



Oregon Foodborne Illness Prevention Program Statewide Baseline of Foodborne Illness Risk Factors in Restaurants March 2002-March 2003

Summary Report

INTRODUCTION AND PURPOSE

The State of Oregon Department of Human Services (DHS) was asked by the Food and Drug Administration (FDA) to participate in a nationwide baseline study. The project's purpose is to establish a baseline against which efforts to reduce foodborne illness will be measured in Oregon. The information gathered will also contribute to the FDA nationwide baseline database. Oregon was the first jurisdiction to complete the baseline data collection and entry for the 2003 study.

The FDA 1997 Food Code was the standard of measurement used for this project. The *FDA Baseline Data Collection Form* reflecting Food Code provisions was used for collecting data on the occurrence of the 5 risk factors in Oregon. The *FDA Retail Food Program Database of Foodborne Illness Risk Factors* report was the guidance document for Oregon's project. The foodborne illness risk factors measured during data collection are:

1. Food from Unsafe Sources
2. Inadequate Cooking
3. Improper Holding Temperature
4. Contaminated Equipment
5. Poor Personal Hygiene

The resulting data, comprising 3,300 observations was analyzed using several approaches to determine practices and behaviors needing priority attention. Four practices and behaviors exceeded a 30% out of compliance rate in both fast food and full service restaurants:

- Proper, Adequate Handwashing;
- Food Protected from Environmental Contamination;
- Surfaces/Utensils Cleaned/Sanitized; and
- Raw Animal Products Separated from RTE Foods

Unannounced visits to the selected establishments were designed to be observational rather than regulatory. A representative of the county had the option to accompany DHS staff. If conditions observed required regulatory actions, the accompanying local representative could intervene to ensure appropriate corrective actions were taken. If no local representative was available, the DHS staff offered to inform the operator of any violations observed during the assessment.

DATA REPORTS AND DISCUSSION

DHS staff found 74% of fast food and 67% of full service restaurant items to be in compliance with the 1997 Food Code. Based on FDA projections, Oregon expects the rate of in compliance observations for the next baseline study to improve, equaling or exceeding 81% for fast food and 75% for full service facilities.

Table 1 provides the percent of in compliance observations for each facility type as they pertain to controlling the 5 risk factors contributing to foodborne illness. Another risk factor, "Other," is included to collect data on food safety risks associated with the storage and use of chemicals. Each item was grouped under one of the five CDC risk factor categories. These more general results are shown in Table 1. The specific results for each item are shown in Tables 2 and 3.

Table 1. IN COMPLIANCE OBSERVATIONS WITH RESPECT TO CONTROLLING THE RISK FACTORS, BY FACILITY TYPE

Risk Factor	Restaurants	
	Fast Food	Full-Service
Food from Unsafe Sources	96.7 %	93.6 %
Inadequate Cooking	92.0 %	96.8 %
Improper Holding/Time-Temperature	56.4 %	46.9 %
Contaminated Equipment/Protection from Contamination	81.5 %	70.8 %
Poor Personal Hygiene	64.5 %	54.2 %
Other/Chemical	93.5 %	98.0 %

Tables 2 and 3 highlight individual data items with the highest percentage of out of compliance observations.

**Table 2. RESTAURANTS -- FAST FOOD
% OUT OF COMPLIANCE OBSERVATIONS**

Industry Segment -- Restaurants Facility Type -- Fast Food	% OUT of COMPLIANCE
Data Item	
Proper, Adequate Handwashing	49%
Food Protected from Environmental Contamination	33%

