Program Example - Scalds from hot liquids

Note: We have created program examples for a number of injury issues that affect children 0-6. These examples are based on best practice and share activities that groups have done or could undertake. These follow the steps of Lesson 6 in the on-line course, Introduction to Child Injury Prevention. They are designed for people who want to develop programs that can be evaluated, or for people who need samples of Action Plans and Evaluation Plans for funding proposals. Other program examples, without this level of detail, but dealing with the same stories (for the most part), are available on the Parachute site, associated with Lesson 5 of the course.

Should you decide to work on this issue in your community, share your experience through our new child injury prevention listserv. You can subscribe by sending an email to: cipg-subscribe@lists.parachutecanada.org.

Introduction:

Why are burns and scalds important? Less than 5 children age 0-4 and less than 5 children age 5-9 died from burns in Canada in 2009. (When the number of deaths is under 5, Statistics Canada cannot report the actual number, to protect privacy.) Three hundred and forty six (346) children aged 0-4 and fifty-nine (59) children aged 5-9 were admitted to hospital as a result of a burn (2010/11). Burns are the third leading cause for hospital admissions from injury for those 0-4. As stated in Lesson 1, Introduction to Child Injury Prevention, these admissions are just the tip of the iceberg as most of these children are only seen in an emergency room or at a clinic, and are not admitted to hospital.

Burns and scalds are preventable.

Story:

A mother had just moved into an apartment with her four year old and one year old. She ran a bath for her children and noticed that the water got hot very quickly.

She filled the tub, put the children in and warned the four year old not to play with the taps. She went to find their sleepers in their bedroom. The four year old forgot his mother’s warning and turned on the hot water tap. The four year old was able to leap out of the tub when the water got too hot. His one year old brother was unable to get out of the tub. His screams brought the mother running.

She grabbed the one year old and called 911 to find out what to do and where to take her child. She was told to run cool water over the child’s legs while waiting for the paramedics so they all could go to the hospital. After weeks of painful dressing changes, the child recovered but has scars on his feet and legs even after wearing specially designed socks. He also needed physiotherapy on his legs.

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1 The “burns” category includes burns and related injuries from fire, hot substances and hot objects. This example is focusing on burns from scalds but the data reflect all these causes.
**Problem statement:**
To begin a plan to address this injury, you need a short statement of the problem. For this story, it could be: Young children are being scalded by hot tap water in our community.

Next, you need a goal:
**Goal:** to reduce the incidence of scald injuries to children in our region.

Next, you need to start to identify the key people who can help address this situation in your community.

**Potential partners:** injury prevention organization, hospital/burn centre or Emergency personnel, Public Health, caregivers and other community members.

You will want to discuss with the caregivers in your programs, whether they see this as an issue and what their thoughts are in ways to prevent the injury from happening. They need to “buy into” the idea that:
- Their children could be scalded and seriously injured.
- They can do something to prevent that scald from happening, or lessen the impact if it does.

Often caregivers believe that an injury won’t happen to their child and they just need to tell a child not to do something and he will listen. They also don’t realize how serious these injuries can be when they do happen. In fact we know that there are lots of things that influence whether that injury happens, and some of those things are within a caregiver’s control and some are not. A man named Haddon, from the United States, developed a process that illustrates all the factors that influence whether an injury will happen and how severe the impact of that injury could be. The approach captures all these ideas in the Haddon’s Matrix. It is helpful for program planners to complete a Haddon’s Matrix to make sure they have thought of all the possible ways an injury could have been prevented, before they choose the approach they are going to take in their own setting.

The following table shows the risk and protective factors before, during and after a hot water scald – note the table below is a more complete example than what was described in Lesson 5 of the Introduction to Child Injury Prevention course, but follows the approach in Lesson 6, Program Planning and Evaluation. It shows all the potential areas that you could address.

