1. BACKGROUND

Heatwaves are an underestimated health hazard in Australia, having caused more deaths over the past century than all other natural disasters combined. Heatwaves are difficult to define as they result from a combination of factors including very hot weather, humidity and acclimatisation, and are relative to each person. As such, any period of abnormally hot weather which can result in significant harm, is considered a heatwave. Heatwaves are a significant public health issue in Australia as a result of its ageing population coupled with the expectation that climate change will cause them to increase in frequency and intensity.

The Victorian January 2009 heatwave resulted in a large increase in morbidity, mortality and health service utilisation. Data from 26th January to 1st February 2009 shows 374 excess deaths across the state and a 46% increase in Ambulance Victoria’s total emergency cases over the heatwave’s three hottest days. The majority of deaths were amongst elderly citizens aged 75 years or over.

The rise in morbidity and mortality after very hot weather occurs within one or two days of the rise in temperature, highlighting the importance of Kingston City Council’s heatwave strategy. The strategy, implemented over summer 2011/2012, was developed with the intention to make heat awareness a priority across Kingston and to specifically target identified vulnerable and at risk groups.

2. AIMS
To prevent heat related death and illness and reduce the impact on health services across Kingston.

3. OBJECTIVES
The objectives that will achieve the project aim are:
1. To increase public awareness of the health risks caused by heatwaves;
2. To increase public knowledge of preventative measures to decrease the health risks associated with heatwaves;
3. To distribute heatwave resources, including cool neck ties, ‘Beat the Heat’ posters and handheld fans, to identified vulnerable groups with the Kingston community;
4. To hold information sessions for identified vulnerable groups; and
5. To mail out reminders and resources to groups known to be at high risk during a heatwave.

3. TEAM
Project sponsor: Rob Crispin
Project worker: Sheree Lette
Project worker mentor: Nicole Malina
Resource officers: Callum Pattie, Helen Watson, Abrie De Wet et al

4. TARGET GROUPS
The target groups for the heatwave strategy have been divided into two groups:
1. Those recognised to be vulnerable to the effects of a heatwave; and
2. Those recognised to be exposed to high risk factors during a heatwave.

Target groups recognised as vulnerable to very hot weather:

Elderly Citizens Groups, Supported Residential Services and Hostels (citizens aged over 75 years and those taking medications that affect the body’s ability to regulate heat): Elderly people are at much greater risk of falling ill or dying during a heatwave. This is due to their reduced ability to sweat and lowered thirst response. They are also far more likely to suffer from chronic illness involving the respiratory, cardiovascular, endocrine and renal systems, which adversely affects their body’s ability to deal with very hot weather.iii

Sweating and dehydration can be a risk for people taking medications that control electrolyte balance or cardiac function, as they reduce the body’s ability to regulate
heat. It is therefore very important to maintain hydration and stay out of direct heat as much as possible.

**Maternal and child health centres** (*children under five and pregnant/breastfeeding women*): Young children generally use a lot of energy, which produces a high level of metabolic heat. They have a decreased ability to sweat and their core temperature rises faster during dehydration. Young children are also far less able to realise they are getting too hot or try to cool themselves down, which is why it is very important to regulate their activities and monitor their temperature.

Pregnant and breastfeeding women often have a slightly raised temperature and certainly have reduced mobility and ability to cool down, making keeping cool a priority.

**Target groups recognised to be exposed to risk factors:**

**Kingston Sports Clubs and Chelsea Caravan Park** (*environmental factors and overexposure*): Those living in a home with poor insulation or high direct sun exposure, those working in hot places or outdoors and people engaging in high levels of physical exertion are far more susceptible to the heat.

**Scope and Chelsea Care Works** (*inability to adapt behaviour to keep cool*): Some people with mental illness, individuals who are bed or wheelchair bound and people who intake excessive alcohol or drugs are at high risk of heat-related ill health.

