

**Introduction:**

The purpose of this project was to design a series of lessons introducing food safety concepts and hand washing to children ages three to five, which is a group that is considered an 'at risk' population with food safety regards. There are other curriculum that reach this audience, but the intent of this one is to target stay-at-home mothers, whose children are not in preschool. The project goal is to teach the mother and child food safety concepts while simultaneously using hands on cooking techniques to teach those lessons. The lessons described in this report may be used with other audiences that could include, but are not limited to, stay at home fathers, grandparents with grandchildren, etc. The ultimate goal is to provide food safety lessons that enable the participants to learn more to maintain a safe home kitchen while including children in the kitchen activities. This opportunity provides a chance for the adult participant and child to learn about while working together on reaching food safety goals during food preparation.

Designing a program for families is a valuable way to teach life skills that are otherwise overlooked as kindergarten and early school grades are being encouraged to concentrate on tests focused on academic topics. A variety of skills that have been considered when developing this project include physical and motor development, cognitive development, communication and language development, as well as social development. A kinesthetic learning experience offers opportunities for families, parents and children, to build a knowledge base that could continue to last a lifetime. "Through play, children create new learning experiences, and these

self-created experiences enable them to acquire social, emotional, and intellectual skills they could not acquire in any other way.” (1)

In deciding on a project that tied in food safety with the learners, we decided to focus on an audience that might be considered an underserved population of stay at home mothers. Working with this audience provided the potential to reach clientele that may not currently be receiving benefits from the programs we offer through Virginia Cooperative Extension. These families engaged in the process of teaching their children making them a perfect fit for offering an option to get out of the home and learn in another environment, which is something many stay at home mothers are doing.

**Materials:**

Teaching food safety for younger children will ensure that more awareness and caution will be taken with the basic food safety skills that could prevent food borne illnesses. According to Iowa State Extension, “One of the best ways to teach food safety is to practice it-and to be vocal about why it is being practiced. This needs to begin as soon as the child is aware of and is taking an interest in food.”(2) Although many programs exist to educate the commercial food service industry, families are found still using practices that are not recommended by food safety experts in the home, which can potentially cause food borne illness.

One of the main focus topics of this project was to encourage hand washing among pre-school children during hands-on food experiences. According to the Center for Disease Control (CDC) “Regular hand washing, particularly before and after certain activities, is one of the best ways to remove germs, avoid getting sick, and prevent the spread of germs to others. (3) The

practice of hand washing seems simple; however, studies have shown over time that not everyone takes this practice seriously. According to the CDC (Mead et al., 1999) “failing to wash or insufficiently washing hands contributes to almost 50% of all foodborne illness outbreaks. Curtis and Cairncross (2003) performed a meta-analysis that suggests that hand washing with soap can reduce diarrheal disease risks by more than 40% and that hand washing interventions could save one million lives annually. (4)

Teaching skills to pre-school ages, with parents present, will reinforce their abilities to work toward the goal of cooking safely in a home or any other kitchen setting. The main goal of activities is to focus on the importance of hand washing throughout food preparation. Throughout each lesson, there are supplemental activities including games and recipes to engage participants to make smart food safety choices while also allowing participants to work in hands on environment that supports these techniques.

For this project a series of educational lessons were developed and targeted towards preschool age children (ranging from 3-5 years old) and their parents. The lessons that were developed focused primarily on hand washing since this is one of the cornerstones of safe food handling and preparation while learning an additional life skill, cooking. The lessons are designed to last approximately an hour, but as with each lesson time may vary depending on ages and developmental stages of children as well as parent participation.

