LEARN TO STOP BURNS + SCALDS IN THE KITCHEN

Final Report
# Contents

Executive Summary .................................................................................................................. iv  
Introduction ............................................................................................................................. 1  
Data ......................................................................................................................................... 1  
First aid for burns ...................................................................................................................... 3  
Prevention ................................................................................................................................. 3  
Learn to Stop Burns! .................................................................................................................. 4  
New Zealand child burns education kit .................................................................................. 4  
Target group ............................................................................................................................. 5  
Project overview ...................................................................................................................... 6  
Aims ......................................................................................................................................... 7  
Methods .................................................................................................................................... 7  
Focus groups ............................................................................................................................. 7  
Resources developed ............................................................................................................... 8  
Intervention groups .................................................................................................................. 8  
Results ...................................................................................................................................... 11  
Focus groups ........................................................................................................................... 11  
Pre-survey ................................................................................................................................ 14  
Results from pre to post surveys ............................................................................................ 19  
Child hazard identification checklists ..................................................................................... 23  
Process evaluation .................................................................................................................... 24  
Discussion ............................................................................................................................... 26  
Conclusion ............................................................................................................................... 27  
Acknowledgements .................................................................................................................. 28  
References ............................................................................................................................... 29
Executive Summary

Burns are a leading cause of hospitalisation for children under the age of five. Between 2005 and 2015, 6,699 burn injuries occurred in children in the 0-4 year age group in NSW. Of these 60.6% occurred in the kitchen and 11.1% occurred in the Blacktown LGA. Scald injuries across all ages are estimated to cost more than 10 million dollars per year in NSW, with children under five contributing about one third of this expense.

Awareness campaigns focusing on risk factors for burn injuries, parental supervision, safety precautions and first aid have been shown to have positive effects on reducing the burns rate among children, especially when combined with product modification and legislation. However, there is no consistent evidence for reducing scalds in children from hot food and drinks or on changes to kitchen safety practices.

The aims of the Learn to Stop Burns and Scalds in the Kitchen (0-5) project were to:

- Improve knowledge and burns prevention behaviours in the kitchen among parents and carers of children aged 0-5 years attending Early Childhood Education and Care (ECEC) Services in the Blacktown LGA
- Improve knowledge of the correct first aid for burns
- Improve knowledge of burn hazards among children aged 3-5 years

The initial focus group provided background information on the current level of knowledge of burns prevention behaviours and safety practices among parents and carers of children aged 0-5 years attending an ECEC in the Blacktown LGA. The results were used to develop the project resources. The resources were pictorially based to suit people with low health literacy as well as low education levels, low socioeconomic groups and Culturally and Linguistically Diverse (CALD) groups with low English proficiency. Two further focus groups were then conducted to evaluate the usefulness of the resources and their effectiveness in changing people’s behaviour.

There were 211 ECECs identified in the Blacktown LGA of which 45 (21.3%) were randomly selected to participate in the project. The centres were randomised into three groups, as set out below, in order to evaluate the different interventions received.

- Group 1: received the take home exercise only
- Group 2: received the take home exercise with supporting resources, and
- Group 3: received the take home exercise, with supporting resources and an Educator Resource to conduct in class activities with children aged 3-5 years at the centre.

This project demonstrated the effectiveness of resource provision, in increasing knowledge of first aid for burns among parents of children. This was particularly evident in participants who reported using the first aid for burns fridge magnet (RR 2.96, 95% CI [1.82,4.81], p-value <0.0001). Given that only 13.7% of parents at the pre survey knew correct first aid for burns, including both the 20 minute timeframe to put cool water on a burn and not using any other products on a burn, there is a serious need for further education in the community.
There was no evidence of any effect on identifying all of the burn dangers that were listed at post survey (RR 0.98, 95% CI [0.84,1.15], p-value 0.84) however knowledge of burn dangers was already high at the pre-survey (75.8% identified all burn dangers).

Three centres completed the pre and post child hazard identification checklists with children aged 3-5 years attending their centre. Centre 9 (group 2) experienced a 6.8% increase, Centre 17 (group 3) a 1.0% decrease and Centre 16 (group 3) a 30.4% increase in the child hazard identification checklist score from pre to post. Centre 16 reported undertaking every suggested activity in the Educator Resource and Centre 17 only completed some of them with participation varied among the children. Centre 9 did not receive the Educator Resource as they were allocated to Group 2 but they did report talking to children about burns prevention at group times. The results show promise as to the effectiveness of in class activities in increasing children’s knowledge of burn hazards however a greater response rate is needed to provide clearer results.

Overall, there was no evidence of effect for the respondent’s behaviour score from pre to post (mean score 25.0 and 25.2 respectively) (OR 0.42, 95% CI [-0.65,1.48], p-value 0.45). There is no consistent evidence of effective burns prevention interventions in changing behaviour and further work needs to be undertaken to determine what elements are successful in changing behaviours of parents in the kitchen. Increasing the uptake of the use of the resources in this project or identifying other useful products that can act as environmental cues may increase knowledge and behaviour further among parents.

The Learn to Stop Burns and Scalds in the Kitchen project adds to the evidence base on the effectiveness of information provision in increasing knowledge of first aid for burns. Educational activities for children aged 3-5 years also have the potential to increase knowledge of burn hazards and therefore, potentially reduce the likelihood of burn injuries. More intensive programs that engage with the target group have greater potential to effect change. Further research is necessary to demonstrate any effects on behaviour change and among CALD groups.
Introduction

Data
According to the Australian Institute of Health and Welfare (AIHW) burns are a priority area as they are the third highest cause of injury among children.\(^1\) Young children have the highest rates of hospitalisations for burns, followed by elderly people and young males.\(^2\)

According to the NSW Severe Burn Injury Service (unpublished data), between 2005 and 2015, 6,699 burn injuries occurred in children in the 0-4 year age group. This represents 72.1% of all burns among children aged 0-14 years and peaks in the 1-2 years of age group (51.8%).\(^3\) The hospitalisation rate per 100,000 population is presented in Graph 1 with children aged 0-4 years largely overrepresented.\(^4\)

Graph 1: Burns hospitalisation rate per 100,000 by age group and year

A large majority of burns in the 0-4 year age group from 2005 to 2015 were associated with the kitchen (4,061 – 60.6%), mostly as a result of hot water, hot food and drinks and stoves and ovens (see Table 1). The majority of tea/coffee scalds from cups/mugs were due to young children pulling the hot liquid onto themselves after reaching for the cup/mug from a table or bench.
Table 1: Mechanism of burn injuries among children 0-4 years from 2005-2015

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Description</th>
<th>No. of cases</th>
<th>%</th>
<th>Average per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scald</td>
<td>Tea/coffee from cup/mug</td>
<td>1,602</td>
<td>23.9%</td>
<td>145.6</td>
</tr>
<tr>
<td>Scald</td>
<td>Water from kettle/jug/billy/urn/thermos</td>
<td>493</td>
<td>7.4%</td>
<td>44.8</td>
</tr>
<tr>
<td>Contact</td>
<td>Heater</td>
<td>455</td>
<td>6.8%</td>
<td>41.4</td>
</tr>
<tr>
<td>Scald</td>
<td>Other e.g. water from cup/glass, baby bottle</td>
<td>440</td>
<td>6.6%</td>
<td>40.0</td>
</tr>
<tr>
<td>Scald</td>
<td>Other hot liquid immersion e.g. soup, porridge, curry</td>
<td>383</td>
<td>5.7%</td>
<td>34.8</td>
</tr>
<tr>
<td>Contact</td>
<td>Stove/oven door</td>
<td>322</td>
<td>4.8%</td>
<td>29.3</td>
</tr>
<tr>
<td>Contact</td>
<td>Iron</td>
<td>307</td>
<td>4.6%</td>
<td>27.9</td>
</tr>
<tr>
<td>Contact</td>
<td>Hotplate</td>
<td>280</td>
<td>4.2%</td>
<td>25.5</td>
</tr>
<tr>
<td>Friction</td>
<td>Treadmill</td>
<td>249</td>
<td>3.7%</td>
<td>22.6</td>
</tr>
<tr>
<td>Contact</td>
<td>Hot metal e.g. saucepan/welding</td>
<td>208</td>
<td>3.1%</td>
<td>18.9</td>
</tr>
<tr>
<td>Scald</td>
<td>Noodles</td>
<td>195</td>
<td>2.9%</td>
<td>17.7</td>
</tr>
<tr>
<td>Contact</td>
<td>BBQ</td>
<td>179</td>
<td>2.7%</td>
<td>16.3</td>
</tr>
<tr>
<td>Scald</td>
<td>Water from saucepan</td>
<td>168</td>
<td>2.5%</td>
<td>15.3</td>
</tr>
<tr>
<td>Contact</td>
<td>Coals/ashes</td>
<td>144</td>
<td>2.1%</td>
<td>13.1</td>
</tr>
<tr>
<td>Scald</td>
<td>Water from basin/sink</td>
<td>121</td>
<td>1.8%</td>
<td>11.0</td>
</tr>
<tr>
<td>Scald</td>
<td>Fat/oil</td>
<td>111</td>
<td>1.7%</td>
<td>10.1</td>
</tr>
<tr>
<td>Contact</td>
<td>Car/motorcycle exhaust</td>
<td>85</td>
<td>1.3%</td>
<td>7.7</td>
</tr>
<tr>
<td>Scald</td>
<td>Teapot/plunger</td>
<td>67</td>
<td>1.0%</td>
<td>6.1</td>
</tr>
</tbody>
</table>