**Table 3. RESTAURANTS -- FULL-SERVICE
% OUT OF COMPLIANCE OBSERVATIONS**

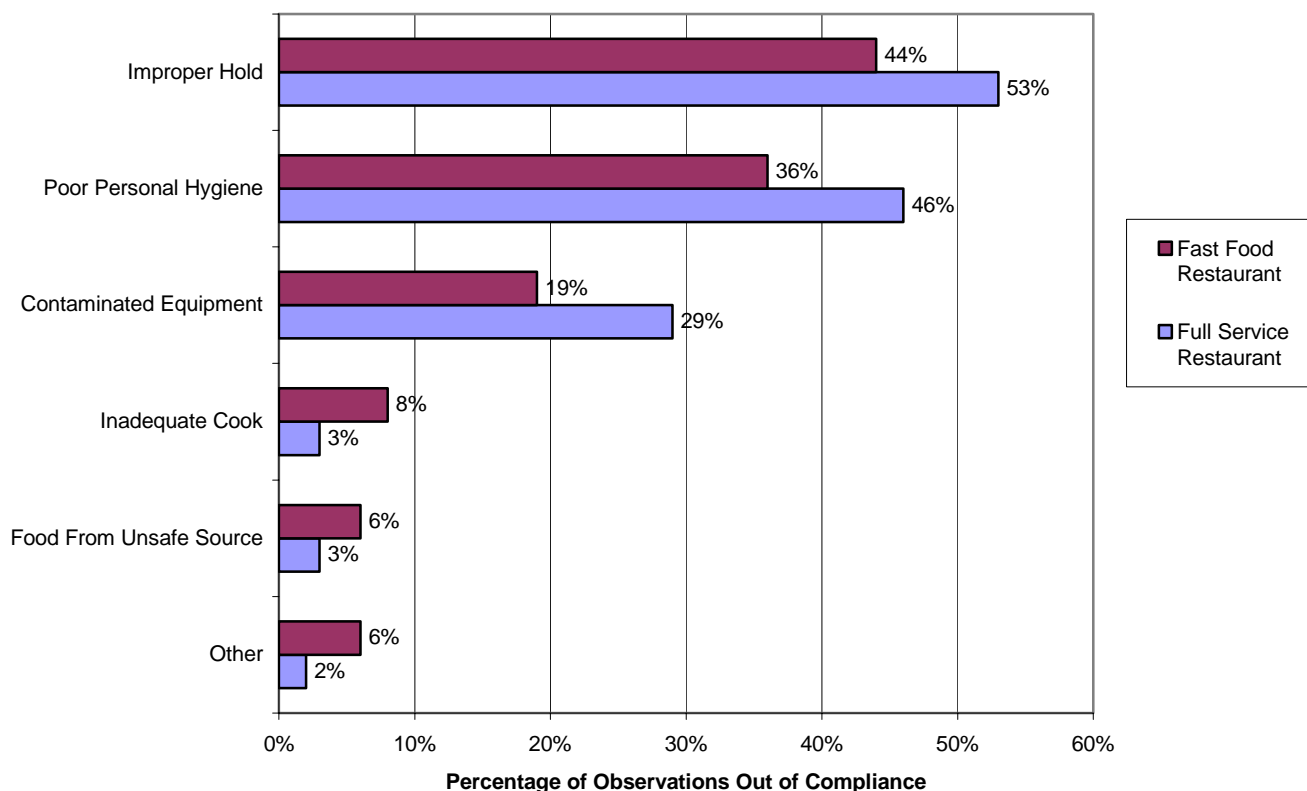
Industry Segment -- Restaurants Facility Type -- Full-Service	% OUT of COMPLIANCE
Data Item	
Proper, Adequate Handwashing	63%
Protected From Environmental Contamination	43%
Surfaces/Utensils Clean/Sanitized	39%
Raw/RTE Foods Separated	38%

The CDC-identified risk factors contributing to foodborne illness apply in some way to all retail-level food establishments. Each risk factor is composed of several individual data items (Food Code requirements) that are used to evaluate performance within food service facilities. **Figures 1-10** focus the analysis of the data on out of compliance observations as a percentage of the total number of observations for each risk factor or individual data item.

Of the 5 CDC-identified risk factors, the three that had the highest number of out of compliance observations for full service and fast food restaurants were:

- Improper Holding/Time and Temperature
- Poor Personal Hygiene
- Contaminated Equipment/Protection from Contamination

