Elder Food Safety Initiative: A Review of the Home Meal Delivery Process in Tribal Elder Nutrition Programs

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<u>ABSTRACT</u>

Introduction

Indian Health Service, Reno District, Environmental Health Services staff developed an initiative to assess food safety risk among home meal recipients at seven participating tribal elder nutrition programs (ENPs). Traditionally, the home delivery process could significantly increase the risk of foodborne illness if inappropriate practices were being followed.

Methods:

The initiative included two assessment phases. The first assessment phase consisted of identifying food safety risks during the home delivery meal process and other operational issues related to the ENP. The second assessment involved administering a questionnaire to participants of the ENP in an effort to obtain information regarding elder food safety knowledge, attitudes, and practices.

Results:

Eleven delivery processes, representing 7 ENPs, were assessed and had an average delivery time of 1.6 hours. Twenty-five potentially hazardous foods (PHFs) were monitored. By the end of delivery, 76% of PHFs were below the hot holding temperatures recommended by the Food & Drug Administration. Fourteen critical control point (e.g., point or procedure in a food system at which a control can be applied and a food safety hazard prevented) failures were identified and included such deficiencies as failure to check and document final cooking temperatures (100%), failure to monitor the temperature of food received from a food distributor (100%), failure to monitor and document food temperatures during delivery (86%), and failure to monitor food temperatures after food purchase and transport (80%). Also, 29% of the ENPs were entering homes to leave meals when clients were away and 29% of the ENPs routinely left meals outside the client's home in a cooler or milk crate. One hundred and seventy eight questionnaires (51% return rate) were completed. Findings revealed that 27% do not eat their meals immediately upon receipt, 23% had their meals left outside, and 13% had their meals left on the kitchen counter. Also, 93% of elders were unable to identify foods to avoid to reduce food safety risk.

Conclusion:

Based on the site assessments, ENPs should implement and adhere to standard operating procedures to address critical control points in their processes. They should also purchase the Nutri-System thermal bags, recently available on the market, as they can maintain 185° F during transport. Meals should not be left at the client's door or inside the home when the client is not at home. Rather a backup plan (i.e., support network) should be available and food safety education should be provided to all. In addition, further studies should be conducted with an emphasis on what happens to the meal once delivered.

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BACKGROUND

Food safety is an important public health concern. It is estimated that in the United States 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths are attributed to foodborne illness each year.¹ According to the Centers for Disease Control & Prevention (CDC), more than 200 diseases are transmitted by food. Significant causes of foodborne illness include viruses, bacteria, parasites, toxins, and metals. Foodborne illness symptoms vary from mild gastroenteritis to life-threatening neurological, hepatic, and renal syndromes. The cost of foodborne illness is approximately \$1 to \$83 billion annually.¹⁻²

Food safety is especially important among elders, a highly susceptible population, as foodborne illness may result in serious or long-term health consequences. The elder population represents the largest at-risk segment of the US population for foodborne illness.³ Reasons why elders are the largest at-risk population include having a weakened immune system, inflammation of the stomach lining and a decrease in stomach acid, and decline in sense of taste and smell.² In addition, the projected population of elders 65 and older will increase 147% between the years 2000-2050.⁴ Elders age 85 and older also represent the fastest growing age group in the United States.⁵

Elder Nutrition Programs (ENPs) were founded in 1972 and were authorized by Congress under Title VII (now Title III) of the Older Americans Act. The ENPs provide congregate and home-delivered meals to people 60 years and older, particularly to lowincome elders and are the largest community nutrition program in the United States.⁶⁻⁸ In addition, there are many unique food safety challenges that ENPs nationwide face each year. These include serving and preparing food to a highly susceptible population, maintaining temperatures over long distances, high staff turnover, and delayed consumption of the home

delivered meal all of which increases the chances of foodborne illness.⁹ Other challenges include funding for the program and lack of volunteers.