In total, 740 (11.1%) children aged 0-4 years who suffered a burn were from the Blacktown LGA which is an average of 67.3 per year. The rate per 100,000 people is 2-3 times higher in the Blacktown LGA compared to NSW. The risk of burns has been found to be higher among children aged 1-3 years in western and north western Sydney and correlated with socioeconomic disadvantage. Indigenous children also have burn admission rates over three times higher than non-indigenous children. Specifically in Australia, the rate of burn injury among Aboriginal and Torres Strait Islander children aged 1-4 years was recently reported as being three times the rate of non-Aboriginal and Torres Strait Islander children, mostly due to an outdoor fire (19.1%), hot drinks, food, fats and cooking oils (17.9%) and other hot fluids (15.5%). This data on vulnerable groups highlights the need for targeted strategies for these high risk populations.

Of concern is that 10.2% of burn injuries reported in NSW in 2009-10 had a high threat to life.

Paediatric burn survivors require follow up until they are adults due to issues that may arise as they grow such as hypertrophic scarring, scar contracture and psychosocial problems. Scald injuries across all ages are estimated to cost more than 10 million dollars per year in NSW, with children under five contributing about one third of this expense. A child who suffers a severe scald, requiring five or more days in hospital, is estimated to cost more than $60,000 to treat. Burns ≥30% Total Body Surface Area (TBSA) and burns ≥70% TBSA are estimated to cost over $200,000 and $700,000 respectively. However, these figures are direct hospital and medical care costs only and does not account for the wider costs associated with paediatric scald injuries.

Children often access hot beverages while they are sitting on an adult’s lap or by pulling at a tablecloth where the hot drink is located. Children may also access saucepans or electrical...
equipment on the bench by grabbing an accessible handle or loose cord (for example, from a kettle), pulling the stovetop over if it is not secured or pulling a chair up to the stovetop or bench. The data suggests children are able to reach the stovetop to pull down pots and pans from the front burners but not from the back and children can still reach hot beverages located in the centre of tables.\textsuperscript{12}

**First aid for burns**

The purpose of first aid is to stop the burning process and cool the wound.\textsuperscript{13} First aid reduces the severity of the injury and reduces the need for hospitalisation and surgical intervention.\textsuperscript{14,15} Running water between 5°C and 25°C for 20 minutes has been consistently promoted for burn injuries and can be effective up to three hours after the injury. The temperature of running tap water in metropolitan Sydney is between 12°C and 18°C, which is within the recommended temperature for cooling burns.\textsuperscript{16}

Iced water deepens the burn injury and increases the risk of hypothermia.\textsuperscript{14} The use of soaked dressings, for example while transporting the child to medical care or where running water isn’t available, are only useful if they are frequently changed as they warm very quickly.\textsuperscript{14} Some people have used other alternatives to water on a burn due to lack of awareness, misconceptions or tradition.\textsuperscript{17} A recent analysis of 4,368 children who presented to the Burns Unit at The Children’s Hospital at Westmead (CHW) between 1 January 2008 and 31 December 2012 found 34% of inpatients and 30% of outpatients received inadequate, inappropriate or no first aid.\textsuperscript{18}

A Population Health Survey undertaken in NSW in 2007 found 81.6% of respondents would use cool water on a burn but only 9.4% of respondents were aware of the 20 minute timeframe to do so.\textsuperscript{12} Of those who thought they knew the appropriate time to cool a burn, 77.7% reported an inadequate time and 7.6% mentioned an excessive time. Older people (aged 65+ years), people who spoke a language other than English and those who had not attended a first aid course in the past 12 months had lower levels of burns first aid knowledge.

A short educational intervention conducted at a children’s emergency department led to an increase in knowledge of first aid for burns, however the greatest increases were found among parents from higher educational levels.\textsuperscript{19} Information may need to be tailored specifically to people that have low education levels to ensure greater results among this target group.

**Prevention**

Awareness campaigns focusing on risk factors for burn injuries, parental supervision, safety precautions and first aid have been shown to have positive effects on reducing the burns rate among children,\textsuperscript{20} especially when combined with product modification and legislation.\textsuperscript{21} Although counselling by doctors has been found to be effective in changing parental behaviour, it may not be the most effective way to reach the whole community, particularly for low socioeconomic groups, non-English speaking groups and Aboriginal people who are less likely to receive adequate primary health care.\textsuperscript{22} Up to 26% of the general population are estimated to have low health literacy levels, which is why simple, cohesive messages are essential.\textsuperscript{23} Many of the burn injuries sustained by children will only be prevented by changing the behaviours of people within the home.

According to a Cochrane Review undertaken in 2004, the examination of four studies that met the criteria for inclusion, of which only two reported a decrease in child burn injury rates, meant there was insufficient evidence as to the effectiveness of community based programmes preventing burns...
and scalds among children under the age of 14 years. In 2015, Zou et al. also examined 14 systematic reviews and 39 primary studies and found no consistent evidence for reducing scalds from hot food and drinks in children or on changes to kitchen safety practices.

CHW has noted a decrease in the prevalence of hot water burns sustained in the bathroom. It is believed that this is directly related to the legislation regulating the temperature of water delivered to the bathroom. This was introduced in 1999 for newly installed water heaters and in 2012 for existing water heaters that are replaced. Instead, the kitchen continues to be a significant contributor to burns, particularly among children under the age of five from hot tea and coffee, hot foods, hot water from kettles and the stovetop.

**Learn to Stop Burns!**
In order to raise awareness of burns prevention, the Burns Unit at CHW as a part of the NSW SBIS, in conjunction with Kids Health, developed a burns prevention program 'Learn to Stop Burns!'. The program which forms part of an inclusive "teachers resource" is aimed at primary school students and taught as part of the curriculum. The "Learn to Stop Burns!" program is a computer-based, animated "hazard house", which allows users to journey through a house to see and learn how burns can happen and also how they can be prevented. The teaching resource contains suggested teaching and learning activities, which assist students in exploring the house. The activities allow students to work towards achieving the stage two and stage three outcomes in the Safe living strand of the K-6 Syllabus Personal Development, Health and Physical Education (PDHPE). The overall aim of the program was to increase awareness of burns prevention amongst children aged 8-10 years and their parents/carers in NSW.

In 2008, the program was piloted with 89 students in NSW (aged between 8-12 years), and found an 18% increase in burns prevention knowledge (score improved from 5.55 to 7.36; analysis with Paired Samples T-Test, Significance: p<0.001; 95% CI: 1.4-2.2). Students were required to complete a pre-test and post-test (10 multiple-choice questions) to measure burn prevention knowledge. Teachers reported that it was “a great unit” and the “interactive nature of the program was excellent. Plenty of suggested support resources for teachers which provided background knowledge before teaching.”

**New Zealand child burns education kit**
An education program which was taught by Public Health Nurses to ethnically diverse schools in low/middle income areas in New Zealand had a positive impact on household behaviours. It involved two classroom activities, a week apart, and a homework exercise and was pictorially based to appeal to people from non-English speaking backgrounds. The homework exercise involved a six page family exercise with each page focusing on a different hazard. A picture demonstrated the safe practice and instructions were provided on how to identify whether their household practices were safe and making a note of this in the booklet.