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2 We are using the term caregiver to include parents, grandparents, foster parents and anyone else responsible for the care of a child.
**Program Example - Scalds from hot liquids**

Haddon’s Matrix for scalds

| Pre-Event | Will the scald occur? | Person (Host) | One year old child | Agent & Carrier | thermal energy hot water | Environment: Physical | What is the temperature of the hot tap water. How close is the tank to the bathroom? (i.e. how long does it take for the tap water to get hot?) Presence of safety devices in the plumbing system to prevent scalds (anti-scald devices, special scald prevention valves) Safety lids on hot drinks Cordless kettle | Environment: Social | What are the caregiver’s attitudes toward safety and supervision? What is the caregiver’s awareness of the water temperature, and how quickly a child’s skin can burn? What is the caregiver’s access and ability to turning down the hot water temperature? What is the caregiver’s understanding of child’s ability to understand danger? What is the caregiver’s understanding of his child’s developmental skills? |
|---|---|---|---|---|---|---|---|
| Event | Will injury occur as a result of the scald? | Age Health of child Physical size Clothing/diaper | How hot is the water and how long was the exposure? | Ease with which the tap can be turned on. Is the child able to get away from the hot water (standing in tub versus reaching water in a sink) | Proximity to the child. Knowledge caregiver has on what to do in a scald situation to minimize the effect of the burn. |
| Post-Event | What will the outcome be? | Age Health of child Physical size Location of burn | Hot clothing removed, burned area run under cool water | Proximity of medical care EMS response time Access to telephone Access to acute care | Caregiver’s ability to follow through on first aid and treatment instructions – short and long term. Medical staff knowledge of how to treat scalds in children |

Adapted by Parachute from the Canadian Injury Prevention Curriculum for the on-line course, Introduction to Child Injury Prevention found at [www.parachutecanada.org](http://www.parachutecanada.org).
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Once you have looked at all the risk and protective factors that could be involved in the injury event, choose which factors you have the capacity to influence and decide what changes you want to make with your program. Identify what best or promising practices are known to work with this injury situation and incorporate those into your approach.

Risk/Protective Factors that you have the potential to change: the temperature of the water; the child’s access to scalding water; caregivers’ understanding on how to prevent and treat scalds; caregivers’ knowledge and behavior around minimizing the risk of scalds in their child’s environment

Best practices: The Child Safety Good Practice Guide has identified that turning down the temperature on hot water tanks reduces the chances of scald injuries. A third degree burn (characterized by blistering, intense pain and permanent tissue damage) will occur in children in only 5 seconds when water temperature is 60°C (140°F). At 55°C (130°F), a third degree burn will occur in 15 seconds, while the time to produce a third degree burn extends to at least 5 minutes when water temperature is 49°C (120°F).³ Note: not all families have control over their hot water heaters and not all heaters can be adjusted.


Objectives:
The changes you want to make are then written as objectives, following this formula:

<table>
<thead>
<tr>
<th>Increase or decrease ...</th>
<th>By what amount</th>
<th>In what timeframe</th>
<th>With whom</th>
<th>What</th>
</tr>
</thead>
</table>

Objectives:
1) To increase by 50% over the next six months, the knowledge of caregivers in our parenting program, regarding how to prevent hot water/liquid scald injuries.
2) To increase by 50% over the next year, the number of families in our programs that have hot water temperatures of no more than 49 degrees in their homes.

Once you have decided your objectives, then you need, with your committee, to decide what activities you will undertake in order for your changes to happen. You also need to decide how you will know if the change(s) happened (success indicators).

