

Food Safety Practices and HACCP Implementation in Assisted Living for the Elderly



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Project Goal

Assess current food handling practices and HACCP implementation in assisted living for the elderly and provide training programs to improve food safety.



Three-Phase Project

- Survey of registered dietitians and dietary managers
- Interview of residents of assisted-living facilities
- Pretest Posttest quasi-experimental research design with foodservice employees



Phase 1: Food Safety Practices and HACCP Implementation: Perceptions of Registered Dietitians and Dietary Managers

Purpose: Assess perceptions of consultant registered dietitians (RD) and dietary managers (DM) about food safety practices and HACCP implementation in assisted-living and long-term care facilities for the elderly.

Methods

- Modified Delphi Process used to develop mail questionnaire
- Mailed questionnaire
 - Section 1: Level of concern with food safety practices for AL and/or LTC facilities where they had worked
 - Section 2: Opinion about whether 47 listed items needed to be in place for HACCP implementation
 - Section 3: Identify possible barrier for 28 items for HACCP implementation at AL
 - Section 4: Demographic and work related questions



Subjects

- Random national sample of 20% of members of ADA's Consultant Dietitians in Health Care Facilities DPG (n= 1,181)
- All Iowa members of DPG (n=178)
- All members of national Dietary Managers Association listing AL as place of employment (n=274)
- Total mailing of 1,455 questionnaires; 30% useable response rate



Food Safety Concerns Factors

Factor 1--Employee Knowledge and Experience

Max = 20; AL = 14.5; LTC = 13.1; $\alpha = .91$

Factor 2--Food Handling Practices

Max = 65; AL = 41.4; LTC = 37; $\alpha = .93$



Key Findings

- RD and DM have administrative responsibilities for food safety in AL and LTC
- Overall, RD and DM knowledgeable about risky food handling practices and operational factors that affect these.
- Differences in perceptions exist between RD and DM about food safety concerns, prerequisite programs needed for HACCP, and barriers to implementation of HACCP.



Key Findings, cont.

- Inexperienced employees, employee turnover, employee knowledge (esp. about handwashing) and training are higher barriers than equipment and facilities.
- Need to increase training AND develop written policies on food production access by other facility employees and others (ie. vendors).
- Employees, time, and commitment factors are identified as barriers by both RD and DM.



Phase 2: Food Handling Practices of Residents in Assisted Living Facilities

Purpose: To assess current food handling and sanitation practices of residents in assisted living facilities.

Methodology

- Subjects: Convenience sample of 4 to 5 residents from each of 40 assisted living facilities
- Data Collection
 - Structured interview format
 - Instrument developed and pilot tested
- Data Analysis
 - Means, standard deviations, and frequencies computed for closed-ended questions
 - Qualitative data summarized and grouped into themes



Key Findings

- Demographic data
 - 186 apartments (143 females; 36 males; 7 couples)
- Foodborne illness
 - 17% of respondents suspected experiencing illness
- Equipment
 - 74 refrigerators; 112 room size refrigerators
 - 178 microwave ovens



Key Findings, cont.

■ Food Source

- Residents in 34 facilities used grocery stores
- Food was brought back to apartments from the dining rooms by 95 residents in 38 facilities

■ Food Storage

- Over 50% stored PHF items (eggs, dairy, etc.)
- Almost all storage places were appropriate
- Several expired PHF items were found



Key Findings, cont.

■ Food Preparation

- Over 67% of respondents prepared food in their apartments
- Less than 30% mentioned using sanitary procedures

■ Hand Washing

- 92% of residents used soap and 89% also used warm water
- 63% reported washing hands for at least 15-20 seconds



Phase 3: *Assess employee food handling practices*

- Pretest Posttest quasi-experimental design
- 40 Assisted Living Facilities in Iowa



Objective 1

- Increase employees' knowledge of food safety and improve their food handling practices.
 - Evaluate attitudes, knowledge, and food handling practices at the beginning of the project.
 - » Attitude questions
 - » 20-question knowledge test for employees
 - » Visual audit
 - » Microbiological tests for five food contact surfaces



Objective 2

- Develop sample HACCP resources appropriate for assisted living operations and use Iowa State University's Food Safety web site for national distribution of these resources.
 - Developed resources:
 - » Standard Operating Procedures
 - » Forms for Documentation
 - » Checklists
 - Ongoing throughout project



Employee Training

- ServSafe® training and certification offered by Extension; 180 attended
- HACCP I Training; 63 attended
- HACCP II Training; 53 attended



Resource Materials

- Resource Notebook/CD
 - Assessment tools
 - Written Standard Operating Procedures
 - Documentation forms
 - Sample HACCP case study
 - Planning forms
 - 8-Lesson HACCP training for employees



Other Resources

- 17 monthly newsletters
- Technical assistance
- ISU website: www.iowahaccp.iastate.edu



Common Food Handling Problems Identified at Initial Visit

■ Personal Hygiene

- 28 of 40 wore hairnets
- Handwashing often did not occur between dirty and clean end of dish machine

■ Food Storage

- 21 of 40 properly labeled and dated food
- 7 stored some food products on the floor



Common Food Handling Problems Identified at Initial Visit, cont.

■ Thermometer Use

- 35 of 40 used thermometers
- Many did not know how to calibrate

■ Recording Temperatures

- 20 of 40 recorded refrigerator and freezer temperatures
- 16 of 40 recorded food temperatures prior to service
- 14 of 40 recorded dish machine rinse temperatures or sanitizer concentrations



Common Food Handling Problems Identified at Initial Visit, cont.

■ Food Temperatures

- 21 of 40 met cold food temperature standard
- 27 of 40 knew appropriate reheating temperatures

■ Sanitizing

- 9 of 40 did not use sanitizing buckets
- 6 of 40 did not meet temperature or sanitizer concentration for dish machine rinse
- 7 of 40 did not sanitize food contact surfaces



Key Findings

- Employee knowledge scores improved
 - Pretest 14.6 ± 3.0 of 20
 - Posttest 15.9 ± 3.3



Key Findings

Food Safety Practices Score

- No. YES observations \div no. YES observations + no. NO observations
- Pretest 82.9 ± 9.4
- Posttest 87.2 ± 8.8



Key Findings

Microbiological Analysis of Food Contact Surfaces

- Work table/counter, cutting boards, mixing bowl/equipment, refrigerator/freezer handle
- Aerobic Plate Count, *Enterobacteriaceae*, and *Staphylococcus aureus*
- Pretest: 2 facilities met standard for all surfaces; Posttest: 17 met standards



Coordinate Efforts with Related Agencies

- Department of Elder Affairs
- ISU Cooperative Extension Nutrition and Health Field Specialists
- Department of Inspections and Appeals

