EHS-Net Chicken Handling Study Protocol

1. Title
   EHS-Net Chicken Handling Study

2. Research abstract
Few studies have examined how raw chicken is prepared in restaurants. The purpose of this study is to collect descriptive data on chicken handling and cooking practices in restaurants. Specifically, we will collect data on:
- opportunities for cross contamination from *raw* chicken (before kill step) to the environment during storage, preparation, and cooking,
- final temperatures of chicken immediately after cooking (kill step), and
- opportunities for cross contamination from a contaminated environment to *cooked* chicken (after kill step) during preparation and cooking.

Only restaurants that receive raw chicken will be included in the study. Raw chicken is defined as chicken that has not been through a kill step and needs further cooking to reduce pathogens to a level unable to cause adverse health. Chicken that is whole, pre-cut, or processed (e.g., frozen, breaded) will be included in the study, *as long as it has not been through a kill step.*

This is an Environmental Health Specialist Network (EHS-Net) special study. EHS-Net is a collaboration involving the Centers for Disease Control and Prevention (CDC), the U.S. Food and Drug Administration (FDA), and nine state and local health department sites (California, Connecticut, Georgia, Iowa, Minnesota, New York, Oregon, Rhode Island and Tennessee); these partners have come together in an effort to better understand the contributing factors that lead to foodborne illness.

3. Background
Recently, the USDA reported that the proportion of chickens produced in U.S. slaughter establishments contaminated with *Salmonella* Enteritidis increased 4-fold from 2000 to 2005 (1). Studies have also indicated that most chicken produced in commercial plants is contaminated with *Campylobacter* jejuni (2, 14). These data indicate that contaminated raw chicken is common, and is likely to be contributing to foodborne illness. Indeed, epidemiologic investigations consistently identify chicken as a foodborne illness pathogen vehicle (11).

Contaminated chicken can cause illness from foodborne pathogens by way of cross contamination from raw chicken to the environment and ready-to-eat foods, which can occur during storage, preparation and cooking of raw chicken. Case-control studies have identified handling raw poultry as a risk factor for foodborne illness (5, 8), and epidemiologic data indicate that outbreaks of *Salmonella* spp., *Campylobacter* jejuni, and *Clostridium* perfringens have been associated with cross contamination of pathogens from raw chicken to the environment or ready-to-eat foods (3, 4, 13).

Contaminated chicken can also cause illness from foodborne pathogens through undercooking (i.e., inadequate kill step). Case-control studies have identified chicken consumption and eating undercooked poultry as risk factors for *Salmonella* Enteritidis and *Campylobacter* jejuni (6, 7, 12).

Chicken that has been cooked adequately (i.e., cooked to a kill-step temperature) can also cause illness, if it has been cross-contaminated through the environment or other food after cooking. Although current studies on the association between chicken consumption and foodborne illness do not differentiate between consumption of undercooked contaminated chicken and consumption of adequately cooked chicken that has been contaminated after cooking, it is reasonable to assume that both consumption pathways contribute to foodborne illness.

Data also indicate that the consumption of chicken *outside the home* (e.g., in a restaurant) is an important risk factor for acquiring a foodborne illness. Outbreaks associated with cross contamination of raw chicken to the environment and other foods have occurred in restaurants (3, 4, 13). Additionally, in case control studies, consumption of chicken outside the home has been associated with *Salmonella*

Enteritidis and *Campylobacter* jejuni (6). These data indicate that raw chicken is being improperly handled and cooked in restaurants. As trend data indicate that chicken has become one of the most popular entrees on restaurant menus, and is continuing to gain in popularity at restaurants (9, 10), proper handling and cooking of chicken to prevent foodborne illness is a particularly important issue for restaurants.

The data presented here indicate that improper handling of raw and cooked chicken, leading to cross contamination, and undercooking of raw chicken are important contributing factors to foodborne illness associated with chicken in restaurants. Yet relatively little data exists concerning chicken handling and cooking practices in restaurants. Thus, the purpose of this study is to gain a better understanding of how chicken is handled and cooked in restaurants.

