

Can Older Siblings Learn to be Better Supervisors? An RCT evaluating the effectiveness of “*Safe Sibs*” - an Online Training Program to Improve Children’s Supervision Knowledge and Behaviour

by

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ABSTRACT

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Recent research has shown that increased injury risk for supervisees during sibling supervision is in part due to supervision practices of older siblings. The current study was the first to test an online training program for sibling supervisors. A randomized controlled trial design was used, with older siblings randomly assigned to either an intervention ($n = 29$) or control ($n = 26$) group. Before and after either the intervention or waitlist period, older siblings completed measures of supervision knowledge and their supervision behaviours were directly observed in the laboratory with their younger siblings. Results revealed that, compared to the control group, older siblings who completed *Safe Sibs* showed significant improvement in several areas of supervision knowledge (child development, what constitutes effective supervision practices, injury beliefs, intervention-specific knowledge) and a non-significant trend towards improvement in knowledge of effective child management strategies. Importantly, there was also statistically significant improvement in supervision behaviour, namely- frequency of proactive safety behaviours to prevent supervisee access to injury hazards. Implications for sibling supervision and injury risk, as well as limitations and directions for future research, are discussed.

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Can Older Siblings Learn to be Better Supervisors? An RCT evaluating the effectiveness of “*Safe Sibs*” - an Online Training Program to Improve Children’s Supervision Knowledge and Behaviour

The problem of childhood injury is a significant one. Unintentional injuries are the leading cause of death and a common reason for hospitalizations among children over the age of one year in Canada and the United States (Canadian Institute of Child Health, 2002; Centers for Disease Control and Prevention, 2009). For example, in the United States an average of 12, 175 children between the ages of 0 and 19 years die annually from an unintentional injury (Bugeja & Franklin, 2005), which exceeds the number of deaths from the next nine causes combined (Centers for Disease Control and Prevention, 2009). In Canada, nearly one child dies every day from unintentional injury (Parachute, 2013). While the cost in human life is likely the most alarming, the direct and indirect costs of unintentional childhood injuries are also substantial. For example, in the year 2000 alone, injuries to children and adolescents in the United States cost an estimated \$24 billion in lifetime medical costs and an additional \$82 billion in present and future work losses for both the individuals and their caregivers (Miller, Finkelstein, Zaloshnja, & Hendrie, 2006). These statistics highlight the importance of studying the factors that contribute to childhood injuries and of developing interventions to reduce their occurrence.

In recent years much effort has gone into identifying risk factors that influence childhood injury, such as caregiver and child characteristics, environment characteristics, and supervisory behaviours and practices (Morrongiello & Schell, 2010). Presently, it is generally agreed that supervision is an important factor in determining a child’s risk of injury (e.g., Morrongiello, 2005). Thus, the role that supervision plays in childhood injury has become a particularly important area of study. Until recently, research on supervision and child injury risk focused on parental supervision, to the exclusion of the role played by older siblings as supervisors.

However, because sibling supervision has been found to be quite common in most families (Morrongiello, MacIsaac, & Klemencic, 2007), recent studies have begun to investigate the supervision that is provided by older siblings and how this might relate to child injury risk (e.g., Morrongiello, Schell, & Schmidt, 2010; Morrongiello, Schmidt, & Schell, 2010; Morrongiello & Schell, 2013; Morrongiello, Schell, & Keheler, 2013). The current study was based largely on this research.

Sibling Supervision

In the study of supervision and injury risk, there is little consensus on what might constitute an operational definition of “supervision” (Morrongiello, 2005). It does not come as a surprise, therefore, that sibling supervision tends to be defined quite broadly, and can include anything from independent full time care, to the performance of some supervision while adults are present, and even ‘keeping an eye out’ for younger siblings (Weisner & Gallimore, 1977).

Sibling supervision appears to be a common occurrence across many different cultures. One study sampled 186 societies, and found that in 27.9% of cases the principle caregiver of young children was another child (Weisner & Gallimore, 1977). Certainly, the nature of sibling supervision would be expected to vary between different societies and cultures, but what is clear is that sibling caretaking is quite common throughout the world. In Western society, sibling caretaking does not occur as frequently as in less developed nations, but it is still relatively common. For example, a recent Canadian study found that some form of sibling supervision occurred during 11% of the time that both children were at home and awake (Morrongiello et al., 2007). In the United States, research has suggested that sibling supervision occurs around 8% of the time when children get home from school (Berman, Winkleby, Chesterman, & Boyce, 1992). Based on these findings, it seems clear that sibling supervision is a relatively common

occurrence in Western society, and this has led some researchers to the study of the role that sibling supervision plays in children's risk of unintentional injury.

Sibling Supervision and Children's Risk of Unintentional Injury

Research has revealed that sibling supervision impacts children's risk of unintentional injury. One study used self-report measures to investigate the family systems of sixth graders who lived with at least one sibling (Kurdek & Fine, 1995). Results showed that regardless of family structure, children viewed their siblings as less accepting, less willing to allow autonomy, and less able to provide adequate supervision compared to fathers and stepfathers. In another study, the family structure of two groups of children was examined: one group included children who had been hospitalized or had died because of an injury, while a second group included sex- and age- matched controls that were alive and had never been hospitalized due to injury (Nathens, Neff, Goss, Maier, & Rivara, 2000). Results showed that the presence of a sibling in the home resulted in a 1.4 fold increase in the risk of injury resulting in hospitalization or death. As well, when the odds ratio for injuries was examined based on number of siblings in the home, it was found to increase with the number of older siblings. Although neither of these investigations were direct studies of sibling supervision, the results suggest that siblings are not seen by younger children as able to provide adequate supervision and that the presence of older siblings in the home was somehow related to a younger child's risk of hospitalization or death due to an unintentional injury.

Additional evidence for a link between supervision by older siblings and child injury risk was demonstrated by two studies that considered drowning deaths of children in bathtubs. One of these studies investigated the nature of child drowning deaths that involved the use of bathtub rings. The results showed that approximately 35% of these deaths occurred when infants were

left alone in the bath with an older sibling (Rauchschwalbe, Brenner, & Smith, 1997). A follow-up study confirmed that in those cases of drowning in which two children were left alone in the tub without an adult present, the child who drowned was always the younger of the two siblings (Byard, de Koning, Blackbourne, Nadeau, & Krous, 2001). Of even greater interest is the finding that when drownings were considered by individual location, between 22% and 58% involved the drowning of a child under two years of age who was in a shared bathing situation with a sibling at the time of death (of 35, 65, and 58 total drowning deaths, respectively; Byard et al., 2001). The results of these studies indicate that when young children are left in a bathtub with an older sibling and without immediate adult supervision, they are at risk of drowning. Thus, parents who leave older siblings with younger ones might be assuming that the older child can somehow keep the younger one safe, but this seems not to be the case.

In recent years, research has begun to investigate links between sibling supervision and child injury risk more directly. Morrongiello et al. (2007) examined the nature of sibling supervision, as well as the relation between the frequency of sibling supervision in the home and children's frequency of injuries. Structured telephone interviews were used to gather information from mothers about supervision provided for their young children (1.5 – 3 years of age) by their older siblings (3 to 13 years of age). Sibling supervision was defined as any time the older child was the main person supervising the younger child. This means that parents could be in the home but not supervising the children (e.g., parents are doing household chores and have left the older child to look after the younger child). In addition to the telephone interview, mothers also completed the Injury History Questionnaire (IHQ) to determine the frequency of injuries previously incurred by the younger child. The results showed that sibling supervision occurred during around 11% of the time that both children were at home and awake, and mothers reported

that they were usually completing chores at this time, while fathers were doing employment related work or relaxing. In terms of child injury risk, 28% of mothers interviewed indicated that they believed the risk of physical injury to the younger child was greater during sibling supervision; despite this, every mother in the study reported that sibling supervision occurred in their home at least some of the time. Further, when the results from the IHQ were considered, the frequency of sibling supervision was positively related to the number of both minor and moderate injuries to the supervised child. Interestingly, mothers believed there were no differences between the strategies used by themselves and the older siblings to stop child risk taking, with the exception that mothers were more likely to explain injury risk. This may suggest that it is some aspect of the younger child's behaviour that increases their risk of injury; indeed 50% of mothers believed that injuries to the younger child during sibling supervision occurred because the younger child did not listen to their older sibling (i.e., noncompliance). Mothers were also asked to rate the younger child's compliance with requests to stop risk taking from the older sibling, mother, and father. These ratings were significantly lower for the older sibling supervisor, and also predicted the frequency of child injury. In fact, when supervisee compliance was entered into the regression, the percentage of time sibling supervision occurred no longer contributed to the prediction of child injury. Overall, these results suggested that noncompliance by the younger child increases risk of injury during sibling supervision and that older siblings use the same strategies as parents to deal with supervisee risk taking. However, these findings were based solely on maternal report, which may or may not be accurate. More recently other studies have used direct observation to study sibling supervision and injury risk.

To directly investigate the strategies mothers and older siblings use when supervising their younger siblings, videos of young children engaging in injury risk behaviours were

presented (Morrongiello et al., 2010) to mothers and their older children (4.7 to 12.7 years of age), all of whom had a younger sibling at home (2 to 4 years of age). The videos showed a young toddler engaging in different behaviours (i.e., risk taking, rule violations, and no risk behaviours) in a kitchen, living room, and child's bedroom; mothers and older siblings from the same family were shown the same video. Before watching the video, all participants were asked to imagine that the child in the video was their younger sibling/child and that they were in charge of supervising the child. They were instructed to stop the video any time they would say something to the child (either positive or negative) and to say this out loud into a continuously recording tape recorder. These reactions were then coded as: (1) inhibitions (e.g., "Don't do that"; "Stop it"); (2) directions (e.g., "You can put that over there"); (3) explanations (e.g., "That's hot and you might get burned"); (4) threats (e.g., "If you don't stop it you're going to have a time out"); and (5) general comments (e.g., "That looks like fun"). Mothers were also given a list of all of the behaviours that the child in the video engaged in and asked to indicate if they would expect their older child to stop the supervisee from engaging in that behaviour; this was done in order to determine how mothers would want older siblings to supervise their younger child.

Results indicated that mothers were more likely to respond to the supervisee in some way, whereas sibling supervisors responded to fewer than half of rule breaking behaviours and only about a third of risk behaviours. Thus, mothers were more vigilant and attentive to supervisees, which would enable them to be in a state of readiness to intervene to prevent injury (Morrongiello et al., 2010). In addition, greater responsivity of mothers may make it obvious to supervisees that there is a watchful supervisor present, a factor that has previously been shown to decrease frequency of risk taking in young children (e.g., Barton & Schwebel, 2007;

Morrongiello & House, 2004). Therefore, sibling supervisors' general lack of vigilance and responsiveness to supervisee behaviour is likely to increase risk of injury to the younger child both by not placing them in a state of readiness to intervene and by failing to ensure the supervisee knows they are being closely supervised. In addition, for no risk behaviours sibling supervisors reacted in the ways that their mothers would expect them to in such situations, but failed to respond to risk taking and rule violation behaviours that their mothers expected them to stop. Hence, this lax supervision may help to further explain the increased risk of injury to young children during sibling supervision. Finally, sibling supervisors used prohibitions more often than mothers, who tended to balance prohibitions with explanations about risk and teaching about safety rules (Morrongiello et al., 2010). This sibling supervisor behaviour might increase risk of injury to supervisees in two ways. First, an excessive use of prohibitions without explanations does not provide an opportunity for learning about safety and how to avoid risks. Second, by beginning an escalating cycle of antagonizing behaviours between supervisor and supervisee that takes attention away from issues of safety. Therefore, despite what parents believe to be true (Morrongiello et al., 2007), the results of this study indicate that sibling supervisors do *not* respond to supervisees using the same strategies as mothers during supervision, and the way they do respond can elevate supervisee injury risk in a variety of ways.

To further examine this issue and explore the possibility that supervisees might behave differently with mothers versus sibling supervisors, a study was conducted using direct observation of both mothers and older siblings supervising their younger children/siblings in a 'contrived hazards' setting (Morrongiello et al., 2010). Participants included mothers, older sibling supervisors (2.91 – 12.47 years of age), and younger supervisees (2.47 – 4.56 years of age). Mothers and older sibling supervisors were each left alone with the supervisee in two

rooms having ‘contrived hazards’ (i.e., items that appeared hazardous but that had been modified to pose no real risk of injury; e.g. scissors glued shut), as well as other non-hazardous items (cf., Morrongiello & Dawber, 1998). Participants were unobtrusively video and audio recorded while in the rooms, and these videos were coded for various supervisor and supervisee behaviours.

Results indicated that supervisees interacted with hazards (i.e., engaged in risk taking) more frequently when being supervised by their older siblings than by their mothers. As well, supervisees showed a trend to show more noncompliance with requests to stop risk taking when those requests came from an older sibling; this trend is consistent with past research based on maternal report of supervisee behaviour (Morrongiello et al., 2007). Sibling supervisors used fewer proactive safety strategies than mothers (i.e., checking hazards to see if they were dangerous, and/or moving these out of reach of the child), and were less vigilant when supervisees interacted with hazards (i.e., older siblings watched risk taking less often than mothers did). Sibling supervisors also were observed to model risk taking more often than mothers, frequently interacting with the hazards for their own interest (Morrongiello et al., 2010). Further, there was an association between sibling supervisors interacting with hazards and supervisees subsequently interacting with those same hazards. Overall, these results suggest that both supervisee and sibling supervisor behaviours play a role to increase injury risk to young children during sibling supervision. The fact that supervisees engaged in more risk taking during sibling supervision and show a tendency to not comply with sibling supervisor requests to stop, helps to explain why young children are injured more often when supervised by a sibling. This increased injury risk is further explained by aspects of the sibling supervisors’ behaviour, including the fact that they use fewer proactive strategies, are less vigilant and often fail to notice supervisee risk taking, and they model risk taking for supervisees.

To start to explore possible intervention approaches, two recent studies examined whether the supervision practices of older siblings could actually be improved by simply giving the supervisors and/or supervisees explicit directives about supervision (Morrongiello & Schell, 2013; Morrongiello, Schell, & Keheler, 2013). Two groups of siblings were observed supervising their younger siblings in a playroom. The instruction group was told that they were in charge of supervising their younger sibling while in the playroom and that they were not to let them play on the ball pit or trampoline, which were designated as hazards in the room. The second group did not receive any instructions. Supervisor and supervisee behaviours were unobtrusively recorded, coded, and then compared across contexts to determine whether giving the supervisor explicit directives about supervision had an effect.

Results showed that supervisees in the no instruction group were more likely than the instruction group to interact with hazards, while those in the instruction group were more likely to call attention to them. Informing older siblings that they were in charge did not impact how closely they watched supervisees, but did result in a higher frequency of proactive supervision strategies (e.g., instructing supervisees not to use the hazards before they called attention or interacted with them), and more forceful reactions (e.g., commands, redirections) in response to risk taking, while the control group tended to respond with encouragement of interactions with hazards or no reaction.

Another recent study that used a repeated-measures design, and provided instruction to both the older and younger children, resulted in similar findings (Morrongiello et al., 2013). A group of older and younger sibling pairs were asked to wait in one of two contrived hazard rooms (CH rooms) for ten minutes, and older siblings were told that they could move anything around to make themselves and their sibling more comfortable. Following this, children spent

time with their mother at which point she told both children that they were going to need to wait in a room together again and that the older child was in charge while they were in the room. Once the younger child was out of earshot, mothers then instructed older children that they must keep their siblings from touching the hazardous items in the room because they were unsafe. Similar to the previous study (i.e., Morrongiello & Schell, 2013), older siblings engaged in more proactive safety behaviours in the instruction condition, although there was no difference in the frequency with which they watched supervisees. Again, more supervisors used forceful reactions to risk taking in the instruction condition. In terms of supervisee behaviour, there were no significant changes in either the frequency of risk taking or the frequency with which they complied with forceful reactions from supervisors.

In summary, greater frequency of sibling supervision is related to more minor and moderate injuries to supervisees. According to maternal report, this results from noncompliance on the part of supervisees, a trend which was also evident when sibling supervision was directly observed. It also seems that supervisees take more risks when being supervised by an older sibling. In addition, there appear to be aspects of sibling supervisor behaviour that contribute to the increased risk of injury during sibling supervision. Sibling supervisors often respond to risk taking using the same strategies as mothers, but they are less vigilant and often model risk taking for supervisees, both of which can lead to greater risk taking by supervisees. Importantly, recent evidence shows that some aspects of supervisory behaviours can be improved by giving sibling supervisors explicit instructions about supervising their younger siblings, including the use of proactive supervision behaviours and forceful reactions to supervisee risk taking.

The relation between sibling supervision and supervisees' risk of injury highlights the importance of somehow addressing this risk if older siblings are going to be allowed to supervise

younger ones. Based on the evidence to date, such efforts could focus on either the younger child (i.e., the supervisee) or the older sibling supervisor as a target for intervention. However, effecting behaviour change in younger children is difficult because of their developmental level (Schwebel, Summerlin, Bounds, & Morrongiello, 2006). For example, young children tend to be temperamentally impulsive and less controlled, and may behave dangerously even if they recognize a hazard as posing a danger (Morrongiello, Midgett, & Shields, 2001). Therefore, it seems that older sibling supervisors are the more appropriate group to target for intervention. Indeed, a leading expert in the field has recently suggested that older siblings who act as supervisors for young children receive formalized training in childcare and supervision (Morrongiello et al., 2010). Because mothers have been found to place responsibility for injuries during sibling supervision on the supervisee rather than the older sibling supervisor (Morrongiello et al., 2007), it seems unlikely that parents do this type of training. Clearly, then, an important next step in terms of research is determining effective ways to provide direct training in supervision to sibling supervisors. To date, not a single study has attempted to design and test a training program for sibling supervisors. However, some research has shown that children in the age range of many sibling supervisors can benefit from training in safety practices (Barton, Schwebel, & Morrongiello, 2007; Peterson, 1984). As well, some research with adults has successfully implemented training programs to improve supervision practices (Schwebel et al., 2006; Morrongiello, Zdzieborski, & Sandomierski, 2013). Thus, the potential for a supervision intervention to positively impact older children's supervision behaviours seems high and worth pursuing. This was the aim of the current study.

Improving Safety Practices and Supervision through Intervention

Past research supports the notion that children can benefit from training in safety. One study provided pedestrian skills training to children between the ages of five and eight years (Barton et al., 2007). A researcher provided direct instruction to children that emphasized: (1) looking left and right several times before crossing; (2) waiting for safe crossing gaps to occur; (3) walking, not running, across the street; (4) attending to traffic entering the roadway from both directions; and (5) noting features that made it difficult to see oncoming traffic. Children's street crossings before and after this training were compared, and results indicated that their pedestrian safety skills improved as a result of the intervention (i.e., they behaved more safely following the training). This suggests that children between five and eight years of age may be able to gain important safety knowledge and skills after a brief training session.

Another line of research that provides support for children's learning of better safety practices comes from early research on latchkey children (i.e., children who come home alone and let themselves in with a latchkey; Peterson, 1984). This research involved the use of the "Safe at Home Game", an intervention that trained children in three different areas: appropriate responses during emergencies, encountering strangers, and safe daily habits. Of particular interest to the goals of the present study was the safe daily habits training, which involved safe food preparation and safe activities as the focus. The goal of the training program itself was to teach children acceptable responses to questions about different topics (e.g., how to treat a cut hand). Participants were eight children between the ages of 8 and 9 years, who received approximately one hour of group training each day after school over a one month period; the average number of total hours spent in training was not reported by the author. The training procedure was completed using cards that had the acceptable responses to the various questions

printed on them. For each module, the experimenter first described the situation involved and provided general statements about how to discriminate between acceptable and poor responses in that area of training (e.g., “The best choices for food selection include things that are very nutritious and won’t spoil your meal”). Experimenters then sorted the cards with the response for that module into three piles: best, worst, and okay response (represented by pictures of a happy, sad, and neutral face), and provided rationale for the placement of each card. The cards were then shuffled, and children in the group were asked to place them in the correct pile; other children provided feedback on the placement of each card by applauding or booing. This process was repeated until children could correctly categorize all of the responses on the cards, at which time the task changed to require the children to act out one of the correct responses with prompting from the experimenter. Fewer and fewer prompts were provided until children were able to spontaneously recall and act out all of the acceptable behaviours for that module. Training for a module was considered complete when all eight children were able to act out the items without error. Retraining occurred one year later, and involved having the children act out the correct responses with gradual removal of experimenter prompts. Formal assessment of the children’s knowledge was conducted before the training, each week during training, and after one year. These assessments involved describing seven different situations to the child and asking them to provide a role-play performance of how they would respond (e.g., “Let’s imagine you were hungry, what would you do about a snack?”), followed by six yes or no questions that required only verbal answers (e.g., “Should you put a clean cloth over a cut?”). For the one year follow-up, these assessments were completed in the children’s own homes in order to assess the generalizability and maintenance of the child’s learning. Results indicated that before training, the children had “dangerously inadequate” knowledge in several areas including daily safe

habits. Immediately after training, they were able to act out and answer questions about appropriate behaviours without prompting. At the one year follow-up, children had maintained gains in the area of safe daily habits. Despite the small sample size ($n = 8$), the results of this study suggest that children seem to be able to learn and remember safer practices using a simple, direct, and short-term intervention.

Although little research has considered interventions for supervision practices, one study did consider the effectiveness of a behavioural intervention for daycare workers designed to improve teachers' effectiveness as supervisors on a playground (Schwebel et al., 2006). The study included 12 adult daycare teachers and 40 toddlers, and the intervention involved the "Stamp-in-Safety" program. This program involved having the teachers use ink stamps to reward children who were observed playing safely on the playground; the true purpose of this reward system was to increase the engagement and attention of the teachers while they were with the children on the playground. Results showed that after the intervention, teachers were more likely to explain risk and redirect children to safer activities, and spent less time talking to other adults while supervising on the playground. Although this intervention used indirect methods of changing supervisor's behaviours, it provides important evidence that supervision practices can be made more effective through intervention. However, whether similar improvements to supervision practices of older siblings are possible has yet to be seen.

Recently, Morrongiello, Zdzieborski, and Sandomierski (2013) completed a randomized controlled trial of an intervention presented via video, intended to improve supervision practices of mothers of young children between two and five years of age. Results indicated that mothers in the intervention group showed improvements in mothers' self-reported supervision practices at home. This included a reduction in the amount of time children were left unsupervised, and

increase in amount of time children were “in view”, and an increase in level of supervision. As well, when mothers were unobtrusively observed supervising their children in a contrived hazards setting, those in the intervention group showed a significant increase in attention to the child, and this was even maintained at a nine-month follow-up. Thus, it seems that the intervention had a positive impact on mothers self-reported and observed supervisory practices, and these positive effects were maintained over time. Whether an intervention delivered to sibling supervisors can improve their supervision was addressed in the present study.