On average, children in the intervention school could identify six more hazards than the children at the control school which was a statistically significant result. A number of parents implemented a safety change as a result of the exercise, particularly reading the fliers (47%), turning the hot water cylinders down (35%), removing tablecloths (22%), putting drinks in the middle of tables (22%) and using the back elements on the stove (18%). At one year follow up of children involved in the project
in 2001, an assessment of the resources disseminated as part of the homework activity found 65% at least temporarily used the jug hook as intended, 70% the coaster, 71% the stove sticker and 79% the bath label. The children recalled a mean of 7.60 hazards out of ten, compared to 7.62 hazards immediately after the teaching and 2.11 in the control group. This project was effective in not just assessing children’s knowledge, but also behaviour change and the reach of burn prevention messages to parents.

**Target group**

In 2011, there were 458,714 children aged 0-4 years in NSW and a total of 430,516 families with a child under the age of five. There were 25,415 children 0-4 years of age living in the Blacktown LGA, the population of which is continuing to increase. Population characteristics from the 2011 Census for Blacktown compared to NSW are displayed in Table 2.

**Table 2: Population characteristics for Blacktown and NSW**

<table>
<thead>
<tr>
<th></th>
<th>Blacktown</th>
<th>%</th>
<th>NSW</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children 0-4 years</td>
<td>25,415</td>
<td>8.5%</td>
<td>458,714</td>
<td>6.6%</td>
</tr>
<tr>
<td>Total households with children</td>
<td>56,891</td>
<td>59.0%</td>
<td>1,109,043</td>
<td>42.7%</td>
</tr>
<tr>
<td>Total households with young children under 15 years or mixed age children</td>
<td>37,034</td>
<td>38.4%</td>
<td>700,209</td>
<td>26.9%</td>
</tr>
<tr>
<td>Aboriginal people</td>
<td>8,195</td>
<td>2.7%</td>
<td>172,625</td>
<td>2.5%</td>
</tr>
<tr>
<td>Overseas born</td>
<td>113,213</td>
<td>37.6%</td>
<td>1,778,452</td>
<td>25.7%</td>
</tr>
<tr>
<td>Speaks a language other than English</td>
<td>111,170</td>
<td>36.9%</td>
<td>1,554,282</td>
<td>22.5%</td>
</tr>
<tr>
<td>Poor English proficiency</td>
<td>14,167</td>
<td>4.7%</td>
<td>271,686</td>
<td>3.9%</td>
</tr>
<tr>
<td><strong>TOTAL POPULATION</strong></td>
<td><strong>301,096</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>6,917,601</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

Blacktown has a higher proportion of children aged 0-4 years, Aboriginal people, overseas born, people who speak a language other than English and low English proficiency. The most common languages spoken at home in the Blacktown LGA include Filipino/Tagalog (18,322 – 6.1%), Hindi (10,763 – 3.6%), Arabic (9,741 – 3.2%) and Punjabi (6,975 – 2.3%) with the largest changes evident in the languages of Punjabi (+4,058 persons), Hindi (+3,585 persons), Filipino/Tagalog (+2,871 persons) and Urdu (+1,451 persons).

According to the Review of NSW Government Funding for Early Childhood Education (2012), of the 178,000 children under the age of six attending licensed children’s services; 52,800 attend preschools, 101,000 attend long day care (LDC) and 25,000 attend family day care. When compared to the total population of children 0-4 years in NSW (Table 2), there appears to be a minimum of 38.8% participation rate in ECEC services.

The My Child website lists a total of 539 Early Childhood Education and Care (ECEC) services in the Blacktown LGA which represents 7.9% of the 6,842 ECEC services in NSW (see Table 3).
Table 3: ECEC services in Blacktown and NSW

<table>
<thead>
<tr>
<th>ECEC Services</th>
<th>Blacktown N</th>
<th>Blacktown %</th>
<th>NSW N</th>
<th>NSW %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before and/or after school care</td>
<td>140</td>
<td>26.0%</td>
<td>2,029</td>
<td>29.7%</td>
</tr>
<tr>
<td>Family day care</td>
<td>128</td>
<td>23.8%</td>
<td>295</td>
<td>4.3%</td>
</tr>
<tr>
<td>Occasional care</td>
<td>3</td>
<td>0.6%</td>
<td>36</td>
<td>0.5%</td>
</tr>
<tr>
<td>Vacation care</td>
<td>56</td>
<td>10.4%</td>
<td>858</td>
<td>12.5%</td>
</tr>
<tr>
<td>In home care</td>
<td>0</td>
<td>0.0%</td>
<td>18</td>
<td>0.3%</td>
</tr>
<tr>
<td>Long day care</td>
<td>180</td>
<td>33.4%</td>
<td>2,741</td>
<td>40.1%</td>
</tr>
<tr>
<td>Pre-school</td>
<td>31</td>
<td>5.8%</td>
<td>865</td>
<td>12.6%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>539</td>
<td>100.0%</td>
<td>6,842</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Blacktown has a higher proportion of family day care participation than NSW and a lower participation in pre-schools. The majority of children are enrolled in long day care services.

There is potential for a large number of parents and carers to be accessed via ECEC services given the above figures. However, given that the largest gaps in early childhood participation are in the Greater Sydney Metropolitan Area, targeting parents/carers in other settings in addition to ECEC services should be investigated such as Community Health Centres, playgroups and Aboriginal Medical Services.

Fire safety programs have been shown to increase knowledge in pre-school aged children so there is also potential to increase knowledge of burn hazards among children under the age of five.

The National Quality Framework (NQF) for ECEC services took effect on 1 January 2012. The National Quality Standard is a key aspect of the Framework and includes the seven quality areas listed below.

1. Educational program and practice
2. Children’s health and safety
3. Physical environment
4. Staffing arrangements
5. Relationships with children
6. Collaborative partnerships with families and communities
7. Leadership and service management

All ECEC services are assessed and rated against the Standard and can have their ability to operate withdrawn if they do not meet the Standard.

**Project overview**

An educational program was undertaken with ECEC Services (instead of primary schools with previous projects) to effectively reach the target group of parents/carers of children 0-5 years. The burns prevention program provided information to centres on how the project linked to the NQF and was trialled with parents and carers in the Blacktown LGA, due to the high incidence of child burn injuries in this area.
The project was based on the NZ model by including take home exercises to reach parents and asking them to provide feedback on their knowledge and behaviours in the home.

The project was evaluated on whether a take home exercise with and without supporting resources and whether the addition of educational activities for children at the ECEC had any effect on increasing knowledge of parents and carers of children attending the centres. The ECECs were separated into three groups, each with a different component of the project, to examine if specific aspects of the project were more effective.

**Aims**

The aims of the Learn to Stop Burns and Scalds in the Kitchen (0-5) project were to:

- Improve knowledge and burns prevention behaviours in the kitchen among parents and carers of children aged 0-5 years attending ECEC Services in the Blacktown LGA
- Improve knowledge of the correct first aid for burns
- Improve knowledge of burn hazards among children aged 3-5 years

**Methods**

A working group of key stakeholders was established which included representatives from the following organisations who offered expert advice on the structure of the project and development of the project resources. Consultation also occurred with the Director of Child Care Services at CHW.

- Kids Health, CHW
- Burns Unit, CHW
- Population Health Research, SICHN Research
- NSW Severe Burn Injury Service
- NSW Kids and Families
- Fire and Rescue NSW
- Ambulance NSW
- The George Institute for Global Health
- Kidsafe NSW
- Community Child Care Co-operative

Ethics approval was received from the Sydney Children’s Hospitals Network (SCHN) Human Research Ethics Committee (HREC) (LNR.15.SCHN.31).

**Focus groups**

Six centres, who were not involved in the project, were randomly selected to participate in the focus groups of which three (50%) agreed to assist. Each focus group consisted of five to nine parents of children aged 0-5 years attending LDC centres in the Blacktown LGA. Participants were provided with a $50 gift voucher in recognition of their time.

The initial focus group provided background information on the current level of knowledge of burns prevention behaviours and safety practices among the target group.

The results of the first round were used to develop the “Learn to Stop Burns and Scalds in the Kitchen” resources, including a take home exercise, brochure, magnet, placemat and sticker. The
resources were pictorially based to suit people with low health literacy as well as low education levels, low socioeconomic groups and Culturally and Linguistically Diverse (CALD) groups with low English proficiency.

Two further focus groups were then conducted to evaluate the usefulness of the resources and their effectiveness in changing people’s behaviour.