Home delivered meals are intended for the most vulnerable of the elder population. This includes individuals who are very aged, people living alone, people below or near poverty level, minority populations, and individuals with considerable health problems.¹⁰ Furthermore, the Administration of Aging states that home delivered meal participants have twice as many physical impairments as the overall elderly population.¹¹ A combination of a limited budget, long held feelings against wasting food, and memory loss may further result in home meal delivery recipients keeping foods too long or improperly handling foods.¹⁰

Approximately, 61% of American Indian and Alaska Native (AI/AN) elders live in poverty, live in poor housing conditions, and are without access to adequate health care. In addition, the life expectancy of AI/AN is three to four years less than that of the overall United States elder population.¹² These contributing factors specific to AI/AN in addition to the factors for the general elder population increase the food safety risk significantly to this population.

The Indian Health Service (IHS), Office of Environmental Health, Reno District Office conducts annual comprehensive environmental health surveys at tribal ENPs. The Reno District IHS Environmental Health Service Program consists of 5 Environmental Health Officers (EHOs) providing environmental health services to 35 tribes/colonies, which are dispersed throughout Nevada, Utah, and southeastern California. Tribal enrollment varies from a few hundred to a few thousand. Prior to this initiative, routine surveys had not included a comprehensive assessment of the home delivered meal process, meaning the transportation process had not been evaluated. In addition, during routine surveys Reno

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District IHS staff were informed of several less than desirable food safety practices that were occurring as part of the delivery process such as leaving meals outside the home, entering the home to leave a meal when no one was home, and failure to monitor food temperatures during delivery. Given these factors, the Reno District IHS staff developed an initiative to assess food safety risks among home delivered meal recipients at seven participating tribal elder nutrition programs in the summer and fall of 2005.

<u>METHODS</u>

For tribes in the Reno District IHS Service Area to participate in this program, the tribes had to meet specific inclusion criteria. Criteria included: (1) the tribe must have an ENP Program, (2) the ENP must home deliver at least 20 meals, and (3) the ENP must be interested in participating in the program. Interest was determined following IHS EHOs discussing the program with the ENP director, health director, and ENP staff.

The ENP project included two assessments, a site assessment and a questionnaire. A protocol was written to provide uniform and consistent directions to the EHOs for conducting each of the two assessments. Conference calls were also held monthly to provide ongoing communication during the initiative.

The first assessment consisted of an unannounced site assessment of the ENP. The purpose of the site assessment was to identify food safety risks during the home delivery process. Food safety risks were determined by visually observing and monitoring the home delivery process and documenting findings on a data collection form. This form was comprehensive and included the assessment of: (1) facility operations, (2) delivery preparation, (3) delivery process, and (4) operational issues related to the return to the ENP.

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A control plate (an extra meal) was used to monitor food temperatures of the home delivered meal during the delivery runs. A closeout discussion was also conducted at the end of each assessment with the ENP Director to discuss findings.

The site assessment form was based on the Food & Drug Administration (FDA) Food Code and the FDA Baseline Data Collection form. This FDA data collection form focuses on the five CDC identified contributing factors for foodborne illness. These factors include food from unsafe sources, inadequate cooking, improper holding time and temperature, personal hygiene, and prevention from contamination. Results from the site assessment form were entered into an EXCEL spreadsheet and analyzed.

The second assessment included a self-administered questionnaire distributed to the elders served by the nutrition programs. The purpose of the questionnaire was to evaluate food safety knowledge, attitudes, and practices among the elders who participated in the initiative. The questionnaire consisted of eleven questions. ENP staff at each program distributed the questionnaire to both the elders who received meals at the ENPs and the elders who received meals at home. Food safety thermometers were provided to elders as an incentive for returning the completed questionnaire. Results from the questionnaire were entered into an EXCEL spreadsheet and analyzed.