4. Objectives

The primary purpose of this study is to collect descriptive data on chicken handling and cooking practices in restaurants. Specifically, we will collect data on:

- opportunities for cross contamination from *raw* chicken (before kill step) to the environment during storage, preparation, and cooking,
- final temperatures of chicken immediately after cooking (kill step), and
- opportunities for cross contamination from a contaminated environment to *cooked* chicken (after kill step) during preparation and cooking.

A secondary purpose of this study is to determine whether establishment characteristics, such as manager food safety knowledge, restaurant ownership (chain versus independent), and kitchen manager certification, are related to chicken handling and cooking practices.

Only restaurants that receive raw chicken will be included in the study. Raw chicken is defined as chicken that has been through a kill step and needs further cooking to reduce pathogens to a level unable to cause adverse health. Chicken that is whole, pre-cut, and processed (e.g., frozen, breaded, seared) will be included in the study, *as long as it has not been through a kill step.*

5. Design

This study will use a cross-sectional design to collect information about chicken handling and cooking practices in restaurants. Information will be collected through an interview with the kitchen manager and through observations in the restaurant kitchen. The study will be performed by EHS-Net environmental health specialists (EHSs) who work in state health departments.

Data Collection

Data collection will be conducted by EHS-Net specialists and local environmental health specialists trained by EHS-Net. The specialists will contact randomly selected restaurants by telephone to determine their interest in participating in the study (See Appendix A for Recruiting Script). If the restaurant is willing to participate, the specialists will inquire about chicken preparation and arrange a mutually convenient time to conduct the survey. For the interview portion of the study, the specialist will conduct a face-to-face interview with a manager with authority over the kitchen. For the observation portion of the survey, the specialist will observe the activity in the restaurant kitchen and observe chicken handling and preparation processes. The entire survey will take approximately 1.5 hours to complete.

Participation by the kitchen manager will be voluntary. The data collection will be anonymous. Although specialists will keep a list of establishments in which they have collected data, no identifying information on restaurants will be stored with the data. Thus, it will not be possible to link the study data with specific restaurants. However, the surveys will be given a unique identifier in order to link the manager surveys to the food worker surveys. Additionally, any information used to schedule visits, such as call logs, will be destroyed once data collection is complete.

Data Entry and Management

Data will be entered into a web-based information system designed specifically for this project. User accounts will be issued to the EHS-Net specialist in each state. Account privileges identify the data each specific user is authorized to access and the functions they are authorized to perform. Each EHS-Net specialist is responsible for the administration of the system for his or her own state, and includes user administration, correction and deletion of records capabilities. All data records are owned by the state entering the data. Each state has authority over its records and must grant permission to other states or agencies that would like to use the data.

Refusal Component

While previous EHS-Net studies of this design have had a refusal rate of approximately 27%, no comparisons between the types of establishments that do and do not participate in studies of this type has been done. Knowing whether differences are present will impact how generalizable the results of the study are. In this study, if a manager declines to participate during the telephone recruitment phase, the recruiter will ask permission to ask three short questions about the establishment by telephone.

Study Timeline

Activity	Time schedule
Conduct pilot	2 weeks after HS Administrator concurs with IRB exemption
Submit IRB amendments	1-2 months after exemption received
Conduct study	3-7 months after exemption received
Analyze data collected	8-12 months after exemption received

6. Research Subjects

Number and description of subjects

The study population will include all restaurants that prepare raw chicken in the EHS-Net catchment area. The catchment area for this study includes all or some counties in each of the following nine states: California, Connecticut, Georgia, Iowa, Minnesota, New York, Oregon, Rhode Island, and Tennessee. Each state will recruit establishments for participation in this study through telephone calls to the managers of restaurants on their list. Only restaurants that meet the EHS-Net definition of a restaurant and prepare raw chicken will be included in this study. A restaurant is defined as an establishment that prepares and serves food or beverages to customers but is not an institution, food cart, mobile food unit, temporary food stand, supermarket, restaurants in a supermarket, or caterer.

The sites will enroll a target of 50 establishments per site, and the study will be completed within 4 months. Based on previous experiences, we expect an approximate refusal rate of 27%. Each catchment area will include only one restaurant from each regional or national chain in its study population.