Both focus groups were undertaken using the same methodology which involved both qualitative and quantitative feedback. The LDC centres distributed an invitation letter to all parents and carers of children attending the centre to participate in the focus group. All participants were asked to complete a registration form so an estimate could be provided on final numbers. To reduce the likelihood of individuals being influenced by group consensus each participant was asked to complete a hard copy feedback form at the focus group after which time an open discussion occurred which explored themes in the feedback provided. A facilitator’s guide was developed to lead each focus group discussion (Appendix C and D) and the focus groups were run for approximately one and a half hours. Each participant was provided with an information sheet and was asked to fill out a consent form and sign on sheet with all data remaining anonymous, confidential and kept on a secure drive at CHW. The focus group discussions were recorded and transcribed for evaluation purposes.

**Resources developed**

The graphic design for the resources was completed by the Public Relations Department at CHW.

The take home exercise used the same visuals as the resources which allowed for the communication of safe burns prevention behaviours. The take home exercise also sought feedback from parents on their current knowledge and practices. This not only helped to evaluate the project but also provided feedback on possible barriers to performing the recommended behaviours.

The pre and the post surveys were similar to the take home exercise but without any supporting images or information about safe burns prevention behaviours.

The Educator Resource provided background information on the issue and the project, how the centre participation linked to the NQF and Early Years Learning Framework (EYLF) for ECEC services and also provided some suggested activities that they could undertake to educate children aged 3-5 years about burn hazards.

The final resources that were developed for the project are available in Appendix A. The final budget for the project, exclusive of staffing costs, was $25,221 and is available in Appendix B.

**Intervention groups**

There were 180 LDC centres and 31 preschools identified in the Blacktown LGA of which 45 (21.3%) were randomly selected to participate in the project. The centres were randomised into three groups using a simple computer-generated randomisation sequence in order to evaluate the different interventions received. The parents at each centre and the ECEC services did not know of the other groups and different interventions being offered.

All of the centres were sent an invitation letter and were asked to provide a Letter of Support if they wanted to participate. Approval was also received from the Children’s Services Liaison Officer from
Blacktown City Council for any Council owned centres to participate in the program. There were 17 (37.8%) centres that consented to being involved in the study, all of which were LDC centres. These included five centres in Group 1, six centres in Group 2 and seven centres in Group 3 (see Table 4). One centre in Group 3 withdrew from the project after the completion of the pre-surveys.

**Table 4: Centres involved in the project**

<table>
<thead>
<tr>
<th>No. of centres</th>
<th>Combined reach of parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>5</td>
</tr>
<tr>
<td>Group 2</td>
<td>6</td>
</tr>
<tr>
<td>Group 3</td>
<td>7</td>
</tr>
<tr>
<td>TOTAL</td>
<td>18</td>
</tr>
</tbody>
</table>

The intervention groups are evident in Graph 2.

**Graph 2: Intervention groups in the Learn to Stop Burns and Scalds in the Kitchen project**

All of the centres received the pictorially based take home exercise which provided information on burns prevention behaviours in the kitchen, focusing on stoves, kettles, hot food and drinks and first aid for burns. Groups two and three were also given a brochure, magnet, placemat and hook to hang up loose cords to distribute with the take home exercise. These resources were intended to be used as environmental cues that remained in the kitchen to reinforce the correct burns prevention behaviours.

The pre surveys and child checklists were distributed via the ECECs in May, the take home exercises and supporting resources were distributed in August and the post surveys and child checklists were distributed in November 2015 (see Graph 3).
Respondents to the pre and post surveys were assessed on whether they identified all of the burn hazards that were listed and they were given a score for each behaviour from 0-3, depending on whether they said they performed the behaviour all of the time, most of the time, some of the time or never (Appendix E). The total behaviour score was analysed at the pre and post survey. First aid knowledge was assessed on whether they correctly identified the 20 minute timeframe to use cool water on a burn and if they did not use any other products on a burn.

The in class activities in Group 3 were conducted by the staff at the centres using a supplied Educator Resource over a four month period before and after the dissemination of the take home exercises. Before undertaking these activities they were asked to complete a hazard identification checklist with children aged 3-5 years attending their centre and repeated this at the end of the year, before the post surveys were disseminated.

All of the centres were given a survey to complete at the end of the year which provided demographic information on the parents of children that attended their centre and feedback on any burns prevention activities that they conducted with the children throughout the year.

The project was restricted to the 2015 calendar year to reduce any impact from enrolment changes at the centres.

The project was evaluated through pre and post surveys of parents/carers, pre and post child hazard identification checklists and feedback from the ECEC’s.
Results

Focus groups

Knowledge
There were ten participants in total for the knowledge focus groups.

There were 60.0% of participants who identified all of the burn hazards that were listed and the average behaviour score was 19.2 out of a maximum of 36. Most respondents (77.8%) had cordless kettles or had the cords wound up under the base. Responses were lower around the use of a stove guard, using tablecloths, placing hot food and drinks in the middle of the table and using the back stovetop burners when cooking. In regards to first aid, 40.0% correctly identified the 20 minute timeframe to put cool water on a burn however only 22.2% correctly identified this timeframe AND did not use other products on a burn. Ice/iced water (44.4%) and burn creams/gels (44.4%) were common products used. Of concern is 55.6% had children who had sustained 1-3 minor burns.

Focus group participants reported never receiving any education on burns prevention, even though much of the information should be common knowledge.

Barriers to performing safe behaviours included lack of education, not thinking about it, multitasking and attending to other things and several concerns around the lack of affordability of safety products. No one had heard of a stove guard, suggested it be included as an optional extra when purchasing a stove and were not aware of the strength and adjustable features. One additional barrier that was mentioned related to the design of stovetops with some parents reporting the large elements are often at the front of the bench which is why they do not use the back burners when cooking.

Some of the participants received different first aid advice from their GP and suggested ensuring medical professionals are educated in this area as well.

Participants suggested disseminating prevention information in hospital when having a child, at antenatal classes and through child care centres. Although all of the parents used Facebook every day, they didn’t pay attention to the advertisements and instead responded to other people’s posts.

Resource testing
A total of nine people participated in the resource testing focus groups.

All of the images used in the final resources received very positive feedback, particularly around how a child can get into trouble, being believable and making them feel more concerned about their child’s safety in the kitchen (Table 5).
Table 5: Percentage of parents who agreed/strongly agreed with statements pertaining to images presented at the focus groups

<table>
<thead>
<tr>
<th>Statement</th>
<th>Stove</th>
<th>Kettle</th>
<th>Hot drink</th>
<th>First aid</th>
<th>Child eating noodles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tells me a story about how a child can get burnt</td>
<td>100.0%</td>
<td>100.0%</td>
<td>88.9%</td>
<td>88.9%</td>
<td>55.6%</td>
</tr>
<tr>
<td>Is believable</td>
<td>100.0%</td>
<td>88.9%</td>
<td>77.8%</td>
<td>100.0%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Makes me feel more concerned about my child’s safety</td>
<td>77.8%</td>
<td>88.9%</td>
<td>66.7%</td>
<td>66.7%</td>
<td>44.4%</td>
</tr>
<tr>
<td>Makes me want to look up further information on this issue</td>
<td>66.7%</td>
<td>44.4%</td>
<td>55.6%</td>
<td>77.8%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Is an effective image</td>
<td>100.0%</td>
<td>88.9%</td>
<td>66.7%</td>
<td>77.8%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

When asked how the participants would keep children safe after looking at each image, most correctly listed the key prevention messages. As in the knowledge focus groups, ice/iced water (44.4%) and burn creams/gels (100.0%) were popular products that had been used on a burn.

The participants emphasised the use of images in the resources, especially for non-English speaking backgrounds and to educate their children and grandparents about what the recommended safe behaviours are. Instead of the child eating hot noodles on the floor, they preferred a front cover image of a child with scarring so parents can see the consequence and what happened as a result of the unsafe behaviour.