A comprehensive literature review was conducted utilizing the Cumulative Index to Nursing & Allied Health Literature (CIAHL) and Pubmed databases. In addition, the reference lists of the identified documents were searched for relevant journal articles. An Internet search was also performed utilizing the search engine Google. Once websites were identified and reviewed, food safety experts and Meals-On-Wheels staff members were

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contacted to obtain further information on food safety interventions specific to home delivery of meals for elder programs. All contact was via telephone and email.

<u>RESULTS</u>

SITE ASSESMENT

Collectively, these centers delivered 250 meals a day and served another 100 on site. The number of meals delivered at each center ranged from 20 to 75 and 43% (3/7) of programs utilized at least two vehicles for meal delivery. Thus, a total of eleven delivery processes were assessed. Results of the site assessment for cold potentially hazardous foods are summarized in table one. Results of the site assessment for hot potentially hazardous foods are summarized in table two.

Transport Time

Transport delivery runs took from 40 minutes to almost 3 hours with the average transport delivery time being 1.6 hours. Delivery time only included the time taken to deliver the meals and does not include the return time after the last meal has been delivered.

Food Delivery Containers

The type of container that the food was stored in prior to transport varied. Some programs utilized styrofoam, aluminum, or plastic food delivery containers while most utilized a combination of these types. Food transport container types also varied depending on the type of food. Most used an insulated soft pack for hot holding. Only, 14% (1/7) of ENPs used a heating pad for transporting hot foods. For cold transport, the types varied widely and ranged from soft insulated coolers, milk crates, or plastic lined containers. Nearly, 72% (5/7) of ENPs did not utilize cold packs for transporting cold foods.

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Food Temperatures

Twenty-five (25) potentially hazardous foods (PHFs) were monitored. According to the FDA Food Code, a potentially hazardous food is a food that is natural or synthetic (i.e., animal food or plant origin) and requires temperature control because it supports the growth of infectious or toxigenic microorganisms.¹³ Nine (9) were cold PHFs and sixteen (16) were hot PHFs. Sixteen percent (4/25) of the PHFs were out of temperature prior to leaving the elder nutrition program. Three of these were cold PHFs and one was a hot PHF. By the end of the delivery, 76% (19/25) PHFs had fallen out of temperature (14 hot and 5 cold foods). The FDA Food Code recommends that potentially hazardous food be at 41°F or below for cold holding or 135°F and above for hot holding.¹⁴ The decrease in the temperature of the hot foods ranged from 25°F to 88° F. Change in temperatures for the cold foods ranged from 2°F to 24°F.

Facility Operation

In addition to the delivery process, the food service operation of the facility was evaluated. When reviewing the data, several critical operational issues were uncovered. These issues could easily contribute to the occurrence of a foodborne illness as they occurred at a critical point in the food service process. These are known as critical control points. A Critical Control Point (CCP) is any point or procedure in a specific food system at which a control can be applied and a food safety hazard can be prevented, eliminated or reduced to acceptable levels.¹⁵ Fourteen CCPs were identified and grouped into four categories. These include time and temperature abuse, management and personnel, sanitization of equipment, and poor personal hygiene. It is important to note that no one

program had all 14 critical deficiencies. Rather, most programs had several or multiple critical deficiencies. Results of the identified CCPs are summarized in table three.

Moreover, the monitoring of food temperatures was a substantial concern in the ENP facility operation. One-hundred percent (7/7) of the ENPs were observed not checking and documenting final cooking temperatures. Furthermore, 86% (6/7) of ENPs were observed not monitoring food temperatures during home meal delivery. Eighty percent (4/5) of food temperatures were also not being monitored when employees transported food after purchase and 100% (7/7) of food temperatures were not monitored when food was received on site from a food distributor.

Safety

It was also noted that 29% (2/7) of ENPs were entering homes when clients were away to leave meals on counters and 29% (2/7) of ENPs were observed leaving meals outside the client's home in a cooler or milk crate. ENP B left 29% (16/56) of their meals outside with no knowledge of when the client would return.