#### Lesson 1: Hand washing Introduction and Activity (glitter germs) “Hand washing Helps”

In the hand washing lesson, there are varieties of suggestions for games, activities, and songs to be used to teach proper hand washing. The activity we have used is called “The glitter

activity.” For this activity give a few of the parents and children a small bit of any type of cooking oil(vegetable, canola, etc.) and glitter to represent germs that can be on hands. Make sure that a few parents and children’s hands stay clean. All parents and children (with or without glitter) are encouraged to shake hands, high five, touch objects, or other activities that will show the germ spreading process. After the activity, have each participant inspect their own hands to see if the ‘glitter germs’ spread to them throughout the activities. The discussion following includes talking about how germs can spread from hand to hand contact or from objects to hands, however germs are not always visible. The glitter gives a visual representation of the way those germs could be spreading. Following the activity proper hand washing discussion of techniques is introduced and everyone is shown the proper way to wash hands and how soap and water can wash away those germs. Using the songs “Row Row Row Your Boat” or “Happy Birthday” twice is introduced as a good measure of time to wash hands and also fits the ages targeted. The cooking activity using the “X & O Cookie recipe” to get the hands on portion of food activities can help with motor skills, important for this age group, while working with this hands on edible dough recipe. The cookie dough is safe to eat during play and can be shaped into whatever shapes or letters parents wish to make with the children. Then the cookies are baked for consumption. During this activity, reminding participants for the need of a clean surface would also be appropriate. Taking time to discuss a variety of cleaners would be a helpful educational tool to parents to introduce the best way to prepare a surface for food activities. (Additional resources for ideas are included in materials.)

Lesson 2: Cooking with Eggs safely “Easy Omelets”

Eggs are a focus of the second activity. We decided to focus on egg because there is a rise in our county with families having 'backyard' chickens. The publication *Proper Handling of Eggs: From Hen to Consumption* (5) is recommended to be used as a resource for this activity, especially with families that are raising their own hens. Egg safety to prevent Salmonella is done by proper handling and storage of the eggs before and after cracking. For this activity we introduce the importance of refrigerating eggs during storage, as well as properly cooking them. The food portion of this activity will include making omelets with children to give them an opportunity to stir, mix, and learn about stove safety. This is an activity that requires adult supervision and talking about a safe kitchen during this lesson. At the end of this activity, challenging the families to try making omelets at home with a variety of ingredients will give them an opportunity to consider using their new skills later.

### Lesson 3: Food safety Baking Fish "Making and Baking"

Making and baking fish is often a challenge even for experienced cooks. It is also a very healthy protein that many young children won't try. This activity will introduce fish to the family's diet and how to cook it properly. The 'Fish Food' recipe uses cod, a fish without a heavy fish flavor, and cheddar. This is one of those foods that children may not always enjoy, but working with a parent to create a dish may inspire the desire to try those items. In this activity, food thermometers will be introduced and used for testing temperatures of the fish during cooking. In a publication provided by Virginia Cooperative Extension *Safe and Nutritious Seafood in Virginia* concerns on labeling, seafood hazards, and selecting seafood are addressed to detail information for interested participants. (6)

#### Lesson 4: Fruit Safety “Fantastic Fruits”

The fruit recipe lessons provide opportunities to discuss farm to fork safety. As more participants find foods at local markets, making sure they prepare those foods properly, will decrease their risks of food borne illnesses. Proper washing of fruits is important. Children will get the opportunity to wash a variety of produce on their own so that they can explore different textures. Using books, in this lesson The Teddy Bears’ Picnic by Jimmy Kennedy, and the “fruit stackers” recipe to work with those foods is an opportunity to discuss and work towards using fresh produce safely. Using the recipe fruits can be cut into different shapes and sizes with cookie cutters and are stacked or placed on a plate creatively by the child with an adults help. Food safety facts provided by the United States Food and Drug Administration (FDA) will offer resources to ensure proper handling and usage of produce in programming. (7) As with many of the available sites, this organization offers a variety of resources for distribution of information for participants.

#### Lesson 5: Vegetable Safety “Garden Goodies”

Lesson 5 is another opportunity to talk farm to fork safety. With many finding themselves planting home gardens, incorporating those foods into a safe food dish is a topic of high demand. The vegetable recipe ‘building with vegetables’ again allows the children and adults to work together washing the produce, preparing the items, and building another creation. Resources from the FDA used with the fruit lesson covers produce topics, so those will be revisited while talking more specifically about vegetables during this particular lesson. Again,

using proper washing and preparation techniques will ensure a safe food product at the end of the food preparation.