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Here is a sample story of what one group could decide to do:
During a parenting session, coffee was served in insulated mugs, with tight fitting lids. Staff explained that they had moved to using these mugs all the time. Even though hot liquids aren’t normally served when children were present, it was a good reminder how quickly scald injuries can happen and how easily the risk of injury can be minimized. This prompted the caregivers to share their “near misses” with scalds – everything from hot coffee, pots on the stove, and hot tap water. Staff members were able to share information on how quickly a child’s skin can burn (much faster than an adult’s) and asked whether the group wanted to discuss together how to prevent these injuries from happening. The group agreed. The staff found resources on the Parachute website and learned of the program “Too Hot for Tots” (links below). The local “kitchen and bath” store agree to pay for the program and the supplies were ordered (posters, video, temperature cards, slides and manual). A local plumbing company was approached about helping caregivers check their water temperature and reduce the temperature at the tank or tap. Landlords were approached about reducing the water temperature in rental units that had gas or oil water heaters. (Note: the water temperature on electric hot water heaters cannot be adjusted). The program was so successful that the local town council decided to reduce the hot water temperature in their seniors’ units (where possible) as they found out a few seniors had been scalded while bathing as well. Insulated mugs with tight-fitting lids were given as prizes at community events.

The E’s that they decided to address were:
- Education – assist caregivers in gaining the knowledge and enabling the behaviour change needed to reduce risk of scalds.
- Environment/Engineering – switch to insulated mugs for hot liquids at home; lower temperature on hot water heaters or at the taps (if possible).
- Enforcement – change municipal policy around the hot water temperature in rental units (and seniors units), if applicable.

Your objectives and activities can then be laid out in a project logic model format, or whatever template you currently use for program planning.

Scalds Prevention Project Logic Model

<table>
<thead>
<tr>
<th>Goal</th>
<th>Objectives</th>
<th>Activities</th>
<th>Outputs</th>
<th>Short Term Outcome</th>
<th>Intermediate Outcome</th>
<th>Long Term Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>To reduce the incidence of scald injuries to children in our region.</td>
<td>To increase by 50% over the next six months, the knowledge of caregivers in your parenting program, regarding how to prevent hot water/liquid scald injuries.</td>
<td>Create committee, Find funding for Too Hot for Tots and insulated mugs, Educate caregivers using resources from Parachute and Too Hot for Tots.</td>
<td>Committee is meeting and providing direction, Sponsor found, Number of caregivers educated</td>
<td>Increase in knowledge about how to prevent scalds</td>
<td>Caregivers report they are using insulated mugs with tight fitting lids; they are making sure that bath water is not hot; they are installing anti-scald devices or reducing the temperature at the</td>
<td>Reduction in the incidence of scald injuries</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>and visual, interactive displays</th>
<th>tank (if possible).</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase by 50% over the next year, the number of families in your programs that have hot water temperatures no more than 49 degrees in their homes.</td>
<td>Create process for people to assess if their water temperature can be lowered at the tank. Create process to influence policy regarding hot water temperature in rental units</td>
</tr>
<tr>
<td>Number of tanks assessed</td>
<td>Number of tanks that had the hot water temperature changed.</td>
</tr>
<tr>
<td>Policy in place for rental units of maximum water temperature of 49 degrees.</td>
<td>Reduction in incidence of scalds</td>
</tr>
</tbody>
</table>

Here are their activities and success indicators, written in an “action plan” format that could be used in a funding proposal. In this approach, the group has indicated their success indicators – the things they will measure to show their results.