Method of selection/recruitment of subjects

Random selection from lists of restaurants in the catchment areas will be done at CDC. Enrollment will be attempted for all selected restaurants, until the target number of establishments has been enrolled. Establishments will be excluded if another restaurant of the same chain has already been enrolled. They will also be excluded if they do not prepare any menu items from raw chicken.

Compensation

No compensation will be provided.

7. Analysis

The analysis of the data will proceed in several stages. The first stage of analysis will involve data cleaning, editing, and recoding. A frequency response will be done for each variable to examine item non-response and extraneous responses. Variables with high item non-response or of poor quality will be discarded. The second stage will involve a descriptive analysis of the dataset by running univariate frequencies and cross-tabulations for selected variables by demographic variables (e.g. Independent vs. Chain restaurants). Tests for association will be done using chi-square and t-tests.

Analysis may also involve regression modeling of the data to examine any multivariate relationships and to control for confounding. A sub-analysis of establishment characteristics of participants versus refusers will be performed using chi-square analyses.

Analysis Software

SAS system for Windows version 9.1 will be used to analyze data

Study Limitations

Data will be collected in those states participating in EHS-Net (California, Connecticut, Georgia, Iowa, Minnesota, New York, Oregon, Rhode Island, and Tennessee). Given the nature of the study, the data are subject to interviewer bias and recall bias on the part of the interviewee. Therefore, findings may not be assumed to apply to the U.S. restaurant population as a whole.

8. Materials

The data collection consists of a semi-structured, face-to-face establishment manager interview and an observation of chicken preparation. These materials, as well as the informed consent, are attached.

9. Confidentiality Assurances

No confidentiality assurances will be provided.

10. Risks Summary

Current Risks

This study presents no more than minimal risk of harm to participants as the probability and magnitude of harm or discomfort anticipated in answering these questions are not greater in and of themselves than those ordinarily encountered in daily life. Participants in this study will not provide personally identifiable information.

Future Risks

No future risks exist since call logs will be destroyed once data collection is complete. These materials will be secured in a locked cabinet until destruction.

11. Benefits

To Subjects

There are no immediate benefits to subjects.

To Humankind

Humankind may benefit from fewer cases of illness caused by consumption of chicken products in restaurants.

12. Informed Consent

A waiver of documentation of informed consent is requested in accordance with 45 CFR 46.117(c)(2). The proposed research meets the first criteria for the waiver, as it presents no more than minimal risk of harm to participants as the probability and magnitude of harm or discomfort anticipated in answering these questions are not greater in and of themselves than those ordinarily encountered in daily life. Additionally, as participants in this study will not be providing personally identifiable information, activities for which written consent is not normally required outside the research context, the study also meets the second criteria for waiver.

Before conducting the study, we will obtain verbal informed consent from the restaurant manager. The EHS-Net specialist will read the manager a short introduction describing the purpose of the study and how the data will be used. The interviewer will then ask the manager if he or she agrees to participate in the study. If the manager agrees, the interview will proceed; if the manager does not agree, the interview will cease.

As indicated earlier, as part of this study, we will be collecting data about restaurants that refuse to participate in the study. A waiver of informed consent is requested for this portion of the data

collection, in accordance with 45 CFR 46.116 (d). This research portion meets the criteria for waiver of informed consent, as 1) the research involves no more than minimal risk to participants (the questions are basic questions about the restaurant, not the manager; and the data will be anonymous), 2) a waiver will not adversely affect the rights and welfare of the participants, and 3) the research could not practicably be carried out without a waiver (refusing restaurants will be unlikely to wait on the telephone to hear the informed consent before answering the questions of interest).

13. IRB Designation

We expect that the IRB will classify this project as exempt from IRB review, because it is research involving survey/interview procedures, and the data collected will be anonymous; thus, participants can not be identified (45 CFR 46.101 (b)).

14. Funding Information

This study is funded by the CDC EHS-Net project through a cooperative agreement.

15. Institutional Information

Not applicable.