The brochure and take home exercise also received positive feedback, particularly around those who would act on the safety recommendations listed in the materials (Table 6). It was suggested to make the take home exercises child interactive, such as a colouring in competition, so the kids could help parents complete it.
Table 6: Percentage of parents who agreed/strongly agreed with statements pertaining to the brochure and take home exercise presented at the focus groups

<table>
<thead>
<tr>
<th>Statement</th>
<th>Brochure</th>
<th>Take home exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is easy to read and understand</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>I like the way the information is presented</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>I learnt something new</td>
<td>88.9%</td>
<td>55.6%</td>
</tr>
<tr>
<td>Makes me feel more concerned about my child’s safety</td>
<td>55.6%</td>
<td>77.8%</td>
</tr>
<tr>
<td>After reading this information I will:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use the back stovetop burners when cooking</td>
<td>88.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Turn the pot handles out of reach of children</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Use a stove guard</td>
<td>44.4%</td>
<td>55.6%</td>
</tr>
<tr>
<td>Stay in the kitchen when cooking</td>
<td>88.9%</td>
<td>88.9%</td>
</tr>
<tr>
<td>Make sure your child is not alone in the kitchen when cooking</td>
<td>88.9%</td>
<td>88.9%</td>
</tr>
<tr>
<td>Push the kettle to the back of the bench</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Use a hook for the kettle cord</td>
<td>66.7%</td>
<td>77.8%</td>
</tr>
<tr>
<td>Use non-slip placemats and coasters instead of tablecloths</td>
<td>77.8%</td>
<td>77.8%</td>
</tr>
<tr>
<td>Place hot food and drinks out of reach of children</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Not hold my child when having hot food or drinks</td>
<td>77.8%</td>
<td>77.8%</td>
</tr>
<tr>
<td>Only use cool running water on a burn for 20 minutes</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

The participants reported that they would complete a take home exercise if they received one from their child’s ECEC service (100%), preferably in a hard copy format (100%).

The participants also responded well to the resources that were presented to them, including a magnet, sticker and coaster (Table 7).

Table 7: Percentage of parents who agreed/strongly agreed with statements pertaining to the resources presented at the focus groups

<table>
<thead>
<tr>
<th>Statement</th>
<th>Magnet</th>
<th>Sticker</th>
<th>Coaster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is easy to read and understand</td>
<td>100.0%</td>
<td>88.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>I like the way the information is presented</td>
<td>100.0%</td>
<td>88.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>I learnt something new</td>
<td>77.8%</td>
<td>66.7%</td>
<td>44.5%</td>
</tr>
<tr>
<td>Makes me feel more concerned about my child’s safety</td>
<td>77.8%</td>
<td>77.8%</td>
<td>55.6%</td>
</tr>
<tr>
<td>After reading this information I will:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use the back stovetop burners when cooking</td>
<td>88.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn the pot handles out of reach of children</td>
<td>88.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stay in the kitchen when cooking</td>
<td>88.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use non-slip placemats and coasters instead of tablecloths</td>
<td></td>
<td></td>
<td>88.9%</td>
</tr>
<tr>
<td>Place hot food and drinks out of reach of children</td>
<td></td>
<td></td>
<td>100.0%</td>
</tr>
<tr>
<td>Not hold my child when having hot food or drinks</td>
<td></td>
<td>100.0%</td>
<td>88.9%</td>
</tr>
<tr>
<td>Only use cool running water on a burn for 20 minutes</td>
<td>100.0%</td>
<td>77.8%</td>
<td>88.9%</td>
</tr>
<tr>
<td>Would you use this resource?</td>
<td>100.0%</td>
<td>77.8%</td>
<td>88.9%</td>
</tr>
</tbody>
</table>
In the focus group discussion, the importance of images was discussed to communicate messages to the community. The participants were also unsure whether they would use the sticker as it might melt or become dirty near the stove. This is why a decision was made after the focus groups to replace the sticker and coaster with a placemat to enable less text and more images to communicate the messages to parents/carers.

**Pre-survey**

The pre-survey built on the responses in the focus groups. There were 1,749 surveys sent to 18 centres of which 182 responded. This represents a response rate of 10.4%.

The preferred method of completion for the pre-surveys was via hard copy (81.9%) compared to email (18.1%).

**Graph 2: Pre-survey method of completion**

There were a total of 321 children attending the centres from the 182 parents who responded. This equates to 1.8 children per respondent. Participation in early childhood was highest among children aged three (20.2%), four (18.7%) and six (20.6%) years of age. Of the children aged six years or over, 37.9% had a younger sibling aged two years or less.
The large majority of parents identified many burn hazards for children under the age of five. Other dangers that were identified included baths, BBQs and heaters. A total of 75.8% respondents identified all of the burn hazards that were listed.

Graph 3: Ages of children attending the centres

Graph 4: Identified burn hazards for young children

Positive results were reported by parents on pushing their kettle to the back of the bench all of the time (91.1%), turning pot handles out of reach (86.0%), not leaving their child alone in the kitchen (85.5%), always ensure hot food and drinks are out of reach of children (75.4%) and not leaving cooking unattended (52.0%). Less positive results were found with the number of parents who never
hold their child when having hot food or drinks (46.6%), never use tablecloths (46.7%), always use the back burners when cooking (32.6%) and always use a stove guard (8.2%). The mean behaviour score was 25.0 which is consistent with a ‘most of the time’ response for all of the behaviour related questions.

Graph 5: Frequency of burn prevention behaviours by parents

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold child with food</td>
<td>19.3%</td>
<td>9.1%</td>
<td>25.0%</td>
<td>46.6%</td>
</tr>
<tr>
<td>Food drinks out of reach</td>
<td></td>
<td></td>
<td></td>
<td>75.4%</td>
</tr>
<tr>
<td>Placemats</td>
<td>28.7%</td>
<td>19.7%</td>
<td>23.0%</td>
<td>28.7%</td>
</tr>
<tr>
<td>Coasters</td>
<td>19.7%</td>
<td>15.7%</td>
<td>25.8%</td>
<td>38.8%</td>
</tr>
<tr>
<td>Tablecloths</td>
<td>21.1%</td>
<td>11.1%</td>
<td>21.1%</td>
<td>46.7%</td>
</tr>
<tr>
<td>Kettle to back</td>
<td></td>
<td></td>
<td>91.1%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Child not alone</td>
<td></td>
<td></td>
<td>85.5%</td>
<td>12.8%</td>
</tr>
<tr>
<td>Stay in kitchen</td>
<td>85.0%</td>
<td>11.1%</td>
<td>3.9%</td>
<td>33.0%</td>
</tr>
<tr>
<td>Stove guard</td>
<td>42.9%</td>
<td>42.3%</td>
<td>15.8%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Turn pot handles</td>
<td>32.6%</td>
<td>37.6%</td>
<td>27.5%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Back burners</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Most parents either had a cordless kettle or the cord was wound up under the base (76.1%) (Graph 6). A further 20.6% of parents had a kettle with a cord but did not use a hook to ensure the kettle cord was out of reach of young children.

There were 2.2% of respondents who reported not pushing their kettle to the back of the bench all of the time AND did not use a hook to hang up loose cords if they did not have a cordless kettle or wind up the cords under the base.
Graph 6: Do you use a hook to hang up the kettle cord in the kitchen

![Graph showing the use of hooks by parents](image)

Only 30.9% of parents could correctly identify how long cool water should be used on a burn (20 minutes).

Graph 7: How long should cool water be used on a burn

![Graph showing cool water timeframes](image)

There was large use of ice/iced water (46.2%) and burn creams and gels (44.0%) to treat the burn.
There were 13.7% respondents who were able to correctly identify the 20 minute timeframe AND did not use other products to treat a burn.

There were 39.1% of parents who had a history of performing first aid for a burn, nearly all of which were for a minor burn that did not require going to hospital (90.7%).

**Graph 9: History of performing first aid on a burn**
The cause of the burns was mainly due to a hot drink (20.0%), stovetop (10.8%), oil (7.7%), food (6.2%), stove/oven door (6.2%) or saucepan (4.6%).

Most children had never had a burn (69.5%) followed by 1-3 burns (28.8%).

**Graph 10: History of burns among children**

![Graph 10](image)

**Results from pre to post surveys**

Given the low response rate in the post survey among group 1 (n=5), the results in this section present the analysis for groups 2 and 3 only.

There was no evidence of any effect on identifying all of the burn dangers that were listed at post survey (RR 0.98, 95% CI [0.84,1.15], p-value 0.84) and no evidence of effect for group (RR 0.93, 95% CI [0.80,1.07], p-value 0.31) (see Graph 11).
Overall, there was also no evidence of effect for the respondent’s behaviour score from pre to post (mean score 25.0 and 25.2 respectively) (OR 0.42, 95% CI [-0.65,1.48], p-value 0.45). The behaviours of concern at the pre survey did not change significantly at post, including never holding children when having hot food/drinks (46.6% vs. 39.5%), always using a stove guard (8.2% vs. 10.5%), always using the back burners when cooking (32.6% vs. 40.8%) and never using tablecloths (46.7% vs. 19.7%).