**Activities:**

<table>
<thead>
<tr>
<th>Actions/ Activities</th>
<th>Target Group</th>
<th>Responsibilities and Timeline</th>
<th>Resources</th>
<th>Success Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What we will do and how will we do it</strong></td>
<td><strong>Who are we trying to influence</strong></td>
<td><strong>Who will do it and when will it be completed</strong></td>
<td><strong>What will we need to do it</strong></td>
<td><strong>How will we know if we have done it</strong></td>
</tr>
<tr>
<td>Identify the key people to be on the committee. Create committee to oversee project (all objectives)</td>
<td>Internal and external partners</td>
<td>Manager Week 1</td>
<td>Time</td>
<td>A committee is in place including Centre staff, And key community people (e.g. plumbers)</td>
</tr>
<tr>
<td>Find sponsor to pay for “Too Hot for Tots” program</td>
<td>Local businesses</td>
<td>Staff Month 1</td>
<td>Staff Time,</td>
<td>Corporate sponsor(s) found</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>and insulated mugs (obj 1)</th>
<th>Prevention images and messages downloaded and delivered in parenting program (obj 1)</th>
<th>Too Hot for Tots kit ordered and integrated into parenting program</th>
<th>Create visual displays and interactive activities demonstrating various causes of scald burns and how to prevent them.</th>
<th>Caregivers</th>
<th>Staff Month1-6</th>
<th>Time, print copies of images</th>
<th>Number of caregivers attending, increase in knowledge measured pre and post attending</th>
<th>Self reports regarding changes in behaviour.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hot water temperature assessed and adjusted in private homes, where possible.</td>
<td></td>
<td></td>
<td>Caregivers</td>
<td>Month 2-12</td>
<td>Temp testing cards from Too Hot for Tots kit</td>
<td>Number of tanks assessed, number of tanks that could change and did change temperature to no more than 49 degrees.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Policy developed for local municipality</td>
<td>Municipal counsellors and staff</td>
<td>Month 3-12</td>
<td>Time</td>
<td>Hot water temperature policy implemented for rental units.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluation:**

Finally, you need to think about how you are evaluating what you are doing. This is very important because too often you know something is working (or not working) but haven’t built in a way to measure the success (or pinpoint the problem). If you don’t have concrete evaluations of programs, it is harder to share your learning with colleagues. There are different types of evaluations and the list below shows how you use each of them in your planning process.

**Evaluation Plan**

**Needs Assessment:** establishing a need
Q: Is there a need for scald prevention? Yes, every year children are needlessly scalded.

**Developmental evaluation:** identifying best practices
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Q: Are there programs already in existence for this target audience that increase the knowledge of caregivers about scald prevention and ensure families have lowered their water temperature? Yes – Lowering the hot water temperature at the tank reduces the risk of a scald injury. The Too Hot for Tots program from BC has been evaluated and has been proven to help caregivers make the change in their water temperature.

**Formative evaluation:** testing program plans, messages, materials, modifications, strengths or weaknesses before they are put into effect.

Q: Do caregivers understand how quickly a child’s skin can be burned and what they can do to prevent this from happening? Do they understand how to turn down the temperature on their water heater or get the help they need to ensure this is done – for tanks that can be adjusted? There are resources/messages available through Parachute and other organizations (e.g. the Too Hot for Tots program) that help caregivers understand what to do to prevent scalds and burns.

**Process evaluation:** tests whether the program’s procedures for reaching the target are working as planned.

Q: Are the caregivers still attending the program? – tracking attendance. Caregivers are participating in the discussion/problems solving around barriers to reducing their hot water temperature, and changing their behavior around other hot liquid hazards at home.

**Impact evaluation:** assess the program’s progress towards its goal i.e. measuring changes in target audience’s knowledge, attitudes and beliefs that may lead to injury-prevention behaviour.

Q: Do the caregivers retain the knowledge? The pre/post tests will show any change.

**Outcome evaluation:** measures changes in preventive behaviours and injury-related morbidity and death.

Q: Will this program ultimately reduce scald injuries in this population? That would be the intent but the program would have to be on a large scale in order to be confident that any reduction in scald injuries can be attributed to your program.

Q: Do the caregivers self-report changes in their behaviour? Is there any way to verify these changes? Self-reports alone are unreliable as caregivers may just tell you what they think you want to hear (and what they would like to be true). If home visitors or public health nurses visit the home, they may be able to document reduction in hot water temperature or observe scald prevention behaviours in the home. If a plumber makes the change in the hot water temperature, he can document it.

**Collecting the information:**

Track numbers of caregivers attending sessions, and number of water heaters adjusted or anti-scald devices installed
Conduct a simple pre-test to find out caregivers’ current knowledge and behaviour, conduct a post after the program is finished. Sample pre and post questionnaires are downloadable from [www.parachutecanada.org/child-injury-prevention](http://www.parachutecanada.org/child-injury-prevention). Staff delivering the program will do the tracking
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and conduct the pre/post surveys. If in-home visits for follow-up are possible, have these visitors ask if the hot water heater was adjusted. In addition, they may be able to see whether insulated mugs are being used for hot drinks.