In summary, research suggests that one can improve supervision practices of supervisors, at least when the supervisor is an adult. Although there is some evidence to suggest that children are able to learn better safety practices, no attempt has yet been made to improve the supervision practices of children as it relates to unintentional injuries to younger supervisees. The current study addressed this gap in the literature by designing and testing a training program for sibling supervisors intended to improve supervision practices thereby reducing the risk of unintentional injury to supervisees.

Current Study

The purpose of the current study was to design and test an online training program for sibling supervisors, called “*Safe Sibs*”, using a randomized controlled trial design. The training program was designed in such a way that it provided tailored feedback to participants about their responses for practice activities and quizzes. This was an important and unique feature, as tailoring interventions has been shown to improve outcomes (e.g., Noar, Benac, & Harris, 2007).

Older siblings were recruited from the community and then randomly assigned to either the intervention or the waitlist control group. Older siblings’ supervision behaviours were evaluated before and after completion of the *Safe Sibs* program. In addition, knowledge factors

known to be related to supervision were measured before and after completion of the training program, in order to determine whether there was any benefit in this area. The variables of interest for the current study are described in more detail in the following section.

In general, the goal of the study was to determine whether older siblings can benefit from training in the area of supervision. Ideally, the training program would result in improvements in actual supervision practices, but it might also lead to improvement in more general areas of knowledge important for supervision (e.g., what kinds of items are hazardous). Because this was the first study to develop and test a training program for sibling supervisors, the main goals were to design such a training program, and to determine whether sibling supervisors were even able to benefit from this type of training in terms of either supervision knowledge or behaviour.

Variables of Interest

Knowledge factors related to supervision.

Several factors are known to be related to parental supervision practices, and although it is not yet known whether these factors also impact the supervision practices of older siblings, it seems possible that they would. Thus, these were included in the current study, in order to determine whether sibling supervisors who complete the training program show improvement in these areas, which included: (1) knowledge of common hazards and hazard management strategies; (2) knowledge of child development; (3) beliefs about child injury; (4) knowledge of effective supervision practices to minimize injury risk; and (5) knowledge about effective child management strategies.

Knowledge of hazards and hazard management. Previous research has shown that parents can benefit from training in hazard knowledge (i.e., hazard recognition and management). One study included parents of 171 children who went to the Yale-New Haven

Hospital Primary Care Centre for their children's 6-month check-up (Kelly, Sein, & McCarthy, 1987). Parents in the intervention group participated in a three-part individualized course in child safety, at their children's 6-, 9-, and 12-month check-ups. They received home safety instructions related to fire and burns, falls, poisonings, drowning, suffocation, choking, sharp/heavy objects, and electrical hazards. Training was provided by having parents complete developmentally oriented questionnaires with a researcher. The researcher then used Socratic methods to teach the parents about areas of need highlighted by their responses on the questionnaire. At the end of each session, parents received a pictorial handout showing hazards in the home, with items posing risk in those parents' homes circled. Parents in the control group received routine safety education at each visit. Following the 12-month visit, safety knowledge (i.e., ability to recognize pictorial hazards), number of hazards in the home, and reported accidents to the child, were measured. Results showed that although the number of reported accidents to children did not differ between the two groups, parents in the intervention group recognized a greater number of hazards, and had fewer hazards in their homes. These results suggest that teaching parents about home safety results in better hazard knowledge and better management of hazards in the home, which are important aspects of effective supervision.

Another study looked at the effectiveness of using a slideshow to teach home safety to three families who were receiving services for child abuse or neglect (Barone, Greene, & Lutzker, 1986). The Home Visit Accident Prevention Inventory (HAPI) was used to measure the types and quantities of hazards in the homes at baseline, at the beginning of the intervention, and at an unannounced follow-up visit. Parents were presented with an audio slideshow, which included 81 slides representing hazards in the all home safety categories. There were also slides depicting how to make these hazards inaccessible (e.g., putting items out of reach). Parents were

also given a review manual that included copies of the slides from the slideshows and instructions for use of safety accessories (also provided, e.g., electrical plates). Examination of the number of accessible hazards in each home showed that there was a consistent reduction in the number of accessible hazards in all homes from baseline to the unannounced follow-up checks. Although this study included only three families, the results further suggest that direct training in hazard recognition and management leads parents to better manage these hazards in their homes.

These results seem to suggest that improving hazard knowledge among parents improves their ability to recognize and manage hazards in their homes. The current study assessed if sibling supervisors also benefit from such training about hazards.

Knowledge of child development. Some research suggests that parents' knowledge of child development impacts their supervision practices. Peterson, Ewigman, and Klvlahan (1993) examined judgments made by parents, child protection workers, and medical personnel, about what constituted appropriate parental supervision based on the child's age and the environmental context (low- versus high-risk). All respondents completed a questionnaire that was set up as a matrix showing 11 ages of children (from infancy to age 10) across the top of the page, and five environmental domains in and around the home (e.g., neighbourhood, yard) down the side. For each age/environment combination, participants were asked to indicate the amount of time in minutes that the child could be left unsupervised. All respondents felt children could be left unsupervised for increasing amounts of time as age increased. Further, age interacted with environmental risk to create distinct "developmental cut-offs" at differing ages depending on the level of risk involved. This suggests that parents, child protection workers, and medical personnel all make decisions about what is appropriate supervision based on the developmental

level of children. Importantly, according to the authors, many of the judgments made by the individuals did not actually line up with data on the incidence of child injuries at differing ages. For example, respondents thought that minimal supervision was needed at age four near low-traffic streets and at age six near moderate-traffic streets, although data suggests that children do not have adequate skills to evaluate and avoid traffic until age seven or eight (Peterson et al., 1993). Therefore, it seems that even adults would benefit from training in how injury risk actually varies with developmental level in any given context. The same might also be true for sibling supervisors, and this was considered in the current study.

Injury beliefs. Injury beliefs include supervisors' self-efficacy for impacting children's risk behaviours, as well as their beliefs about injury risk (e.g., vulnerability/severity of specific types of injuries), and the preventability of injury. Research suggests that all of these beliefs impact parental supervision practices.

Research has shown that parents' beliefs about their self-efficacy to impact children's risk behaviours play an important role in supervision. A study conducted by Morrongiello and House (2004) observed parent-child dyads in a playground setting, and behaviours of both were coded every two minutes over a 20-minute period. Parent supervision included: (1) visual supervision (continuous watching, intermittently watching, not at all); (2) auditory supervision (able to hear child continuously, intermittently, not at all); (3) physical proximity (constant physical contact, intermittent, constantly within arm's reach, intermittently within arm's reach, beyond reach); (4) parent distraction (completely focused on child, mostly focused, equal time spent on focus and distractions, more time on distractions, all time spent on distractions); and (5) parent engagement with the child (all time spent playing with child, occasionally participates, not participating but engaged, completely uninvolved). Scores for each category were collapsed

across the ten coding times to provide a total supervision score for each of the five behaviours. Children's risk-taking was also measured every two minutes by keeping a running total of the number of injury risk activities (i.e., any activity that could lead to injury or involved inappropriate use of playground equipment). Totals were again collapsed to produce a total risk taking score. After the observation, parents were approached and asked to report the age of their child and complete several questionnaire measures. These included the Fate subscale of the Parent Health Locus of Control (PHLOC), which provides an index of how much parents believe luck or fate is the main determinant of their child's health and injury status, and a measure of the number of previous injuries to the child. Results indicated that those parents who believed luck or fate were the major determinants of health and injury of their children (i.e., who believed they had little control over their child's health and injury status) showed poorer supervision practices, and had children whose injury histories showed more non-minor injuries. This suggests that when parents lack self-efficacy to prevent injury to their children, their supervision practices are negatively impacted. The same may be true for sibling supervisors.

Some research has shown that parents' beliefs about injury risk (i.e., vulnerability/severity/ preventability of specific types of injuries) are additional factors that impact their supervision practices. Morrongiello, Ondejko, and Littlejohn (2004) completed home visits with mothers, and asked them to rate the extent of injury risk for their child in each room of their home. Mothers were also asked to provide an estimate of the maximum length of time that they left their child alone in these rooms. Results indicated that mothers' ratings of injury risk for areas reported as "high risk" were negatively related to the length of time they allowed their child to be alone in the room (i.e., children were left alone for smaller amounts of time in rooms perceived as having high risk of injury). This suggests that beliefs that

vulnerability for injury is high in a certain room results in greater supervision in that room, at least for parents.

In another study, Morrongiello and Kiriakou (2004) examined the role of both perceived risk of injury and preventability of injury on mothers' supervision practices. The researchers completed home interviews and questionnaire measures with mothers of young children. Mothers completed the Beliefs About In-Home Injuries questionnaire, which asked mothers to rate their child's vulnerability for each type of injury at home. During the interview, mothers were asked to comment on 30 different injury prevention strategies (approximately four to five strategies for each injury type). The various prevention strategies included those that were passive/environmental modifications (e.g., baby gates) and those that were active/parent-behaviour modifications (e.g., not allowing the child to climb/sit on the counter). For each strategy, mothers were asked to indicate whether they used that strategy. If mothers said that they did use a strategy they were asked about what motivated her to do so, her beliefs about the severity of the potential injury, the amount of effort needed to use the strategy, the perceived benefit of using the strategy, and the role of social norms. Scores were then averaged for strategies belonging to each injury type. For those strategies mothers indicated they did not use, they were asked to explain why, and then given a list of 10 possible reasons and asked to choose the single most appropriate reason. Results indicated that for burns, cuts, and falls, the majority of the variance in mothers' use of specific prevention strategies was explained by parent and child characteristics that they believed increased their child's *vulnerability* for experiencing these types of injuries. For drowning, poisoning, and suffocation/strangulation/choking, it was mothers' beliefs about high *severity* of injury that best predicted their use of safety precautions. When considering prevention strategies that mothers did not use, this was generally because they

believed that their child was at low risk for the injury type (e.g., the child knew the safety rules or could manage the risk). In addition, mothers noted that their supervision practices were adequate to prevent these injuries from happening, suggesting that beliefs about injury prevention also influenced their supervision practices.

Finally, Peterson, Farmer, and Kashani (1990) surveyed parents of school-aged children and adolescents to determine the role of parental beliefs about injury prevention in the use of preventive efforts (i.e., teaching of safety skills and environmental modifications). The results indicated that the variables that best predicted parental use of prevention measures were beliefs that the intervention could result in the avoidance of injury (i.e., preventability of injuries), as well as the amount of time involved and beliefs about competency to teach safety skills to their children (Peterson et al., 1990).

Knowledge of effective supervision practices. Although there is little consensus on what exactly constitutes ‘adequate’ or ‘good’ supervision for young children, a definition proposed by Morrongiello (2005) suggests that proximity (i.e., within or beyond arm’s reach) and attention (i.e., watching/listening) sustained continuously over time can be considered maximum supervision, and is related to the lowest risk of injury for supervisees (Morrongiello, 2005). Results of recent research have suggested that older sibling supervisors do not engage in this ‘maximum supervision’ (Morrongiello et al., 2010). In fact, compared to mothers, older siblings were more likely to not watch supervisees during risk taking, often not even noticing the behaviour. One possible explanation for the fact that older siblings do not engage in adequate supervision behaviours is that they may lack the knowledge of what constitutes good supervision. Therefore, older siblings’ knowledge of what constitutes adequate supervision will

be assessed in the current study, in order to determine whether it is improved over the course of the intervention.

Knowledge of effective child management strategies. Although no research has directly investigated the role that mothers' child management strategies play in their supervision practices, there is evidence to suggest that teaching mothers about parenting and child management reduces children's risk of unintentional injury. A recent meta-analysis of parenting interventions aimed at reducing childhood injuries (Kendrick, Barlow, Hampshire, Stewart-Brown, & Polnay, 2008) concluded that the multi-faceted parenting interventions that included support for parenting *in addition to* injury prevention education were most effective in reducing injuries to young children, compared to presenting parents with injury prevention education alone (i.e., parenting support was *not* provided). Therefore, it seems that providing parenting support is a key factor in reducing childhood injury, likely by improving supervision practices related to management of children's injury-risk behaviours.

Recent observational research has found that older siblings do not differ from mothers in how they manage supervisee risk-taking (i.e., use of child management strategies) (Morrongiello et al., 2010). However, when mothers and older siblings were asked to respond to a child in a video engaging in risky behaviours, older siblings used prohibitions more often than mothers, who tended to balance prohibitions with explanations about risk and safety rules (Morrongiello et al., 2010). This suggests that older siblings might benefit from training in child management, and therefore a measure of their knowledge of effective child management was included in present study.

Supervision.

In order to measure the supervision practices of older siblings, they were directly observed while supervising their younger siblings in CH rooms (cf., Cataldo et al., 1992; Morrongiello & Dawber, 1998). These rooms contained items that appear to be hazards but that have been modified to pose no real risk of injury (e.g., a coffee maker with the light on), which allowed direct observation of older siblings' supervision practices around seemingly hazardous objects. Of particular interest in the current study were supervisor behaviours relevant to injury risk, including proactive strategies to eliminate supervisee access to hazards, attention and proximity to supervisee risk taking, and responses to this risk taking. Measurements of these behaviours before and after participation in the intervention were taken to assess the effectiveness of the intervention.

Hypotheses

Several predictions were made for the current study, some focusing on sibling supervisor 'knowledge' relevant to supervision, and others related to supervision 'behaviour'. First, it was predicted that there would be improvements in the individual 'knowledge' factors targeted in the intervention program (i.e., hazard knowledge/management, knowledge of child development and injury risk, knowledge about effective supervision, child management strategies, and health and injury beliefs) among the intervention group. The control and intervention groups were not expected to differ on these knowledge scores at baseline, but the intervention group was expected to show significant improvement in these knowledge areas post-intervention. The control group was not expected to show any changes in these areas.

Second, although no research to date had tested the effectiveness of interventions to improve sibling supervision, previous findings provided some basis for making predictions about

this. Research has shown that children can benefit from training in safety (e.g., Barton et al., 2007) and early research on latchkey children has confirmed that children are able to learn safer practices through simple, direct, and short-term interventions (Peterson, 1984). As well, the internet is particularly salient among youths, so it may be a relevant vehicle by which to deliver the program. Therefore, although there is no direct evidence to support a prediction about whether the intervention group would show improvements in supervision in response to the online program, this was made as a tentative hypothesis to be explored. More specifically, it was hypothesized that the intervention and control groups would not differ in terms of actual supervision behaviour at baseline, but that, the intervention group would show improvements in supervision behaviours post-intervention (i.e., better hazard management, closer proximity to supervisees, more surveillance of risk taking, more effective reactions to risk taking and noncompliance, and less modelling of risk taking). No significant changes in these areas were expected for the control group.

Method

Study Design Overview

In this efficacy trial, families were recruited from the community, screened for eligibility, and for those who qualified the target child was then randomly assigned to either an intervention or waitlist control group, with baseline (pre-intervention) and post-intervention measures taken in both groups. Figure 1 gives the CONSORT diagram, showing movement and frequencies of participants in both groups at various stages of the trial. The *Safe Sibs* intervention program comprised four modules, delivered online, that children completed at their own pace, roughly one per week. The waitlist control group completed the same pre- and post- intervention measures during the same timeline as the intervention group.

Power Analysis to Determine Sample Size

Because there has been no research examining the impact of training on sibling supervision, it was difficult to estimate effect size precisely in order to conduct a power analysis. However, based on past studies examining the effectiveness of interventions on supervision behaviours of adults (i.e., Barton et al., 2007; Schwebel et al., 2006) medium to large effect sizes were expected. With the alpha level set at .05 and power set at .80, this resulted in a required total sample size of 26 to 54 (Cohen, 1992). Although this did not allow examination of gender effects within sibling pairs, sampling was be done to try to approximate equal ($n = 15$) gender pairs within the sample (i.e., older female/younger female, older female/younger male, older male/younger female, older male/younger male).

Participants

Participants included 55 pairs of siblings who lived in the Guelph, Ontario area, along with their mothers. Sibling pairs included an older sibling who the mother had indicated sometimes supervised a younger one in the home, and the younger sibling themselves. Participants were recruited throughout the Guelph community via information letters and/or posters distributed via schools, daycare centres, the library and the local hospital. Inclusion criteria included that the older sibling sometimes provided supervision for the younger sibling in their home, as well the older sibling having access to a computer with internet access. Exclusion criteria included either child not developing normally.

In terms of the final sample, the majority of participants were Caucasian (96%); one family identified themselves as Asian, and another as “other.” In addition, most participants were from middle upper class families, with the majority of families reporting a household income of \$80, 000 or higher (60%). Mothers in the sample were generally well-educated, with most

having received a college or university degree (58%) and 20% having received a graduate or post-graduate degree. Table 1 provides a summary of income, education, and ethnicity demographics for the intervention and control groups, as well as the overall sample.

Families were randomly assigned to either the intervention ($n = 29$) or control ($n = 26$) group using a stratified randomization procedure (cf. Kernan, Viscoli, Makuch, Brass, & Horwitz, 1999) to ensure comparability across groups based on the participating child's sex and age. Across groups, older siblings ranged in age from 7.04 to 11.61 years ($M = 8.93$, $SD = 1.20$). Seven years was set as the lower age boundary to increase the likelihood that children would be old enough to engage with the online materials independently and without needing parent assistance/involvement. The upper age boundary of 11 years was chosen because once children are 12 years of age they are legally able to babysit younger children in Ontario, which might have implications for instruction in supervision practices that would contaminate our evaluation of the program (e.g., may have completed a babysitting course). Across groups, younger siblings were between 2.03 and 5.82 years of age ($M = 4.24$, $SD = 0.84$). This age range was selected to match that of the previous published studies of sibling supervision conducted at the Child Development Research Unit (CDRU). The age difference between siblings in each individual pair ranged from 2.13 to 9.02 years ($M = 4.70$, $SD = 1.64$). The mean ages and age differences between the siblings in each group and for the overall sample are shown in Table 1. In total there were 16 older female/younger female pairs (10 in the intervention group), 18 older female/younger male pairs (10 in the intervention group), 10 older male/younger female (four in the intervention group), and 11 older male/younger male pairs (five in the intervention group).

The drop-out rate for the study was relatively low. Of the 58 families who began the study, only three (5.17%) did not complete participation. Of these three families, one was in the

intervention group (dropped out during intervention phase) and two were in the control group (dropped out in the waitlist period). In each case, the families reported that the reason for discontinuing participation was because of time limitations/scheduling issues.

Materials

Overview of the *Safe Sibs* program.

The *Safe Sibs* training program was an online program. Children were visited at home, and practiced accessing the module online with the experimenter to ensure they could do so independently; mothers were asked only to provide help with accessing the online program if such assistance was required, but were advised to not help older siblings to complete the program; this was to ensure that any effects were not due to parent teaching. The online training program included four training modules. Siblings were asked to complete one module per week, and repetition of modules occurred as necessary, depending on their success in completing module quizzes. Children also had the ability to repeat modules after passing them. Unfortunately, there was no way to determine if any children elected to repeat modules by choice, so it was not possible to consider whether children who had to repeat modules differed in any way from other children who might have elected to do so. A minimum score on the quiz was required for accessing the next module.

All written text in the program that appeared on the screen was also accompanied by audio that read the text aloud to the child. Information was presented through lessons using a character named “Cautious Kitty”, and each page included a cartoon depiction of the kitten character to help to maintain engagement. Each module also included activities that were developed to provide an opportunity to practice the skills learned. After the lesson and practice for a module, there was a multiple choice quiz that covered the key points for that module, with

each quiz consisting of 10 to 16 items. If participants got fewer than 80% of the questions correct, they redid the same module until they were able to answer 80% of the items correctly; they did not have to redo the module at that time but could return on another day to try again. Children could not move onto the next module until the previous one had been completed successfully (i.e., score of at least 80% on the quiz). After successfully completing a quiz, participants received feedback about which of their answers were incorrect and were provided with the correct answers. No feedback was given in cases in which a quiz was not completed successfully; children were simply encouraged to try again.

The training program included four training modules: (1) The Problem of Child Injury and Role of Child Development; (2) Identifying, Finding and Managing Hazards; (3) How to be a Good Supervisor; and (4) Dealing with Supervisee Noncompliance; pilot testing indicated that the modules took roughly 25, 40, 30, and 20 minutes to complete, respectively. Each module provided the opportunity for feedback during practice activities, and after the quizzes so that information provided could be tailored to the information needs of individual children. A description of the rationale for and an overview of the main points covered in each module are presented below. A detailed outline of all website material is presented in Appendix C.

Module 1: The problem of child injury and role of child development. This training module provided sibling supervisors with information about the child injury problem by presenting information to teach children: (1) how young children get hurt at home (i.e., types and severity of injury that commonly occur for children under 6 years of age); (2) some general information about motor development (e.g., toddlers are often unsteady so at risk of falling on stairs) and cognitive development (e.g., young children explore by putting things in their mouths and don't understand that poisons exist or that they can choke on small objects); (3) that sibling

supervisors must be good “mind readers” (e.g., “what might my younger siblings be thinking of doing?”) to guess at risky things their younger sibling might try to do; (4) that sibling supervisors must be good at ‘predicting the future’ and think about “what could go wrong and happen” when their sibling is doing different activities (e.g., younger sibling could fall off the couch if s/he is jumping on it).

The module then provided sibling supervisors with information about child development that is relevant for preventing injuries to supervisees. This material was based on several sources of information regarding child development and injury risk. For example, toddlers have newly gained ability to access hazards through independent mobility and exploratory behaviour, but this occurs at a time when they have not yet developed cognitive hazard awareness or avoidance skills (Agran et al., 2003); these factors might place them at high risk for injury. As well, because toddlers and young children experience rapid growth and many developmental changes, a child’s risk for incurring specific types of injury changes with development (Agran et al., 2003), meaning that the types of injury most frequently requiring prevention changes often as supervisee’s age. These findings clearly have implications for sibling supervision practices, and therefore any training program for sibling supervision must address them.