### Lesson 6: Food Safety Finale “Sharing Foods”

In lesson 6, the final lesson, another hand washing activity will be done during which the ‘Glogerm’ product can be used to further demonstrate the need for proper hand washing techniques. The idea of sharing will be introduced with a story called Give me Half! By Stuart Murphy. This will be an opportunity to talk about sharing foods too. The ‘stained glass toast’ recipe is used in this lesson where children are toasting bread with parents and then using honey with food coloring to decorate the toast. The toast can be cut in half to share with the parent. This is an opportunity to remind them that making food to share with someone is a when they can use all the food safety skills they have learned. In this lesson, using that very basic recipe leaves an opportunity for time to have question answer sessions, covering details that might be weighing on the minds of the participants.

### **Evaluation of the pilot:**

One mother and her child (age 4) were used to pilot the study. Using recipes during the lesson was well received by the parent, as well as the child. When using proper techniques and instruction, it was still difficult to work on changing habits, like proper hand washing, checking temperatures with thermometers, and not cross contaminating surfaces, that have become standard behaviors for families while fixing foods. Hand washing was an easy start, however talking times and temperatures was a small challenge since this was a new concept and will be for many families. The incentive of a meat thermometer was a useful way to provide the family

an opportunity to check their meats for proper temperatures, equipping them with the tool to use in the future. Materials from the “FightBac! Keep Food Safe” from Bacteria from the Partnership for Food Safety Education are reliable sources for finding tools to further development of materials that will enhance the activities and materials to share with the children and their families. (8) Using books to match with recipes assisted in efforts to increase literacy and inspire the desire to cook and try new food items. (Books included: Lesson 1: Cookies Week by Cindy Ward; Lesson 2: Green Eggs and Ham by Dr. Suess; Lesson 3: One Fish Two Fish by Dr. Suess; Lesson 4: The Teddy Bears’ Picnic by Jimmy Kennedy; Lesson 5: Dinosaur Roar! By Paul & Henrietta Stickland; Lesson 6 Give me Half! by Stuart Murphy). These lessons worked well to be delivered one-on-one with the instructor and one family, but it was obvious that if multiple families were included in the same lesson then volunteers would be needed. In a group setting may be difficult since the early learners require so much supervision. An improvement to the activities may include incorporating a meeting with the parents prior to the starting activity may be useful to prepare them to be able to observe and understand the plans before working with their children. If a notebook is prepared and distributed to discuss the plans, recipes, games, etc. more parents could help assist in the learning experiences. The recipes were well liked, although with any program, not every child will try the foods that are being prepared. Research shows that engaging children in the cooking process will encourage them to eat, or try something new, while learning to keep foods safe. The mother of the pilot appreciated all the resources shared, especially the ones from lesson two as they have started a backyard chicken coop this year. The other resources were also considered useful and well received by the participant. Involving the child in these processes seems to further engage the

child in learning and trying more concerning food safety techniques and trying foods in general.

The United States Department of Agriculture(USDA) offers advice online for picky eaters in the targeted age group as well as a variety of other useful resources that could be added to the participants learning experience.(9)

**Conclusion:**

Food safety will continue to be a concern. However, the earlier good habits are formed, the more likely those habits will carry into adulthood. In using a variety of avenues to teach these lessons, the goal of learning these strategies will be achieved. “In accordance with the activity theory of Leont’ev, the primary driving force of development is the children’s activity realized in various types of actions. For a preschooler, the most significant activities are play and productive activities such as painting, construction, and artistic activity.” (10) Using these learning strategies with the parents to help facilitate learning with the children will be a valuable way to learn the planned lessons. Starting early with a family approach will make it easier for everyone to become involved in maintaining a safe and healthy kitchen.

For future endeavors, these lessons could be expanded or modified to be used with a variety of audiences. Food safety is a concern for all even though this particular project focused on one at risk population. There are other populations, that could benefit, that are also considered at risk, including pregnant women, babies, seniors, and those that suffer from immune disorders. However the lessons might be used, the ultimate goal of food safety in food handling and preparation will be the result of the lessons prepared.

## References

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