16. Approvals from other IRBs

IRB approval or deferment will be obtained from CDC and all sites.

17. References

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CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INFORMED CONSENT
Appendix A: Recruiting Script

Hello this is _____ with the _____ Health Department. We are working with the Centers for Disease Control and Prevention (CDC) on a research project that focuses on restaurant chicken handling policies and practices and your location has been randomly selected to participate. Does this establishment serve any food item that includes chicken that arrives at your establishment raw? By raw, I mean chicken, even if it has been processed, that requires additional cooking before it is safe to eat. For example, this would include whole chickens, boneless chickens, and processed chicken pieces, like breaded nuggets, that can't be consumed without additional cooking.

☐ No → Thank you for your time.

☐ Yes ↓

Great! The study consists of a brief interview with the manager and observation of chicken storage, preparation, and cooking. Specifically we would like to observe where chicken is stored before preparation, preparation activities, including cutting, deboning, etc., and the cooking processes. Please keep in mind this is not an inspection and participation is voluntary but we would really appreciate your participation. Also, if you decide to participate, your name and your restaurant's name will not be linked in any way to the information we collect, nor will they be included in any reports.

Having said that, I need to let you know that at any time during the survey if I see something that is an imminent health hazard, such as no power, no water or sewage on the floor, I will need to stop the study and report the problem to your local health department. Could we schedule a time to come out when you will be preparing and cooking chicken and complete the survey?

☐ No → Thank you for your time. Do you have a moment to answer 3 quick questions before hanging up?
If Yes,

1. **Approximately how many meals are served here daily?** _____ (# meals)
   ❍ Unsure
   ❍ Refused

2. **Which one of the options below best describes the menu for this establishment?**
   ❍ American (non-ethnic)
   ❍ Asian
   ❍ Italian
   ❍ Mexican
   ❍ Other
   ❍ Unsure
   ❍ Refused

3. **Do you ever hold cooked meat or poultry overnight for service the next day?**
   ❍ Yes   ❍ Unsure
   ❍ No   ❍ Refused

If No, Thank you for your time.

☐ Yes ↓

Great! I'll visit your restaurant for about an hour and a half. Keeping in mind that a manager responsible for managing the kitchen must be available for the interview, and that we would like to be there when chicken is being prepared and cooked, when would be a convenient time to schedule the visit?

Date: Time:

Please call me at if you need to cancel or re-schedule, or if you have any questions.

CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INFORMED CONSENT

Let me give you a little background on why I'm here and what we are going to be doing. I'm working with _____ (state health department) on a research project designed to help us better understand restaurant chicken handling policies and practices. Your restaurant was picked at random to be in this project. Participation in this study is voluntary. You can choose to stop at any time. If you don't want to be part of the study or if you change your mind later, nothing will happen to you. Whether you are part of the study or not will not affect your restaurant's score on any health inspection.

Having said that, I need to let you know that at any time during the survey if I see something that is an imminent health hazard, such as no power, no water or sewage on the floor, I will need to stop the study and report the problem to your local health department.

We are doing this study to get a better understanding of restaurant policies and practices concerning the handling of raw chicken. While I'm here, I'm going to ask you some questions about this restaurant's policies and practices, and I will observe your kitchen and some of your employees working. The questions in the interview do not ask anything private. If any of the questions make you uncomfortable you can choose not to answer them. The information we collect today will be combined with information from other restaurants in various states. Your name and your restaurant's name will not be linked in any way to the information we collect, nor will they be included in any reports.

Do you have any questions?

If you have any questions at a later time, you can contact: (Local Contact Name). (If have card) My information is on this card.

Do you agree to be part of the study? *(Check appropriate box)*
☐ Yes (Continue with the interview)
☐ No (Thank you for your time)

Okay, I'd like to interview you first and then I'd like to see your kitchen.

CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INTERVIEW (PART I)

Time evaluation began: _____:_____ AM PM

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DEMOGRAPHIC / CLASSIFICATION

Read aloud: I'd like to ask you some questions about this restaurant. Please be as open and honest as possible. The first few questions focus on the establishment in general.