The module taught older siblings that: (1) young children may think that they are able to do more than they can (Shaffer, Wood, & Willoughby, 2002), therefore it is the supervisor’s responsibility to know what they are able to do; (2) young children are very curious and like to explore but are not good at assessing injury risk; (3) young children often explore by putting things into their mouth and this can be dangerous because they can choke, get poisoned, etc.; (4) young children learn by imitation and are eager to try new things, so role modeling safe practices is essential; (5) young children do not understand cause and effect (e.g., if I touch the stove it

will burn me); (6) young children are often able to walk and run well, but have difficulty stopping and turning when moving quickly (e.g., running with their toys; Shaffer et al., 2002); (7) young children's balance and coordination is still developing and may not be very good (Shaffer et al., 2002); (8) children who have independent mobility will want to explore, which means they can get into more things. They are also more likely to fall down stairs or drown at this stage of development (peaks at 6-11 months; Agran et al., 2003); (9) once children are able to climb, they might start to climb furniture or other objects (e.g., bookshelf, jumping on the bed), which can be dangerous (peaks at 15-17 months; Agran et al., 2003); (10) young children's fine motor skills are still developing (Shaffer et al., 2002) so they might cut themselves if using scissors or a knife; (11) once young children have independent mobility, hand-to-mouth activity, and pincer grasp, they are likely to suffer from poisoning and airway obstruction injuries (peaks at 18-35 months; Agran et al., 2003).

Finally, this module focused on teaching sibling supervisors that their younger siblings are at a point in development during which they learn from observation. Past research has shown that sibling supervisors actually model risk taking while supervising their younger siblings, and this modelling was associated with supervisees' interactions with the same hazards (Morrongiello et al., 2010). These findings fit well with Bandura's (1977) Social Learning Theory, which states that new behaviours can be acquired simply through observation of others (i.e., observational learning can occur even in the absence of reinforcement or practice). Indeed, research has shown that toddlers as young as 16 months of age imitate instrumental behaviours such as household tasks and self-care routines (Kuckzynski, Zahn-Waxler, & Radke-Yarrow, 1987). The fact that their younger siblings can learn just by watching them is an important message to send to sibling supervisors, and therefore it was a critical component of the training

program. The module taught older siblings that: (1) young children often want to ‘be like’ their older siblings; (2) young children will use other people’s behaviour as a guide for how they should behave and will copy behaviours they see even if they are dangerous (Shaffer et al., 2002); (3) it is important to have a strategy for unsafe behaviours they engage in if they do it in front of their younger sibling. They can stop the behaviour (best idea), hide the behaviour (okay idea), or caution their younger sibling against doing it (may not work so not as good an idea).

The practice exercise for this module focused on consolidating the message that younger siblings can learn risky behaviours simply by watching older siblings do risky things. It involved presenting the older siblings with three risky behaviours they might engage in that would set a bad example for their younger sibling. For each one they were asked whether they have ever done it in front of their younger sibling. If they indicated that they had done so, then they were asked the best way to make sure their younger sibling does not copy them. Options included: stop doing the behaviour (best option), caution their younger sibling about doing the behaviour (not as good a strategy), try to hide the behaviour (not as a good strategy). They received feedback on their response to reinforce that stopping the behaviour is the best option.

Module 2: Identifying, finding, and managing hazards. This module provided sibling supervisors with training in identifying the most common hazards in each of the most frequent injury categories, as well as how to effectively search for these hazards and how to manage them when they are found. The rationale for including this module is based on evidence that even older children (i.e., those likely to be sibling supervisors) have poor knowledge about safety and hazards. For example, one study presented children between the ages of 6 to 10 years with photographs of risky situations (e.g., obstructed stairs), and had them rate the amount of risk in the situation and identify hazards (Hillier & Morrongiello, 1998). Younger children were able to

identify fewer hazards, and took a longer amount of time to make judgements about how risky the situation was. Two studies that examined children's knowledge of home safety rules also suggested that children lack knowledge in this area. When asked about home safety rules, children between the ages of 4 to 6 years were able to spontaneously recall less than half (46%) of those rules (Morrongiello et al., 2001), and children between the ages of 8 and 10 years were found to be unaware of most of their parents' safety rules and unable to even simply recognize which behaviours were acceptable or unacceptable (Peterson, Mori, & Scissors, 1986). A more recent study that directly observed sibling supervisors during supervision of a younger sibling found that many actually interacted with hazards themselves, suggesting that they were unaware of the risk associated with these items (Morrongiello et al., 2010). Thus, it is possible that some sibling supervisors lack the knowledge about hazards and safety that would be necessary to prevent injury to supervisees, making this an important training component for the program.

Experts in the field of child injury have noted that a primary role of parents in terms of injury prevention is to protect children from accessing hazards that can cause harm (Morrongiello, Ondejko, & Littlejohn, 2004). Indeed, supervision is most likely to be successful in avoidance of injury if the supervisor is able to anticipate how injuries could happen and take preventive measures (e.g., Holden, 1983). Therefore, it is important that older siblings who supervise young children are able to find and manage hazards in the environment in which they are supervising. As previously noted, sibling supervisors appear to have poor knowledge about hazardous items, which would make it difficult for them to find hazards in the environment. Once knowledge about hazards has been gained, sibling supervisors can be taught to do this.

In terms of managing hazards, findings suggest that sibling supervisors do a poor job in this area. Among children ages 6 to 10 years, younger children did quite poorly at generating

preventive measures for injury risks related to hazards shown in pictured scenes (Hillier & Morrongiello, 1998), suggesting that even if they are able to identify hazards in their environment, sibling supervisors are not likely to know what to do about these hazards. Other research that involved directly observing older siblings supervising younger ones found that sibling supervisors used fewer proactive strategies (e.g., hazard checks/removals) compared to their mothers (Morrongiello et al., 2010). Therefore, including training in both finding and managing hazards in the environment constituted an important aspect of the training program.

The hazards that sibling supervisors learned to identify in this module were hazards related to the injuries that are known to most likely occur to children in their homes. The most common types of injuries among young children were described by Morrongiello and Kiriakou (2004) and include: falls, poisonings, drowning, cuts, burns, and suffocation/ strangling/choking. A complete listing of the hazards to be covered in each room of the home is presented in Table 2.

The lesson also taught children about both finding and managing hazards. For finding hazards in the environment, sibling supervisors learned to: (1) act like “Safety Detectives” and search for hazards; (2) at home, walk around the room and find obvious hazards; (3) check any items that their sibling might touch or play with to make sure they are safe (i.e., that they do not have small parts and are not breakable); (4) get down on the floor so that they can see any hazards at the child’s level.

In terms of managing any hazards that are found, sibling supervisors learned: (1) in order to make sure the room is a safe place for their sibling, they will need to do something about the hazards they found; (2) the best option is to remove the hazard from the room or put it in a place where their sibling cannot access it (e.g., move it outside the room or up high); (3) if they cannot safely move a hazard, they should ask an adult to do so; (4) if it is not possible to remove a

hazard (e.g., furniture) then the best way to deal with it is to keep a close eye on that item to make sure their sibling does not interact with it (e.g., watch closely to make sure they do not climb on the furniture); (5) if they are ever unsure about whether an item is dangerous, it is better to assume it is hazardous and remove it from the environment or ask an adult; (6) even if they are confident that they have removed all hazards in the environment, it is still important to keep a close eye on their sibling while they are supervising them; and (7) use their parent as a resource and ask for help.

The practice for this module helped to reinforce knowledge about hazards. First, older siblings practiced identifying hazards using two online games. The first game was called the Home Safety Game (www.homesafetygame.com). In this game, children walk through various rooms of a house, and search for hazards. They are able to click on objects to see what they are (e.g., “pills lying around”), and must decide whether each item is a hazard or not; permission to use this game was granted by the Niagara Region Public Health Department. The second game that older siblings played was called Hazard Hunter (<http://www.belfastcity.gov.uk/hazardhunter/hazardhunter/default.html>). In this game, children select a room in a house (e.g., kitchen), and are shown a picture of that room. They are asked to identify the five hazards in the room by clicking on them. The game provides feedback about whether the correct items were chosen, and why they are hazards; permission to use this game was also obtained from public health in Ireland.

The practice exercise for finding hazards involved presenting older siblings with a checklist of hazards, and they were asked to search for these in their home. The program then presented older siblings with three of hazards from the list (randomly selected by the program). For each hazard they were asked to select the best way to deal with that hazard if they found it in

their home (e.g., move it out of reach). They received feedback on their response. Older siblings were then asked whether this is an item that they checked off as being in their home. If so, they were asked to implement the best strategy to deal with this hazard.

Module 3: How to be a good supervisor. This module provided training in appropriate proximity and attention to younger siblings during sibling supervision. The most widely accepted model of supervision includes the three dimensions of supervisor behaviour that have been identified by past research as those important for injury prevention: *attention* (i.e., watching and listening to the supervisee), *proximity* (i.e., being within versus beyond an arm's reach of the supervisee), and *continuity* of attention and proximity (i.e., constant/intermittent/not at all; Gitanjali et al., 2004; Morrongiello, 2005). Based on this model, maximum supervision and lowest risk of injury for the supervisee occurs when a supervisor is attentively watching and listening to the supervisee, is in the closest proximity possible (i.e., touching), and these behaviours are sustained over time. Based on this logic, increased risk of injury occurs if there is a change in one or more of the three dimensions (e.g., being further from the child, lack of constant attention), as this would be less than maximum supervision (Morrongiello, 2005). Research has shown that sibling supervisors do not provide 'maximum' supervision to supervisees. When sibling supervision was directly observed, older siblings were less likely than mothers to watch risk taking behaviours by supervisees, often failing to look at or even notice these behaviours while they were occurring (Morrongiello et al., 2010). As well, although no research has directly examined how close sibling supervisors stay to supervisees, review of the video record data from Morrongiello et al.'s (2010) study suggests that sibling supervisors are not generally within arm's reach of supervisees.

Research has found that in the absence of maximum supervision, even monitoring strategies such as listening in can successfully reduce risk of supervisee injury by allowing parents to immediately detect changes in supervisees' behaviour that could elevate injury risk (Morrongiello et al., 2004). Therefore, sibling supervisors could benefit from training in performing 'maximum' supervision, as well as monitoring strategies for times when this is not possible. This made up an important component of the training program.

In terms of managing supervisee risk taking, although past research suggests that most older siblings react to supervisee risk taking in the same manner as mothers (e.g., Morrongiello et al., 2010), mothers have reported a few differences in the frequency of some supervisor responses. For example, they report that older siblings are less likely to explain injury risk to supervisees (Morrongiello et al., 2007). Because of this, and the fact that being able to respond appropriately to risk taking is clearly important for preventing injury, this module also taught sibling supervisors to anticipate and manage supervisee risk taking.

In terms of the content for this module, sibling supervisors learned about proximity and attention: (1) even if they are the world's best safety detective the best way to keep their sibling safe is to watch them very closely and stay very close to them; (2) if they stretch their arms out they should be able to touch their sibling (at all times); (3) they should have their eyes on their sibling at all times if they can; (4) a good way to make sure they are close enough to their sibling and constantly watching is to join in with whatever their sibling is doing; (5) if they cannot join in or have something they need to do on their own, they still need to stay close to their sibling and watch them; (6) if they are not playing with their sibling, they need to listen and look at their sibling at least once per minute so they know what their sibling is doing; (7) if they are not playing with their sibling, they need to be doing their own activity as close to their sibling as

possible (i.e., sitting right beside them). The content for managing risk taking taught that: (1) if they notice their sibling going near, saying something about, or touching a hazard, they need to do something to stop them; (2) they can try to distract the sibling and recruit their interest towards a non-hazard item or behaviour but if this does not work then they should ask their sibling to not touch the hazard or to stop touching the hazard and explain the injury risk in a short and simple way (e.g., “don’t touch that, it can cut you”); (3) if their sibling does not listen to them, there are steps they can follow (part of the next module).

The practice exercise for this module involved having older siblings view a video of a young child engaging in various risk and no risk behaviours. They were asked to press a button each time the child in the video does something they would want to stop. Feedback was provided each time they stopped the video (e.g., “Good job!”; “Don’t get too protective! This is okay to do”) or if they miss stopping the video when they should have (e.g., “You should have stopped that, that wasn’t safe!”).

Module 4: Dealing with supervisee noncompliance. This module focused on teaching sibling supervisors how to respond to supervisee noncompliance with regard to efforts by the supervisor to stop supervisee risk taking behaviours. Past research based on both maternal report about sibling supervision (Morrongiello et al., 2007), and direct observation of sibling supervision (Morrongiello et al., 2010), suggests that sibling supervisors already use the same strategies as mothers to deal with supervisee risk taking. However, increased injury risk can still arise due to the tendency for supervisees to show noncompliance with these efforts by sibling supervisors. Mothers have reported that injuries to supervisees occurred during sibling supervision most often because the supervisee failed to comply with directions from the older sibling, and compliance ratings were a good predictor of the frequency of actual injuries to

supervisees (Morrongiello et al., 2007). In addition, when sibling supervision was directly observed, there was a trend for supervisees to comply less often with sibling supervisors compared to mothers, even though sibling supervisors used the same types of strategies as mothers to stop supervisee risk taking (Morrongiello et al., 2010). This pattern of results suggests that sibling supervisors are able to respond effectively to initial risk taking by supervisees, but that increased risk of injury can still arise due to supervisee noncompliance with these efforts. Therefore, teaching sibling supervisors how to manage such noncompliance is critical.

The content of this module included the following information: (1) sometimes it can be hard to get younger siblings to listen to you, even if you are asking them to do something that will help to keep them safe; (2) there is a set of steps you can follow if your younger sibling is doing something dangerous and will not stop when you ask: (a) explain why it is not safe for them to be doing what they are, but keep it short and simple (e.g., that could burn you), (b) try distracting them with a safer activity (e.g., “let’s colour!”), (c) move or take the hazard away from them, and (d) go and get a parent; (3) always make sure you stay calm, even if your sibling is not listening to you; (4) never spank, hit, or yell at your sibling for not listening; treat them the way you want to be treated; (5) when your sibling does listen, make sure you thank them for doing so and give them lots of praise. This will make it more likely that they will listen next time, and (6) if their younger sibling is not listening after they try all the steps, then it is important to get a parent to help.

The practice exercise for this module presented the older siblings with short video clips of a supervisor responding to noncompliance behaviours by young children, and older siblings received an explanation for why the different responses shown were effective or ineffective. Older siblings were then presented with several scenarios involving noncompliance, and asked

questions about these situations. For example: “Your brother/sister is standing on the couch, and will not get down even though you asked them to.” Older siblings were asked to indicate what the correct order of the steps that they should follow, and what a good thing to say would be from a list of options. They received feedback on their responses.

CH rooms.

Evaluation of older sibling’s supervision practices was done via direct observation of their supervision of their younger siblings for 10 minutes in one of two CH rooms (cf., Cataldo et al., 1992; Morrongiello & Dawber, 1998). At the baseline lab visit, each sibling pair was randomly assigned to one of these two rooms using a random numbers table. The second room was then used for the follow-up lab visit. The rooms were set up to look like offices and contained video cameras unobtrusively located in the ceiling, which yielded a full picture of the rooms, as well as audio. In each room there were a number of ‘contrived hazards’ (items that appeared to be hazardous, but modified so as to not actually pose any risk of injury; e.g., scissors glued shut). The contrived hazards were items that have previously been identified by mothers as those most likely to attract children’s attention (Morrongiello & Dawber, 1998). Similar but unique hazards were present in each of the two rooms (i.e., the same types of injuries were represented by the items in each room but different hazards were used to represent each type of injury). In addition to the contrived hazards, there were also various nonhazardous items in each room. A complete listing of the contrived hazards and nonhazards is presented in Table 3.

Measures

Demographic information.

Mothers of each sibling pair completed a demographic sheet designed to gather information about the family (e.g., annual income, ethnic/cultural background of family). A copy

of all measures is included in Appendix A; written permission of the author is required before use of any measure developed for this study or by Morrongiello and colleagues that was used herein.

Measures of supervision knowledge.

Several factors that might be related to actual supervision practices of older siblings were assessed in order to determine whether there was an effect of the intervention on these variables. These factors included: (1) hazard knowledge/management; (2) knowledge of child development; (3) beliefs about injury risk and preventability of injury; (4) knowledge of good supervision practices; and (5) knowledge about child management strategies. Table 4 presents a listing of all variables of interest for the study along with the measures used to assess each.

Hazard knowledge/management. In order to determine older siblings' knowledge of hazards and hazard management, they were asked to complete a photo sorting task. They were shown a set of 38 coloured photos depicting various scenes in a household. Half of the photos ($n = 19$) included at least one hazard, while the other half did not. Some of the photos also included a young child in order to illustrate the hazard properties of various objects (e.g., child climbing a table). Older siblings were asked to think about young children who are the same age as their younger sibling and then shown each photo, with the instruction to decide whether there was anything in the photo that could lead to an injury for their younger sibling. If the child asked what an object in a photo was, they were given the name of the object. The order of the photos was randomized for each administration using a random numbers table, and older siblings were asked to place each photo in either a box marked "YES" (i.e., that there was something in the photo that could lead to an injury for their younger sibling), or "NO" (i.e., that there was not anything in the photo that could lead to an injury for their younger sibling). For all photos sorted

into the “YES” box, older siblings were then asked follow-up questions. First, they were asked to identify what they saw in the photo that could lead to an injury for their younger sibling. For each item they identified, they were then asked what about that item was not safe (i.e., to explain the risk associated with it) and then what they would do about the item if they were supervising their younger sibling and the item was present in the room (i.e., to explain the hazard management technique they would use).

Children’s responses were coded based on both the accuracy of hazard identification, as well as the quality of their responses for both risk explanation and hazard management techniques as they related to information taught in the training program. For each hazard, a score was given for: *Correct Identification* (0 = no, 1 = yes) and these were summed to give a total score for number of correct hazard identifications. The overall mean score for this category was 18.81 ($SD = 7.94$). For any hazards correctly identified, scores were then given for *Risk Explanation* (0-3) with higher scores indicating more specific and accurate explanations ($M = 42.58, SD=20.57$). Finally, for each hazard correctly identified, a score was also given for *Hazard Management Explanation* (0-4) with higher scores given for explanations that represented better options for that specific hazard ($M=54.68, SD=25.70$). The coding scheme used is included in Appendix B.

Knowledge of child development. In order to determine older siblings’ knowledge of child development as it relates to injury risk for supervisees, they completed the Child Development Questionnaire (developed for this study). This measure asked older siblings a series of questions about child development factors that related to young children’s risk of injury (e.g., “Young children who are your brother’s/sister’s age can easily stop and turn when they are running. True or false?”). The total score for this measure was the number of items answered

correctly, so that higher scores reflected greater knowledge of child development ($M = 11.35$, $SD = 2.44$).

Beliefs about injury risk. In order to assess older siblings' beliefs about injuries, they completed a questionnaire called Children's Injury Beliefs, which was made up of items from several different measures related to this topic including: (1) Parent Health Locus of Control Questionnaire (PHLOC; DeVellis, DeVellis, Blanchard, Klotz, Luchok, & Voyce, 1993); (2) Accident Locus of Control Scale (ALOC; Coppens, 1985); (3) Affirmative Statements; and (4) Injury Attitudes Questionnaire (IAQ; Lewis, DiLillo, & Peterson, 2004). In order to reduce the response burden on children, a composite of items from these various measures was used, rather than including all measures. The PHLOC is a 30-item measure of parents' beliefs about who or what influences their children's health. The items from the PHLOC that were included in the Children's Injury Beliefs measure included items from the Parent Influence and Fate (i.e., the extent to which injuries are a matter of luck or fate) subscales. These have been found to have adequate internal consistency previously ($\alpha = .78$ and $.84$, respectively) (DeVellis et al., 1993). The ALOC (Coppens, 1985) includes 11 items that ask about internal and external influences on children's accidents, and adequate internal consistency has been demonstrated for this measure ($\alpha = .70$) (Coppens, 1985). Several items from the ALOC were included in the present measure. The Affirmative Statements measure was recently developed by the Child Development Research Unit for a study evaluating an intervention's impact on parent supervision (Morrongiello et al., 2013). It is composed of 20 items, which make up five subscales: Preventability, Seriousness, Vulnerability, Supervision, and Self-Efficacy to Supervise Closely. Initial pilot testing with parents using these scales revealed adequate internal consistency. Finally, items from the IAQ (Lewis et al., 2004) were included in this measure. The IAQ

measures beliefs about benefits of injury in two specific areas: the learning value of injuries, and the “toughening up” characteristics of injuries, and has been shown to have adequate internal consistency ($\alpha = .88$) (Lewis et al., 2004).

Based on the content of the current intervention, 32 items from these various measures were chosen to comprise the Children’s Injury Beliefs Questionnaire. The items were slightly reworded to reflect the fact that they were referring to sibling supervision, and were then combined into a single measure in randomized order, and placed on a 6-point response scale to ensure adequate variability in responses (1 = strongly disagree, 6 = strongly agree). Because each of the measures used to create this questionnaire used different scales, the scale with the greatest number of response options was chosen to increase variability in responses. Specifically, the measure included items related to self-efficacy (i.e. the extent to which the supervisor feels they are able to impact risk of injury), learning (i.e., the extent to which injuries offer opportunities for supervisee learning), preventability (i.e., how preventable injuries to supervisees are), fate (i.e., the extent to which injuries are the result of fate or luck), vulnerability (i.e., the extent to which young children are vulnerable to injury), seriousness (i.e., perceived seriousness of injuries to young children), supervision (i.e., the extent to which supervision impacts risk of injury), and toughening up (i.e., the extent to which injuries help supervisees to toughen up mentally and/or physically). Items were coded so that higher scores on items were more desirable (i.e., higher scores indicate more desirable beliefs about injuries). Internal consistency was adequate for this measure ($\alpha = .64$).

Knowledge of good supervision practices. In order to assess older siblings’ knowledge of good supervision practices, they completed the supervision subscale of the Parent Supervision Attributes Profile Questionnaire (PSAPQ: Morrongiello & House, 2004; Morrongiello &

Corbett, 2006). This questionnaire was developed to measure parents' patterns of supervisory styles and underlying attributes that give rise to supervisory behaviours. The supervision subscale of the PSAPQ measures supervisors' vigilance and proximity to supervisees during supervision (e.g., "I keep an eye on my child's face to see if he/she needs my help"; "I have my child within arm's reach at all times). For the purposes of the current study, the items on this subscale were reworded to ask about a sibling as opposed to one's child. The final version included eight items (e.g., "I have my younger brother/sister within reach at all times, so if I reached out I could touch them"), rated on a Likert-type scale from 1 ("Strongly Disagree") to 6 ("Strongly Agree). Internal consistency for the present study was adequate ($\alpha = .73$).

Effective child management strategies. Older siblings' knowledge about effective child management strategies was measured using a re-worded version of the Parenting Scale (Arnold, O'Leary, Wolff, & Acker, 1993), a 30-item self-report scale that was designed to assess parental discipline practices. The items ask about the frequency with which parents actually use particular discipline strategies, and ask parents to rate the probability that they would use specific strategies in response to child misbehaviours. Ratings are done using 7-point scales that are anchored by one effective and one ineffective discipline strategy, where a score of 1 indicates effective discipline, and a score of 7 indicates ineffective discipline for each item. For the purposes of the current study, items were reworded to reflect the fact that older siblings were being asked to report on their discipline strategies for their younger siblings (e.g., "When my younger brother misbehaves: I do something about it right away or I do something about it later"). Internal consistency for the overall scale was adequate ($\alpha = .82$).