There was no evidence of the effect of group on identifying the correct 20 minute timeframe to use cool water on a burn (RR 1.11, 95% CI [0.85,1.44], p-value 0.44) however there was a significant result at the post survey (RR 2.18, 95% CI [1.64,2.90], p-value <.0001) (see Graph 12 and Table 8). This knowledge significantly increased among those who reported using the first aid for burns fridge magnet (RR 1.65, 95% CI [1.18,2.30], p-value 0.0036) but there was no evidence of effect between Groups 2 and 3 (RR 1.06, 95% CI [0.83,1.36], p-value 0.65).
Graph 12: Percentage of respondents by group that correctly identified the 20 minute timeframe required for a burn

![Graph showing percentage of respondents by group](image)

Table 8: Statistical significance of knowledge of correct 20 minute timeframe of cool water on a burn

<table>
<thead>
<tr>
<th>Results at post</th>
<th>RR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey post vs. pre</td>
<td>2.18 (1.64, 2.90)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>*Group 3 vs. Group 2</td>
<td>1.11 (0.85, 1.44)</td>
<td>0.44</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results by magnet use</th>
<th>RR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnet use</td>
<td>1.65 (1.18, 2.30)</td>
<td>0.0036</td>
</tr>
<tr>
<td>*Magnet use Group 3 vs. Group 2</td>
<td>1.06 (0.83, 1.36)</td>
<td>0.65</td>
</tr>
</tbody>
</table>

*Not significant

Respondents in all three groups who correctly identified the 20 minute timeframe to cool a burn AND would not use other products on a burn such as ice, burn creams, oil/butter/margarine or cream/toothpaste improved at post survey (RR 2.96, 95% CI [1.82, 4.81], p-value <0.0001), but there was no difference between the groups (RR 1.32, 95% CI [0.83, 2.10], p-value 0.24). There was a significant increase however for those who reported using the first aid for burns fridge magnet (RR 2.02, 95% CI [1.08, 3.77], p-value 0.027) (see Graph 13 and Table 9).
Graph 13: Percentage of respondents by group that correctly identified the 20 minute timeframe required for a burn AND would not use any other products

Table 9: Statistical significance of knowledge of correct first aid for burns

<table>
<thead>
<tr>
<th>Results at post</th>
<th>RR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey post vs. pre</td>
<td>2.96 (1.82, 4.81)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>*Group 3 vs. Group 2</td>
<td>1.32 (0.83, 2.10)</td>
<td>0.24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results by magnet use</th>
<th>RR (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnet use</td>
<td>2.02 (1.08, 3.77)</td>
<td>0.027</td>
</tr>
<tr>
<td>*Magnet use Group 3 vs. Group 2</td>
<td>1.37 (0.78, 2.40)</td>
<td>0.27</td>
</tr>
</tbody>
</table>

*Not significant

At the post survey, most parents used the fridge magnet compared to the other resources. The main reasons for not using the resources were that they weren’t needed (25.0%) or they didn’t receive it (11.8%).
Graph 14: Use of resources in Groups 2 and 3

There was no evidence of any effect between those who used the first aid for burns fridge magnet and those who didn’t when looking at knowledge of burn hazards (RR 1.03, 95% CI [0.80,1.33], p-value 0.80) and safe behaviours in the kitchen (OR 0.39, 95% CI [-1.41,2.19], p-value 0.80).

Parents felt the take home exercise was useful (71.5%), interesting (32.9%) and informative (59.5%). Only 1.3% thought it was a waste of time and no one reported that it was confusing or hard to complete. At the post survey, parents reported that the take home exercise had an impact on their behaviours (70.4%), with only 22.4% saying it didn’t do anything.

Parents reported some common reasons why the recommendations would not be able to be followed, which are listed below:

- Front burners tend to be the larger ones
- Open plan kitchens make it difficult to separate the kitchen from living areas
- Cost of safety products, such as a stove guard
- Difficulty holding a child’s burn under cool water for 20 minutes
- Visiting other households or visitors and other family members not educated about the safe behaviours

**Child hazard identification checklists**

Three centres completed the pre and post child hazard identification checklists with children aged 3-5 years attending their centre, which included two centres in Group 3 and one centre in Group 2.

The response rate for the centres is listed in Table 10 however the response rate of the entire group of centres that participated in the project was much lower.
Table 10: Child hazard identification checklist response rate by Group at the pre and post survey

<table>
<thead>
<tr>
<th>Group</th>
<th>Children aged 3-5 years</th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Group 2</td>
<td>140</td>
<td>15</td>
<td>11</td>
</tr>
<tr>
<td>Group 3</td>
<td>113</td>
<td>64</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>79</td>
<td>57</td>
</tr>
</tbody>
</table>

Of the children who completed the pre and post checklist, the average hazard score out of a total of 13 was 6.3 at the pre survey (see Table 11). Children were more likely to identify that the items were hot and that they could burn them but were less likely to identify the child’s action or an adult not being present as dangerous.

Table 11: Child hazard identification checklist score by centre at the pre and post survey

<table>
<thead>
<tr>
<th>Centre</th>
<th>Group</th>
<th>Pre</th>
<th>Post</th>
<th>Pre to post</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Centre 9</td>
<td>Group 2</td>
<td>6.2</td>
<td>47.6%</td>
<td>7.1</td>
</tr>
<tr>
<td>Centre 17</td>
<td>Group 3</td>
<td>6.0</td>
<td>45.9%</td>
<td>4.9</td>
</tr>
<tr>
<td>Centre 16</td>
<td>Group 3</td>
<td>7.5</td>
<td>58.0%</td>
<td>10.3</td>
</tr>
</tbody>
</table>

Centre 9 experienced a 6.8% increase, Centre 17 a 1.0% decrease and Centre 16 a 30.4% increase in the child hazard identification checklist score from pre to post. Centre 16 reported undertaking every suggested activity in the Educator Resource and Centre 17 only completed some of them with participation varied among the children. Centre 9 did not receive the Educator Resource as they were allocated to Group 2 but they did report talking to children about burns prevention at group times.

Process evaluation

There were 182 (10.4%) responses to the pre survey, 158 (9.3%) responses to the take home exercise and 76 (4.5%) responses to the post survey. Groups 2 and 3 had a much higher response rate in all three surveys than Group 1 (see Graph 15).
The languages of Hindi, Punjabi, Tagalog, Egyptian and Mandarin were common among parents and carers, according to the demographic information provided by the centres in the ECEC surveys. Employment of both parents among most centres ranged from 65-75% and an average of 15% of parents had extended family living in their household.

All of the project resources were only provided in English which may have excluded people from other language backgrounds. This is especially so in the Blacktown LGA, given the demographics of the area and the high number of CALD groups. When looking at the take home exercise response rate for the three groups, Group 3 appeared to have a higher engagement with parents which may have been due to the more targeted program that was being implemented (12.5% vs. 4.1% and 8.2%) or may be due to other factors.

Out of the five ECEC surveys that were received for Group 3, one centre did not complete any activities and the other four centres completed five to ten activities (out of 10) from the Educator Resource.

Although Groups 1 and 2 did not receive the Educator Resource, all ten centres that completed the ECEC survey reported undertaking activities at their centre, some of which were similar to the activities promoted in the Educator Resource. These included:

- Cooking experiences
- Play kitchen
- Discussion at meal times
- Talks to children at group times
- Fire Brigade visits and evacuation practices
- Story books and felt board stories
- Puzzles
- Looking at burn hazards on the smartboard
The centres in Group 3 reported the activities were useful and engaged the children. Overall, only one centre reported that the project was too involved and required too much paperwork for parents.

The centres reported difficulty trying to get the parents interested and completing the surveys and take home exercises. Some parents and carers did not use the resources that were given to them or they didn’t receive them.

There was some difficulty following up the ECEC services and getting them to complete the ECEC surveys and send back the information that the parents completed, despite the reply paid envelopes that were provided. Some centres did not have the demographic information readily accessible which required more time to complete.