Share the results of your evaluation with others working with caregivers. Even if you find that your program did not make any change, this is good information to know and you can work with your committee to figure out why the program did not work, and make changes to future programs.
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**Evaluation Plan:**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activities</th>
<th>Outputs</th>
<th>Measurement Tool</th>
<th>Outcomes</th>
<th>Success Indicators/Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase by 50% over the next six months, the knowledge of caregivers in our parenting program, regarding how to prevent hot water scald injuries.</td>
<td>Identify the people to be on the committee and create committee to oversee project</td>
<td>Committee formed and operational</td>
<td>Notes from meetings</td>
<td>Committee has undertaken all activities of the project</td>
<td>Program has been delivered to caregivers</td>
</tr>
<tr>
<td></td>
<td>Prevention images and messages downloaded and delivered in parenting program</td>
<td>Burns images printed and topic integrated into the parenting program schedule</td>
<td>Pre and post knowledge quiz</td>
<td>Caregivers more knowledgeable about burns from hot liquids and what to do to prevent these injuries.</td>
<td>50% increase in the knowledge of caregivers regarding the prevention of scalds</td>
</tr>
<tr>
<td></td>
<td>Displays and interactive activities created and conducted.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To increase by 50% over the next year, the number of families in our programs that have hot water temperatures of no more than 49 degrees in their homes.</td>
<td>Too Hot for Tots videos shown</td>
<td>Hot water tanks that can be adjusted, are adjusted.</td>
<td>Self-reports or reports from others</td>
<td>Caregivers more knowledgeable about safe hot water temperature and have made adjustments where possible</td>
<td>50% increase in the number of families who indicate they have hot water temperature of no more than 49 degrees.</td>
</tr>
<tr>
<td></td>
<td>Displays and interactive activities created and conducted.</td>
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</tr>
</tbody>
</table>
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Other resources:

"Too Hot for Tots!" is a comprehensive program designed for front-line educators to increase caregivers awareness and knowledge about the high risk of burn and scald injuries to children 5 years and under. The program includes resources for both educators and caregivers and is available in a number of languages.

- **Educator Handbook** provides educators with current information and statistics on pediatric burn injuries. The primary goal of this document is to provide educators with consistent, reliable, evidence–based information so they can teach caregivers how to reduce the risk of a burn injury in the home. The Handbook also shares ideas and best practice recommendations on how to effectively deliver this training in your community.

- **Too Hot for Tots! Video** uses the power of storytelling and re-enactments to show how easily thermal injuries can happen and how serious they can be. Evidence-based prevention strategies and emergency first aid treatment are also provided in this video. (Running time 16:57).

- **How to Adjust Your Water Temperature Video** teaches caregivers how to use the temperature testing card and explains how to safely reduce the temperature of a home hot water tank. (Running time 3:20)

- **Caregiver Discussion – Power Point Presentation Slides** These slides are located on the DVD disc menu. This set of 16 slides highlights the key messages from the videos and are to be shown as a review after caregivers have watched the Too Hot for Tots! and Adjusting your Water Temperature videos. The slides are designed to support group discussion that is a key factor in the success for the program.

- There is also a set of 4 posters with injury prevention facts and prevention strategies.

- There is a cost for these resources. Please visit the [http://edreg.cw.bc.ca/bookstore/12848/default.aspx](http://edreg.cw.bc.ca/bookstore/12848/default.aspx) to order these program resources.

Also:

Information on a range of injury topics can be found in A Million Messages: [http://www.albertahealthservices.ca/7607.asp](http://www.albertahealthservices.ca/7607.asp) Check with your province/territory, to see if they have adapted these messages for your region.

Preventable.ca is always increasing the range of topics it addresses. Check out [www.preventable.ca](http://www.preventable.ca).

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