Training program specific knowledge. Older siblings in the intervention group completed a quiz at the end of each training module. In order to provide a point of comparison,

older siblings in the control group also completed this measure at the follow-up lab visit. These quizzes asked questions about the specific information about supervision and safety that was included in each module.

Supervision behaviour.

Video records of the siblings in the CH rooms were coded to examine supervisor behaviours. The coding system was based on those previously used to study supervision by parents and siblings in the contrived hazards setting (e.g., Morrongiello et al., 2010). The coding system included: (1) *Hazard Search Behaviours* (safety behaviours that occurred before the supervisee attended to or interacted with a hazard); (2) *Hazard Management Techniques*; (3) *Supervisee Risk Taking*; (4) *Supervisor Proximity to Supervisee during Risk Taking* (coded whenever risk taking occurred); (5) *Supervisor Surveillance of Supervisee Risk Taking* (coded whenever risk taking occurred); (6) *Supervisor Reactions to Risk Taking*, (coded only if the supervisor had watched the risk taking); and (7) *Supervisor Modeling of Risk Taking*. Detailed descriptions of the codes for each category are presented in Table 5. The author has had extensive experience using this coding system, and trained the primary coder who then coded all videos. 25% of videos were also coded independently by the author to ensure reliability. The overall agreement between coders was 92.79%.

Procedure

Overview. Participants who responded to recruitment efforts throughout the community were contacted by telephone and told that they would visit the lab two times (approximately four to six weeks apart), during which time video and audio of their older child supervising their younger child in a contrived hazards setting would be recorded, and they and their older child would complete some questionnaires and the older child would also sort some photos. They were

each told that at some point, their older child would be given an opportunity to complete an online training program for sibling supervisors.

All children, regardless of group, completed lab visit 1; parents were explicitly told and reminded not to tell either sibling about the CH room video recordings or details of the study aims. After visit 1, the procedure then varied by group. Families assigned to the control group were placed in a waitlist condition following the first lab visit. They were told during the initial lab visit that they would complete the second lab visit in four to six weeks' time, after which the older sibling would have a chance to complete the online program. Those assigned to the intervention group were told that they would be contacted by phone within one week, to arrange a home visit to teach the older children how to access and navigate the online program. Participants were not told that they had a specific group assignment until conclusion of the final lab visit, at which time they were fully debriefed and given the option to withdraw their data from the study. All families who completed the final lab visit agreed to have their data included in the study. All study procedures were approved by the Research Ethics Board of the University of Guelph.

Baseline - lab visit 1.

Upon the arrival of the family at the Child Development Research Unit, mothers completed the consent form, older siblings completed an assent form with the research assistant, and younger siblings provided verbal assent. The sibling pairs were then asked to wait in one of the CH rooms (random assignment) while mothers completed the demographic sheet in a different room. When placing the children in the CH rooms, a research assistant directed the siblings to make themselves comfortable, and gave the supervisor permission to rearrange items in the room. Unbeknownst to the siblings, their interactions while in the CH room were video

and audio taped. Each dyad remained in one of two rooms for a total of 10 minutes, after which a research assistant entered the room to end the session. Ten minutes was chosen as the duration in order to stay in line with previous studies that have used this methodology (e.g., Morrongiello et al., 2010). In order to ensure children continued to act naturally during the follow-up lab visit, they were not informed of the recording or of the true purpose of the CH room until the end of the final lab visit, and mothers were asked not to share this information with the children. After the CH room session was complete, older siblings completed the photo sort task and questionnaires with a research assistant, while younger siblings watched a movie or played with another research assistant. Finally, families were thanked for their time and received a gift card as a thank you. They were informed about next steps in the study (i.e., that they would be contacted to schedule either a home visit or the second lab visit).

Home visit.

A home visit was completed for each family in the intervention group, following the first lab visit. During the home visit, mothers and older siblings were asked to sign their respective consent and assent forms, and older siblings were then shown how to access and navigate the online training program by the research assistant. Older siblings were given a folder that contained contact information for the research assistant, instructions to access the online program, and a description and estimated time needed to complete each module. Older siblings were asked to try to complete approximately one module per week, and mothers were told that a research assistant would contact them by either phone or email once a week to check on the child's progress and answer questions as needed.

Intervention phase.

For all participants in the intervention group, sibling supervisors were asked to begin the online program as soon as possible following the home visit. They were then asked to complete training one day per week until they successfully completed the program. Participants received a reminder email or call (their choice) from a research assistant each week of the intervention period. When all modules were successfully completed, lab visit 2 was scheduled by phone or email. Older siblings received a gift card for each of the four modules that they completed.

Post-Intervention - lab visit 2.

The procedure for lab visit 2 followed exactly that previously described for lab visit 1, with the exception that mothers did not complete any measures during this visit. As well, those in the intervention group had provided consent for this second lab visit as part of the consent process during the home visit; thus, consent was only needed for the younger siblings (verbal assent) and the mothers and older siblings in the control group. At the end of this visit, mothers and older siblings were fully debriefed about the fact that there were two groups in the study (i.e., intervention and control) and older siblings were also told about the true nature of the CH rooms and the fact that they were recorded while in these rooms. Mothers were asked to sign a debriefing form, and older siblings were given the chance to ask questions or discuss any concerns. All participants agreed to have their video-based data included in the study. Finally, those in the control group were offered the chance complete the online training program from home, and were given written instructions for how to access the program.

Results

Group Demographics

Demographic information for each condition and the total sample is presented in Table 1. A One-way Analysis of Variance (ANOVA), with condition as the between-participants factor, was conducted separately for each category, and no significant differences emerged ($p > .05$ for all tests). Hence, the randomization procedure was effective in creating two groups with comparable demographic characteristics.

Was the Intervention Effective for Improving Older Siblings' Supervision Knowledge?

All descriptive statistics for the knowledge measures at baseline and follow-up for both conditions and the total sample are presented in Table 6. To determine whether there were changes in older siblings' supervision-related knowledge, a series of split-plot ANOVAs were conducted.

Hazard identification and risk explanation (photo sort task)

Analysis of the number of correct hazard identifications on the photo sort task revealed a significant interaction between condition and time, $F(1,53) = 7.79, p = .007$, partial $\eta^2 = .14$ (large effect). Follow-up simple main-effects analyses indicated that the groups did not differ at baseline [$F(1,81) = .40, p = .53$], but the intervention group had higher scores than the control group at follow-up, $F(1,81) = 9.44, p = .003, d = .84$ (large effect). A paired-samples t-test for the intervention group revealed that there was a significant increase in their scores from baseline to follow-up, $t(28) = 5.33, p = .001, d = 1.17$ (large effect). Thus, after completing the intervention, older siblings showed significant improvements in their ability to identify injury-risk hazards, relative to baseline level.

Examining older siblings' explanations for injury risk, when asked what was unsafe about hazards in the photos, also revealed a significant interaction between condition and time, $F(1,53) = 9.61, p = .003$, partial $\eta^2 = .15$ (large effect). Again, follow-up simple main-effects analyses indicated that while the groups did not differ at baseline [$F(1,82) = .39, p = .53$], the intervention group had higher scores than the control group at follow-up, $F(1,82) = 12.98, p < .001, d = .93$ (large effect). A paired-samples t-test for the intervention group revealed that there was a significant increase in their scores from baseline to follow-up, $t(28) = 5.51, p < .001, d = 1.22$ (large effect). Thus, following completion of the intervention older siblings showed a greater depth of understanding of injury hazards, showing significant improvement in their ability to explain why hazards pose risk to younger siblings.

Hazard management strategies (photo sort task)

Analysis of older siblings' responses for how they would manage hazards if they were in the room while they were supervising their younger sibling revealed a significant interaction between condition and time, $F(1, 53) = 8.55, p = .005$, partial $\eta^2 = .14$ (large effect). Follow-up simple main-effects analyses revealed that the two groups did not differ at baseline [$F(1,76) = .57, p = .45$], but that the intervention group had significantly higher scores at follow-up compared to the control group, $F(1,76) = 11.03, p = .001, d = .89$ (large effect). A paired-samples t-test was conducted comparing baseline and follow-up scores for the intervention group, and this revealed significantly higher scores post-intervention than at baseline, $t(28) = 5.84, p = .001, d = 1.16$ (large effect). Thus, older siblings in the intervention group showed increased knowledge for how to manage hazards during sibling supervision.

Knowledge of child development.

Older siblings' knowledge of child development was estimated by summing the total number of correct responses on the Child Development Questionnaire. Analyses revealed a significant interaction between condition and time, $F(1,52) = 14.80, p = .001$, partial $\eta^2 = .22$ (large effect). Follow-up simple main-effects analyses revealed that the two groups did not differ at baseline [$F(1,92) = .06, p = .81$], but that intervention group had significantly higher scores at follow-up compared to the control group, $F(1,92) = 21.38, p = .001, d = 1.24$ (large effect). A paired-samples t-test comparing scores for the intervention group at baseline and follow-up was significant [$t(28)=5.04, p<.001, d=.92$; large effect], confirming that scores were significantly higher at follow-up compared to baseline. Therefore, older siblings who received the intervention showed an increase in knowledge of child development as it relates to injury risk for young children.

Knowledge of effective supervision practices (PSAPQ – Supervision Subscale).

The total scores for older siblings' responses on the supervision subscale of the PSAPQ were analyzed and results revealed a significant interaction of condition and time, $F(1,53) = 5.44, p = .02$, partial $\eta^2 = .09$ (medium effect). Follow-up simple main effects showed that the groups did not differ at baseline [$F(1,80) = 0.87, p = .35$], but did differ at follow-up [$F(1,80) = 9.76, p = .003, d = .86$; large effect], with the intervention group having higher scores than the control group. A paired-samples t-test was conducted for the intervention group to compare scores at baseline and follow-up and this revealed that scores were significantly higher at follow-up, $t(28) = 3.21, p = .003, d = .73$ (medium effect). Thus, the intervention group showed an increase in their reporting of effective supervision strategies when supervising younger siblings.

This is a particularly important finding, as this knowledge can lead to actual behavioural changes in supervision practices (Morrongiello & Corbett, 2006; Morrongiello & House, 2004).

Knowledge of effective child management.

In order to examine older children's knowledge of effective child management strategies, their total scores were computed by summing their responses to all items on this measure. There was a significant interaction between condition and time, $F(1,49) = 4.45, p = .04$, partial $\eta^2 = .08$ (medium effect). However, simple main-effects analyses revealed no group differences at baseline [$F(1,95) = 2.56, p = .11$] or at follow-up, $F(1,95) = 2.05, p = .16$.

Injury beliefs.

Older siblings' total scores for this measure were calculated by summing scores for all items. Results revealed a significant interaction of condition and time, $F(1,49) = 7.25, p = .01$, partial $\eta^2 = .13$ (medium effect). Simple main-effects analyses revealed that groups did not differ at baseline [$F(1,73) = .31, p = .58$], but that the intervention group had higher scores than the control group at follow-up, $F(1,73) = 9.97, p = .002, d = .78$ (medium effect). A paired-samples t-test comparing scores for the intervention group at baseline and follow-up was significant, $t(25) = 4.40, p = .001, d = .82$ (large effect), with scores being significantly higher at follow-up than at baseline. Thus, the intervention produced positive changes in older siblings' injury-relevant beliefs.

Training program specific knowledge.

In order to determine whether the intervention group gained any knowledge specific to the content of the training program, the total scores for each of the four module quizzes were compared for the intervention and control groups using one-way ANOVAs. Descriptive statistics for both groups are shown in Table 7. Results showed that the intervention group had higher

scores than the control group for Module 1 [$F(1,48) = 164.57, p = .001, d = 3.63$; large effect], Module 2 [$F(1, 50) = 233.35, p = .001, d = 4.18$; large effect], Module 3 [$F(1,49) = 410.19, p = .001, d = 5.64$; large effect], and Module 4, $F(1,49) = 173.18, p = .001, d = 3.70$ (large effect). Thus, although it is not known whether groups differed on training program specific knowledge at baseline (i.e., children were intentionally not tested on this information at baseline to preclude their being alerted to content material), these results certainly suggest that the intervention group had more knowledge after completing each module, compared to the control group at follow-up. Importantly, this suggests that the intervention group gained knowledge in all four areas targeted by the intervention.

Was the Intervention Effective for Improving Older Siblings' Supervision Behaviour?

To determine whether there were changes in older siblings' supervision-related behaviour, a series of split-plot ANOVAs were conducted for the relevant supervisor and supervisee behaviours in the CH rooms. All descriptive statistics for these categories are included in Table 8.

Supervisor proactive behaviours.

The various facets of supervisor proactive behaviour were combined by summing the frequencies of hazard checks, hazard removals, and proactive commands. A split-plot ANOVA on these composite scores revealed a significant condition x time interaction, $F(1,50) = 7.79, p = .007, \text{partial } \eta^2 = .14$ (large effect). Follow-up simple main-effects showed that the groups did not differ at baseline [$F(1,99) = 0.81, p = .37$], but did differ at follow-up [$F(1,99) = 9.68, p = .002, d = .73$; medium effect], with the intervention group having higher scores than the control group. A paired-samples t-test was conducted for the intervention group comparing baseline and follow-up scores and this revealed that siblings engaged in significantly more proactive safety

practices at follow-up than baseline, $t(25) = 3.76, p = .001, d = 1.12$ (large effect). Therefore, sibling supervisors in the intervention group showed an increase in their use of proactive injury-prevention behaviors to prevent young siblings from accessing hazards when supervising younger siblings in the contrived hazards setting.

Supervisor within arm's reach of supervisee during risk taking.

The frequency scores for how often supervisors were within arm's reach of supervisees during risk taking behaviours were analyzed, and no significant effects were found. The interaction between condition and time was non-significant, $F(1,50) = 1.01, p = .32$. However, it should be noted that CH rooms do not really provide a good test of proximity because they are small spaces, which may make it difficult for older siblings to judge proximity.

Supervisor watched supervisee risk taking.

Frequency scores for how often supervisors watched supervisees during risk taking were analyzed, and no significant effects were found. The interaction between condition and time was non-significant, $F(1,50) = 1.24, p = .27$.

Supervisor lenient reactions to risk taking.

The frequencies of supervisor reactions to risk taking that did not involve attempts to stop the risk taking (i.e., encouragement, no reaction) were combined to create a lenient reaction composite score for each supervisor. Results of the analysis found no significant interaction between condition and time, $F(1,50) = .05, p = .82$.

Supervisor forceful reactions to risk taking.

The frequencies of supervisor reactions to risk taking that involved attempts to stop the risk taking (i.e., forceful, redirections, physical interventions) were combined to create a forceful

reaction composite score for each supervisor. The interaction between condition and time was non-significant, $F(1,50) = 1.24, p = .27$.

Supervisee compliance.

The frequency scores for supervisee compliance with supervisor's forceful reactions were also examined. The interaction between condition and time revealed a marginal effect, $F(1,50) = 4.04, p = .05$, partial $\eta^2 = .08$ (medium effect). Thus follow-up simple main effects analyses were conducted. These analyses revealed that the groups did not differ at baseline [$F(1,97) = 1.28, p = .26$], or at follow-up, $F(1,97) = 2.17, p = .14$.

Supervisor modeling of risk taking.

The frequency of modeling of risk-taking by supervisors was also analyzed. The interaction between condition and time was not significant, $F(1,50) = .08, p = .77$.

Discussion

The current study represented a novel attempt to design and test a training program for sibling supervisors, called *Safe Sibs*. The main goal of the study was to determine whether the program would result in improvements in the supervision knowledge and behaviours of older siblings, with the intention of reducing risk of injury for supervisees during sibling supervision. Although the results of some studies have suggested that adults are able to benefit from training in supervision (e.g., Schwebel et al., 2006; Morrongiello et al., 2013), virtually no research has examined whether the supervision practices of older siblings can be improved. Given that sibling supervision is a common occurrence in most families (Morrongiello et al., 2007), determining whether older siblings can become better supervisors is an important area of inquiry. Thus, the current study addressed a significant and important gap in the research literature.

Because of the lack of previous research in this area, the main goal of the study was to determine whether sibling supervisors are even capable of benefitting from a training program in supervision. It was predicted that sibling supervisors in the intervention group would show improvements in both supervision knowledge (i.e., hazard knowledge/management, child development, injury beliefs, effective supervision practices, effective child management strategies, intervention specific knowledge) as well as actual supervision behaviour in a contrived hazards setting (i.e., proactive behaviours, attention and proximity to supervisees, reactions to risk taking, modeling of risk taking). Many of these predictions were supported by the findings.

To begin with, sibling supervisors in the intervention group showed significant improvements in supervision knowledge following completion of the training program. The results revealed that after completing the *Safe Sibs* program, sibling supervisors in the intervention group showed significant improvements in their hazard knowledge. This included their ability to identify hazards in photographs and to explain the injury risk associated with these hazards. They also showed improved knowledge of hazard management, (i.e., their ability to explain how they would deal with the hazards that they were able to identify as being unsafe; “If this was in the room while you were looking after your younger brother/sister what would you do about it?”). These are important findings, as improved identification of hazards and knowledge of how to manage them is critical for one’s ability to keep children safe and provide adequate supervision. For example, proactive safety behaviours, such as moving hazards out of reach, requires a supervisor to have an understanding of which objects might pose risk of injury, and also what to do about these hazards (Morrongiello et al., 2010). Similarly, if a supervisor is expected to identify and intervene when supervisee risk taking occurs, they must have a good

understanding of which objects actually pose risk. Thus, improved hazard knowledge and hazard management strategies have the potential to reduce injury risk to supervisees. Also important to note is that past research has shown that many older siblings actually interact with hazards themselves while providing supervision for younger siblings, possibly because they were unaware of the risk associated with these items (Morrongiello et al., 2010). This means that improved hazard knowledge could also lessen injury risk by reducing the frequency with which sibling supervisors model risk taking behaviours. This idea is consistent with past research, which has shown that increasing hazard knowledge among parents resulted in improved ability to recognize and manage hazards in their homes (i.e., Barone et al., 1986; Kelly et al., 1987). The present results suggest that similar improvements can be gained by sibling supervisors through direct training in hazard identification, injury risks, and hazard management.

In addition to this, results indicated that sibling supervisors who completed the intervention showed significant improvements in their knowledge of child development as it relates to injury risk for young children. This is an important finding because there are many facets of child development that put supervisees at increased risk of injury, and sound understanding of this increased risk likely plays an important role in how older siblings supervise and their efforts to keep supervisees safe, including the ability to anticipate potential new injury risks for developing supervisees. For example, toddlers have newly gained ability to access hazards through independent mobility and exploratory behaviour, but this occurs at a time when they have not yet developed cognitive hazard awareness or avoidance skills (Agran et al., 2003). As well, because toddlers and young children experience rapid growth and many developmental changes, a child's risk for incurring specific types of injury changes with development (Agran et al., 2003), meaning that the types of injury most frequently requiring prevention changes with

supervisee age. As well, supervisees are at a point in development during which they learn via social learning, according to Bandura's (1977) Social Learning Theory. Indeed, research has shown that toddlers as young as 16 months of age imitate instrumental behaviours, such as household tasks and self-care routines (Kuczynski, Zahn-Waxler, & Radke-Yarrow, 1987). Clearly then, understanding these types of child development factors could lead to better supervision practices. Consistent with this notion, some research has shown that parents' knowledge of child development impacts their supervision practices. For example, Peterson et al. (1993) concluded that although parents, child protection workers, and medical personnel tend to make decisions about supervision based on children's developmental level, these decisions were not actually in line with data on the frequency of child injuries at different ages. Thus, having accurate knowledge about developmental factors relevant to injury risk is important for making appropriate supervision decisions. Therefore, the fact that sibling supervisors in the present study showed improvements in their knowledge of child development is an important finding and has implications for their ability to provide adequate supervision. This is discussed in more detail below.

Another important finding was that sibling supervisors in the intervention group showed significant improvements in their injury beliefs (i.e., self-efficacy to impact the safety of supervisees, beliefs about injuries and injury risk, preventability of injuries). All of these beliefs are likely to impact supervision practices of supervisees. Indeed, past research with parents supports this notion. Parents' beliefs about their self-efficacy for reducing children's risk behaviours have been found to play an important role in supervision (Morrongiello & House, 2004). Specifically, parents who reported beliefs that luck/fate were the major determinants of injury among children showed poorer supervision practices and had children who had

experienced more non-minor injuries. Thus, self-efficacy for reducing injury risk might play an important role in supervision for parents, and the same may be true for sibling supervisors. As well, parents' beliefs about injury risk (i.e., vulnerability/severity/preventability) affect their supervision behaviours, and mothers' beliefs that vulnerability for injury is high in a certain room have been shown to predict greater supervision in that room (Morrongiello et al., 2004). Thus, the improvements in injury beliefs among sibling supervisors in the current study have implications for their ability to provide adequate supervision, as outlined below.

Older siblings in the intervention did not show a significant change in their knowledge of effective child management strategies, although there was a non-significant trend towards improvement. The ability to respond to unwanted behaviours of supervisees is obviously an important component of supervision and keeping supervisees safe. Indeed, some research with parents has shown that multi-faceted parenting interventions that included parenting support as a component were effective in reducing injuries to young children, while those interventions without a parenting support component did not reduce injury risk (Kendrick et al., 2008). Thus, this may be an area to target differently in future interventions to see whether older siblings can show improved knowledge. For example, they might benefit from role play exercises or coaching during sibling supervision episodes.

Finally, older siblings who completed the *Safe Sibs* program showed improvements in their knowledge of effective supervision practices (i.e., the importance of proximity and attention). It is generally agreed upon that proximity and attention sustained constantly over time can be considered maximum supervision, and this has been found to be related to the lowest risk of injury for supervisees (Morrongiello, 2005). Thus, the improved understanding of effective

supervision by older siblings is an important finding, as this type of knowledge is the foundation for providing effective supervision (Morrongiello, 2005).

Another important finding was that older siblings in the intervention group showed significantly higher scores on training module quizzes compared to those older siblings in the control group. This suggests that children who completed the *Safe Sibs* program had more knowledge specific to the information presented in the training program, compared to those who did not complete the program. As well, the fact that there were group differences for all four module quizzes suggests that older siblings who completed the *Safe Sibs* programs were able to gain knowledge in all areas addressed by the intervention.