**Discussion**

This project demonstrated the effectiveness of resource provision, i.e. first aid for burns fridge magnets, in increasing knowledge of first aid for burns among parents of children attending ECEC services in the Blacktown LGA. Given that only 13.7% of parents at the pre survey knew correct first aid for burns, including both the 20 minute timeframe to put cool water on a burn and not using any other products on a burn, there is a serious need for further education in the community. Evidence based programs that are proven to increase knowledge, such as the Learn to Stop Burns and Scalds in the Kitchen program, are needed to reduce the seriousness of a burn should it occur and reduce the need for hospitalisation and surgical intervention by improving the application of appropriate first aid. Educational programs need to be tailored to high risk population groups and need to be visually appealing so the messages can be conveyed and understood.

Some possible reasons for the discrepancy in the Group 3 child hazard identification checklist results with Centre 17 could include whether the same educator delivered the checklist from pre to post, whether other activities were occurring at the same time as the completion of the checklist which may have distracted the children or the time of day that it was completed. When Centre 17 is excluded from the analysis there is a great increase in the results for the children who participated in the in class activities, in Group 3. The results show promise as to the effectiveness of in class activities in increasing children’s knowledge of burn hazards however a greater response rate is needed to provide clearer results.

The results from the focus groups and pre survey found parents already had a high knowledge of burn hazards which may be why there were no significant results in this area. There is no consistent evidence of effective burns prevention interventions in changing behaviour and further work needs to be undertaken to determine what elements are successful in changing behaviours of parents in the kitchen. Increasing the uptake of the use of the resources in this project or identifying other useful products that can act as environmental cues may increase knowledge and behaviour further among parents, especially as there were significant differences in knowledge of first aid for burns among those respondents who reported using the fridge magnet.

Other injury prevention programs conducted in early childhood settings have demonstrated effects in changing behaviour among parents. For example, a child restraint program conducted in LDC centres and pre-schools in low socioeconomic areas in Sydney, Australia demonstrated an increase
in the correct use of child restraints (43% vs. 31%) via education, subsidised restraints and free fitting checks. The process evaluation in this project showed a stronger engagement with the educators and parents at the centres that received the more intensive aspects of the project. More intensive support offered to the ECEC services and parents and translated resources for the Learn to Stop Burns and Scalds in the Kitchen project, as has been done in other injury prevention programs, may lead to larger engagement with the target group and therefore more successful results in regards to knowledge and behaviour change.

Data can be examined for 2016 to see whether there was any effect on burns hospitalisations as a result of this project. However, as this was a pilot project and did not cover the whole Blacktown LGA it will be difficult to show any effect from the participating centres. In addition, the incidence of minor burns among children is likely to be much higher than the current hospitalisation rate, given that 28.8% of children in the pre survey had had 1-3 minor burns. Examining the hospitalisation rate will not identify the number of minor burns that have been prevented or would have never needed hospitalisation.

This project was trialled in ECEC services based on successful projects that were conducted in the primary school setting. There was some difficulty among the centres trying to engage parents and getting them to complete the surveys and some parents reported not receiving the resources, which may highlight differences between these two settings. Homework received from children in primary schools may be more accepted among parents and children in this older age group may be able to influence their parents more with the completion of activities they receive from the school. These may have been factors leading to a lower response rate in this project.

Barriers that were reported by parents need to be explored further, which may in turn improve behaviour, include the open plan design of kitchens and living areas, design of stovetops and having the large burners at the back, affordability of safety products such as stove guards and GP education around first aid for burns.

Limitations of the project included not being able to track individuals to determine change in knowledge and behaviour from pre to post. Also, a higher response rate in the post survey and child hazard identification checklists would have provided a better indication of responses from the population within each group. Although the resources were visually appealing and tailored to CALD groups and parents with lower literacy levels, as the surveys were not provided in other languages, feedback from these groups was limited.

**Conclusion**

The Learn to Stop Burns and Scalds in the Kitchen project adds to the evidence base on the effectiveness of information provision in increasing knowledge of first aid for burns. Educational activities for children aged 3-5 years also have the potential to increase knowledge of burn hazards and therefore, potentially reduce the likelihood of burn injuries. More intensive programs that engage with the target group have greater potential to effect change.

Further research is necessary to demonstrate any effects on behaviour change and among CALD groups.
Acknowledgements

Kids Health would like to acknowledge the Julian Burton Burns Trust for providing $10,133 of funding and Perma Products for donating the hooks to undertake this project. The authors would also like to acknowledge Elizabeth Barnes (Kids Research Institute) and Kate Hunter (The George Institute for Global Health) for their help with statistical analysis as well as the Working Group members listed below.

- Erin Collimore, Kids Health, CHW
- Mitchell Nash, Burns Unit, CHW
- Vivian Isaacs, Population Health Research, SCHN Research
- Siobhan Connolly, NSW Severe Burn Injury Service
- Emily Kleinberg, NSW Kids and Families
- Susan Broomhall, Fire and Rescue NSW
- Louise Alderson, Ambulance NSW
- Kate Hunter, The George Institute for Global Health
- Christine Erskine, Kidsafe NSW
- Kay Lockhart, Kidsafe NSW
- Marie Deverill, Community Child Care Co-operative
References

25 Zou et al. (2015) Preventing childhood scalds within the home: Overview of systematic reviews and a systematic review of primary studies. Burns.
26 Connolly, S. (2006) School burn Prevention program. ANZBA ASM
Appendix A: Learn to Stop Burns and Scalds in the Kitchen resources

Brochure

Placemat

First aid fridge magnet
Pre-survey

Take home exercise
### Appendix B: Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic design</td>
<td></td>
<td>$3,000</td>
</tr>
<tr>
<td>Focus group expenses</td>
<td></td>
<td>$1,851</td>
</tr>
<tr>
<td>Working group expenses</td>
<td></td>
<td>$281</td>
</tr>
<tr>
<td>Printing of Educator Resource</td>
<td>50</td>
<td>$284</td>
</tr>
<tr>
<td>Printing of A3 flipcharts</td>
<td>50</td>
<td>$811</td>
</tr>
<tr>
<td>Printing of take home exercises</td>
<td>2,100</td>
<td>$1,694</td>
</tr>
<tr>
<td>Printing of pre surveys</td>
<td>1,744</td>
<td>$1,395</td>
</tr>
<tr>
<td>Printing of surveys (post)</td>
<td>2,100</td>
<td>$928</td>
</tr>
<tr>
<td>Fridge magnets</td>
<td>10,000</td>
<td>$3,907</td>
</tr>
<tr>
<td>Placemats</td>
<td>3,000</td>
<td>$1,595</td>
</tr>
<tr>
<td>Hooks</td>
<td>3,000</td>
<td>$1,590</td>
</tr>
<tr>
<td>Brochures</td>
<td>75,000</td>
<td>$3,580</td>
</tr>
<tr>
<td>Envelopes – pre and post (express post and reply paid)</td>
<td>40</td>
<td>$1,568</td>
</tr>
<tr>
<td>Envelopes – take home exercise</td>
<td>2,100</td>
<td>$784</td>
</tr>
<tr>
<td>Individual envelopes – take home exercise</td>
<td>3,000</td>
<td>$303</td>
</tr>
<tr>
<td>On costs</td>
<td></td>
<td>$1,650</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>$25,221</strong></td>
</tr>
</tbody>
</table>
Focus Group Facilitators Guide – 1.5 hours

1. **Introductions (5min)**
   - Introduce: thank host, introduce self, Kids Health and other representatives
   - Introduction of purpose: raise awareness of burns among young children
   - What will happen today – will ask you to fill in individual forms, group discussion then finish at (specify time), gift vouchers and stay for refreshments
   - If you have additional questions ask Kids Health/ reps AFTER focus group
   - Recording of discussion
     - We would like to record the discussion today to make sure we report as accurately as possible, this will be recorded with this device (Show device)
     - Confidentiality – no information will be kept about who you are
     - Check all ok with recording?
     - Consent form – please sign that you are OK with all of this.
   - What will happen
     - We will ask you some questions to get your feedback – please do NOT discuss your answers YET
     - This is to provide you with some time to clarify your own opinion about the material

2. **Individual sheets- filling out forms (20 min)**
   Prompt: We want your individual thoughts on the materials. Just read through the questions and respond with what you already know about burns in children.

3. **DISCUSSION OF questions one at a time (60 min)**
   Thank you for your patience, now we are ready to talk about each question.

