and the minimisation of concreted areas near buildings.

Important shorter-term prevention measures include: developing risk management plans; identifying

and assessing high risk individuals; education and training of health care personnel; contingency planning to ensure adequate staffing; and assessment of equipment such as air-conditioners and refrigerators to ensure these are adequate and in working order. Ideally these preparations will be done well before summer starts.

Often the greatest challenge is the need for planning and preparing to manage the 'disasters within a disaster', as during Extreme Hot Weather it is not unusual to have the added complication of prolonged loss of power.

Important prevention measures during a heatwave include: reducing the exposure of vulnerable individuals to heat; provision of appropriate, accessible drinks; frequent monitoring and ready access to medical care is essential.

By working together within our teams, organisations and the community we will save lives and prevent harm.

*All cases that are discussed in the Residential Aged Care Communiqué are public documents. A document becomes public once the coronial investigation process has been completed and the case is closed. We have made every attempt to ensure that individuals and organizations are de-identified.*