In terms of actual supervision behaviours, older siblings who completed the training program showed a significant increase in their use of proactive strategies while providing supervision in the CH rooms, which included hazard checks, hazard removals, and proactive commands. This means that those older siblings who completed the training program showed improved ability to take proactive steps for reducing supervisee injuries by identifying and managing hazards in the environment. Thus, it seems likely that the improvements in *knowledge* of hazards and hazard management shown by these older siblings translated into improvements in actual supervision behaviour through increased use of proactive strategies to eliminate hazards that could cause injury to the supervisee.

Beyond this increase in the use of proactive strategies, older siblings in the intervention group did not show other changes in supervision behaviour. Specifically, there were no changes in their surveillance of and proximity to risk taking, responses to risk taking, or the frequency of modeling of risk taking. The fact that no changes were observed in these behaviours might be due to several different factors. First, the low frequency of some of these behaviours overall

(e.g., lenient reactions) makes it difficult to evaluate the impact of the intervention on these behaviours. Essentially, given the low base rates at baseline, it is difficult to actually assess the impact of the intervention on these aspects of supervision behaviour. As well, the lack of change observed might be related to the fact that older siblings in the intervention group engaged in more proactive behaviours post-intervention. In other words, older siblings may have felt that they had already acted to prevent injuries by moving hazards or instructing supervisees to stay away from them. Although the training program encouraged older siblings to remain vigilant even if there are no hazards in the room, this message may not have been internalized or attended to. Importantly, research with mothers has suggested that they often use a similar strategy for supervision, relying on proactive behaviours such as hazard removals to ensure safety, to the exclusion of engaging in closer supervision (Morrongiello et al., 2004). Another possibility is that older siblings in this age range are simply not able to maintain effective supervision practices over the full ten minute period that they were left to supervise in the CH rooms, so that they are able to engage in effective behaviours when first entering the room (i.e., proactive strategies) but then are unable to maintain attention or motivation to the task of supervision over a longer period of time. Further changes in supervision behaviour could occur over time, or might be more apparent in a more naturalistic setting, such as at home. Indeed, the intervention focused on the provision of supervision in the home environment, so changes in behaviour might not have been as apparent in the laboratory setting. In addition, with regard to proximity to supervisees, as previously noted, the CH rooms do not provide a good test of proximity because of their small size. Thus, further testing of the impact of the program on proximity will be important in the future.

In summary, older siblings who completed the training program showed significant improvements across all areas of supervision knowledge, including hazard knowledge and management strategies, injury beliefs, and knowledge of child development, effective child management strategies, effective supervision practices, and intervention specific knowledge (i.e., module quizzes). This means that the *Safe Sibs* program was effective in improving supervision knowledge. In terms of actual supervision behaviour, older siblings in the intervention group showed an increase in the frequency of their use of proactive strategies (hazard checks, hazard removals, proactive commands), which is consistent with the improvements that they showed in knowledge of hazards and hazard management. No other changes in supervision behaviour were observed, however, this result might reflect a sense of safety by supervisors due to the use of proactive behaviours, the artificial setting of the laboratory, or a more basic inability of older siblings to maintain attention and/or motivation for the task of supervision over a period of time. Further research is needed to more directly evaluate if the intervention can produce additional changes in supervision practices.

Limitations and Directions for Future Research

The current study was the first to design and test an online training program for sibling supervisors, and provided some important results regarding the ability of older siblings to benefit from this type of training. However, it is important to address the limitations of the study. To start with, the sample was quite homogeneous, with almost all families being Caucasian, well-educated, middle class inhabitants of the Guelph community. Because of this, it is difficult to know whether the findings would generalize to other samples or populations. Thus, future research would benefit from attempting to replicate the current findings using larger and more representative samples. In addition, the majority of supervisor behaviours in the CH rooms could

be coded only in instances that the supervisee engaged in risk taking. Although most supervisees did indeed interact with hazards in the rooms, if supervisee risk taking had occurred more frequently, a greater number of supervisor behaviours may have been observed. As well, the contrived hazards method is a widely accepted approach for measuring supervision, and overcomes the limitations of other methods, but there are limitations to this method. For example, not all types of injury risk can be represented by hazards that are “contrived” (e.g., drowning, choking), and behaviours that occur in a simulated laboratory setting may not be the same as those that occur in a more naturalistic setting, such as at home. This second point might be particularly relevant for the current study, because the training program completed by older siblings focused on providing safe supervision in the home; it is possible that more changes in supervisor behaviour would have been observed in the home environment. Therefore, it would be helpful if future research were to include an observational measure of supervision in families’ homes. It will also be important to include follow-up testing in future studies to determine whether gains in supervisor knowledge and behaviour are maintained over longer periods of time.

Additional limitations include the fact that sex and age differences among supervisors and supervisees were not considered in this study due to the sample size. For example, there might be important differences in how older brothers supervise younger siblings compared to older sisters, and sibling supervisors might be able to benefit from the intervention to differing degrees depending on their age. Thus, future studies must include larger samples with a range of supervisor and supervisee characteristics so that age and sex effects can be adequately examined. Finally, although reliability was adequate for the many of the measures used, it was low for others. Future studies should consider improving these measures to increase reliability with this

age group. This could best be achieved through additional pilot testing and possible rewording of items or scales.

Beyond addressing the limitations of the present study, there are several other important avenues for future research to consider. First, it will be important to determine why older siblings' improvement in supervision behaviour was limited to proactive practices. Future studies should include measures to assess older siblings' motivation for the task of supervision, attention/executive function, and parental expectations and rules for sibling supervision, as a starting point. For example, older siblings may simply not have the attentional resources needed to sustain supervision over a period of time, which may have made it difficult for them to divide attention between the task of supervision and the worksheets they were asked to complete. They might also lack the level of motivation or interest in the task of supervision that is needed to sustain focus. Also, if it were the case that older siblings were less vigilant because they felt confident that their use of proactive strategies was sufficient to keep supervisees safe, then future studies could also modify the training program to more clearly and forcefully reiterate that this is not the case. Once a better understanding of these factors is attained, training programs might be altered and re-tested with new samples. For example, if it becomes clear that older siblings are lacking motivation for the task of supervision, then training programs would need to address this issue more directly. The overall goal would be to help sibling supervisors translate knowledge changes into improvements in a broader range of supervision behaviours.

Another area that should be addressed by future studies is the impact of various personality-like factors on supervisor and supervisee behaviours. For example, supervisors high in extraversion would be expected to be more assertive with supervisees, and supervisors and supervisees high in agreeableness might be expected to show less conflict and more compliance

during sibling supervision. Some past research has found that mothers high in neuroticism tend to keep children in view less of the time during supervision, and have children who have experienced more minor and moderate injuries (Morrongiello, Corbett, McCourt, & Johnston, 2006). In contrast, mothers high in conscientiousness tend to have children in view more of the time (Morrongiello et al., 2006) and to have children who engage in less risk taking and have experienced fewer injuries (Morrongiello & House, 2004). Future studies could consider these types of issues and how they affect sibling supervisors.

Implications

The findings of the present study have some important implications for several stakeholders, including parents, practitioners, and policy makers. To begin with, there are several implications for parents who allow sibling supervision to occur in their homes. It seems clear that older siblings who have not received any training in providing supervision have much room for improvement in this area, but do seem able to gain this knowledge through training programs like *Safe Sibs*. Thus, an important implication for parents is to ensure that older children who supervise younger children in the family have received some formal training in child development, injury beliefs, child management, supervision strategies, and hazard knowledge/management.

Another important implication stems from the fact that older siblings in this study did not show many gains in terms of actual supervision behaviours, beyond using proactive strategies more frequently. This means that even if parents take steps to educate and train older children in providing supervision, it seems that they will continue to show deficits in the actual provision of supervision. Given this, it seems the best advice for parents would be to avoid allowing sibling supervision to occur at all. However, if they are going to allow sibling supervision in their home,

then they should take precautionary steps to minimize the risk of injury, such as eliminating hazards in rooms where supervision occurs. Parents may actually wish to create a space that is virtually free of hazards, and designate this to be the area of the home where sibling supervision occurs. Parents should also check in on siblings on a frequent basis, and be close enough to listen in for potential problems. They might also consider having clear rules about sibling supervision (e.g., certain safe activities that are allowed; that older siblings engage in an activity with their sibling).

The present findings also suggest some implications for practitioners. These individuals have an important role to play in terms of dissemination of knowledge to parents about the injury risk associated with sibling supervision and steps that parents can take to reduce this risk, as described above. Ideally, time could be devoted to this topic, and parents provided with handouts providing this information.

Finally, there seem to be implications for policy makers. Given that specific legislation outlines rules for older children to provide care to younger children when no adult is home, it might make sense to consider some policy-making for situations involving sibling supervision when parents are in the home but not present in the room. This might involve recommendations or guidelines for parents who are going to allow sibling supervision (e.g., training for older siblings, precautionary steps described above), delivered alongside a strong message that sibling supervision should be avoided when possible.

Conclusion

The current results are important because they demonstrate that older sibling supervisors are indeed able to benefit from training in safety and supervision. Not only did safety knowledge improve but so too did sibling supervisors' implementation of proactive supervision strategies to

prevent supervisee access to injury hazards. Although improvements in other aspects of supervision behaviours were not obtained, additional research is needed to better understand these results. Thus, in future research it will be important to identify additional and more focused areas for intervention and to determine whether this improves supervision behaviour of older siblings to a greater extent. For example, it seems that although sibling supervisors in the current study showed improvements in their use of proactive safety strategies, they tended to over-rely on these. Thus including a focus on the message that proactive safety behaviours, while important and effective, are not sufficient for preventing injuries might be important in future studies to determine whether this results in improvements in other areas of supervision (e.g., greater watchfulness and/or proximity to supervisees).

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Table 1

Summary Demographics for the Intervention (n = 29) and Control (n = 26) Groups, and the Overall Sample (N = 55)

Attribute	Intervention	Control	Overall Sample ¹
Older sibling age (years)	8.91 (1.16)	8.96 (1.26)	8.93 (1.20)
Younger sibling age (years)	4.06 (.93)	4.43 (.70)	4.24 (.84)
Age difference between siblings	4.85 (1.70)	4.53 (1.60)	4.70 (1.20)
Ethnicity			
% Caucasian	96.60	96.20	96.40
% Asian	3.40	.00	1.80
% Other	.00	3.80	1.80
Annual family income			
% \$60,000 or less	18.52	16.00	17.31
% \$60,000-\$79,999	22.22	24.00	23.08
% \$80,000 or higher	59.26	60.00	59.61
Mother's level of education			
% High school	.00	7.70	3.60
% University/College	86.30	61.60	74.60
% Graduate/Post-graduate	13.70	30.70	21.80

¹One-way ANOVAs were conducted comparing the intervention and control groups for each factor separately and results revealed no significant group differences for any demographic factor.

Table 2

Hazards Included in Module 2

Type of Injury	Hazards
Fall	Stairs, Sitting on tables/counters, Climbing on furniture
Burn	Pots, Hot drinks/food, Electrical outlets, Lighters, Matches, Stoves, Grills, Coffee pot
Cut	Safety pins, Knives, Scissors, Stapler Breakable objects (i.e, glasses, lamps, vases, dishes)
Poisoning	Medicine, Cleaners, Bleach, Paint, Vitamins, Hair spray, Perfume, Alcohol, Glue, Hand sanitizer, White-out
Drowning	Bathtub, Toilets, Sinks, Fish tanks
Suffocation/Strangling/Choking	Marbles, Small food (i.e., nuts, candies), Plastic bags, Electrical cords, Yarn, Rubber bands

Table 3

Hazards and Nonhazards Included in each of the CH Rooms

Object Category	Room 1	Room 2
Fall Hazards	Ladder, Boxes, Chair	Stool, Boxes, Chair
Poison Hazards	Windex, White-Out, Mop-and-Shine	Glue, Hand Sanitizer, Air Freshener
Burn Hazards	Waffle Maker, Coffee Pot, Matches	Cup of Tea, Coffee Pot, Lighter
Cut Hazards	Scissors, Stapler, Knife	Scissors, Broken Cup, Exacto Knife
Nonhazards	Animal Book, Red Clock, Sunglasses, Keyboard, Video case, Key Ring, Pinwheel, Canada Notebook, Large Picture Book, Napkins, Coffee Stirrers, Bowling Pin	Toy on Monitor, Key Ring, Animal Book, Canada Notebook, Keyboard, Pinwheel, Napkins, Sunglasses, Movie, Bowling Pin, Large Book, Calculator

Table 4

Variables of Interest and Associated Measures

Domain	Variable	Measure
Supervisor Knowledge	Hazard Knowledge and Management	Photo Sort Task
	Child Development	Child Development Questionnaire
	Effective Supervision	Supervision Subscale of PSAPQ
	Child Management	Effective Child Management Scale
	Injury Beliefs	Children's Injury Beliefs Scale
Supervision Behaviour	Hazard Search	CH room Data
	Hazard Management	CH room Data
	Proximity	CH room Data
	Surveillance	CH room Data
	Reactions to Risk Taking	CH room Data
	Modelling of Risk Taking	CH room Data

Table 5

Coding Categories and Descriptions for CH Room Video Coding

Behaviour Category	Behaviour	Description/Example
Supervisor Hazard Search	Hazard Check	Inspected hazard to assess risk
Supervisor Hazard Management	Hazard Removal	Moved hazard out of reach
	Proactive Command	Instructed supervisee to avoid hazard
Supervisor Proximity to Risk Taking	Within Arm's Reach	Could touch supervisee if they stretched their arms out
	Beyond Arm's Reach	Could not touch supervisee
Supervisor Surveillance of Risk Taking	Never Watches	Never watches or sees risk taking
	Watches	Looked at supervisee at least one time
Supervisor Reactions to Risk Taking	Encouragement	Said or did something that encouraged, enabled, or condoned the risk taking
	No Reaction	Said/did nothing; neutral comment
	Forceful Reaction	Explicitly said to stop the behaviour or explained potential consequences
	Redirection	Directed approach of nonhazard
	Physical Intervention	Took/moved hazard away
	Explanation of Risk	Explained risk associated with hazard
Supervisor Modeling of Risk Taking		Interacted with hazard for own interest
Supervisee Compliance	Compliance	Stopped behaviour within 10 seconds of supervisor reaction

Table 6

Means (Standard Deviations) as a Function of Group (Intervention, Control) for Knowledge Measures at Baseline and Follow-Up

Measure	Group	Baseline	Follow-Up
Photo Sort (Hazard Identification)*	Intervention	16.45 (7.31)	24.55 (6.48)
	Control	15.23 (7.25)	18.62 (7.59)
Photo Sort (Risk Explanation)*	Intervention	36.52 (17.05)	58.52 (18.91)
	Control	33.42 (17.77)	40.73 (19.38)
Photo Sort (Hazard Management)*	Intervention	47.31 (23.13)	74.00 (22.76)
	Control	42.62 (22.17)	53.42 (23.67)
Child Development Questionnaire*	Intervention	5.41 (1.55)	6.79 (1.45)
	Control	5.32 (1.11)	5.04 (1.37)
PSAPQ (Supervision)*	Intervention	28.41 (4.13)	31.69 (4.78)
	Control	27.12 (6.29)	27.35 (5.30)
Effective Child Management Scale*	Intervention	115.85 (24.44)	90.44 (24.66)
	Control	108.58 (19.46)	99.54 (15.90)
Children's Injury Beliefs (Total)*	Intervention	77.58 (12.26)	89.31 (16.11)
	Control	75.68 (9.78)	78.80 (10.35)

Note: * indicates significant improvement on that measure for the intervention group

Table 7

Means (Standard Deviations) for Quiz Results (max = 100%)

Module	Group	Quiz Score
1*	Intervention	92.00 (8.66)
	Control	44.00 (16.58)
2*	Intervention	90.43 (7.56)
	Control	34.33 (17.40)
3*	Intervention	91.76 (8.50)
	Control	22.29 (15.20)
4*	Intervention	87.26 (17.54)
	Control	30.75 (12.62)

Note: * indicates significant group difference for those scores

Table 8

Mean number (Standard Deviations) of Supervision Behaviours during the 10 minute period at Baseline and Follow-Up

Behaviour	Group	Baseline	Follow-Up
Supervisor Proactive Behaviour Composite*	Intervention	.58 (1.21)	4.31 (4.53)
	Control	1.40 (3.55)	1.39 (3.37)
Supervisor Modeling Risk Taking	Intervention	.50 (1.03)	.85 (1.29)
	Control	.54 (.99)	1.04 (1.54)
Supervisor Within Arm's Reach During Risk Taking	Intervention	1.04 (1.48)	1.65 (1.85)
	Control	1.89 (2.07)	1.73 (1.91)
Supervisor Watched Risk Taking	Intervention	1.73 (2.24)	1.69 (2.00)
	Control	2.46 (2.45)	1.50 (1.50)
Supervisor Lenient Reactions to Risk Taking	Intervention	1.35 (2.04)	.50 (.81)
	Control	1.77 (2.07)	.77 (.99)
Supervisor Forceful Reactions to Risk Taking	Intervention	.27 (.53)	.62 (1.02)
	Control	.50 (1.18)	.42 (1.03)
Supervisor Compliance with Forceful Reactions	Intervention	.35 (.69)	1.15 (1.54)
	Control	.73 (1.31)	.65 (1.20)

Note: * indicates significant increase for that behaviour for the intervention group

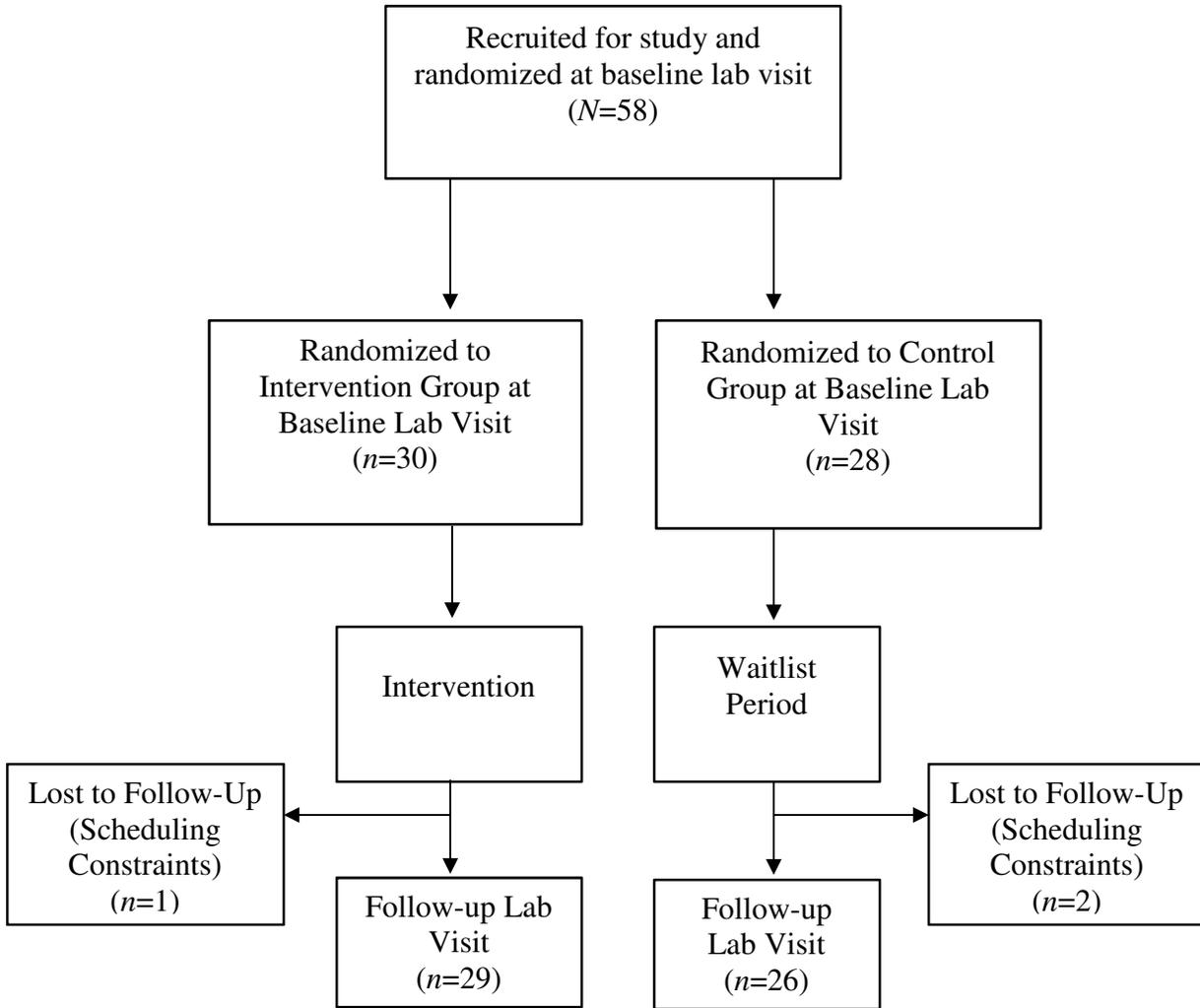


Figure 1. CONSORT diagram showing the progression of participants through phases of the study.

Appendix A

Older Sibling Supervision Knowledge Measures

Child Development Questionnaire

As children get older they are able to do more and more things, like run faster or climb higher. So the kinds of things that kids can do safely changes as they grow up. I'm going to ask you some questions about things that some young kids do. I'm just interested in knowing what you think, so it's okay if you're not sure about some of the answers. If you don't know the answer to a question, you can just take your best guess! Do you have any questions?

1. Young children who are your brother's/sister's age usually know exactly what they are able to do safely. True or **false**?
2. Young children who are your brother's/sister's age are curious and like to explore. **True** or false?
3. Many young children who are your brother's/sister's age explore items by putting them in their mouths. **True** or false?
4. Young children who are your brother's/sister's age can run very well. **True** or false?
5. Young children who are your brother's/sister's age can easily stop and turn when they are running. True or **false**?
6. Young children who are your brother's/sister's age do not have very good balance. **True** or false?
7. Johnny just started moving around on his own by crawling. How old do you think Johnny is? _____ (**6-11 months**)
8. Now that Johnny can get around on his own by crawling, in which of the following ways do you think he is most likely to get injured? **A) falling down the stairs**, B) falling off the couch, C) getting burned by the stove.
9. Sally just started climbing things. How old do you think Sally is? _____ (**15-17 months**)
10. Now that Sally can climb things, give an example of something she might start doing that could be unsafe and dangerous. _____ (**something that involves climbing/falling; e.g., jumping on bed, climbing on furniture, sitting on counter, etc.**)

11. At what age do you think young children are most likely to be poisoned by eating something they shouldn't put in their mouth? _____ (**18-35 months**)

12. At what age do you think younger children are most likely to choke on something? _____ (**18-35 months**)

Children's Injury Beliefs

I'm going to read you some statements, and for each one I would like you to tell me how much you agree with it. Use this rating scale [show child Children's Injury Beliefs rating scale]. There are no right or wrong answers for this! We just want to know what you think.

