Introduction:

Why focus on child poisoning? No young child has died from poisoning in recent years. Poisoning, however, is the second leading cause of injury hospital admissions for those aged 0-4 years (688 admissions in 2010/11). 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 the emergency room or at a clinic, and are not admitted to hospital.

Childhood poisoning is preventable.

Story:

During a parenting program, caregivers\(^1\) of young children were discussing their concerns about keeping their children safe. One caregiver described an incident where she found her toddler trying to open a pill bottle that he found in her purse. He kept saying “candy”. She knew of another child that had opened a “child proof” pill bottle and swallowed some pills. The child had to be taken to hospital. In the discussion that followed, several issues were raised: caregivers thought that containers for pills and poisons were “child proof”, when in reality they are only “child resistant”; caregivers didn’t realize that young children can’t distinguish between things that could poison them and candy or sweet drinks. Caregivers indicated to the staff that they would like to learn more about poison prevention.

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 poisoned by medications found at home.

Next, you need a goal:

\(^1\) We are using the term “caregiver” to include parents, grandparents, foster parents and anyone else who is responsible for the care of a child.
Program Example - Child Poisoning

**Goal:** to reduce the incidence of poisoning in preschool children.

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

**Potential partners:** caregivers, Poison Control Centre, Public Health nurse, Injury Prevention Organization, pharmacist

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 child could be poisoned
- They can do something about preventing that poisoning from happening

Often caregivers believe that it is their fault if their child gets injured. 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 an after a poisoning – note the table below is a more complete example than what was described in Lesson 5 of the *Introduction to Child Injury Prevention*, 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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Adapted by Parachute from the Canadian Injury Prevention Curriculum for the on-line course, Introduction to Child Injury Prevention found at www.parachutecanada.org.
The Haddon’s Matrix for Child Poisoning


<table>
<thead>
<tr>
<th>Person</th>
<th>Cause</th>
<th>Environment: Physical</th>
<th>Environment: Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preschool child</td>
<td>Chemical energy Medication</td>
<td>Was the medication within reach? Where is medication stored (in a purse or briefcase?) Type of container (blister pack versus bottle, or medicine put into another container) Type of closure</td>
<td>What are the caregiver’s attitudes toward safety and supervision? What is the caregiver knowledge regarding the effectiveness of ‘child resistant’ packaging? What is the caregiver’s knowledge regarding poisoning hazards in the home? Marketing practices – e.g. many tablets look like ‘candy’ to a young child, taste good (e.g. children’s vitamins) Manufacturer packaging and standards (i.e. - child resistant packaging and fewer pills per package) Pharmacist warnings to clients regarding toxicity and storage of medications Pharmacy disposal programs</td>
</tr>
</tbody>
</table>

**Pre-Event**

**Will the poisoning occur?**

| Age | Gender | Skill level of child (i.e. dexterity to open a ‘child resistant’ package) Perception of child (i.e. do they understand the difference between candy and medications?) Tendency toward risk taking behaviours? | Type of medication Amount of medication available and accessible to child | Was the medication within reach? Where is medication stored (in a purse or briefcase?) Type of container (blister pack versus bottle, or medicine put into another container) Type of closure | What are the caregiver’s attitudes toward safety and supervision? What is the caregiver knowledge regarding the effectiveness of ‘child resistant’ packaging? What is the caregiver’s knowledge regarding poisoning hazards in the home? Marketing practices – e.g. many tablets look like ‘candy’ to a young child, taste good (e.g. children’s vitamins) Manufacturer packaging and standards (i.e. - child resistant packaging and fewer pills per package) Pharmacist warnings to clients regarding toxicity and storage of medications Pharmacy disposal programs |

**Event**

**Will injury occur as a result of the poisoning?**

| Age | Health of child (taking any medications) Physical size | Type and amount of medication consumed (adult vs. pediatric dose, liquid versus solid) Tablets coated? (coated tablets delay absorption) Size of pill Taste of medication | Opportunity for caregiver to intervene - Did she witness ingestion? Visual supervision? How long was the child unattended? | Does caregiver recognize that poisoning has occurred? Proximity and type of supervision What is caregiver’s perception of appropriate supervision |