QUESTIONNAIRE

A total of 178 questionnaires were completed and returned which represented an overall elder participation rate of 51% (178/350). Of the returned questionnaires, 73% (129/178) were completed by elders whose meals were home delivered. Approximately, 73% (102/140) of elders ate their meal immediately upon receipt, while 9% (13/140) placed their meal in the refrigerator, 6% (9/102) placed their meal on the counter, 6% (8/102) in the oven, and 6% (8/102) reported doing something else with their meal other than the options listed on the questionnaire. When asked what happens to the meal if the elder was not home, 55% (74/134) stated that their meals were not delivered, 23% (31/134) had their

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meals left outside, 13% (17/134) reported having their meals left on the counter, 8% (11/134) stated that their meals were placed in the refrigerator, and 1% (1/134) reported their meal being placed in the oven. Nearly, 91% (153/169) of elders did not own a food thermometer and 82% (138/169) reported they would like to have a food thermometer.

Ninety-three percent (122/131) of elders were not able to identify any types of food that they should avoid to reduce the risk of foodborne illness. Seventy-five percent (133/178) of elders reported that they were interested in learning about food safety. Most, 66% (117/178) were interested in learning about food safety through flyers delivered to the home, 14% (25/178) preferred tribal newsletter articles, 10% (17/178) preferred learning through a food safety class, and 10% (19/178) preferred learning from all three methods.

DISCUSSION

Foodborne illness data in the Reno District was not available when conducting this initiative. The lack of foodborne illness surveillance is a common problem in the United States and is attributed to underreporting or lack of diagnosis.¹ Furthermore, when researching this topic it was discovered by the author that there was limited information regarding food safety and the home-delivered meal process at elder centers. Even less information was available on meal disposition (how and when the meal is consumed) among home delivered meals to elders.² The majority of information found on home delivered meals for elder programs focuses on nutritional content of meals. This project sought to explore home delivered meals in regards to food safety.

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SITE ASSESMENT

The significant change in food temperatures during delivery may be attributed to the type of transport container used and the lack of or improper use of supplemental heating units for the hot PHFs and the nonuse of supplemental cooling units or ice packs for cold PHFs. Temperature loss will be discussed first for hot PHFs and then for cold PHFs.

Hot PHFs

With the exception of one delivery vehicle, all hot PHFs were above 135°F prior to leaving the ENP. For the transport of hot PHFs, most ENPs utilized zipped insulated thermal bags. When researching the specification of this product, there was no assurance that the bags could maintain hot food temperatures. Rather, the bags were advertised as high efficiency units with no mention of temperature maintenance. Upon contacting the manufacturer, it was reported that the bags will keep a full container of food trays loaded at 185°F above 140°F for over an hour, longer if the bag is not opened and closed throughout the course of delivery. Given this information, it is important to note that only 1 hot PHF was loaded at 185°F. Furthermore, ENP staff were observed failing to re-zip the thermal transport bags between meal delivery stops, which contributed to the heat loss.

Another contributing factor to the decrease in hot PHF temperatures was the misuse of supplemental heating units or the lack of heating units. Heating units help to maintain food temperatures in the range of 140°F to 160°F through the gradual release of stored heat. To heat the unit (e.g., heat bottle) properly, it must be placed in boiling water for 15 to 20 minutes. It should then be placed upright between two columns of trays or upright at the back edge side of the bag. Only, one of the seven ENPs utilized heating units. The ENP that did utilize the heating units was warming them in the dishwasher and placing them in

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the top exterior sleeve of the thermal transport container. Thus, the heating units for this ENP were not warmed or placed correctly as recommended by the manufacturer's instructions. With the transport runs on average lasting 1.6 hours, supplemental heat units and its proper use would be a necessity in order to maintain proper temperature. When discussing temperature loss, it should be mentioned that one ENP utilized hard plastic coolers for food transport. Food temperatures for these two delivery processes were delivered within the recommended food safety range. The type of food, (soup) and the type of food delivery container (covered styrofoam cups) may have been the primary reason why proper temperatures were maintained during delivery. Hard plastic coolers should be further studied as a possible transport container type.