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1. **Is this an independent establishment or a chain establishment?**
   - ○ Independent
   - ○ Chain
   - ○ Unsure
   - ○ Refused

2. **Approximately how many meals are served here on your busiest day?**_____ *(# meals)*
   - ○ Unsure
   - ○ Refused

3. **Which one of the options below best describes the menu for this establishment?** *(Read options aloud)*
   - ○ American (non-ethnic)
   - ○ Asian
   - ○ Mexican
   - ○ Italian
   - ○ Other
   - ○ Unsure
   - ○ Refused

4. **Approximately how long have you worked in the foodservice industry?**
   - ○ < 6 months
   - ○ 6 months to < 1 year
   - ○ 1 year to < 2 years
   - ○ 2 years to < 4 years
   - ○ 4 years to < 6 years
   - ○ 6 years to < 8 years
   - ○ 8 years to < 10 years
   - ○ 10 years to < 15 years
   - ○ 15 to < 20 years
   - ○ ≥ 20 years
   - ○ Unsure
   - ○ Refused

5. **Approximately how long have you been employed as a manager here?**
   - ○ < 6 months
   - ○ 6 months to < 1 year
   - ○ 1 year to < 2 years
   - ○ 2 years to < 4 years
   - ○ 4 years to < 6 years
   - ○ 6 years to < 8 years
   - ○ 8 years to < 10 years
   - ○ 10 years to < 15 years
   - ○ 15 to < 20 years
   - ○ ≥ 20 years
   - ○ Unsure
   - ○ Refused

6. **What other duties or responsibilities are included in your position as manager?** *(check all that apply)*
   - ❑ Owner/Partner
   - ❑ Foodworker
   - ❑ Cook/chef (includes executive, sous chef, line cook, etc)
   - ❑ Host/hostess/wait staff
   - ❑ Bartender
   - ❑ Other: _____
   - ○ Unsure
   - ○ Refused

CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INTERVIEW (PART I)

MANAGER FOOD SAFETY TRAINING AND CERTIFICATION
Read aloud: The next few questions focus on kitchen managers. As I read the following questions, please keep in mind that we are asking about managers who have control over the kitchen area.

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7. **How many kitchen managers, including you, work in this restaurant?**
   _____ *(# kitchen managers)*
   ◯ Unsure
   ◯ Refused

8. **Have any kitchen managers received food safety training such as a course, class or on-the-job training?**
   ◯ Yes *(go to Q8a)*   ◯ Unsure *(go to Q9)*
   ◯ No *(go to Q9)*   ◯ Refused *(go to Q9)*

   8a. **How many kitchen managers, including you, have had food safety training?**
   _____ *(# kitchen managers with food safety training)*
   ◯ Unsure
   ◯ Refused

9. **Have any kitchen managers ever been food safety certified? (By food safety certification, I mean food safety training where a certificate is awarded upon completion of the training course.)**
   ◯ Yes *(go to Q9a)*   ◯ Unsure *(go to Q10)*
   ◯ No *(go to Q10)*   ◯ Refused *(go to Q10)*

   9a. **How many kitchen managers have been food safety certified?** _____ *(# managers)*
   ◯ Unsure
   ◯ Refused

   9b. **What organization provided the certification?** *(check all that apply)*
   ❏ ServSafe
   ❏ National Registry of Food Safety Professionals
   ❏ Thomson Prometric (*Including: Experior Assessments, National Assessment Institute, Chauncy, Educational Testing Service*)
   ❏ Other_____
   ◯ Unsure
   ◯ Refused

10. **Does this establishment require kitchen managers to be food safety certified?**
    ◯ Yes   ◯ Unsure
    ◯ No   ◯ Refused

11. **Have you or any other managers received specific training or instructions on how to safely prepare and cook raw chicken?**
    ◯ Yes   ◯ Unsure
    ◯ No   ◯ Refused

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FOODWORKER FOOD SAFETY TRAINING AND CERTIFICATION

Read aloud: The next few questions focus on foodworkers. And by foodworkers, I mean employees, excluding managers, who work in the kitchen. This does not include staff who have no food handling responsibilities or who have very limited food contact, such as adding garnish or condiments to a plate.