1. ____ I may not like to admit it but when I am at home with my younger sibling, I can do a better job than I am to keep him/her safe. **(Self efficacy)**
2. ____ Experiencing a few minor injuries may help my younger sibling by teaching him/her how injuries occur and what not to do in the future. **(learning)**
3. ____ I can do a lot to keep my younger sibling from getting hurt when we are together. **(self efficacy)**
4. ____ Most injuries to little kids are preventable. **(Preventability)**
5. ____ Whether my younger sibling gets hurt or not is mostly a matter of luck. **(Fate)**
6. ____ (R) When we are together, I don't often think "my younger sibling might get hurt." **(Vulnerability)**
7. ____ (R) Kids who can stay safe in unsafe situations are just plain 'lucky' **(Fate)**
8. ____ (R) Most injuries to little kids are not "serious" injuries. **(Seriousness)**
9. ____ If I am careful I can prevent accidents from happening to my younger sibling **(Self Efficacy)**
10. ____ Close supervision can prevent young children from getting injured. **(Supervision)**
11. ____ When I'm at home with my younger sibling, if he/she has an accident, it is often because I did not watch what he/she was doing **(Supervision)**
12. ____ (R) Children just get injured sometimes – you can't always prevent this. **(Preventability)**
13. ____ Childhood injuries can be serious. **(Seriousness)**
14. ____ Luck plays a big part in determining whether my younger sibling stays safe or gets injured. **(Fate)**

15. ___ Being injured may help my younger sibling to ‘toughen up’ mentally. (**toughening up**)
16. ___ Kids who are never in accidents are just plain lucky. (**Fate**)
17. ___ Injuries can be a good thing to help children learn to be more cautious. (**learning**)
18. ___ Young children are especially likely to get injured. (**Vulnerability**)
19. ___ (R) Children who are good at following rules don’t need to be as closely supervised as other kids their age. (**Supervision**)
20. ___ My young sibling’s injury experiences help him/her learn the consequences of doing risky things. (**learning**)
21. ___ (R) Childhood injuries are not anything serious to worry about. (**Seriousness**)
22. ___ Most older siblings can do more than they are to keep their younger siblings safe. (**Self efficacy**)
23. ___ By taking certain precautions, I can prevent injuries to my younger sibling. (**Preventability**)
24. ___ (R) Young children are not very likely to be injured. (**Vulnerability**)
25. ___ Injuries to my younger sibling can be serious. (**Seriousness**)
26. ___ (R) Close supervision won’t reduce my sibling’s risk of injury. (**Supervision**)
27. ___ Being injured may help my younger sibling to ‘toughen up’ physically. (**toughening up**)
28. ___ Minor injuries can help my younger sibling build character. (**toughening up**)
29. ___ Sometimes it is best to let children learn on their own, even if it means that they get hurt a little. (**learning**)
30. ___ I need to do all I can to closely supervise my younger sibling. (**Supervision**)

Supervision Practices (PSAPQ – Supervision Subscale)

Now I'm going to ask you some questions about what you think and do when you are looking after your younger brother/sister at home. I'm going to read some sentences to you and I want you to tell me how much you agree or disagree with each one. There are no right or wrong answers, I just want to know what's true for you. If you have any questions, you can just ask!

So, for each sentence you are going to say how much you agree or disagree using this scale

Show child the PSAPQ rating scale and read out the response options for them.

When you answer these questions, the child we are referring to is your younger brother or sister that is here with you today.

1. I have my brother/sister within arm's reach at all times, so if I reached out, I could touch them. ____
2. I know exactly what my brother/sister is doing at all times. ____
3. I can trust my brother/sister to play by himself/herself without me watching all the time. ____
4. I stay within reach of my brother/sister when he/she is playing on equipment. ____
5. I keep a close watch on my brother/sister. ____
6. I stay close enough to my brother/sister that I can get to him/her quickly. ____
7. I hover next to my brother/sister. ____
8. I make sure I know where my brother/sister is and what he/she is doing. ____

5. When my brother/sister pesters me...

I can ignore the pestering. 0---0---0---0---0---0

I can't ignore pestering.

6. When my brother/sister misbehaves...

I usually get into a long argument with them. 0---0---0---0---0---0

I don't get into an argument.

7. I threaten to do things that...

I am sure I can carry out. 0---0---0---0---0---0

I know I won't actually do.

8. I am the kind of supervisor that...

set limits on what my brother/sister is allowed to do. 0---0---0---0---0---0

lets my brother/sister do whatever he/she wants.

9. When my brother/sister misbehaves...

I give them a long lecture. 0---0---0---0---0---0

I keep my talks short and to the point.

10. When my brother/sister misbehaves...

I raise my voice or yell. 0---0---0---0---0---0

I speak calmly.

11. If saying "No" doesn't work right away...

I take some other kind of action. 0---0---0---0---0---0

I keep talking and try to get through to my brother/sister.

12. When I want my brother/sister to stop doing something...

I firmly tell them to stop. 0---0---0---0---0---0

I coax or beg them to stop.

13. When my brother/sister is out of my sight...

I often don't know what they are doing. 0---0---0---0---0---0

I always have a good idea of what they are doing.

14. After there's been a problem with my brother/sister...

I often hold a grudge.

0---0---0---0---0---0

things get back to normal quickly.

15. When we're not at home...

I handle my brother/sister the way I do at home.

0---0---0---0---0---0

I let my child get away with a lot more.

16. When my brother/sister does something I don't like...

I do something about it every time it happens.

0---0---0---0---0---0

I often let it go.

17. When there is a problem with my brother/sister...

things build up and I do things I don't mean to do.

0---0---0---0---0---0

things don't get out of hand.

18. When my brother/sister misbehaves, I spank, slap, grab, or hit my brother/sister...

never or rarely.

0---0---0---0---0---0

most of the time.

19. When my brother/sister doesn't do what I ask...

I often let it go or end up doing it myself.

0---0---0---0---0---0

I take some other action.

20. When I give a fair threat or warning...

I often don't carry it out.

0---0---0---0---0---0

I always do what I said.

21. If saying "No" doesn't work...

I take some other kind of action.

0---0---0---0---0---0

I offer something nice so my brother/sister will behave.

22. When my brother/sister misbehaves...

I handle it without getting upset.

0---0---0---0---0---0

I get so frustrated or angry that they can see I'm upset

23. When my brother/sister misbehaves...

I make them to tell me why he/she
did it 0---0---0---0---0---0

I say "No" or take
some other action

24. If my brother/sister misbehaves and then acts sorry...

I handle the problem
like I usually would. 0---0---0---0---0---0

I let it go that time.

25. When my brother/sister misbehaves...

I rarely use bad
language. 0---0---0---0---0---0

I almost always
use bad language.

26. When I say my brother/sister can't do something...

I let them
do it anyway. 0---0---0---0---0---0

I stick to what I said.

27. When I have to handle a problem...

I tell my brother/sister
I'm sorry about it. 0---0---0---0---0---0

I don't say I'm sorry.

**28. When my brother/sister does something I don't like, I insult my them, say mean things,
or call my them names...**

never or rarely. 0---0---0---0---0---0

most of the time.

29. If my brother/sister talks back or complains when I handle a problem...

I ignore the complaining
and stick to what I said. 0---0---0---0---0---0

I give them a talk
about not
complaining.

30. If my brother/sister gets upset when I say "No"...

I back down and
give in to them. 0---0---0---0---0---0

I stick to what I said.

Module 1 Quiz

- 1) Which is the leading cause of death for children?
 - a. Cancer
 - b. Injuries**
 - c. Heart problems
 - d. None of the above

- 2) What makes young kids likely to get injured?
 - a. They are curious and like to explore
 - b. They think they can do more than they really can and don't know about hazards
 - c. They are unpredictable and do things fast
 - d. All of these are reasons why young kids are likely to get injured**

- 3) Young kids are really good at stopping and turning when they are running.
 - a. True
 - b. False**

- 4) When young kids are 6-11 months old and start moving around on their own, how are they most likely to be injured?
 - a. Falling down the stairs**
 - b. Poisoning from taking medicine themselves
 - c. Falling off of furniture
 - d. Drowning in the bathtub

- 5) When young kids are 5-17 months old and learn to climb, how are they most likely to be injured?
 - a. Poisoning from taking medicine themselves
 - b. Falling off of furniture**
 - c. Falling down the stairs
 - d. Slipping in the bathtub

- 6) When young kids are 18-35 months old and can move around on their own, put their hand to their mouth, and pick things up, how are they most likely to be injured?
 - a. Choking or poisoning**
 - b. Falling off of furniture
 - c. Falling down the stairs
 - d. Drowning in the bathtub

- 7) What is the biggest reason that you should be careful about doing things in front of your younger sibling that aren't safe for them to do?
- a. They might tell on you
 - b. They might yell at you for being unsafe
 - c. **They might copy you**
 - d. None of these are reasons to be careful about doing things in front of them
- 8) What is the BEST way to make sure your younger sibling doesn't copy you doing something that isn't safe for them to do?
- a. Do it in front of them but tell them it's not safe for them to do
 - b. Hide it from them by doing it when they aren't watching
 - c. **Don't do risky things at all**
 - d. It doesn't matter if you do these things in front of them because they should know better than to copy you
- 9) What's the word to help you remember how your younger sibling behaves that can lead to them getting hurt?
- a. MAP
 - b. **CHIEF**
 - c. BOAT
 - d. MAIL
- 10) What's the word to help you remember what your job is as supervisor?
- a. CARD
 - b. **MAP**
 - c. RED
 - d. CHIEF

Module 2 Quiz

- 1) Which of the following is a type of injury that can be caused by hazards in your home
 - a. Falls
 - b. Burns
 - c. Cuts
 - d. Poisoning
 - e. **All of these are injuries that can be caused by hazards**

- 2) Which of these is MOST likely to cause cuts?
 - a. Using a knife
 - b. Using scissors for arts and crafts
 - c. Putting glass dishes in the dishwasher
 - d. None of these are likely to cause cuts
 - e. **All of these are equally likely to cause cuts**

- 3) Which of these is likely to cause choking?
 - a. Playing with a tennis ball
 - b. Playing with a plastic bag
 - c. **Playing with Lego**
 - d. None of these are likely to cause choking
 - e. All of these are equally likely to cause choking

- 4) To look for hazards during supervision you should do what?
 - a. Look around the room from where you are sitting
 - b. You don't need to worry about looking for hazards
 - c. **Walk around the room and get down on the floor to look**
 - d. None of these are right

- 5) What is the best thing you can do when you find a hazard that is safe for you to touch?
 - a. **Take it out of the room or put it out of reach**
 - b. Keep a close eye on your sibling to make sure they don't go near it
 - c. Leave it where it is and don't worry about it
 - d. Tell your sibling not to touch it and leave it where it is

- 6) What should you do if you are supervising and you find a hazard and it is not safe for you to touch it?
 - a. Move it but be very careful
 - b. **Tell an adult and ask them to move it**
 - c. Just leave it and tell your younger sibling not to touch it
 - d. Just leave it and make sure your younger sibling doesn't go near it

- 7) What should you do if you are unsure about whether something is a hazard?
 - a. Leave it where it is
 - b. **Treat it like it is a hazard**
 - c. Keep a close watch on your sibling in case they go near it

- d. You don't need to worry about it unless you're sure it's a hazard
- 8) If you are sure that you got rid of all the hazards in the room, you don't need to worry about watching your younger sibling while they're in that room.
- a. True
 - b. False**
- 9) What's the word to help you remember how your younger sibling behaves that can lead to them getting hurt?
- a. CHIEF**
 - b. MAP
 - c. DUCK
 - d. BLUE
- 10) What's the word to help you remember what your job is as supervisor?
- a. CARD
 - b. MAP**
 - c. RED
 - d. CHIEF
- 11) What's the word to help you remember how to search for hazards when you're supervising?
- a. WHITE
 - b. SNAP
 - c. TACK
 - d. WIG**
- 12) What's the word to help you remember what to do about hazards you find?
- a. SNAG
 - b. BOG
 - c. WAM**
 - d. WIN

Module 3 Quiz

- 1) How close should you be to your younger sibling when you are supervising them?
 - a. 5-10 feet
 - b. Close enough to touch them if you stretch out your arms**
 - c. A few steps away
 - d. As long as you're in the same room and watching them, it doesn't matter how close you are

- 2) How much of the time should you be watching your younger sibling when you are supervising them?
 - a. All of the time**
 - b. As long as you know what they're doing you don't need to watch them at all
 - c. Half of the time
 - d. You only need to look up at them once in a while

- 3) What is the best way to make sure that you are close enough to your sibling and watching them enough?
 - a. Keep track of how close you are and how much you watch them
 - b. Join in on whatever activity they're doing**
 - c. You don't need to worry about this
 - d. Sit in one place and watch them all the time

- 4) If you can't play with your younger sibling you need to stay beside them and look at them how often?
 - a. Once every minute**
 - b. Five times every minute
 - c. Whenever you think you should check (e.g., you hear something to suggest you should check on them)
 - d. Once every ten minutes

- 5) If you are doing your own activity while you're supervising your younger sibling what do you need to make sure you are doing?
 - a. Looking at them at least once a minute
 - b. Sitting as close to them as possible
 - c. Both a and b are correct**
 - d. Neither a nor b are correct

- 6) The best thing to do if you see your younger sibling going near or touching a hazard is try to distract them by trying to get them to do something that isn't dangerous.
 - a. True**

- b. False
- 7) If you try to distract your younger sibling and it doesn't work, what should you try next?
- a. Try distracting them again with a different safe activity
 - b. Give up and just keep an eye on them while they touch the hazard
 - c. Yell at them to stop
 - d. Tell them not touch the hazard and explain that it could hurt them**
- 8) Which of these is the best thing to say to your younger sibling to try to get them to stop touching a hazard?
- a. Put that down right now
 - b. Don't touch that, it could cut you**
 - c. Don't touch that
 - d. Touching that is against the rules
- 9) What's the word to help you remember how your younger sibling behaves that can cause them to get hurt?
- a. MAP
 - b. CHIEF**
 - c. BOAT
 - d. MAIL
- 10) What's the word to help you remember what your job is as supervisor?
- a. CARD
 - b. MAP**
 - c. RED
 - d. CHIEF
- 11) What's the word to help you remember how to search for hazards when you're supervising?
- a. WHITE
 - b. SNAP
 - c. TACK
 - d. WIG**
- 12) What's the word to help you remember how to search for hazards when you're supervising?
- a. SNAG
 - b. BOG
 - c. WAM**

d. WIN

13) What's the word to help you remember the best way to keep your younger sibling safe when you're supervising?

a. BALL

b. CARD

c. PASS

d. CAP

14) What's the word to help you remember what you need to know about what to do if your younger sibling is doing something unsafe?

a. BAG

b. MARK

c. FALL

d. RAP

Module 4 Quiz

- 1) What is the first step to follow if your younger sibling is doing something dangerous and won't stop when you ask?
 - a. Move the hazard or take it away from them if it's safe for you to do so
 - b. Explain why it isn't safe for them to be doing what they're doing, but keep it short and simple**
 - c. Go and get a parent to help
 - d. Try to distract them with a safer activity

- 2) What is the second step to follow if your younger sibling is doing something dangerous and won't stop when you ask?
 - a. Move the hazard or take it away from them if it's safe for you to do so
 - b. Explain why it isn't safe for them to be doing what they're doing, but keep it short and simple
 - c. Go and get a parent to help
 - d. Try to distract them with a safer activity**

- 3) What is the third step to follow if your younger sibling is doing something dangerous and won't stop when you ask?
 - a. Move the hazard or take it away from them if it's safe for you to do so**
 - b. Explain why it isn't safe for them to be doing what they're doing, but keep it short and simple
 - c. Go and get a parent to help
 - d. Try to distract them with a safer activity

- 4) What is the last step to follow if your younger sibling is doing something dangerous and won't stop when you ask?
 - a. Move the hazard or take it away from them if it's safe for you to do so
 - b. Explain why it isn't safe for them to be doing what they're doing, but keep it short and simple
 - c. Go and get a parent to help**
 - d. Try to distract them with a safer activity

- 5) It is okay to get angry or upset when your younger sibling isn't listening
 - a. True
 - b. False**

- 6) You should never hit, or yell at your sibling for not listening
 - a. True**
 - b. False

- 7) What should you make sure you do any time your sibling listens to you?
- a. Tell a parent that they listened to you
 - b. Remind them that you are in charge
 - c. You shouldn't do anything
 - d. Thank them for listening**
- 8) Why is it important to treat your younger sibling the way you want to be treated?
- a. It's actually not very important
 - b. It's the right thing to do
 - c. It's how they learn how to treat others
 - d. It makes it more likely that they'll listen**
- 9) Which of the following is the BEST thing say to your sibling if they are playing with a knife and you want them to stop?
- a. Put that down
 - b. That knife isn't to play with
 - c. That knife could cut you**
 - d. None of these are good things to say
- 10) What's the word to help you remember how your younger sibling behaves that can lead to them getting hurt?
- a. MAP
 - b. CHIEF**
 - c. BOAT
 - d. MAIL
- 11) What's the word to help you remember what your job is as supervisor?
- a. CARD
 - b. MAP**
 - c. RED
 - d. CHIEF
- 12) What's the word to help you remember how to search for hazards when you're supervising?
- a. WHITE
 - b. SNAP
 - c. TACK
 - d. WIG**
- 13) What's the word to help you remember how to deal with hazards when you're supervising?
- a. SNAG
 - b. BOG
 - c. WAM**
 - d. WIN

- 14) What's the word to help you remember the best way to keep your younger sibling safe when you're supervising?
- a. BALL
 - b. CARD
 - c. PASS
 - d. CAP**
- 15) What's the word to help you remember what you need to know about what to do if your younger sibling is doing something unsafe?
- a. BAG
 - b. MARK
 - c. FALL
 - d. RAP**
- 16) What's the word to help you remember the steps to take if your younger sibling isn't listening?
- a. BLACK
 - b. ERMA**
 - c. DIG
 - d. MAT

Measures Completed by Mothers

Demographic Sheet

YOUR DATE OF BIRTH

Please indicate your date of birth: ___ / ___ / ___ (DD/MM/YY)

EDUCATION

Please check the HIGHEST level of education that applies.

Mother		Father
_____	Some high school	_____
_____	High school diploma	_____
_____	Some college	_____
_____	College degree	_____
_____	Some university	_____
_____	University degree	_____
_____	Some graduate training	_____
_____	Graduate degree (MA, PhD)	_____
_____	Post-graduate training	_____

INCOME

Please check your family's annual take-home income.

_____	Below \$20, 000
_____	\$20, 000 - \$39, 999
_____	\$40, 000 - \$59, 999
_____	\$60, 000 - \$79, 999
_____	Above \$80, 000

ETHNICITY

Please indicate how you would best describe yourself.

_____	White
_____	Asian or Asian American
_____	Black or African American
_____	Hispanic or Latino
_____	First Nations or American Native
_____	Other

CHILDREN'S DATES OF BIRTH

Please indicate the sex and date of birth for the **OLDER** child we talked to you about today.

Child in study: ___ / ___ / ___ (DD/MM/YY)

Sex: _____ Male _____ Female

Please indicate the sex and date of birth for the **YOUNGER** child we talked to you about today.