Cold PHFs

The type of container used to transport cold foods varied widely, from crates to hard plastic coolers to insulated bags. Only a few programs were observed using cooling elements such as ice packs or cooling units when delivering cold PHFs. Failure to use such items were believed to have caused the temperature increases seen during the site assessment.

Temperature Findings

The loss of temperature findings in the site assessment was consistent with the findings in one study located via an exhaustive literature review. In a study conducted through the University of Minnesota, meals provided by a home delivered meal program were evaluated for five consecutive days annually for a period of six years. During this time, food safety temperatures of home delivered meals were monitored. Findings demonstrated that temperatures of delivered hot foods were often much lower than

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recommended food safety temperatures despite annual recommendations to increase food temperatures and to deliver meals quickly.¹⁶

Initially, it was believed that time as a public health control could be used to address temperature loss issues. Mr. John Marcello, FDA Regional Food Specialist was contacted for guidance. Per Mr. Marcello, the current version of the FDA Food Code was intended to allow the use of time as a microbial control only when food items were immediately consumed. Variances may be granted if the food service program were to demonstrate through written procedure and documentation that the product is only out of temperature for 4 hours or otherwise discarded. This would be extremely difficult if not impossible as the meals are dropped off and ENP staff do not remain at each home to verify when the product is consumed. Thus, it is strongly recommended that the ENP programs should deliver their meals to elders at the proper temperature (e.g., either above 135°F for hot foods or below 41°F for cold foods) and stress that if they are not eaten right away they should be refrigerated and reheated.¹⁷

As mentioned in the results section, 14 critical control points (CCPs) were identified. The most significant CCPs include: Failure to monitor and document the temperatures of food transported to the facility by ENP staff (80%), failure to monitor and/or document the temperature of food obtained by the food distributor (100%), failure to monitor and document final food temperatures (100%), failure to monitor and document food delivery temperatures (86%), failure to maintain hot holding temperatures (82%) and cold holding temperatures during meal delivery (45%), and lack of food safety education among delivery drivers and management (100%). Most of the operational issues were due to the lack of Standard Operating procedures (SOPs). The lack of food safety education was largely due

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to high turnover from staff and unawareness of the need for education. The lack of SOPs during critical operational processes and lack of food safety education are key contributing factors to increasing food safety risk and must be addressed.

QUESTIONNAIRE

From the questionnaire, it was determined that approximately 27% (38/140) of elders who receive their meals home-delivered do not eat their meals right away. This statistic is consistent with other studies regarding meal disposition of home-delivered meals among elders. In a study conducted by Asp and Darling, it was noted that approximately one-half of home delivered meal recipients were saving their meal for later consumption.³ In another study by Lau et al, it was reported that only 12% of 400 clients were consuming their home delivered meals in their entirety after delivery.¹⁸ These studies are significant in showing the numerous occurrences of the delay in the consumption of home delivered meals. Furthermore, delayed consumption is a considerable food safety risk to the elder population when food is not delivered within the recommended food safety range. Elders should be encouraged to eat their meal immediately upon receipt.

Another significant finding from the questionnaire was meal delivery practices when the client was not at home. Fifty-five percent (74/134) of elders responded that their meals were not delivered, however 45% (60/134) of elders stated that their meals were left outside, placed on the counter, in the refrigerator, or in the oven. Because elders are a highly susceptible population, the practice of leaving the meals outside the home (e.g., usually in a cooler or milk crate with no ice pack) or leaving them on a counter inside the home without temperature control poses a substantial health risk. Issues relating to potential contamination to the food, cleanliness of the cooler, and keeping foods out of the

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temperature danger zone should be a liability concern for the ENPs as well as a food safety risk to the consumer. In addition, allowing the delivery driver to enter into the home while the elder was not at home could lead to problems with theft or the accusation of theft.