### 5. METHOD

1. **Increase public awareness of the dangers of extreme heat through:**
   - Media releases
   - Public Kingston City Council website
   - ‘On-hold’ message for callers to council
   - ‘Beat the Heat’ posters to distribute to local pharmacies and General Practices
   - ‘Beat the Heat’ posters, Sports Medicine Australia guidelines and a letter of explanation to be distributed to sporting venues
   - Articles published in Primary Care Partnership newsletter and ‘Kingston Your City’
   - Advertisement in the Leader

2. **Increase staff awareness of the dangers of extreme heat through:**
   - Kingston City Council staff intranet website
   - ‘Beat the Heat’ posters displayed around Council buildings
   - Emails
3. Distribute resources to identified target groups:

- Cool neck ties, handheld fans, 'Beat the Heat' posters, fridge magnets, 'Staying Healthy in the Heat' brochures, 'Beat the Heat' postcards and 'Heatwave Plan for Victoria' booklets to be distributed accordingly to target groups.

4. Hold information sessions for identified target groups:

- Target groups will be contacted via email, telephone or mail to be notified of the opportunity to arrange a presentation.

6. RESULTS

**Quantitative**

Table 1: Number and type of resources distributed to target groups:

<table>
<thead>
<tr>
<th>RESOURCE TYPE</th>
<th>NUMBER DISTRIBUTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool neck ties</td>
<td>835</td>
</tr>
<tr>
<td>Handheld fans</td>
<td>445</td>
</tr>
<tr>
<td>'Beat the Heat' posters</td>
<td>151</td>
</tr>
<tr>
<td>'Beat the heat' fridge magnets</td>
<td>235</td>
</tr>
<tr>
<td>'Beat the Heat postcards</td>
<td>200</td>
</tr>
<tr>
<td>'Heatwave Plan for Victoria' booklets</td>
<td>7</td>
</tr>
<tr>
<td>'Staying Healthy in the Heat English brochures</td>
<td>302</td>
</tr>
<tr>
<td>'Staying Healthy in the Heat' Turkish brochures</td>
<td>85</td>
</tr>
<tr>
<td>'Staying Healthy in the Heat' Greek brochures</td>
<td>110</td>
</tr>
<tr>
<td>'Staying Healthy in the Heat' Italian brochures</td>
<td>20</td>
</tr>
<tr>
<td>'Staying Healthy in the Heat' Vietnamese brochures</td>
<td>15</td>
</tr>
<tr>
<td>'Staying Healthy in the Heat' Mandarin brochures</td>
<td>15</td>
</tr>
</tbody>
</table>
Table 2: Target groups visited, number of participants per information session and number of resources for absent members:

<table>
<thead>
<tr>
<th>NAME OF GROUP</th>
<th>NO. OF PARTICIPANTS</th>
<th>NO. OF RESOURCES FOR ABSENT MEMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turkish Senior Citizens Club</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Aspendale Senior Citizens Club</td>
<td>110</td>
<td>40</td>
</tr>
<tr>
<td>Chelsea Care Works</td>
<td>45</td>
<td>82</td>
</tr>
<tr>
<td>Dingley Senior Citizens Club</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>Greek Elderly Citizens Club</td>
<td>120</td>
<td>20</td>
</tr>
<tr>
<td>Chelsea Caravan Park</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>Community Safety Reference Group</td>
<td>15</td>
<td>0</td>
</tr>
</tbody>
</table>

Due to time constraints and schedules, it was not possible to schedule an information session with all target groups. The groups listed below were given resources and an electronic copy of the powerpoint presentation to deliver at an appropriate time:

- Dingley Village Neighbourhood Centre (approximately 40 individuals);
- Scope, Southern Region Area Manager (approximately 100 individuals);
- Community Rooms at 1230 Clayton Road and 43 – 47 Chapel Road Moorabbin (approximately 91 individuals); and
- Kingston Maternal and Child Health Centres (number unknown).

Table 3: Forms of media utilised for promotion of heatwave strategy:

<table>
<thead>
<tr>
<th>TYPE OF MEDIA</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media release</td>
<td>06/12/2011 and 24/01/2011</td>
</tr>
<tr>
<td>Article published in Primary Care Partnership newsletter</td>
<td>08/12/2011</td>
</tr>
<tr>
<td>Heatwave information, including fact sheets uploaded to public website</td>
<td>13/12/2011</td>
</tr>
<tr>
<td>‘Beat the Heat’ posters distributed to local pharmacies</td>
<td>29/12/2011 and 04/01/2012</td>
</tr>
</tbody>
</table>
‘On-hold’ message uploaded for callers to Council 30/12/2011

Heatwave alert uploaded to public website for the very hot weather over January second and third 31/12/2011

‘Are you prepared for the next heatwave?’ link uploaded to the staff intranet page 05/01/2012