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12. **How many food workers, excluding managers, work in this restaurant?**_____ *(# foodworkers)*
    - ❍ Unsure
    - ❍ Refused

    If the number of foodworkers is zero, go to Q16.

13. **Have any foodworkers received food safety training such as a course, class or on-the-job training? The training did <u>not</u> have to result in certification.**
    - ❍ Yes *(go to Q13a)*
    - ❍ No *(go to Q14)*
    - ❍ Unsure *(go to Q14)*
    - ❍ Refused *(go to Q14)*

    13a. **How many food workers have received food safety training?** _____ *(# foodworkers)*
    - ❍ Unsure
    - ❍ Refused

    13b. **Was the food safety training for foodworkers** …
    - **a.** … **On the job training?**
      - ❍ Yes   ❍ Unsure
      - ❍ No   ❍ Refused
    - **b.** … **A manual or video?**
      - ❍ Yes   ❍ Unsure
      - ❍ No   ❍ Refused
    - **c.** … **A course or class?**
      - ❍ Yes   ❍ Unsure
      - ❍ No   ❍ Refused
    - **d.** …**Another type of training?**
      - ❍ Yes, specify: _____
      - ❍ No
      - ❍ Unsure
      - ❍ Refused

14. **Have any food workers ever been food safety certified? (By food safety certification, I mean food safety training where a certificate is awarded upon completion of the training course.)**
    - ❍ Yes *(go to Q14a)*
    - ❍ No *(go to Q15)*
    - ❍ Unsure *(go to Q15)*
    - ❍ Refused *(go to Q15)*

    14a. **How many foodworkers have been food safety certified?** _____ *(# foodworkers)*
    - ❍ Unsure
    - ❍ Refused

15. **Have any foodworkers received specific training or instruction on how to safely prepare and cook raw chicken?**
    - ❍ Yes   ❍ Unsure
    - ❍ No   ❍ Refused

CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INTERVIEW (PART I)

CHICKEN-HANDLING PRACTICES AND POLICIES
Read aloud: Now I'd like to ask you some general questions about this establishment's chicken-handling practices and policies. I'm only interested in activities that involve <u>raw</u> chicken. **For our purposes, raw chicken does not include chicken that you purchase pre-cooked.**

16. **Does this establishment cook _raw chicken_?**
    - ◯ Yes
    - ◯ No (*end interview*)
    - ◯ Unsure
    - ◯ Refused

17. **Where does this establishment get its <u>raw</u> chicken from?** *(check all that apply)*
    - ❒ General distributor
    - ❒ Corporate distributor
    - ❒ Meat distributor
    - ❒ Butcher shop
    - ❒ Grocery store
    - ❒ Farmer's market
    - ❒ Other _____
    - ◯ Unsure
    - ◯ Refused

18. **What types of <u>raw</u> chicken does this restaurant purchase?** *(check all that apply).*

❒ **Breasts / Tenders**	❒ **With Bones** ❒ Unsure ❒ Refused	❒ **Boneless** ❒ Unsure ❒ Refused
	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused
❒ **Wings / Legs / Thighs**	❒ **With Bones** ❒ Unsure ❒ Refused	❒ **Boneless** ❒ Unsure ❒ Refused
	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused
❒ **Whole**	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused	
❒ **Other (describe):** _____ _____ _____	❒ **With Bones** ❒ Unsure ❒ Refused	❒ **Boneless** ❒ Unsure ❒ Refused
	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused	❒ Unprocessed/Minimally processed ❒ Processed ❒ Unsure ❒ Refused

19. **Of the above chicken types, which do you purchase the most of (by weight)?**
    - ◯ Breasts / Tenders
    - ◯ Wings / Legs / Thighs
    - ◯ Whole
    - ◯ Other (*describe*): _____

CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INTERVIEW (PART I)

20. **Approximately how many total pounds of <u>raw chicken</u> (all types) do you purchase in a week?** _____ (*lbs total*)
 ❍ Unsure
 ❍ Refused