Figure 1. Percentage of Observations Out of Compliance by Facility Type

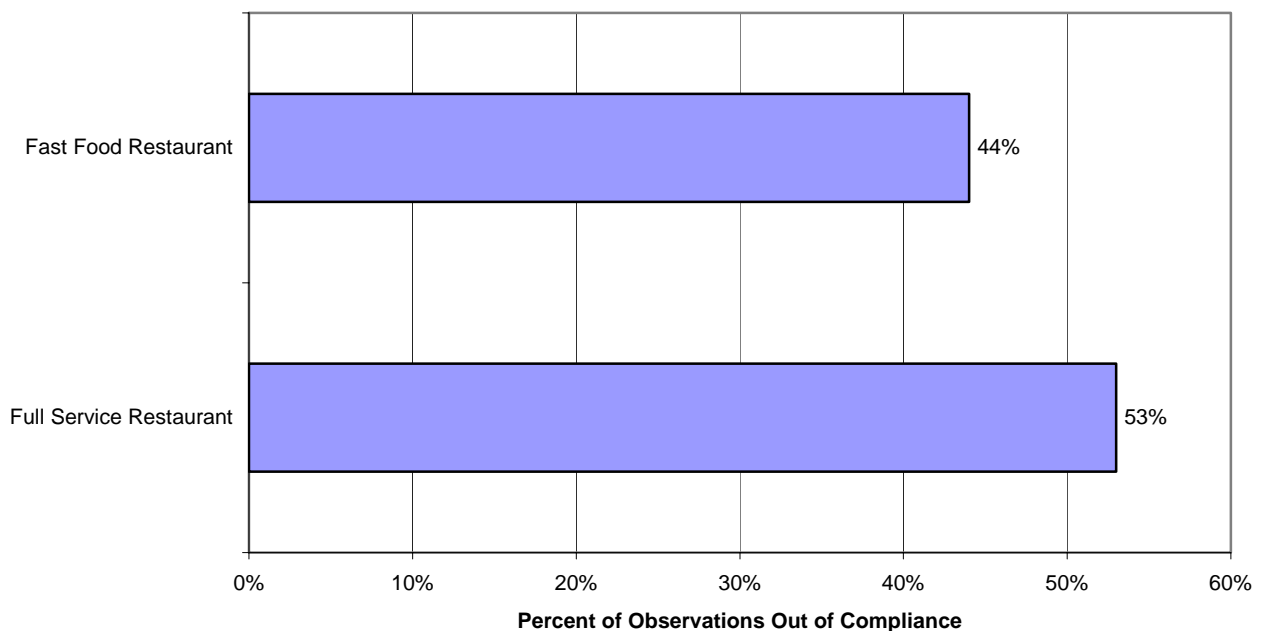


Data are displayed in bar and pie charts (Figures 2-10) showing the percent of each risk factor’s individual data items observed as out of compliance; (Figure 1) showing the overall % summary of the most significant out of compliance observations for all facility types combined.

IMPROPER HOLDING TIME AND TEMPERATURE

Figures 2, 3 and 4 reflect the relationship (expressed as percentage) of out of compliance observations for the individual data items pertaining to the improper holding/time and temperature risk factor. Cold holding, proper cooling, hot holding, date marking, and time as a public health control are some of the data items included in this risk factor.

Figure 2. Improper Holding Time and Temperature



Cold holding at 41F (5C) was the most frequent temperature violation in both facility types, and was responsible for between 26% and 27% of the out of compliance observations. Ready-to-eat food date marking within 24 hours as well as commercial product date marking were common out of compliance observations in both facility types as well. These date marking values are not surprising; since a phase-in period was given to operators to implement date marking after the Oregon Food Code was adopted in 2001.

Figure 3. Improper Hold/Time and Temperature
Out of Compliance Observations by Data Item
Full Service Restaurants

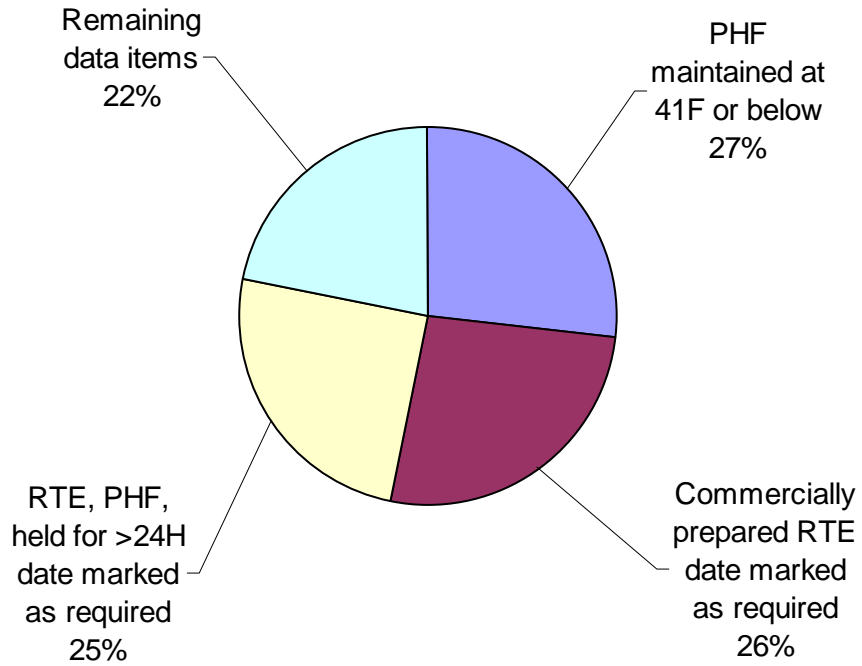
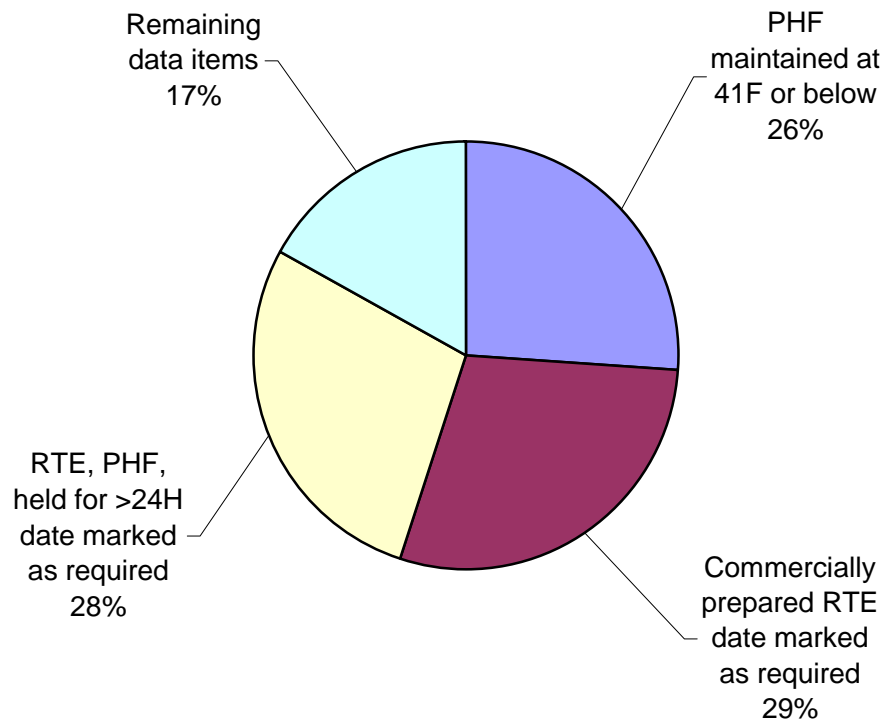