**Post-Event**

**What will the outcome be?**

| Age | Health of child Physical size (weight) | Can the medication’s effects be reversed or treated? Did level of medication in bloodstream remain at toxic levels after initial assessment and treatment with activated charcoal? Some medications very harmful with just 1 pill in small children (e.g. cardiac medication, antidepressants) | Poison center in local area and caregiver knowledge of poison centre number to call and to go directly to emergency department Proximity of medical care EMS response time Access to telephone Access to acute care Medical staff knowledge of how to treat poisoning in children | Knowledge caregiver has on what to do in an emergency situation. Support for Poison Center, toll free help line and public awareness Access to Poison Centre by calling 911. |
Program Example - Child Poisoning

Once you have looked at all the risk and protective factors that could be involved in the injury happening, choose which factors you have the capacity to influence and decide what change 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: physical and social environment – caregivers’ knowledge and behavior around medication storage.

**Best/Promising Practice** – The Child Safety Good Practice Guide has identified that secure storage of poisons, child resistant packaging and the knowledge of how to access Poison Control centre all contribute to the reduction of child poisoning.


**Objectives:**
These changes 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) Increase by 50% in the next 12 months, the knowledge of caregivers in our programs regarding childhood poisoning and how to prevent it.

2) 10 families, served by the centre, are using lockboxes or locked cupboards for medication storage.

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).

**Here is a sample story of what a group could decide to do.**

One day at the Family Resource Centre, caregivers were comparing what all they had in their purses. Several had bottles of medication and some had headache pills in a baggy. This gave the staff person an opening to talk about how young children can’t distinguish between pills and candy and might swallow pills, thinking they are candy. They could be poisoned, depending on how many they swallowed. Caregivers shared stories of near misses and how children did indeed think that pills were candy. The staff had a poster with samples of “look alikes” (Smarties and round pills, gummy bears and children’s vitamins, etc.). The staff person also explained that pill bottles were child-resistant, not child proof. Young children, given time, could open these bottles. The caregivers immediately removed the loose pills from their purses and indicated that they wanted to learn more about preventing poisons. Staff downloaded the poisoning graphics from the Parachute site and used them as
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discussion starters with caregivers around various poisoning hazards. The caregivers brainstormed around how to remove these hazards and lamented that they did not have locked cupboards or storage boxes for medications. They wondered if the hardware store would donate some cupboard locks? The staff approached the store, got the locks and showed caregivers how to install them. One of the Board members offered to assist caregivers in installing the locks, if they needed help.

*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 poisoning.
Environment/Engineering – installation of cupboard lock/lockbox

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

**Activities:**
Poisoning 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 poisoning in pre-school children</td>
<td>Increase by 50% in the next 12 months, the knowledge of caregivers in our programs regarding childhood poisoning and how to prevent it.</td>
<td>Create committee Educate caregivers using resources from Parachute Create interactive displays of pills/candy</td>
<td>Committee is meeting and providing direction Number of caregivers educated</td>
<td>Increase in knowledge about how to prevent childhood poisoning</td>
<td>Caregivers report they are more consistent in keeping poisons locked.</td>
<td>Reduction in the number of childhood poisonings</td>
</tr>
<tr>
<td></td>
<td>10 families are using lockboxes or locks for medication storage.</td>
<td>Find sponsor for cupboard locks or lockboxes Give locks or lockboxes to families, with instructions on use</td>
<td>Sponsor found Number of locks or lockboxes distributed</td>
<td>Some families are locking up their poisons</td>
<td>More families are locking up their poisons</td>
<td>Reduction in the number of childhood poisonings.</td>
</tr>
</tbody>
</table>

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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Here are their activities, written in an “action plan” format, with more detail, 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.

Poisoning Project Action Plan:

<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>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, public health, caregiver and Injury Prevention person (if available)</td>
</tr>
<tr>
<td>Seek sponsor to pay for lock boxes or cupboard locks (all objectives)</td>
<td>Local businesses</td>
<td>Staff Month 1</td>
<td>Staff Time,</td>
<td>Corporate sponsor(s) found</td>
</tr>
<tr>
<td>Poisoning images and messages downloaded and delivered in parenting program; interactive displays of poisons and candy created (objective 1)</td>
<td>Caregivers</td>
<td>Staff Month 1-2</td>
<td>Time, print copies of images; materials for display</td>
<td>Number of caregivers attending, increase in knowledge measured pre and post attending</td>
</tr>
<tr>
<td>Lock boxes or cupboard locks provided to families with simple instructions on how to use them. Assistance was available (objective 2)</td>
<td>Caregivers</td>
<td>Month 4</td>
<td>Lockboxes/locks</td>
<td>Number given out, Self-report by caregiver about use. Number installed by assistant.</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
Program Example - Child Poisoning

programs, it is harder to share what worked with others who work with caregivers on these issues. 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 a poison prevention program? Yes, the provincial/national data told us it is an issue for pre-school children.