21. **Is the temperature of unfrozen, <u>raw chicken</u> measured when it arrives at your establishment?**
 ❍ Yes *(go to Q21a)*   ❍ Unsure *(go to Q22)*
 ❍ No *(go to Q22)*   ❍ Refused *(go to Q22)*

  21a. **Is the temperature recorded?**
   ❍ Yes   ❍ Unsure
   ❍ No   ❍ Refused

22. **Where is the raw chicken stored <u>before any preparation</u> takes place?** *(check all that apply)*
 ❐ Meat cooler   ❐ Other: _____
 ❐ Cooler (general purpose)
 ❐ Ambient storage   ❍ Unsure
 ❐ On ice   ❍ Other
 ❐ Freezer

23. **How often are single-use (disposable) gloves used during the preparation of raw chicken – never, rarely, sometimes, often, or always?**
   ❍ Never
   ❍ Rarely   ❍ Unsure
   ❍ Sometimes   ❍ Refused
   ❍ Often
   ❍ always

24. **How often is chicken washed or rinsed before preparation – never, rarely, sometimes, often, or always?**
   ❍ Never
   ❍ Rarely   ❍ Unsure
   ❍ Sometimes   ❍ Refused
   ❍ Often
   ❍ always

25. **How often do you designate certain cutting boards for raw meat only – never, rarely, sometimes, often, or always?**
   ❍ Never
   ❍ Rarely   ❍ Unsure
   ❍ Sometimes   ❍ Refused
   ❍ Often
   ❍ always

26. **Is there a cleaning policy regarding food contact surfaces that have been used to prepare raw chicken?**
- ○ Yes *(Go to Q26a)* ○ Unsure *(Go to Q27)*
- ○ No *(Go to Q27)* ○ Refused *(Go to Q27)*

26a. **Describe the policy for how food contact surfaces are cleaned and/or sanitized after they have been used for raw chicken.** (*check all that apply*)
- ❑ Wiped with a wet or dry cloth/towel

    26a.a. If wiped with a cloth/towel: **Are the cloths/towels stored/dipped in sanitizer solution?**
    - ○ Yes ○ Unsure
    - ○ No ○ Refused
- ❑ Put through dishwasher (washed/rinsed/sanitized)
- ❑ Washed/rinsed/sanitized in place
- ❑ Washed/rinsed/sanitized in 3-compartment sink
- ❑ Washed and rinsed
- ❑ Not cleaned
- ❑ Other *(Describe)*:_____
- ○ Unsure
- ○ Refused

26b. **According to that cleaning policy, how often are food contact surfaces cleaned/sanitized after being used for raw chicken?**
- ○ After each use ○ Never
- ○ Every _____ minutes ○ Other (*Describe*):_____
- ○ Every _____ hours ○ Unsure
- ○ At the end of each shift ○ Refused
- ○ Every day (every 24 hours)

27. **Which of the following processes are used to cook raw chicken in your restaurant?**
(check all that apply)
- ❑ Fry ❑ Stir-fry
- ❑ Boil/Stew ❑ Sauté
- ❑ Grill/Broil ❑ Other (*Describe*): _____
- ❑ Bake ○ Unknown
- ❑ Rotisserie/Roasted ○ Refused
- ❑ Microwave

28. **Do you ever hold cooked meat or poultry overnight for service the next day? Note that this question is about all meat, not just chicken.**
- ○ Yes ○ Unsure
- ○ No ○ Refused

CHICKEN-HANDLING STUDY INSTRUMENT
MANAGER INTERVIEW (PART I)

29. **How do foodworkers determine when chicken has reached its final cook temperature?** (*check all that apply*)
   - ❑ By its appearance ("eye-ball" it)
   - ❑ By touch or probing with a fork/utensil
   - ❑ By using a timer
   - ❑ By using a thermometer *(go to Q29a)*
   - ❑ "They just know"
   - ❑ Other (*Describe*):_____
   - ❍ Unsure
   - ❍ Refused

   29a. **How often is the thermometer checked for accuracy?**
      - ❍ *At least* once a day (*this includes once/shift, once/hour, etc*)
      - ❍ Once a week
      - ❍ Once a month
      - ❍ Never
      - ❍ Other (*Describe*): _____
      - ❍ Unsure
      - ❍ Refused

Now I'm going to ask a few questions about your beliefs about safe cooking and holding temperatures for chicken.