‘Beat the Heat’ posters and Sports Medicine Australia guidelines distributed to sporting venues 09/01/2012

‘Beat the Heat’ posters and heatwave information distributed to GPs 11/01/2012


‘Beat the Heat’ advertisement published in ‘The Leader’ TBA

Table 4: Number of letters/emails promoting heatwave awareness sent to Kingston groups

<table>
<thead>
<tr>
<th>Category</th>
<th>No. emails/letters sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports Clubs</td>
<td>75 emails/11 letters</td>
</tr>
<tr>
<td>Elderly Citizens Groups</td>
<td>22 letters</td>
</tr>
<tr>
<td>General Practitioners</td>
<td>31 letters</td>
</tr>
<tr>
<td>Community groups/neighbourhood houses</td>
<td>10 emails</td>
</tr>
<tr>
<td>Supported Residential Services</td>
<td>8 letters</td>
</tr>
<tr>
<td>Health Professionals</td>
<td>13 emails</td>
</tr>
</tbody>
</table>

**Qualitative**

1. **Response to information sessions/resources:**

*Turkish Senior Citizens Club (Mentone):*

The Turkish Senior Citizens Club members were extremely grateful for the resources and receptive to the presentation. Many came to speak to me afterwards, with comments such as:

‘That was very good. Very helpful. Thank you.’
‘I will take this [cool neck tie] home to my wife. She will like it.’

‘I know exactly who to hand the spare ones [cool neck ties] out to. These will be so good for the older ladies.’ (Mujgan, the club manager).

**Aspendale Seniors Club:**

I dropped the heatwave resources (including neck ties, posters and brochures) to the Aspendale Seniors approximately a month before giving the presentation. On the presentation day, the ‘Beat the Heat’ posters were already displayed around the centre and several members were wearing their neck ties. Tony, the centre manager, and his wife showed me the ways they keep cool at the club, including large supplies of ice, drawing down blinds and placing jugs of water on tables.

Member feedback included:

‘Thank you so much for the information and neck tie. I use it everyday!’

‘Thank you for coming. That was very informative. It really is extremely important at our age.’

**Dingley Senior Citizens Club:**

Similarly to Aspendale, I was able to drop resources to the Dingley Senior Citizens prior to giving the presentation. I brought the handheld fans with me on the day and handed them out individually to members. I was able to speak one-on-one to the members too, with feedback such as:

‘Oh I use mine [neck tie] all the time. It’s fantastic – I have been telling all my friends. We are very lucky to get them from council’.

‘They [neck tie] really are very easy to use, I just followed the instructions. It is much better than air conditioning.’

‘I saw the article in the newspaper [Kingston Your City] and it said about putting your feet in cool water and visiting the library. I cut the article out and it is stuck on my fridge. It’s very helpful.’

‘It’s so nice to be getting these [fans] from council. It’s lovely to know they are thinking of us oldies.’

‘Well that [fan] is wonderful. I can take this on the bus with me. It will be great for the ones where they don’t use air conditioning.’

**The Members also spoke about how they have been handling the heat:**

‘I’ve been really noticing the difference this year. It’s true that it is harder in the heat when you get older. I can’t go outside on hot days anymore but I am doing my best to
keep cool. I already use the neck tie, which for me is better than air conditioning, it makes me too cold, and this fan will be very helpful too.'

‘You know by my age I’ve tried everything to keep cool. These neck ties are something different and I am so pleased to see council helping us out. There is not enough emphasis on the dangers of hot weather at our age.’

DISCUSSION

The 2011/12 heatwave strategy implementation was its first implementation following the development of Kingston City Council’s Heatwave Plan in 2011 in response to the extremely high rates of heat related death and illness during the 2009 heatwave. The strategy’s target groups were identified as those vulnerable to very hot weather (elderly citizens, children under five years old, pregnant and breast feeding mothers and people taking medications that affect the body’s ability to regulate heat) as well as those exposed to high risk factors (people participating in high levels of physical exertion, individuals living in housing with poor insulation and/or sun protection and those who do not have the ability to adapt their behaviours to manage very hot weather).