A secondary finding of the questionnaire was the need to determine necessity, interest, and focus for food safety education among elders. Approximately, 93% (122/131) of elders were unable to identify foods that should be avoided to reduce their risk of foodborne illness. Much is known about the elder population as a highly susceptible population, but little is know about their food safety practices at home and their general understanding of food safety.¹⁷ From this questionnaire, the IHS EHOs were able to determine that there is a strong interest in food safety education among elders as well as the preferred method of communication. This initiative did not include a food safety educational component as it was felt that addressing operational deficiencies and equipment needs were more critical. However, such activities should be planned and implemented in the future.

Interventions

Interventions for the ENP initiative focused on SOPs and equipment related interventions. However, the equipment related interventions were not implemented at this time because of the lack of funding. It is also important to note that there was no cost associated with developing or implementing the SOPs as an intervention. Therefore, the SOPs were implemented immediately during this initiative.

Nine SOPs were introduced based on site assessment findings only and specific to addressing operational food handling deficiencies for each participating center. The SOPs were based on sample plans provided from the Iowa State University Hazard Analysis

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Critical Control Point (HACCP) website. HACCP is a scientific and rational approach to food safety, which identifies and analyzes potential hazards in the food process and develops monitoring procedures to determine if the hazards identified are being effectively controlled.¹⁹ Model candidates for conducting HACCP studies include establishments that serve food to a high-risk population, such as elders.²⁰ The nine SOPs included policies as well as food temperature logs for monitoring final cooking, holding, refrigeration, and delivery temperatures. A weekly's manager's HACCP checklist was also included to promote internal inspections. EHOs discussed the SOPs with staff prior to use at the ENPs. A follow-up visit was conducted by the EHOs to address any questions or concerns from the ENP staff regarding implementation of the SOPs.

Based on site assessment findings, it was also apparent that equipment relating to the maintenance of food temperatures during meal delivery was essential as an environmental intervention for this initiative. An environmental intervention approach relies on making the environment or the product such as the home delivered meal safer.²¹ After numerous discussions with food safety experts and Meals-On Wheels staff, the Nutri-System electric thermal bags were recommended to participating ENPs as a future equipment intervention. This product was recommended for several reasons. First, was price and maintenance of temperature. Ideally, specialized delivery vehicles with both hot and cold compartments would have been recommended. However, the affordability of such vehicles was an issue for the tribal ENPs. The thermal bags were affordable and even when not zipped have the ability to maintain proper temperatures as heat is continuously provided via an electric bag heater plugged into the vehicle cigarette lighter. Thus, allowing home delivered meals to be delivered at correct temperatures, which is essential for preventing foodborne illness for a

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highly susceptible population.⁹ Other reasons for recommending this product include: durability, ease of cleaning, holding capacity, and weight of bag with electric heater versus weight of bag with heating unit. Although this equipment related intervention was not implemented, much research was conducted on this product and recommendations were made to ENPs to purchase this equipment as funding becomes available.

Once the equipment intervention is implemented, an evaluation should be conducted to monitor and assess the impact and outcome of the interventions. An evaluation component is essential to determine the effect of the SOPs and the equipment related intervention. Specifically, an evaluation would be essential to demonstrate if the interventions caused a change or benefit for the participating ENPs.²²

Additional research was also conducted to locate grants that may be utilized by ENPs for delivery vehicles. Two of the participating programs were awarded delivery vehicles during this initiative. Findings from the ENP initiative were utilized in a support letter to assist in the funding of the delivery vehicle for one of the participating ENPs.