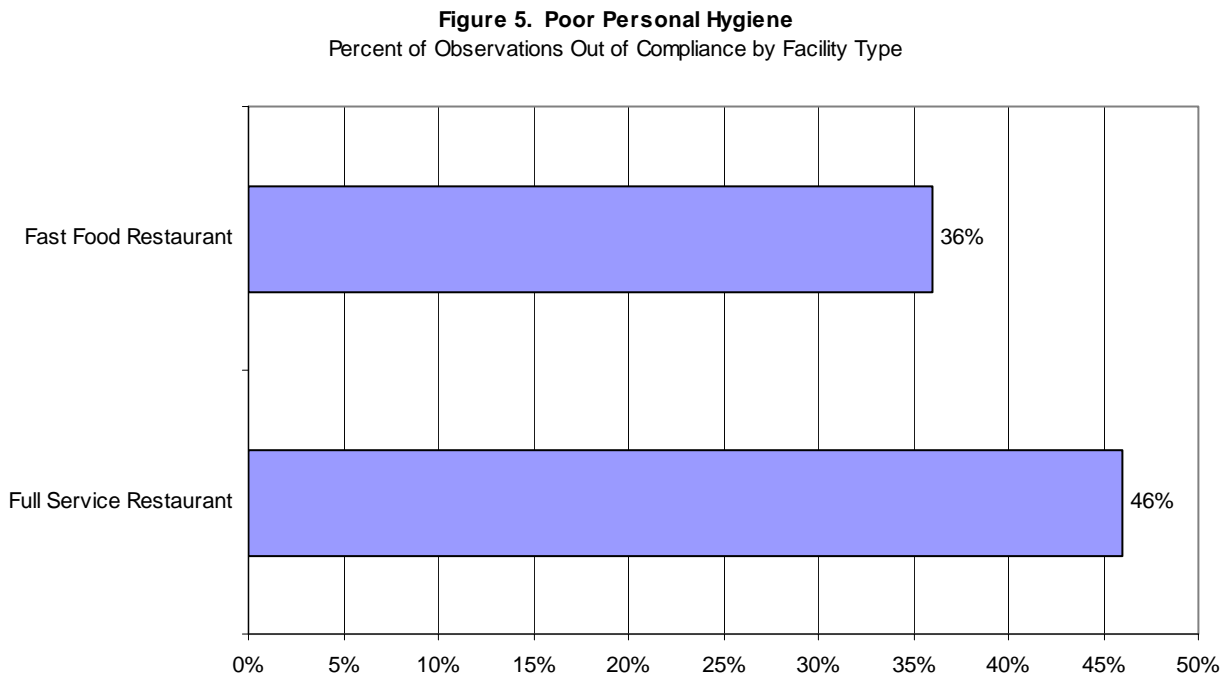
Figure 4. Improper Hold/Time and Temperature
Breakdown of the Out of Compliance Observations by Data Item
Fast Food Restaurant



While this data is interesting, interventions for these items will not be developed. These items are out of compliance due to recent adoption of the Oregon Food Code at the time of the baseline study. We expect to see a reduction in out of compliance observations without the need for interventions.

POOR PERSONAL HYGIENE

Figure 5 reflects the total percent of observations out of compliance with the 1997 Food Code personal hygiene requirements designed to control the spread of viral, bacterial, and parasitic agents from employees to food.



Figures 6 and 7 indicate that lack of handwashing was a persistent out of compliance observation in both facility types, accounting for 28% of the total personal hygiene out of compliance observations. Bare hand contact with ready-to-eat food was the highest out of compliance observation because it is not prohibited in Oregon at this time. Inadequate handwashing facilities being conveniently located as well as stocked with paper towels and soap represented 22% of the Poor Personal Hygiene out of compliance observations for full service restaurants and 18% for the fast food restaurants.