Child in study: ___ / ___ / ___ (DD/MM/YY)

Sex: _____ Male _____ Female

Appendix B

Coding Scheme for Photo Sort Task

P1	Toilet		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to getting hurt/injured
		3=	Explicitly refers to drowning
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to closing the toilet lid
		4=	Refers to keeping the child out of the room/watching them closely to make sure they don’t go near it
	Air Fresh’r		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to the fact they could get sick/die, could get it in their eyes or eat it
		3=	Refers to the fact that it is “poisonous”
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it without any mention of moving it to a high place
		4=	Refers to moving it to a high place or where the child can’t reach
P2	Sink		Risk Management
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear

			(e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child getting hurt
		3=	Refers to the possibility of drowning
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to making sure there’s no water in it
		4=	Refers to making sure the child doesn’t go near it and/or keeping them out of the room or away from it
	Mouthwash		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to fact child could get sick/die if they drink it
		3=	Refers to it being poisonous
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it without any mention of it being a high place
		4=	Refers to moving it to a high place or somewhere the child can’t reach
	Razor		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, cutting, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicated the child could <u>cut</u> themselves
			Hazard Management

		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
P3	Sink		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child getting hurt/injured
		3=	Explicitly refers to drowning
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to making sure there’s no water in it
		4=	Refers to making sure child doesn’t go near it and/or keeping them out of the room or away from it
	Mouthwash		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to fact child could get sick/die if they drink it
		3=	Refers to it being poisonous
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it without any mention of it being a high place
		4=	Refers to moving it to a high place or somewhere the child can’t reach

	Razor		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, cutting, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Air Fresh’r		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to the fact they could get sick/die, could get it in their eyes or eat it
		3=	Refers to the fact that it is “poisonous”
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it without any mention of moving it to a high place
		4=	Refers to moving it to a high place or where the child can’t reach
P4	Puddle		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child getting hurt/injured

		3=	Refers to possibility of drowning
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
=		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to draining the tub, emptying the water
		4=	Refers to draining the water AND keeping the child away from the tub or out of the room
	Tub Cleaner		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to the fact they could get sick/die, could get it in their eyes or eat it
		3=	Refers to the fact that it is “poisonous”
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it without any mention of moving it to a high place
		4=	Refers to moving it to a high place or where the child can’t reach
P5	Perfume		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to the fact they could get sick/die, could get it in their eyes or eat it
		3=	Refers to the fact that it is “poisonous”
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs,

			making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to moving it without any mention of moving it to a high place
		4=	Refers to moving it to a high place or where the child can't reach
	Coins		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child putting in their mouth/eating it etc
		3=	Refers to <u>choking</u> specifically
			Hazard Management
		0=	No action or "don't know"
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to moving it without any mention of moving it to a high place
		4=	Refers to moving it to a high place or where the child can't reach
	Nail clipper		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, cutting, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates that the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or "don't know"
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to moving it without any mention of moving it to a high place
		4=	Refers to moving it to a high place or where the child can't reach
P6	Stairs		Risk Explanation

		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child getting hurt/injured
		3=	Indicates that the child could fall
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to helping them go down the stairs or telling them to play somewhere else or stay away
		4=	Refers to watching the child closely so they don’t go near the stairs
	Nightlight		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child getting hurt/injured
		3=	Refers to electrocution/shock/burn
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Talks about putting a cover on the outlet
		4=	Refers to watching the child closely so they don’t go near it
P7	Toys		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child getting hurt/injured
		3=	Indicates that the child could fall or trip on the toys
			Hazard Management

		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to watching child closely so they don’t go near the stairs OR cleaning up the toys
		4=	Refers to watching child closely so they don’t go near the stairs AND cleaning up the toys
	Cleaner		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to fact child could get sick/die if they drink it
		3=	Refers to it being poisonous
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it without any mention of moving to a high place
		4=	Refers to moving it to a high place or where the child can’t reach
P8	Kettle		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to it being hot
		3=	Refers to possibility of burn/burning
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to unplugging it/making sure it’s not on OR moving it

			themselves
		4=	Refers to asking an adult to move it
	Big Fork		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Knife		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Stove		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g.,

			knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to stove being hot
		3=	Refers to possibility of burn/burning
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to making sure it is turned off/not hot etc
		4=	Refers to making sure the child does not go near it
P9	Big Fork		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Knife		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs,

			making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Pot		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to the fact that it is/could be hot
		3=	Refers to possibility of burn/burning
			Hazard Management
		0=	No action or "don't know"
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to making sure it is turned off/not hot/turning the handle
		4=	Refers to making sure the child does not go near it
P10	Coffee		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to fact it is hot
		3=	Indicates the child could burn themselves
			Hazard Management
		0=	No action or "don't know"
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
P11	Hammer		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is

			unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to child dropping it (without mention of it hitting them)
		3=	Indicates the child could drop it on their toe/hit themselves with it
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Screwdriver		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it
		4=	Refers to moving it somewhere high/where child can’t reach
	Pins/nails		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves

			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it
		4=	Refers to moving it somewhere high/where child can’t reach
P12	Thumbtacks		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it
		4=	Refers to moving it somewhere high/where child can’t reach
	Scissors		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to scratching, poking (i.e., what could happen, NOT just describing the object as sharp)
		3=	Indicates the child could <u>cut</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4

		3=	Refers to moving it
		4=	Refers to moving it somewhere high/where child can't reach
P13	Bookshelf		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to fact it's not safe to climb
		3=	Indicates the child could fall or that the shelf could fall on them
			Hazard Management
		0=	No action or "don't know"
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to getting the item from the shelf for the child
		4=	Refers to making sure the child does not go near the shelf/climb it
P14	Oven		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to it being hot
		3=	Indicates the child could <u>burn</u> themselves
			Hazard Management
		0=	No action or "don't know"
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what's listed in 3 and 4
		3=	Refers to making sure it's turned off or not hot
		4=	Refers to making sure child stays away from it
	Kettle		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to it being hot

		3=	Indicates the child could <u>burn</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it themselves
		4=	Refers to asking an adult to move it
	Stovetop		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to it being hot
		3=	Indicates the child could <u>burn</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to making sure it’s turned off/not hot
		4=	Refers to making sure the child stays away from it
P15	Toys		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child running through the hall or tripping
		3=	Indicates the child could <u>fall</u>
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4

		3=	Refers to getting child to stay away from the area OR pushing toys to the side
		4=	Refers to moving/cleaning up the toys
P16	Candles		Risk Explanation
		0=	Anything that is not safety related (starting a fire, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Explicitly refers to them being hot/having flames
		3=	Indicates the child could <u>burn</u> themselves
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving the candles OR blowing them out
		4=	Refers to moving the candles AND blowing them out
P17	Table/chair		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to the chair slipping out
		3=	Indicates the child could <u>fall</u>
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to getting the item/banana for the child
		4=	Refers to making sure the child stays away/doesn’t climb the furniture
P18	Outlet		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3

		2=	Explicitly refers to it being hot
		3=	Refers to possibility of shock/electrocution/burn
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to putting a cover on the outlet
		4=	Refers to keeping child away from the outlet
P19	Medicine		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Indicates child could get sick/die if they eat it or put it in their mouth
		3=	Indicates the child could <u>poison</u> themselves or that it’s poisonous
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than what’s listed in 3 and 4
		3=	Refers to moving it
		4=	Refers to moving it somewhere high that the child can’t reach
	Buttons		Risk Explanation
		0=	Anything that is not safety related (germs, making a mess, etc) or is unclear (e.g., drinking the water)
		1=	Mentions something safety related that is a legitimate issue (e.g., knife is sharp) but explanation is not what is listed under 2 and 3
		2=	Refers to child putting them in their mouth/eating them
		3=	Indicates the child could <u>choke</u>
			Hazard Management
		0=	No action or “don’t know”
		1=	Anything else that does not apply to it being a safety issue (germs, making a mess)
		2=	Refers to a hazard management strategy that could work (e.g., blocking the hazard or covering it up) but is something other than

			what's listed in 3 and 4
		3=	Refers to moving them
		4=	Refers to moving them somewhere high/where child can't reach

Appendix C

Module 1

Practice exercise 1

Frame 1: “Hi there! My name is Cautious Kitty. It’s very nice to meet you. Before we get started, I want to show you a video so you get an idea of the kinds of things we’re going to be learning about. Here it is.”

Frame 2: Video: <http://www.youtube.com/watch?v=NiyPmXI7QPc>

Frame 3: “Wow! Can you believe that? A little kid climbing a refrigerator is NOT SAFE AT ALL! This video shows how curious young kids are and how much they like to explore. It can make them do things that are dangerous! Something else you may have noticed in the video is that there were older people around who should have been supervising this little kid. A good supervisor would NEVER let a young kid do something that is dangerous! Today you are going to learn how young kids act that can put them at risk for getting hurt, and also what your job is as a supervisor to help keep them safe!”

Lesson

Part 1: Introduction to Module

1. Hi! I’m Cautious Kitty, and over the next few weeks we are going to be learning about how to be a “STAR Sibling Supervisor”! Sibling supervisors are kids like you who sometimes keep an eye on their younger brothers or sisters when their parents are busy doing other things. This is a big job, because younger brothers and sisters can get hurt pretty easily! I’m going to help you learn how you can be a sibling supervisor who is good at keeping kids safe! [picture of Cautious Kitty]
2. Today I’m going to teach you about how injuries can happen to young kids and then you can figure out how their age makes them more likely to get hurt in certain ways. This is important information to know if you are going to be supervising a younger sibling. [picture of Cautious Kitty]

Part 2: The Problem of Childhood Injury

3. In order to be a good supervisor, you have to know a bit about how children get hurt and how you can stop this from happening! [picture of Cautious Kitty]
4. There are different kinds of injuries. These include: [picture of Cautious Kitty]
5. Falls. [picture of FALL INJURY]
6. Burns. [picture of BURN INJURY]
7. Cuts [picture of CUT INJURY]

8. Poisoning [picture of POISONING INJURY]
9. Drowning [picture of DROWNING INJURY]
10. Suffocation/Strangling/Choking [picture of CHOKING INJURY]
11. There are so many ways that young children can get hurt! If you are going to be supervising them, it is important for you to know about how you can stop these injuries from happening. [picture of Cautious Kitty]
12. Sibling supervisors need to be good “mind readers”! This means you should always be thinking about what your younger sibling might be thinking about doing and whether it could be dangerous. For example, if your younger sibling is looking at their favourite toy on the bookcase, they might decide to try and climb up to get it, which could be really dangerous. Keeping an eye on what your sibling is doing can help you figure out what they’re thinking of doing.[picture of Cautious Kitty]
13. Sibling supervisors also need to be good at “predicting the future”. This means you should always be thinking about what could happen when you’re supervising your younger sibling. For example, if they are standing on the couch, then you should keep in mind that they could fall off of the couch! [picture of Cautious Kitty]
14. It is very important that sibling supervisors be Safety Detectives. This means finding and dealing with hazards in your home. Hazards are objects that can hurt your younger sibling! You also need to be an excellent Safety Officer, which means you know how to make sure your younger sibling is doing things that are safe! You’ll learn about how to be a good Safety Detective and Safety Officer over the next few weeks! [picture of Cautious Kitty]
15. Now I want to tell you a bit about injuries that can happen to young children. A lot of kids think that injuries to young children aren’t very serious, but they can be! Did you know that about 400 children die each year in Canada from injuries? It’s the biggest reason children die every year. [Injury Picture A].
16. And, even if a child doesn’t die from an injury, it can affect them for the rest of their lives. So doing all you can to keep young children safe is important! [picture of WHEELCHAIR].
17. A lot of sibling supervisors might think that they can’t do anything to stop their younger siblings from getting injured, but that isn’t true! The people who supervise young children play an important role in helping to keep them safe, and I’m going to help you learn how you can keep your younger sibling safe when you’re supervising them. They are counting on you to help keep them safe! [picture of SIBLINGS]

Part 3: Child Development and Injury Risk

18. Now let's learn about how children can get hurt at different ages. There are things about young kids that make them more likely to get hurt in certain ways. [picture of Cautious Kitty]
19. Young kids usually think that they can do more than they really can! And they don't know much about what kinds of hazards can hurt them. This means that they might try to do things that they can't really do safely, so it's your job to know what they can and cannot do safely! [picture of CHILD CLIMBING CRIB]
20. Young kids are very curious and love to explore! But sometimes they explore in places that aren't very safe. Keep in mind that they will try to explore everything! [picture of CHILD IN CUPBOARD]
21. Kids do things that you don't expect, and they act quickly! One minute they might be doing something safe and then they quickly change activities! You need to keep a close watch on them all the time. [picture of Cautious Kitty]
22. One way that many young children explore is by putting things into their mouth. This can be dangerous because if they put something too small in their mouth they could choke! [picture of CHILD EXPLORING WITH MOUTH]
23. Young kids do not really understand that one thing can cause another thing to happen. This means they might not know things like "If I touch the stove it will burn me." [CHILD TOUCHING STOVE]
24. Young kids can walk and run pretty well, but things they aren't so good at stopping and turning when they're running. They can easily fall and get hurt if they try to do this! That's why it's a good idea not to let your younger sibling run around when you're supervising them. [picture of FALL INJURY 2]
25. Young kids are still getting their balance and aren't very coordinated. This makes things like climbing and jumping dangerous for them! They shouldn't be allowed to do these things [picture of CHILD CLIMBING DRESSER]
26. Young children are still learning how to do things with their hands. This means that when they are using scissors or a knife they can cut themselves. [picture of SCISSORS AND KNIFE]
27. When young kids are 6-11 months old, they will start moving around on their own. This is when they will start exploring things. They are most likely to fall down the stairs at 6-11 months of age because they can't walk down them safely yet and don't know to keep away from the stairs! [picture of CHILD CRAWLING ON STAIRS]

28. Children learn to climb around 15-17 months. This is the age when they are most likely to fall while climbing furniture or other objects [picture of CHILD CLIMBING BOOKSHELF]
29. Once kids can move around on their own, put their hand to their mouth, and pick things up, they are likely to be poisoned or choke because they start picking things up and putting them in their mouths! This usually happens when they are 18-35 months old. [picture of CHILD EXPLORING WITH MOUTH]
30. So as children get older and their physical skills, like climbing and picking things up, get better, they can get into more and more things and get hurt in more and more ways. [Picture of Cautious Kitty]

Part 4: Setting a Good Example

31. The last thing I want to teach you about today is how to set a good example for your younger sibling! This is a very important thing to know! [picture of cautious kitty]
32. Young kids watch what other people are doing to learn how they should behave, and since young kids want to be like their big brothers and sisters, it means they watch YOU and copy things that you do! Because you're older and bigger you can do many things safely that would not be safe for them to do but they'll copy it anyway - even if those things are dangerous for them! [picture of SIBS RISKY TOGETHER]
33. If you do something in front of your younger sibling that could be dangerous for them, you need to make sure you do something to stop them from doing it because you don't want them to copy you and get hurt. [picture of WATCHING RISK]
34. The BEST thing you can do is to just not do risky things at all! This way they won't have anything to copy! This means you should only be doing safe things that would be okay for them to copy. [picture of PLAYING TOGETHER]
35. You could also just hide the behaviour from your younger sibling. This means doing it when they aren't watching. BUT they might still see you doing it, so this an okay idea, but not the best! [picture of Cautious kitty]
36. You could also do the behaviour in front of your younger sibling, but tell them that it isn't safe for them to do because they are younger. The problem with this is that it might not work – they could still copy you! So the BEST idea is to not do these things at all! [Picture of Cautious kitty]

Practice Exercise 2

Frame 1: I'm going to show you some things older kids sometimes do. I want to ask you some questions about each one. I'm only going to ask you about three behaviours, so this won't take long. So: let's find the ones you do and then we'll talk about them.

The program will randomly select three of these]:

- 1) Jumping on the bed
- 2) Sitting on the counter or table
- 3) Touching an electrical outlet
- 4) Playing with a lighter or matches
- 5) Taking medicine or vitamins on your own
- 6) Using a sharp knife
- 7) Licking food off a knife (like cake frosting)
- 8) Jabbing a fork into a toaster to get food out
- 9) Putting things into your mouth, like a paperclip or pen lid
- 10) Filling the bathtub yourself
- 11) Climbing a bookcase or chair to reach something up high

Frame2a: “_____” (text + audio option) (*data capture*)

Frame2b: “Have you ever done this in front of your younger sibling?” → child selects YES or NO (*data capture*)

- IF they choose NO, they go to the next item (Frame 3a)
- IF they choose YES go to Frame 2c)

Frame 2c: “It could be dangerous for your younger sibling if they tried to do this! Which of these is the best way to make sure your younger sibling doesn’t copy you?” → child selects a) stop doing it, b) don’t do it in front of them, c) tell them not to do it (*data capture*)

- IF they choose a) then they see a frame that says: “Good job! Stopping the behaviour is the best way to make sure your younger sibling doesn’t copy it!”
- IF they choose b) then they see a frame that says: “Hiding the behaviour is an okay idea, but they might see you! The best idea is to stop doing the behaviour.”
- IF they choose c) then they see a frame that says: “Telling your younger sibling not to do it probably won’t work very well. The best idea is to stop doing the behaviour.”

Frame 3a: “_____” (text + audio option) (*data capture*)

Frame3b: “Have you ever done this in front of your younger sibling?” → child selects YES or NO (*data capture*)

- IF they choose NO, they go to the next item (Frame 4a)
- IF they choose YES go to Frame 3c

Frame 3c: “It could be dangerous for your younger sibling if they tried to do this! Which of these is the best way to make sure your younger sibling doesn’t copy you?” → child selects a) stop doing it, b) don’t do it in front of them, c) tell them not to do it (*data capture*)

- IF they choose a) then they see a frame that says: “Good job! Stopping the behaviour is the best way to make sure your younger sibling doesn’t copy it!”
- IF they choose b) then they see a frame that says: “Hiding the behaviour is an okay idea, but they might see you! The best idea is to stop doing the behaviour.”
- IF they choose c) then they see a frame that says: “Telling your younger sibling not to do it probably won’t work very well. The best idea is to stop doing the behaviour.”

Frame 4a: “_____” (text + audio option) (*data capture*)

Frame4b: “Have you ever done this in front of your younger sibling?” → child selects YES or NO (*data capture*)

- IF they choose NO, they go to frame 5
- IF they choose YES go to Frame 4c

Frame 4c: “It could be dangerous for your younger sibling if they tried to do this! Which of these is the best way to make sure your younger sibling doesn’t copy you?” → child selects a) stop doing it, b) don’t do it in front of them, c) tell them not to do it (*data capture*)

- IF they choose a) then they see a frame that says: “Good job! Stopping the behaviour is the best way to make sure your younger sibling doesn’t copy it!”
- IF they choose b) then they see a frame that says: “Hiding the behaviour is an okay idea, but they might see you! The best idea is to stop doing the behaviour.”
- IF they choose c) then they see a frame that says: “Telling your younger sibling not to do it probably won’t work very well. The best idea is to stop doing the behaviour.”

Frame 5: “Good work! You’re all finished!”

Module Review

Frame 1: There are a few really important things to remember about what you learned today!

Frame 2: To remember what you need to know about YOU as a supervisor, just remember the word MAP

M = Mind reader

A = Act like a Safety Detective and Safety Officer

P = Predict the future

Frame 3: To remember what you need to know about your SIBLING, just remember the word CHIEF

C = Curious

H = Hazard finder

I = Impulsive

E = Explorer

F = Fast

Module Quiz

See Appendix A

Quiz Feedback

If child passed quiz:

Frame 1: “Congratulations! You finished the lesson!”

Frame 2: Review of the incorrect questions where the correct answers are shown

Frame 3: “Now you get a prize! It will be mailed to you this week!”

If child did not pass quiz:

Frame 1: “You were so close! Try going through the module again and retaking the quiz! A prize is waiting for you once you get a score of 80% on the quiz!”

Module 2

Lesson

Part 1: Introduction to Module

1. Hi! I'm Cautious Kitty! Before we get started on today's lesson I want to review the most important things that you've already learned! [picture of Cautious Kitty]
2. To remember what you need to know about YOU as a supervisor, just remember the word MAP
M = Mind reader
A = Act like a Safety Detective and Safety Officer
P = Predict the future
3. To remember what you need to know about your SIBLING that makes them at risk for getting injured, just remember the word CHIEF
C = Curious
H = Hazard finder
I = Impulsive
E = Explorer
F = Fast
4. Today I'm going to teach you how to be a safety detective in your home! [picture of Cautious Kitty]
5. An important part of a safety detective's job is to look for and deal with hazards in their house. Hazards are things that can hurt young children, so looking for them is a really important job!! [Picture of cautious kitty]

Part 2: Recognizing Hazards

6. In order to be a good safety detective, you have to know what kinds of things are hazards! I bet you already know what some of these things are. I want to teach you about some of the hazards that are in most kids' homes! [picture of cautious kitty]
7. Different hazards can hurt children in different ways. Hazards can cause: falls, burns, cuts, poisoning, drowning, and suffocation/choking/strangling. These are pretty serious injuries! [GRAPHIC PICTURE B and GRAPHIC PICTURE D]
8. Let's learn about hazards that can cause falls first. The first one is the stairs in your house! Young children can fall down stairs and really get hurt because the stairs are hard

and when they hit the floor at the bottom – wow that can really hurt! [picture of STAIRS].

9. Stairs are even more dangerous if there is a lot of stuff on them because then they can trip and fall! [picture of CLUTTERED STAIRS]
10. The next fall hazard is a table. If young children sit or climb on a table, they can fall and hurt themselves OR the table might even tip over and fall on them. [picture of CHILD SITTING ON TABLE]
11. The last fall hazard I want to teach you about is furniture that young children can climb and jump on. Lots of kids like jumping on the couch or bed, but it's very dangerous because if they fall off the floor is very hard and they can even break their arm when they hit the hard floor! [picture of COUCH]
12. AND- furniture and things children try to climb up on can fall ON them, which can really hurt. If a TV or a bookcase were to fall on a young child they would get crushed and probably break several bones. [CHILD CLIMBING DRESSER]
13. Now let's learn about burns. There are lots and lots of things in most people's houses that can cause burns. [Cautious kitty]
14. The first is pots on the stove. Young children might try to touch them and get burned! You might think young children would know not to touch a hot pot but they don't fully understand about hot things so it's best to watch them and keep them away from these things.[picture of POT ON STOVE]
15. The next burn hazard is hot drinks! Young children can touch hot drinks and these can tip over and spill on them, giving them a bad burn! Have you ever put your hand in water that's too hot? Well it hurts and stings for a long time! Young children need to stay away from hot liquids that they might spill on themselves. [picture of HOT DRINK WITH STEAM]
16. Electrical outlets can cause burns too. If young children stick their fingers in outlets, it can burn them because outlets are full of electricity which is really hot. So make sure your younger sibling stays away from electrical outlets. [picture of OUTLET]
17. Lighters and matches can cause burns too! Playing around with these can cause flames which will seriously burn your younger sibling. You don't want to let your younger sibling touch these things! [picture of LIGHTER/MATCHES]
18. Stoves and grills can get really hot and cause burns! Your younger sibling might not understand that these things get really hot and that this means they can burn them. Make sure they stay away! [picture of STOVE AND GRILL]

19. Another thing that can cause burns is a coffee pot! These can get really hot so if your younger sibling touches one it can burn them badly! [picture of COFFEE POT]
20. Candles are another burn hazard. The flame on a candle can cause a bad burn! Young children might be interested in the flame and try to touch it because they don't know that it will burn them! [picture of CANDLE WITH FLAME]
21. The last burn hazard I want to teach you about is the fireplace. A young child can get a bad burn if they go near the fireplace and tripped or touched something close to it that was very hot. Sometimes even if there is not any fire going in the fireplace it can still be hot from the last fire so if your younger sibling goes near it they are in danger of getting a serious burn. [picture of FIREPLACE].
22. Now let's learn about hazards that can cause cuts. [picture of Cautious Kitty]
23. Knives can cause serious cuts. They are very sharp and young children aren't good at using their hands yet so they can get cut by sharp things easily. Don't let them touch knives. [picture of KNIFE]
24. Scissors can cause cuts too because the edges are very sharp and they are often pointy at the tip. Since young kids aren't good with their hands, even using scissors for cutting to do crafts is dangerous! You shouldn't let them touch or use scissors. [picture of SCISSORS]
25. A stapler can cause cuts too. The staples are VERY sharp and if your younger sibling is playing with or trying to use a stapler they could easily get their finger caught and get a really bad cut. [picture of STAPLER]
26. Cuts can also be caused by things that are breakable, like things made of glass. Things like dishes or vases can break and the pieces can cut young children so don't let them near things made of glass. [picture of DISHES]
27. Now let's talk about poisoning hazards. These are things that can really harm your younger sibling if they get into them. [picture of cautious kitty]
28. The first poison hazard is medicine. Young children are only supposed to take a small and certain amount of medicine, and too much can poison them and they could get very sick or even die! Make sure you don't let your younger sibling touch or take medicine. [picture of MEDICINE]
29. Cleaners that are used to clean around the house are poisonous. Your younger sibling might not know that cleaners are poisonous and if they get them on their hands it might get into their mouth and can make them seriously sick. Be sure you keep them away from cleaners. [picture of CLEANING BOTTLES]