CONCLUSION

Home delivered meals are intended to help the elder population live longer independently in their own communities.²³ Elders receiving home delivered meals are generally homebound and rely on these meals to be safe.²⁴ Because of the lack of information regarding food safety and the home delivered meal process, further studies are needed on determining what happens to the meal once it is delivered. Based on these further studies, ENPs could modify their home meal delivery services (e.g., meal containers, food

safety storage recommendations, etc.) and direct educational efforts related to their findings.³

Consideration should also be given to developing and utilizing support networks. A support network may be a neighbor or a family member who would accept the meals on the elder's behalf.⁹ In addition, ENPs should encourage clients to eat their food immediately and properly store leftovers. Food should never be left at the client's door or inside the home when the client is not at home. A backup plan should be readily in place in this type of situation.⁹ For example, ENP B now encourages clients to call the ENP to set up an alternative time to deliver the meal when the elder or other family member (i.e., support network) will be at home to receive the meal.

Communicating food safety messages to elders through flyers, newsletters, and simple pictures and signs may also help improve food safety knowledge among elders and ultimately impact food safety practices. The "Safe on Your Plate" educational resource program was designed for recipients of home delivered meals. This program included colorcoded labels, which could be attached to the meal containers to provide educational information on recommended food safety practices. Delivery dates were also labeled on each meal. Participants of this program strongly agreed that dating delivered meals and providing food safety information was needed to reduce the food safety risk among elders.¹⁰ Food safety education is also necessary for ENP staff. Training should be provided to include cooks, kitchen assistants, delivery drivers, and management. Education is essential in reducing food safety risk, but it is of particular importance to this high-risk group.

This initiative represents a starting point for assessing and improving the ENP home delivery meal process, which other EHOs and ENPs will be able to build on. The EHO's

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role should include providing guidance on the implementation of SOPs and providing essential educational components to ENP staff. Moreover, the annual comprehensive environmental health surveys conducted by EHOs should consistently include an assessment of the home meal delivery process. While annual comprehensive environmental health surveys provide guidance on proper food safety practices, the chief responsibility for handling and delivering the home delivered meals on a daily basis rests with ENPs. It is strongly encouraged that ENPs adopt and implement SOPs to reduce food safety risk. In addition, ENPs should delivery PHFs in the recommended food safety temperature range and take appropriate corrective actions as needed. As the elder population grows so will the need for assuring good food safety practices.

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Program	Food Del.	Transport	Type of Food	Begin.	End	Temp	Transport
	Container	Container	3.6	<u>remp</u>	Temp	Loss	1 ime
ENP A	Styrofoam,	Soft	Meat sauce	159°F	105°F	53°F	1 hour 34
Van #1	plastic, &	Insulated	w/spaghetti				minutes
	aluminum	Pack	noodles				
ENP A	Styrofoam,	Soft	Meat sauce	116°F	100°F	16°F	1 hour 10
Van #2	plastic, &	insulated	w/spaghetti		· · ·		minutes
	aluminum	pack	noodles				
ENP B	Styrofoam	Soft	Indian Tacos	183°F	95°F	88°F	1 hour 55
		insulated					minutes
		pack					
ENP C	Styrofoam &	Soft	Shepard's Pie	170°F	110°F	60°F	1 hour 30
	Plastic	insulated	· · ·				minutes
		pack					
ENP D	Styrofoam &	Hard Plastic	Chicken	176°F	151°F	25°F	1 hour 47
Van #1	Aluminum	Coolers	w/rice soup				minutes
ENP E	Styrofoam &	Soft	Chili Dog	175/182°F	105/104°F	70/78°F	2 hours 47
*Van #1	Plastic	Insulated					minutes
		Pack				* .	
ENP E	Styrofoam &	Soft	Chili Dog	174/185°F	130/113°F	44/72°F	1 hour 14
*Van #2	Plastic	Insulated	-				minutes
*	· ·	Pack					
ENP F	Styrofoam	Soft	Baked	165°F	107°F	59°F	45 minutes
(1 van/2		Insulated	Chicken	166°F	116°F	50°F	
routes)		Pack	Gravy	159°F	102°F	59°F	
			Buttered				
			Noodles				
ENP F	Styrofoam	Soft	Baked	165°F	107°F	59°F	40 minutes
(1 van/2	-	Insulated	Chicken	166°F	116°F	64°F	
routes)		Pack	Gravy	159°F	102°F	57°F	
			Buttered		102 1		
			Noodles				
ENP G	Aluminum &	Soft	Minestrone	190°F	135°F	55°F	50 minutes
	Styrofoam	Insulated	Soup				
	÷	Pack	<u>^</u>				