Figure 6. Poor Personal Hygiene
Out of Compliance Observation by Data
Item
Full Service Restaurant

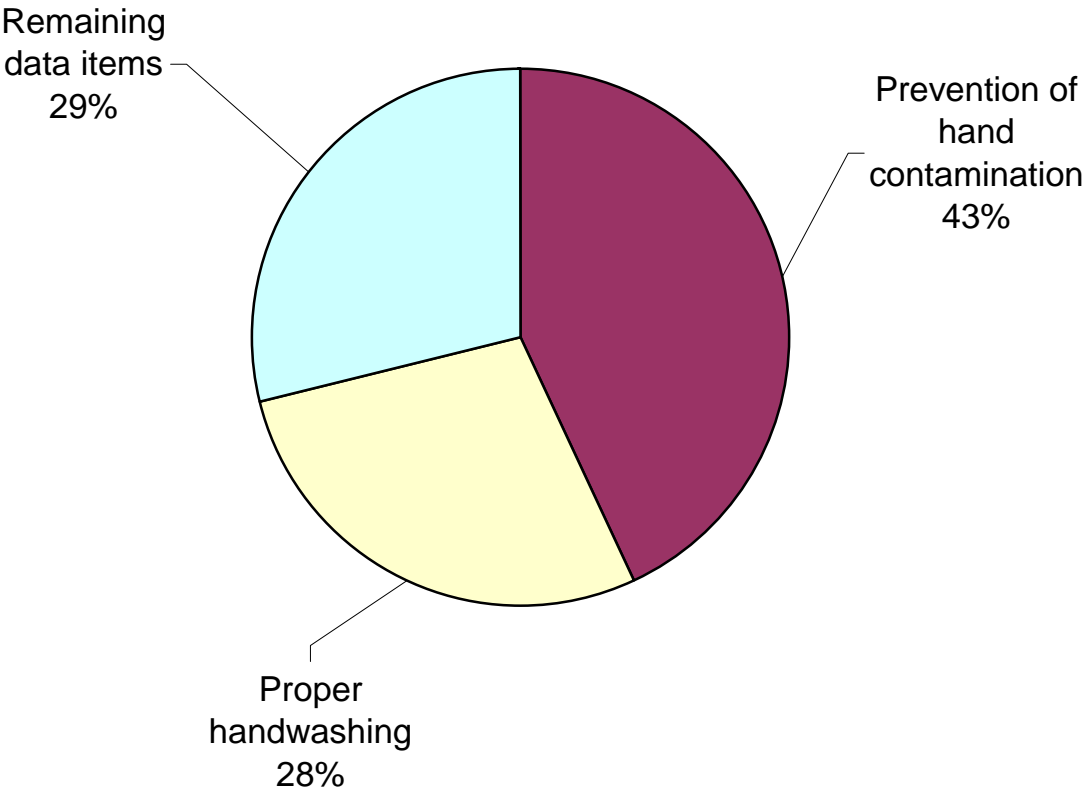
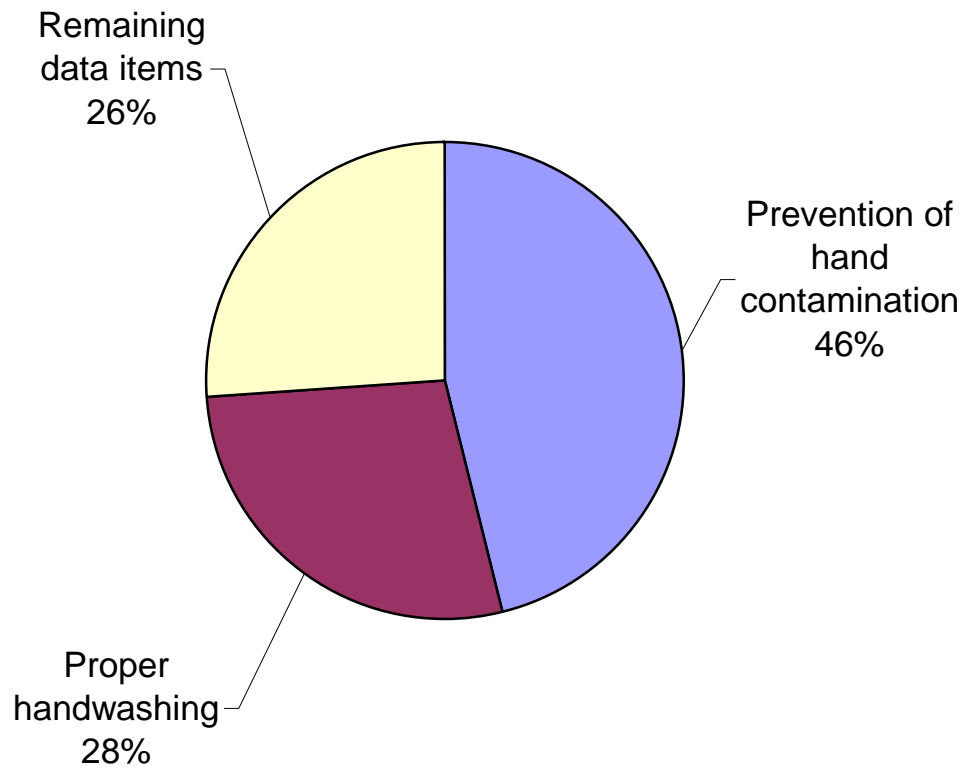