**Developmental evaluation:** identifying best practices
Q: Are programs already in existence for this target audience that increase the knowledge of caregivers about poisoning? There are no evaluated programs but we know that a combination of approaches that include education (behaviour change) and changing the environment (locked storage) have a good chance of succeeding.

**Formative evaluation:** testing program plans, messages, materials, modifications, strengths or weaknesses before they are put into effect.
Q: Do the caregivers understand the message? There are resources/messages available through Parachute and other organizations that help caregivers understand what to do to prevent child poisoning.

**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.

**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 hospitalization and death.
Q: Will this program ultimately reduce poisonings 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 child poisoning can be attributed to your program.
Q: Do the caregivers use the lock boxes to store medications? Self-reports or observations of home visitors or Public Health will show this. 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).

Collecting the information:

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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Since you have already thought about how you would measure success through your success indicators, you now can design a plan to make sure the information is collected in a way that works for your program.

For instance, track numbers of caregivers attending sessions, and number of lock boxes given out. 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. Staff delivering the program will do the tracking and conduct the pre/post surveys. If in-home visits for follow-up are possible, have these visitors look to see if there is a locked cupboard or lock box in place.

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.

**Evaluation Plan:**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Activities</th>
<th>Outputs (what has been produced)</th>
<th>Measurement Tool</th>
<th>Outcomes (what has changed)</th>
<th>Success Indicators/Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase by 50% in the next 12 months, the knowledge of caregivers in our programs regarding childhood poisoning and how to prevent it.</td>
<td>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>Poisoning images and messages downloaded and delivered in parenting program</td>
<td>Poisoning images printed and topic integrated into the parenting program schedule</td>
<td>Pre and post knowledge quiz</td>
<td>Caregivers more knowledgeable about childhood poisonings and what to do to prevent them.</td>
<td>50% increase in the knowledge of caregivers as shown through pre/post tests</td>
</tr>
<tr>
<td>Increase by 10 families, the number of families in our parenting program that use a lock box or locked cupboard to store medication.</td>
<td>Seek sponsor to pay for lock boxes or cupboard locks</td>
<td>Sponsor found</td>
<td>Number of lock boxes or cupboard locks purchased</td>
<td>Sponsor has provided funds for lockboxes, or the actual boxes/locks</td>
<td>Enough lock boxes are available for families who need them – at least 10</td>
</tr>
<tr>
<td></td>
<td>Lock boxes cupboard locks are given to family with simple instructions on how to use them</td>
<td>Process in place to give out lock box or cupboard lock</td>
<td>Number of lock boxes or cupboard locks given out</td>
<td>Caregivers using lock box or cupboard lock correctly and consistently</td>
<td>At least 10 families are safely storing medications using lock box or cupboard lock</td>
</tr>
<tr>
<td></td>
<td>Clear instructions are attached to lock/lockbox</td>
<td>Pre and post quiz for caregiver regarding lock box use</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Program Example - Child Poisoning

Other resources:

Check the Parachute website: www.parachutecanada.org/child-injury-prevention

For ideas on how to develop “look alike” displays, check out these websites:

https://secure.uuhsc.utah.edu/poison/publiced/LessonPlanAdult.pdf

Health Canada has two publications Is Your Child Safe? A guide for parents and caregivers, and Safety with Radar is an Activity Guide for children. You can find these online (and can order multiple copies):


There is also a page on the Healthy Canadians website which you can find at:

Information on a range of injury topics can be found in A Million Messages:
http://www.albertahealthservices.ca/7607.asp . Your province/territory may have adapted these messages for your region.

Preventable.ca is always increasing its range of topics. Check it out at www.preventable.ca .