**NOTE:** Encourage participation from everyone that is present so we are gaining feedback on everyone’s views and not just the dominant participants. The purpose of the discussion is to explore why they answered the way they did in the feedback forms.
Firstly, what does everyone think are the biggest causes of burns to young children?

Do you know how many burns in children under the age of five occur every year?

How many do you think occur just in the Blacktown LGA?

Explain kitchen = largest contributor for burns in young children

We’re just going to go through some different areas in the kitchen and discuss what you think are the major issues for burns in young children and how to make it safe.

- Firstly, stovetops. How can stovetops be unsafe? How can we make them safe?
  - Does anyone use the front burners or not turn their handles to the side?
  - Are there any reasons why you can’t use the back burners / turn the handles
- Is it difficult for you to stay in the kitchen the whole time while something is cooking?
- How can kettles be unsafe? How can we make them safe?
  - Does anyone not push kettles to the back of the bench or hang up loose cords?
  - Are there any reasons why you can’t do this?
- How can hot food and drinks be unsafe? How can we make them safe?
  - Does anyone not pay attention to where hot food and drinks are left?
  - Are there any reasons why you can’t keep them in the middle of the table/bench and not use tablecloths?
- What should be done if a burn occurs? How long should water go on the burn for? Is there anything else that we can use on burns or has anyone used anything else in the past?

Are there any barriers to you making the kitchen safe for children? E.g. multitasking, having to leave the kitchen to do other jobs...

Is there anything that we can give you to make it easier to make your kitchen safe?

Does anyone know of any safety devices that can be used in the kitchen to make it safer?

Stove guard... Kettle jug hook... Coasters/placemats instead of tablecloths...

Does anyone have a child under the age of five who has had a burn that they would like to share with the group? Can you tell us how it happened and what you did?

Burns in children are very common and are one of the leading causes of hospitalisation for children under the age of five.

How would you feel about completing a take home exercise that your child brought home from child care/pre-school asking what you do in the kitchen (like the questions you were asked at the beginning of the focus group)?

- Would you prefer to complete this on paper, online or other?
Appendix D: Focus Group Facilitator’s Guide - 2

Focus Group Facilitators Guide – 1.5 hours

1. **Introductions (5min)**
   - Introduce: thank host, introduce self, Kids Health and other representatives
   - Introduction of purpose: raise awareness of burns among young children
   - What will happen today – will ask you to fill in individual forms, group discussion then finish at (specify time), gift vouchers and stay for refreshments
   - If you have additional questions ask Kids Health/ reps AFTER focus group
   - Recording of discussion
     - We would like to record the discussion today to make sure we report as accurately as possible, this will be recorded with this device (Show device)
     - Confidentiality – no information will be kept about who you are
     - Check all ok with recording?
     - Consent form – please sign that you are OK with all of this.
   - What will happen
     - Show you some material and with each material we would like your feedback – please do NOT discuss your answers YET
     - This is to provide you with some time to clarify your own opinion about the material

2. **Individual sheets- filling out forms (20 min)**

Prompt: We want your individual thoughts on the materials. Just read through the homework exercise and look at the images and tick whether you strongly agree, agree, neutral, disagree or strongly disagree with the comments in the feedback form.

3. **DISCUSSION OF materials one at a time (65 min)**

Thank you for your patience, now we are ready to talk about each material.

Again, we are asking you to consider the objective of this campaign which is to raise awareness of burns in young children. Please bear this in mind when discussing your feedback.
NOTE: Encourage participation from everyone that is present so we are gaining feedback on everyone’s views and not just the dominant participants. The purpose of the discussion is to explore why they answered the way they did in the feedback forms.

For each image/resource discuss/explore:

1. How effective is this image? (in relation to objective of raising awareness of burns)
2. What did you like about this?
3. What did you not like about it?

Prompts: what is it telling you? How believable? Does this make you feel concerned about your child’s safety around in the kitchen? What does it make you want to do (if anything) (i.e. call to action)?

Comments/ Suggestions? Prompt: how would you improve this?

1. Image 1 (A child reaching for a pot on the stove) – 10 min
   - What does this image tell you about the dangers of stovetops?
   - Does the image tell you how to make you stovetop safe?
     - Especially relating to using the back stovetop burners and facing the handles out

2. Image 2 (A child reaching for a kettle on the bench) – 10 min
   - What does this image tell you about the dangers of kettles?
   - Does the image tell you how to make your kettles safe?
     - Especially relating to pushing kettles to the back of the bench and keeping loose cords out of reach

3. Image 3 (A child reaching for hot food and drink on the table) - 10 min
   - What does this image tell you about the dangers of hot food and drinks?
   - Does the image tell you how to make hot foods and drinks safe?
     - Especially relating to using placemats and coasters instead of tablecloths and placing hot food and drinks in the middle of the bench out of reach of children

4. Image 4 (A child with their hand under tap water) - 10 min
   - What does this image tell you about what to do if a burn occurs?
     - Especially relating to using cold water for 20 minutes
   - Has anyone ever used anything other than cold water on a burn?

With all of the images, do you like that it shows a comparison of what is wrong and what is right next to each other? (Show example)
5. BROCHURE 10 min

Prompt: Is it easy to understand, clear, new information, concern – any additional information / we missed?

Did you like the image on the front page or how would you feel about using an image of a burn survivor with scarring to communicate the consequences of burns?

To what extent did the information make you want to:

(Tip: ask participants to put their hand up for those who felt STRONGLY – agree/ will adopt the recommended action below –to begin conversation) Go through each action separately and find out why.

- Use the back stovetop burners
- Turn the pot handles outwards on the stove
- Stay with my child in the kitchen
- Push the kettle to the back of the bench
- Install a jug hook for my kettle cord
- Use placemats and coasters instead of tablecloths
- Put hot food and drinks in the middle of the table
- If a burn occurs, only use cold running water on it for 20 minutes

NOTE: Explore negative feedback regarding the call to action items.

6. TAKE HOME EXERCISE 10 min

Prompt: Is it easy to understand, clear, new information, concern – any additional information / we missed?

To what extent did the information make you want to:

(Tip: ask participants to put their hand up for those who felt STRONGLY – agree/ will adopt the recommended action below –to begin conversation) Go through each action separately and find out why.

- Use the back stovetop burners
- Turn the pot handles outwards on the stove
- Stay with my child in the kitchen
- Push the kettle to the back of the bench
- Install a jug hook for my kettle cord
- Use placemats and coasters instead of tablecloths
- Put hot food and drinks in the middle of the table
- If a burn occurs, only use cold running water on it for 20 minutes

NOTE: Explore negative feedback regarding the take home exercise and call to action items.
Is there anything that might make it hard to follow the recommended actions?

How would you feel if there was a story included on a child who had suffered a burn injury in the kitchen and how this led to scarring? Would it make you more inclined to fill out the take home exercise? What if it included pictures?

Is the take home exercise something that you would complete if your child brought it home from pre-school or child care?

How would you prefer to complete it – hard copy, online, email, other...

What are your thoughts on giving resources to parents with the take home exercise as a reminder of the safety messages we are trying to promote. We’ll just go through them one by one.

- Fridge magnet with information on what first aid to do if a burn occurs
- Sticker to go above the stovetop with messages about safe cooking
- Coaster with a message to keep hot food and drinks in the middle of the table
- Hook to stick on the wall to hang loose kettle cords on

Do you think they are useful?

Would you use them?

Is there anything else that might be more useful as a reminder?

How do you feel about these drafts that have been developed?

- Magnet
- Sticker
- Coaster
- Stick on hook

Has your behaviour changed in any way after today or are your behaviours the same as before you came along to this focus group? – 5 min

If they won’t change their behaviour, why not? (Is it the way the information is presented)

Do they have any suggestions on how to get these messages across clearer so people will change their behaviour?

Is there anything else you would like to add? Any other suggestions? Anything we missed?
Appendix E: Behaviour score questions

Q: Please tick whether you do the following all the time, most of the time, some of the time or never

<table>
<thead>
<tr>
<th>Points allocated</th>
<th>All the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the back stove top burners when cooking</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Turn the pot handles out of reach of young children when cooking</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Use a stove guard</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Stay in the kitchen when you have something cooking</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Make sure your child is not alone in the kitchen when cooking</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Push your kettle and other electrical equipment in the kitchen to the back of the bench</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Use tablecloths</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Use drink coasters</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Use non-slip placemats</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Place hot food and drinks out of reach of young children</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hold your child when having hot food and drinks</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>