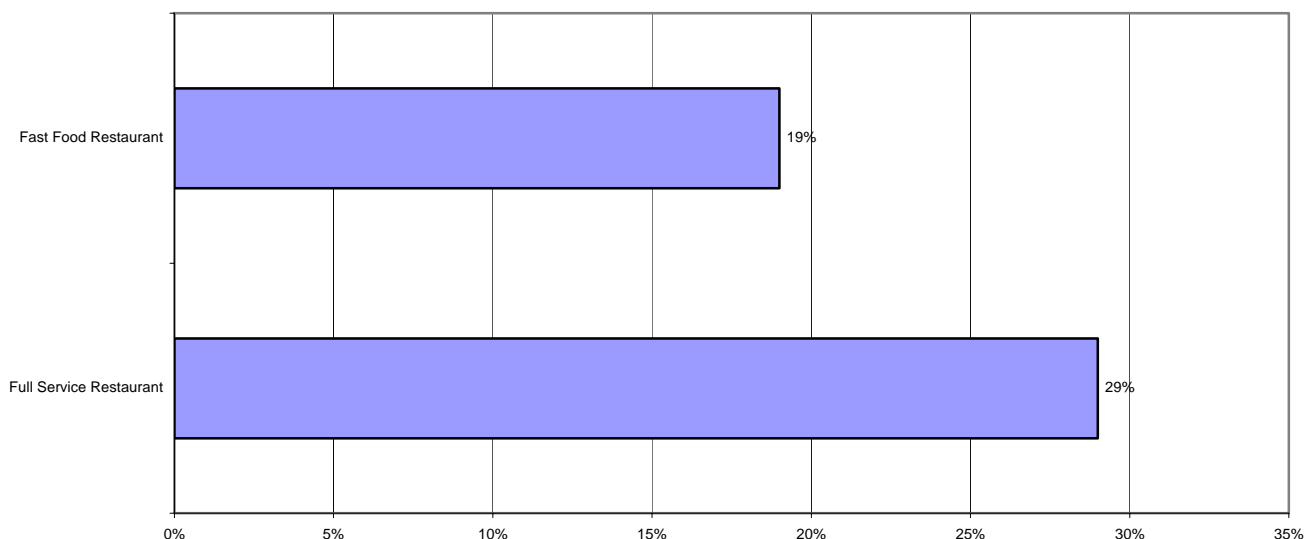
Figure 7. Poor Personal Hygiene
Out of Compliance Observations by Data
Item
Fast Food Restaurant



CONTAMINATED EQUIPMENT/PROTECTION FROM CONTAMINATION

Pathogens can be transferred to food from utensils, equipment, and work surfaces that have not been properly cleaned and sanitized. Cross contamination can also occur when ready-to-eat foods come in contact with raw animal foods or surfaces not properly sanitized before use. Food may also be contaminated as a result of environmental agents such as dust, condensate, and faulty packaging. **Figure 8** reflects the total percentage of observations out of compliance with Food Code requirements designed to prevent the contamination of food and food-contact surfaces.

Figure 8. Contaminated Equipment/Protection from Contamination Percent of Observations Out of Compliance by Facility Type



Figures 9 and 10 present the individual data items pertaining to the contamination of food and/or food-contact surfaces for each facility type. Failure to clean and sanitize food-contact surfaces to prevent the contamination of food was a persistent out of compliance observation in both establishment types.