Table 1: Meal Delivery Results for Hot PHFs

•*Two food temperatures were taken during the delivery process as both styrofoam and plastic were used to deliver the hot meal.

•Red color font indicates food that was out of the recommended FDA food safety temperatures.

Program	Food Del.	Transport	Type of	Begin.	End	Temp	Transport
	Container	Container	Food	Temp	Temp	Loss	Time
ENP A	No Cold PHFs Served						
ENP B	Styrofoam	Soft	Yogurt	60°F	57°F	3°F	1 hour 55
		Insulated	Milk	43°F	49°F	6°F	minutes
		Pack					
ENP C	No Cold PH	IFs Served					
ENP D	Styrofoam	Hard	Milk	39°F	41°F	2°F	1 hour 47
Van #1	& Plastic	Plastic					minutes
		Cooler					
ENP D	Styrofoam	Hard	Milk	41°F	43°F	2°F	1 hour 47
Van #2	& Plastic	Plastic					minutes
		Cooler					
ENP E	Styrofoam	Soft	Coleslaw	39°F	60°F	21°F	2 hours 47
*Van #1	& Plastic	Insulated					minutes
· · · · · · · · · · · · · · · · · · ·		Pack					
*ENP E	Styrofoam	Soft	Coleslaw	39°F	63°F	°F	1 hour 14
Van #2	& Plastic	Insulated	1. <u>1. 1</u> . 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.				minutes
	**	Pack					
ENP F	Styrofoam	Soft	Milk	41°F	_43°F	2°F	45 .
(1 van/2	and the second second	Insulated					minutes
routes)		Pack					
ENP F	Styrofoam	Soft	Milk	41°F	45°F	4°F	40
(1 van/2		Insulated					minutes
routes)		Pack					
ENP G	Aluminum	Hard	Chicken	69°F	59°F	10°F	50
	&	Plastic	Salad	· ·			minutes
	Styrofoam	Cooler	Sandwich				

Table 2: Meal Delivery Results for Cold PHFs

	# of ENPS w/deficiency	
1. Food temperatures were not being monitored and/or documented when employees transported4/580 %food (i.e. after food was purchased by program locally and transported).4/54/5		
2. Food temperatures were not being monitored and/or documented when food was received from a 5/5 100% food distributor.		
3. Final food temperatures were not being monitored or documented. 7/7 100%		
4. Food temperatures were nont being monitored or documented during delivery. 6/7 86%		
5. PHF was not maintained at 41°F or below during cold holding (i.e. before delivery) 3/7 43%		
6. PHF was not maintained at 135°F or above during hot holding (i.e. before delivery) 1/7 14%		
7. Hot holding temperatures were not maintained at 135° F or above during delivery. 9/11* 82%		
8. Cold holding temperatures were not maintained at 41°F or below during delivery. 5/11* 45%		
9. Meals were placed outside on the porch when clients were not at home. 2/7 29%		
10. Delivery drivers placed meals inside the home on counters when the client was not at home. $2/7$ 29%		
Management & personnel		
11. Kitchen staff (delivery drivers and management had not attended a food handler's class.) 7/7 100%		
Sanitization of Equipment		
12. Transport containers were not sanitized prior to use.2/729%		
13. The facility's dishwashing method was not appropriate.		
Poor Personal Hygiene		
14.Staff was not wearing gloves or using other suitable utensils when preparing meals.1/714%		

Table 2: Critical Control Points Summary

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*11 delivery processes assessed.

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