30. Paint can be poisonous but your younger sibling may not know this. If they are using paint to do crafts or are playing with old cans of paint, they might get it into their mouth and it can poison them. Don't let them use paint. [picture of PAINT]
31. Did you know that vitamins can cause poisoning? Just like medicine, young children should only take small and certain amounts of vitamins, otherwise it can poison them. They will either get very sick or die. Make sure they aren't going near any vitamins. [VITAMINS]
32. Hairspray is poisonous too! So is perfume. These things might look harmless and smell good, but they can easily get into your younger sibling's mouth and poison them. [picture of HAIRSPRAY AND PERFUME]
33. Alcohol is poisonous. Kids are too small to drink alcohol without getting very sick or dying! Your younger sibling probably doesn't know this so don't let them near any bottles of alcohol. [picture of ALCOHOL]
34. Glue and white-out are often found in kids' homes but they can cause poisoning! Young kids are used to playing with these things when they are doing arts and crafts, but they don't know that they are poisonous and might get them into their mouth. So make sure you don't let your younger sibling use glue or white-out. [picture of GLUE AND WHITE-OUT]
35. Now let's learn about hazards that can cause drowning. Anything that has water in it can be a drowning hazard. The first one I want to tell you about is the bathtub. If a young child tries to fill up a bathtub by themselves, they could easily fall in because their balance isn't very good yet. If they hit their head or their face lands in the water they might drown. You should never let your younger sibling fill a tub OR let them near a tub that has water in it. [picture of BATHTUB]
36. Sinks are also drowning hazards. If a sink has water in it young children can easily lose balance and their face can fall forward into the sink. This can cause drowning and death. Don't let your sibling fill up the sink with water or play near a sink that has water in it. [picture of SINK]
37. The toilet has water in it, so young children can drown in it. Just like with the sink and bathtub, if they fall forward into the toilet bowl they could die from drowning. Don't let them play near the toilet. [picture of TOILET]
38. The last drowning hazard is the fishtank. Some young children think it's fun to feed the fish. But this means that they will be over the water to put the food in and if they fall forward their face can go into the water and they can drown. [picture of FISHTANK]
39. Now, the last kind of hazard that I want to tell you about are hazards that can cause choking, suffocation, or strangling. Pretty serious stuff. The first hazard in this group are small toys like Lego. If something is small enough to fit in a toilet paper roll young

children can choke on them if they put them in their mouth because it's small enough to fit down their windpipe but will probably get caught and make it impossible for them to breathe! [picture of TOILET ROLL]

40. Plastic bags are dangerous for young children too. If the child fools around and puts them on their head like a mask or to hide their face, they can get block all the air from going into their mouth and nose and make it impossible for them to breathe. They can suffocate from this. NEVER let your younger sibling play with plastic bags! [picture of PLASTIC BAG]
41. Electrical cords and window blind cords are things that are in many houses, but young children could get these things wrapped around their neck which cuts off air from getting into their lungs. This will cause them to be strangled. Make sure they don't go anywhere near electrical cords or blinds. [picture of ELECTRICAL CORD]
42. Same thing for yarn and string! These could strangle young children if they get wrapped around their neck because it keeps the air from getting into their lungs, which they need to stay alive. [picture of YARN OR STRING]
43. Finally, rubber bands/elastics can cause strangling or choking too! Even the ones that are used in people's hair can be dangerous. If a young child puts an elastic around their neck it can cut off the air and strangle them. If they put one in their mouth, it can get stuck in their throat and choke them. Just keep them away from rubber bands and elastics. [picture of RUBBER BANDS]

Part 3: Searching for Hazards

44. Let's learn how to search for hazards in your house! When you are looking after your younger sibling in a room at home, you should always walk around the room and look for hazards. Try to think like a young child might think when you look for hazards. [picture of cautious kitty]
45. Many parents crawl around on the floor to look for hazards their young child might see that the tall parent doesn't see. You should also get down on the floor and be a Safety Detective! Look for hazards because young children spend a lot of time on the floor! [picture of cautious kitty]
46. You should check out anything that you think your younger sibling might play with to see if it's a hazard. For example, I just found this ball on the floor. I need to decide whether I think it's a hazard or not, because my younger brother will probably want to play with it! [picture of BALL]

Part 4: Managing Hazards

47. Now, let's learn about what you should do if you find a hazard! If you want to be the world's best safety detective, you need to do something about the hazards you find so that the room is a safe place for your younger sibling! [picture of cautious kitty]
48. The very best thing to do when you find a hazard is to take it out of the room, or put it in a place where your younger sibling can't reach it. So if it's safe for you to touch the hazard, then you should take it out of the room or put it up high or in a hidden place like a drawer or cupboard. [picture of HAZARD UP HIGH]
49. But sometimes, it's not even safe for you to touch a hazard, because you might get hurt. For example, if you found a knife, you shouldn't move it yourself. You should ask an adult to move it for you! [picture of ADULT WITH KNIFE] So sometimes going to get help is the best strategy for dealing with hazards.
50. Sometimes you can't move a hazard out of the room, like this couch. My little brother could jump on the couch and fall off and get really hurt! But I can't really move the couch out of the room, so the best thing I can do is keep a very close eye on my little brother to make sure he doesn't climb up on it! AND to go get my parent if he does climb up on it and starts jumping. [picture of COUCH]
51. We know that there will always be hazards that exist in your home and remember from the last lesson that young kids are CHIEF:
C = Curious
H = Hazard finder
I = Impulsive
E = Explorer
F = Fast
52. This means that you need to remember your job as supervisor! MAP:
M = Mind reader
A = Act like a Safety Detective and Safety Officer
P = Predict the future
53. Now sometimes you might find something, and you won't be sure whether it's a hazard or not. If you're even unsure about whether something is dangerous, you should just think of it as a hazard and try to get it out of the room! Better to be SAFE than SORRY !
[picture of cautious kitty]
54. Now, here's the most important thing to remember when you are looking for hazards. Even if you're sure that you got rid of all the hazards in a room, it's still very important to keep a very close watch on your younger sibling when they are in the room. Young children do UNEXPECTED things sometime so you need to watch them ALL the time. And remember that you can always ask your parents or another adult that you trust for help! [picture of cautious kitty]

Practice Exercise 1

Frame 1: “Now there is a game that you are going to play that will help you practice finding hazards! Here it is”

Game: www.homesafetygame.com

Practice Exercise 2

Frame 1: “I have another game for you to play now! This one is going to be fun too and it’s going to make you an even better Safety Detective!”

Game: www.belfastcity.gov.uk/hazardhunter/hazardhunter/default.html

Practice Exercise 3

Frame 1: “I’m going to show you a list of hazards that might be in your home. I want you to go around your home for each one and if you think it’s something in that’s in your house, check it off on the list.”

Frame 2: Presents the list of hazards:

- Stairs
- Tables/counters
- Pots on stove
- Hot drinks/food
- Electrical outlets
- Lighters or Matches
- Stove
- Coffee pot
- Knives
- Scissors
- Stapler
- Medicine
- Cleaners
- Paint
- Vitamins
- Hair spray
- Perfume
- Alcohol
- Glue
- White-out
- Toilets
- Marbles or Lego
- Plastic bags
- Electrical cords
- Rubber bands

Practice Exercise 4

Frame 1: “I’m going to show some of the hazards from the list For each one I’m going to ask you a question that I want you to answer.”

From the list the above program will randomly select three of these.

Frame2a: “_____” (names item)

Frame 2b: “Which of these is the best way to deal with this hazard?” → child selects a) Take it out of the room or put it in a place your younger sibling can’t reach it. b) Ask an adult to move it for you or c) Keep a very close eye on your younger sibling to make sure they don’t go near it

- IF they choose the correct response they see a frame that says: “Good job! That’s the best way to deal with this hazard.”
- IF they do not choose the correct response they see a frame that says: “Nice try but that’s not the best way to deal with this hazard. The correct answer was _____”.

Frame2c: “Is this hazard one that you found in your house?” → child selects YES or NO

- IF they choose NO, they go to the next hazard (Frame 3a)
- IF they choose YES go to Frame 2d)

Frame 2d: “Since this hazard was in your house, you should do something about it. The best way to deal with this hazard was the answer above so this is what you should do!”

Frame3a: “_____”

Frame 3b: “Which of these is the best way to deal with this hazard?” → child selects a) b) or c)

- IF they choose the correct response they see a frame that says: “Good job! That’s the best way to deal with this hazard.”
- IF they do not choose the correct response they see a frame that says: “Nice try but that’s not the best way to deal with this hazard. The correct answer was _____”.

Frame3c: “Is this hazard one that you found in your house?” → child selects YES or NO

- IF they choose NO, they go to the next hazard (Frame 4a)
- IF they choose YES go to Frame 3d)

Frame 3d: “Since this hazard was in your house, you should do something about it. The best way to deal with this hazard was the answer above so this is what you should do!”

Frame 4a: “_____”

Frame 4b: “Which of these is the best way to deal with this hazard?” → child selects a) b) or c)

- IF they choose the correct response they see a frame that says: “Good job! That’s the best way to deal with this hazard.”
- IF they do not choose the correct response they see a frame that says: “Nice try but that’s not the best way to deal with this hazard. The correct answer was _____”.

Frame4c: “Is this hazard one that you found in your house?” → child selects YES or NO

- IF they choose NO, they go to the Module Review
- IF they choose YES go to Frame 4d)

Frame 4d: “Since this hazard was in your house, you should do something about it. The best way to deal with this hazard was the answer above so this is what you should do!”

Module Review

Frame 1: There are a few really important things to remember about what you learned today!

Frame 2: To remember what you need to know about how to search for hazards, just remember the word WAG

W = Walk around the room and look

A = Anything your younger sibling might play with should be checked

G = Get down on the floor and look

Frame 3: To remember what you need to know about how to manage hazards that you find, just remember the word WAM

W = Watch your sibling closely if you can't move the hazard

A = Ask an adult to help if it isn't safe for you to move

M = Move it yourself IF it's safe for you to touch it

Module Quiz

See Appendix A

Quiz Feedback

If child passed quiz:

Frame 1: “Congratulations! You finished the lesson!”

Frame 2: Review of the incorrect questions where the correct answers are shown

Frame 3: “Now you get a prize! It will be mailed to you this week!”

If child did not pass quiz:

Frame 1: “You were so close! Try going through the module again and retaking the quiz! A prize is waiting for you once you get a score of 80% on the quiz!”

Module 3

Part 1: Introduction to Module

1. Hi! Cautious Kitty here! Nice to see you again! Before we get started on today's lesson I want to review the most important things that you've already learned! [picture of Cautious Kitty]

2. To remember what you need to know about YOU as a supervisor, just remember the word MAP
 - M = Mind reader
 - A = Act like a Safety Detective and Safety Officer
 - P = Predict the future

3. To remember what you need to know about your SIBLING, just remember the word CHIEF
 - C = Curious
 - H = Hazard finder
 - I = Impulsive
 - E = Explorer
 - F = Fast

4. To remember what you need to know about how to search for hazards, just remember the word WAG
 - W = Walk around the room and look
 - A = Anything your younger sibling might play with should be checked
 - G = Get down on the floor and look

5. To remember what you need to know about how to manage hazards that you find, just remember the word WAM
 - W = Watch your sibling closely if you can't move the hazard
 - A = Ask an adult to help if it isn't safe for you to move
 - M = Move it yourself IF it's safe for you to touch it

6. Today we're going to be learning about things you should do when you're supervising your younger sibling! By the end of this module, you'll know how to be a good supervisor! [picture of Cautious Kitty]

Part 2: Proximity and Attention

7. Did you know that even if you are the world's best Safety Detective and you find all the hazards in a room, kids can still get hurt? Remember that little kids are CHIEF:
 - C = Curious
 - H = Hazard finder
 - I = Impulsive
 - E = Explorer
 - F = Fast

8. Remember that you need to be MAP:
 - M = Mind reader
 - A = Act like a Safety Detective and Safety Officer
 - P = Predict the future

9. But little kids can still get hurt. The BEST way to keep your younger sibling safe is to watch them closely and stay very close to them. [picture of Cautious Kitty]
10. How close should you stay to your younger sibling? Well if you stretch your arms out you should always be able to touch them! This way you know you're close enough to help if something goes wrong! [picture of SIBS CLOSE TO EACH OTHER]
11. You should also keep your eyes on your younger sibling at all times if you can! You should always be watching what they're doing. [picture of OLDER SIB WATCHING]
12. A good way to make sure you are close enough to your younger sibling and can watch them all the time is to join in on whatever activity they're doing. If they're playing with a toy, play with them! [picture of SIBS ACTIVITY TOGETHER]
13. If you can't play with your younger sibling or have something you need to do on your own, you still need to close and watch them as much as you can [picture of SIBS DIFFERENT ACTIVITIES]
14. If you aren't playing with your younger sibling, you need to look at them at least once every minute so you know what they're up to! [picture of CHILD WITH BLOCKS]
15. If you aren't playing with your younger sibling you need to be doing your own activity as close to them as you can. Right beside them is best! [picture of SIBS DIFFERENT ACTIVITIES]

Part 3: Dealing with Risk-Taking

16. Now let's learn about what to do if you see your younger sibling doing something that could be dangerous! I'm going to teach you how to be a good safety officer! [picture of Cautious Kitty]
17. If you see your younger sibling going near or touching a hazard, you need to stop them so that they don't get hurt! [picture of CHILD WITH HAZARD].
18. The best thing to do is to try to distract your younger sibling by trying to get them to do something that isn't dangerous! For example, you could suggest playing with a toy or watching a movie. [PLAYING TOGETHER 2]
19. If this doesn't work and they are still near a hazard, you need to ask them not to touch it and explain that it could hurt them. The best explanations are short and simple, for example "Don't touch that, it could burn you". [picture of EXPLAINING]
20. If this doesn't work and your younger sibling still isn't listening, there are steps you can follow. You'll learn about these steps in the next module! [picture of Cautious Kitty]

Practice Exercise

Frame 1: “Now I’m going to show you a video of a young kid doing a bunch of different things at home . I want you to pretend this kid is your younger sibling and that you are supervising them. Any time you see the kid doing something that could be dangerous that you would want to stop your younger sibling from doing, you need to press the space button. Lots of things you’ll see are NOT dangerous so only press the button when you’re sure the child is doing something they shouldn’t do because it’s dangerous.”

Video (12-15 minutes in length) will be shown and the children can press a key if they see the child in the video doing something dangerous.

IF the child correctly stops the video during a risk behaviour: “Good job! That’s not safe!”

IF the child does not stop the video during a risk behaviour: “You should have stopped that! It wasn’t safe!”

IF the child stops the video at a point that is not related to a risk behaviour: “Don’t get too protective! That was not dangerous.”

Module Review

Frame 1: There are a few really important things to remember about what you learned today!

Frame 2: To remember what you need to know about the BEST way to keep your younger sibling safe, remember CAP:

C = Continuous
A = Attention
P = Proximity

Frame 3: To remember what you need to know about what to do if your younger sibling is doing something unsafe, remember RAP

R = Redirect them to another safer activity
A = Ask them not to touch and explain that it could hurt them
P = Play something safe with them instead

Module Quiz

See Appendix A.

Quiz Feedback

If child passed quiz:

Frame 1: “Congratulations! You finished the lesson!”

Frame 2: Review of the incorrect questions where the correct answers are shown

Frame 3: “Now you get a prize! It will be mailed to you this week!”

If child did not pass quiz:

Frame 1: “You were so close! Try going through the module again and retaking the quiz! A prize is waiting for you once you get a score of 80% on the quiz!”

Module 4

Lesson

Part 1: Introduction to Module

1. Hi! I'm glad you're back! This is our last lesson together!! Before we get started on today's lesson I want to review the most important things that you've already learned!
[picture of Cautious Kitty]
2. To remember what you need to know about YOU as a supervisor, just remember the word MAP
M = Mind reader
A = Act like a Safety Detective and Safety Officer
P = Predict the future
3. To remember what you need to know about your SIBLING, just remember the word CHIEF
C = Curious
H = Hazard finder
I = Impulsive
E = Explorer
F = Fast
4. To remember what you need to know about how to search for hazards, just remember the word WAG
W = Walk around the room and look
A = Anything your younger sibling might play with should be checked
G = Get down on the floor and look
5. To remember what you need to know about how to manage hazards that you find, just remember the word WAM
W = Watch your sibling closely if you can't move the hazard
A = Ask an adult to help if it isn't safe for you to move
M = Move it yourself IF it's safe for you to touch it
6. To remember what you need to know about the BEST way to keep your younger sibling safe, remember CAP:
C = Continuous
A = Attention
P = Proximity

7. To remember what you need to know about what to do if your younger sibling is doing something unsafe, remember RAP
 - R = Redirect them to another activity
 - A = Ask them not to touch and explain that it could hurt them
 - P = Play something safe with them instead
8. Today I want to teach you about what you should do if your younger sibling is doing something dangerous and won't listen to you when you try to get them to stop! [picture of Cautious Kitty waving]

Part 2: Dealing with Noncompliance

9. Sometimes it can be hard to get your younger sibling to listen to you, even if you're asking them nicely to do something that will help keep them safe! Luckily there are some steps you can follow if your younger sibling is doing something dangerous and won't stop when you ask. [picture of Cautious Kitty]
10. Step 1: Explain why it isn't safe for them to be doing what they're doing, but keep it short and simple. For example, "That could burn you". [picture of CHILD TOUCHING STOVE]
11. Step 2: Redirect them to a safer activity. For example, you could ask them if they want to read a book. Sounding excited and making the other activity sound like a lot of fun can often encourage them to go do it. [picture of BOOK READING]
12. Step 3: Move the hazard or take it away from them if it's safe for you to do so [picture of CHILD WITH HAZARD]
13. Step 4: Alert an adult to what's happening! If your younger sibling still isn't listening, go and get or call a parent to help! [picture of SIBS WITH PARENT]
14. Now here are a few things to remember when you're dealing with a younger sibling who won't listen! [picture of Cautious Kitty]
15. Don't get angry or upset! Always make sure you stay calm, even though your younger sibling isn't listening to you. [picture of NO YELLING]
16. Never hit, or yell at your sibling for not listening. Treat them the way you want to be treated and they are more likely to listen to you! [picture of CHILD CRYING]
17. When your younger sibling does listen to you, make sure you thank them for doing so and give them lots of praise. This will make them want to listen to you next time! [picture of SIBLINGS]

18. Finally, keep in mind that if your younger sibling is not listening after you try all of the steps, you need to get a parent to help! Safety is the most important thing! [picture of Cautious Kitty]

Practice Exercise 1

Frame 1: “Now I’m going to show you some video clips of supervisors responding when young kids don’t listen to them. Some of these supervisors do a good job at dealing with the kids not listening and others don’t do a very good job at all. Watch closely.”

Shown approximately five video clips, each followed by an explanation of why the response was or was not a good response to noncompliance.

Clip 1: Did you notice in this video that the mom was not very specific about what she wanted the child to do? She just said “clean the kitchen” which is not very specific. Now watch this one!

Clip 2: In this video, the mom was much more specific. She told the child to “empty the trash and clear off the table.” She made it very clear what she wanted the child to do. This shows just how important it is to be really clear and specific when you tell your younger sibling what you want them to do or to not do.

Clip 3: In this video the mom told the child that it was nice to play with him when he was acting so nicely. This video shows how important it is for supervisors to make positive comments to young kids. When you are supervising, you should say positive things to your younger sibling so they know what you like about how they are acting. This means telling them how happy you are when they listen to something you tell them. It’s also important to pay attention to your younger sibling when they are being good – this is as important as catching them when they are behaving badly!

Clip 4: In this video, the dad had lots of positive things to say about the boy getting 9/10 correct. This shows something important – that no child is perfect but you don’t want to focus just on what they are not doing well. You can always find something nice to say to encourage them, even if they are behaving badly or not listening!

Practice Exercise 2

Frame 1: “Now I’m going to tell you about some different situations where your younger sibling might not listen to you, and ask you some questions.”

From a list of 4 items the program will randomly select 3:

- 1) Your younger sibling is jumping on the couch and won’t get down when you ask them to.
- 2) Your younger sibling picked up a knife and is fooling around with it. You asked them to put it down but they didn’t listen.
- 3) Your younger sibling is putting a small toy in their mouth and isn’t listening to you when you ask them to stop.
- 4) Your younger sibling is fooling around with cleaners under the sink and won’t stop even though you asked.

Frame2a: “_____” (text + audio option)

Frame2b: “Which of the following are the best steps to follow in this situation?” → child selects a) b) or c)

Frame 2c: Feedback either: i) Good job! OR ii) Not quite. The correct steps to take were _____.”

Frame 2d : “Which of these is the best thing to say to your younger sibling in this situation?” → child selects a) b) or c)

Frame 2e: Feedback either: i) Good job! OR ii) Not quite. The best thing to say was _____.”

Frame3a: “ _____ ” (text + audio option)

Frame3b: “Which of the following are the best steps to follow in this situation?” → child selects a) b) or c)

Frame 3c: Feedback either: i) Good job! OR ii) Not quite. The correct steps to take were _____.”

Frame3d : “Which of these is the best thing to say to your younger sibling in this situation?” → child selects a) b) or c)

Frame 3e: Feedback either: i) Good job! OR ii) Not quite. The best thing to say was _____.”

Possible Responses for Frames: 2b, 3b, 4b

- a) **Explain why what they’re doing isn’t safe. Then try redirecting them to a safer activity. Next move the hazard or take it away. Finally, alert an adult to what is happening.**
- b) Tell them that you are in charge and they have to listen. Next go and tell an adult that they aren’t listening.
- c) Tell them they are in trouble then go and tell an adult that they aren’t listening.

Possible responses for Frame [2,3,4]d for jumping on the bed:

- a) You aren’t allowed to jump on the couch
- b) **You could fall off and get hurt**
- c) I’ll tell on you if you don’t get down

Possible responses for Frame [2,3,4]d for fooling around with a knife:

- a) Put that down!
- b) Knives are dangerous and you aren’t allowed to touch them!
- c) **That could cut you.**

Possible responses for Frame [2,3,4]d putting small toy in mouth:

- a) **You could choke on that**
- b) That isn’t for putting in your mouth
- c) Don’t make me tell mom or dad

Possible responses for Frame [2,3,4]d for fooling around with cleaners

- a) Get out of that cupboard right now.
- b) You have to listen to me because I’m the supervisor
- c) **Those could make you very sick**

Module Review

Frame 1: There are a few really important things to remember about what you learned today!

Frame 2: To remember what you need to know about what to do if your younger sibling is not listening to you, just remember ERMA:

E = Explain why what they're doing isn't safe

R = Redirect them to a safer activity

M = Move the hazard or take it away

A = Alert and adult to what is happening

Module Quiz

See Appendix A.

Quiz Feedback

If child passed quiz:

Frame 1: "Congratulations! You finished the lesson!"

Frame 2: Review of the incorrect questions where the correct answers are shown

Frame 3: "Now you get a prize! It will be mailed to you this week!"

If child did not pass quiz:

Frame 1: "You were so close! Try going through the module again and retaking the quiz! A prize is waiting for you once you get a score of 80% on the quiz!"