Figure 9. Contaminated Equipment/Protection from Contamination

Out of Compliance Observations by Data Item

Full Service Restaurant

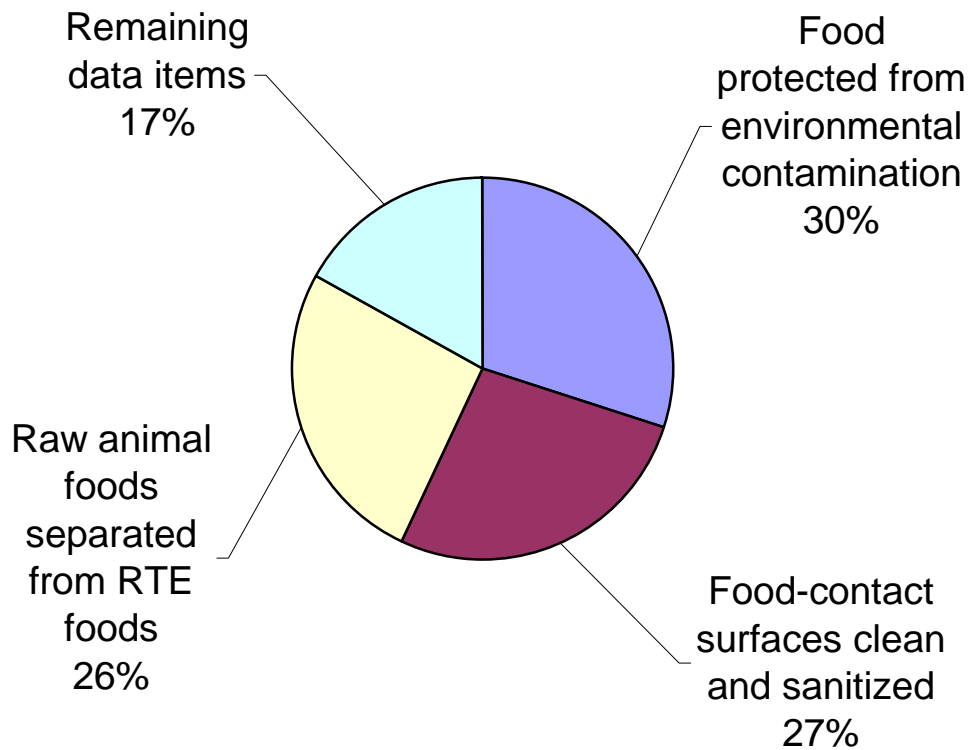
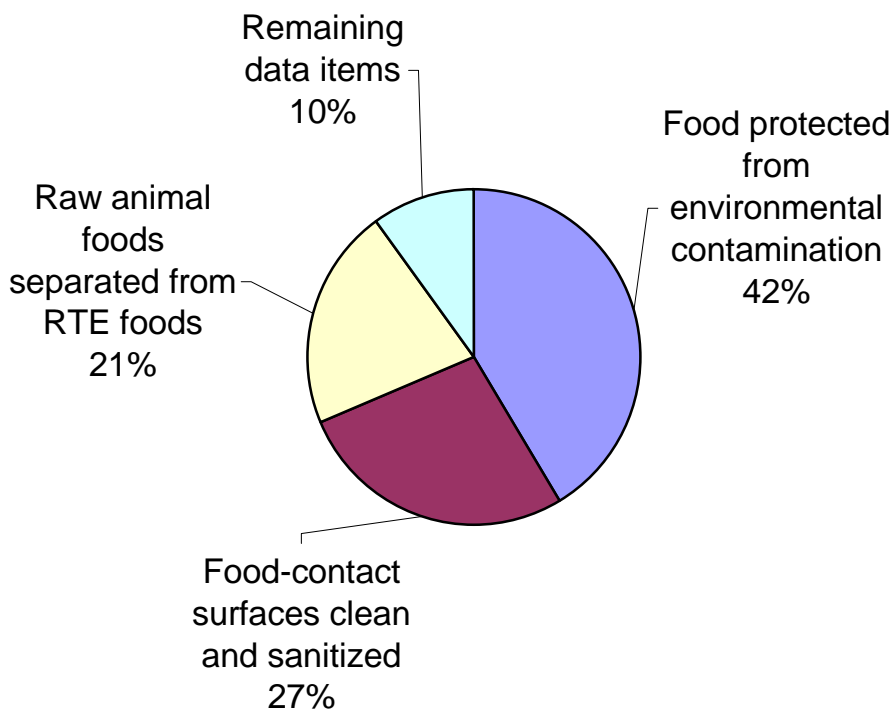