The aim of the strategy was to prevent heat related death and illness, therefore reducing the impact on health services across Kingston. In order to achieve to strategy’s aims, the following objectives were identified:

1. To increase public awareness of the health risks associated with heatwaves;

2. To increase public knowledge of preventative measures to decrease the health risks associated with heatwaves;

3. To distribute heatwave resources, including cool neck ties, ‘Beat the Heat’ posters and handheld fans, to identified vulnerable groups within the Kingston community;

4. To hold information sessions for identified vulnerable groups; and

5. To mail out reminders and resources to Kingston groups known to be at high risk during a heatwave.

To ensure the above objectives were met, several methods were put into place. To increase public awareness of the health risks associated with heatwaves and knowledge of preventative measures to decrease such health risks, several forms of media promotion were utilised. These included two media releases, an advertisement in the ‘Leader’, mail outs to target Kingston groups, an article in the Primary Care Partnership newsletter for Kingston health professionals, an ‘on-hold’ heatwave reminder message for callers to council, fact sheets for individual reading and public display uploaded to the Kingston website, a public alert system established to update
Kingston residents of upcoming heatwave alerts via the Kingston website, heatwave information uploaded to the staff intranet website, two articles published in ‘Kingston Your City’ and ‘Beat the Heat’ posters distributed to pharmacies, GPs, sporting venues, Supported Residential Services, hostels, elderly citizens groups, CALD groups, disability groups and maternal and child health centres. Through the above methods, public heatwave awareness was increased as the target groups became more aware of preparing for very hot weather and were provided with resources to assist their preparation, including cool neck ties, handheld fans and fridge magnets with working thermometers.

A powerpoint presentation was developed for delivery to as many of the strategy’s target groups as possible with the objective to further increase heatwave awareness and answer any attendee questions. Two presentations were developed, one for individuals with limited English and one for individuals requiring more in depth information, in order to cater for the varied Kingston community demographic. As demonstrated in the results section, 385 individuals received the powerpoint presentation, across elderly citizens groups, CALD groups, maternal and child health centres and disability groups. Heatwave resources and a copy of the presentation were left for a further 247 individuals who were recorded as absent from the presentations. A minimum of 241 individuals also received the presentation from group managers across Kingston groups, including Scope and Dingley Village Community Centre, due to time constraints not allowing a scheduled visit. Through the presentations and opportunities to speak to group members individually, positive feedback was received in regards to the usefulness of the information and heatwave resources provided by Kingston City of Kingston, as recorded in the qualitative results section above.

Although the strategy achieved its objectives and received extremely positive responses from its target groups, it did face barriers, namely the closure of target groups over a large amount of the summer period and a lack of interest in the campaign by some target groups. The strategy began implementation in early December (the first media release was published on the 6th and target groups were contacted from the 3rd) however several were already closed or winding up their services for the year. Many groups, such as Probus, elderly citizens and CALD groups did not reopen until February, missing the very hot weather over December and January. However, this barrier can be avoided in the strategy’s reimplementation as the methods and planning developed in the 2011/12 strategy can be utilised again, with mail outs, phone calls and emails to target groups commencing before the groups begin to close. The second barrier was a lack of interest in the heatwave strategy, demonstrated by a small number of its target groups. Although heatwaves are one of the biggest health hazards in Australia, as mentioned above, they are often seriously underestimated. Some target groups were not willing to make the time to fit in a heatwave presentation, missing out on valuable reminders and resources. However, with reinforcement of the strategy over coming years, the strategy will aim
to shift these attitudes so that heatwaves are more widely recognised as a serious
danger to health and wellbeing.

CONCLUSION

The 2011/12 Kingston City Council Heatwave Strategy achieved overwhelmingly
positive results, improving health literacy of target groups and the wider Kingston
community, empowering individuals with knowledge and resources to prepare for
very hot weather, shifting public opinion to acknowledge the significance of
heatwaves as a health hazard and developing a pilot heatwave strategy for Kingston
City Council that can be implemented and improved in the future.

Many of the resources and promotion methods developed and employed in the
2011/12 strategy will be transferrable to future strategy implementation, allowing it to
be implemented earlier to reach more target groups and encouraging its message to
become more commonly understood across the Kingston community.

END NOTES

http://www.researchonline.mq.edu.au/vital/access/manager/Repository/mq:3121
2 January 2009 Heatwave in Victoria: an Assessment of Health Impacts, a report published by the Victorian
Government Department of Human Services in Melbourne, Victoria. Report can be accessed at
3 Kovats, R.S. and Hajat, S., Heat stress and public health: a critical review. Annual Review Public Health,