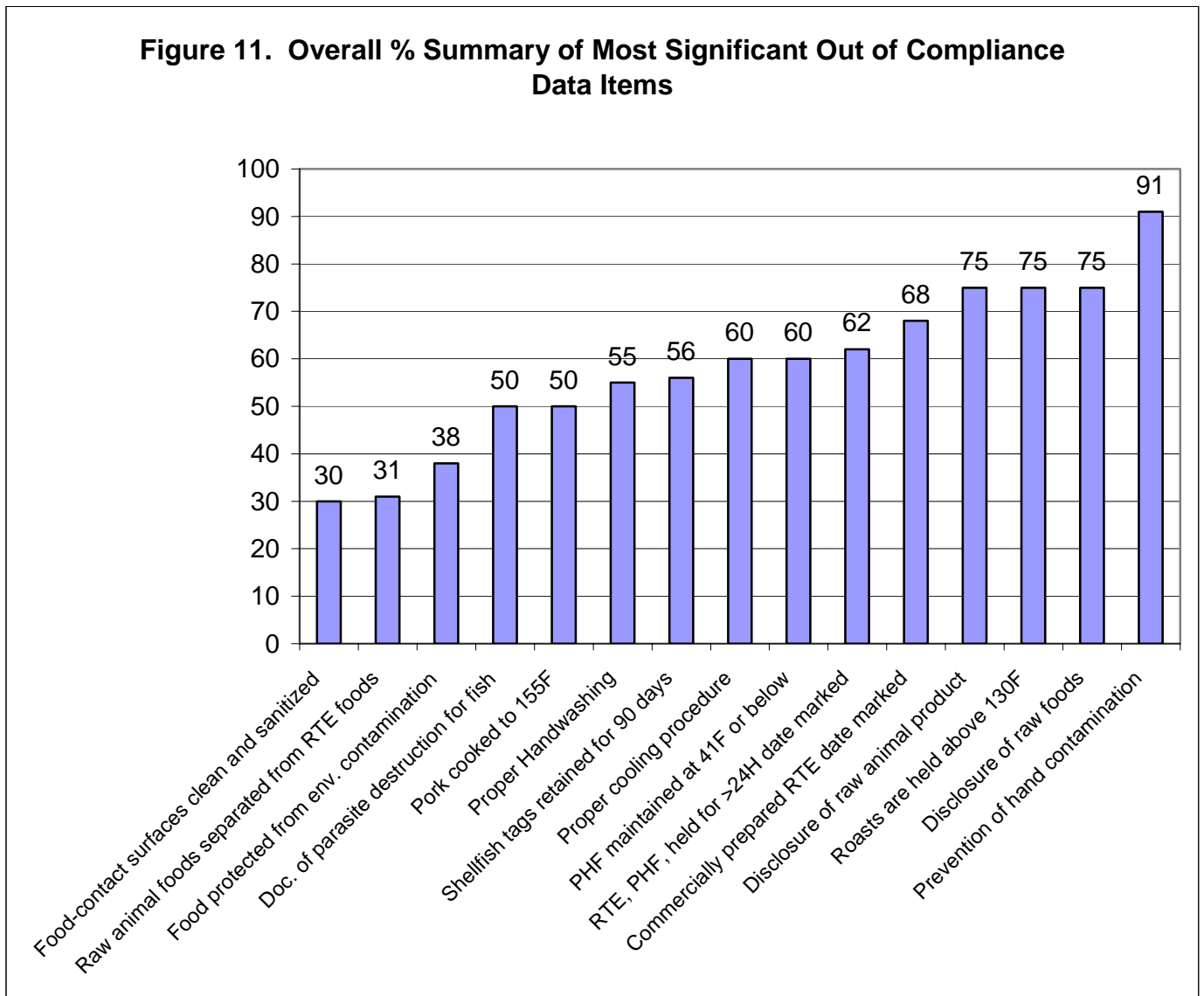
Figure 10. Contaminated Equipment/Protection from Contamination

Out of Compliance Observations by Data Item
Fast Food Restaurant



SUMMARY OF THE MOST SIGNIFICANT OUT OF COMPLIANCE DATA ITEMS

Figure 11 is presented to focus attention specifically on those individual data items that indicate a serious loss of industry management control over behaviors and practices attributed to the occurrence of foodborne illness. This figure summarizes the overall percent (%) of out of compliance observations for the most significant individual data items, for both facility types.



There were 7 individual data items that indicate a high out of compliance trend but represent very few total observations:

- Shellfish tags retained for 90 days (9 observations)
- Documentation of parasite destruction for fish (3 observations)
- Disclosure of raw animal product (15 observations)
- Pork cooked to 155F (1 observation)
- Proper cooling procedure (12 observations)
- Roasts held above 130F (3 observations)
- Double handwash as required (10 observations)

The numbers of out of compliance OBSERVATIONS are noted in parentheses next to each bulleted item. For example, “Documentation of parasite destruction” was observed to have a 50% out of compliance rate; however it was only observed six times during assessments. Because of the small number of total observations, these numbers are not reliable indicators, but are of interest.

Five individual data items exceeded a 40% out of compliance observation rate:

- Prevention of Hand Contamination
- Cold Holding of Potentially Hazardous Food (PHF) at 41F (5C) or below
- Ready-to-eat (RTE), PHF Date Marked after 24 hours
- Commercially Processed RTE, PHF Date Marked
- Proper, Adequate Handwashing

And three individual data items exceeded a 30% out of compliance observation rate:

- Food-contact surfaces clean and sanitized
- Raw animal food separated from RTE foods
- Food protected from environmental contamination

Recommendations

By establishing a baseline, the information gathered from future baseline studies can be used to measure trends in terms of compliance with specific requirements of the Food Code. It is expected that an improvement in compliance with the risk factors will have a direct impact on the occurrence of foodborne illness in Oregon.

The results of this data will be used to develop specific goals for the Foodborne Illness Prevention Program Plan and determine future activities. Interventions will be developed based on additional data provided by OSU Graduate Student, Aimee Pragle and researcher Donna Beegle, PhD, through their handwashing focus groups and James Mack's EHS-Net research.

This report can be obtained in its entirety online at: www.healthoregon.org/foodsafety

If you need this report in an alternate format, please contact 503-731-4012.