30. **To what final temperature do you think raw chicken needs to be cooked for the chicken to be safe to eat?** _____°F   ❍ Unsure
   ❍ Refused

31. **At what temperature do you think hot-held cooked chicken needs to be held for the chicken to be safe to eat?** _____°F   ❍ Unsure
   ❍ Refused

32. **At what temperature do you think cold-held cooked chicken needs to be held for the chicken to be safe to eat?** _____°F   ❍ Unsure
   ❍ Refused

Note: we are trying to determine the manager's knowledge/beliefs, not their establishment's policy. If they say their establishment requires one temp while their county requires another, ask them to what temperature they, the managers themselves, think chicken should be cooked to be safe.

33. **Out of the following four germs, which two are most likely to contaminate your kitchen during raw chicken preparation?** *(Read and show list.)*
   - ❑ **E. coli O157:H7**
   - ❑ **Campylobacter**   ❍ Unknown
   - ❑ **Staphylococcus aureus**   ❍ Refused
   - ❑ **Salmonella**

> **END OF MANAGER INTERVIEW**
> **Read aloud**: Those are all the questions I have. Thank you for your time.

CHICKEN-HANDLING STUDY INSTRUMENT
DATA COLLECTOR QUESTIONS (PART II)

1. Establishment type:
   - ○ Prep Serve
   - ○ Cook Serve
   - ○ Complex

2. FoodNet establishment type:
   - ○ Quick Service
   - ○ Regular Sit-down Service
   - ○ Cafeteria / Buffet Service

3. Who is collecting the data in this establishment? *(check all that apply)*
   - ☐ An EHS-Net state person not responsible for inspections in the establishment
   - ☐ An EHS-Net state person responsible for inspections in the establishment
   - ☐ Other (describe): _____

4. Is this establishment …
   a.… a sit-down restaurant?
       ○ Yes   ○ No   ○ Unsure
   d.… a banquet hall?
       ○ Yes   ○ No   ○ Unsure
   b.… a buffet establishment?
       ○ Yes   ○ No   ○ Unsure
   e.… an ethnic establishment?
       ○ Yes   ○ No   ○ Unsure
   c.… a quick service/fast food?
       ○ Yes   ○ No   ○ Unsure
   f. … a caterer?
       ○ Yes   ○ No   ○ Unsure

5. What is the minimum required temperature for **hot-holding** foods in this establishment's jurisdiction?
   - ○ 135°F
   - ○ 140°F
   - ○ Other temperature: _____°F
   - ○ Unsure

6. What is the maximum required temperature for **cold-holding** foods in this establishment's jurisdiction?
   - ○ 40°F
   - ○ 41°F
   - ○ 45°F
   - ○ Other temperature: _____°F
   - ○ Unsure

7. Is manager certification required in this establishment's jurisdiction?
   - ○ Yes
   - ○ No
   - ○ Unsure

8. How many hand sinks were available in the area(s) where chicken is prepared/cooked? _____ (*If zero, Skip to Observation section*)

    a. Was warm water available at all work area hand sinks?
   - ○ Yes
   - ○ No   *(Please specify number without _____)*

    b. Was soap available at (or near) all work area hand sinks?
   - ○ Yes
   - ○ No   *(Please specify number without _____)*

    c. Were paper or cloth drying towels available at (or near) all work area hand sinks?
   - ○ Yes
   - ○ No   *(Please specify number without _____)*

CHICKEN-HANDLING STUDY INSTRUMENT
OBSERVATION SECTION (PART III) - STORAGE

Time evaluation began: _____:_____ AM PM

Did you observe any storage of raw chicken during your observation time in the kitchen? *(STORAGE refers to raw chicken after it has been received <u>and</u> prior to any preparation.)*
❍ Yes   ❍ No *(go to PREPARATION section)*   ❍ Unsure *(go to PREPARATION section)*

1. What types of raw chicken did you observe in **storage** in this kitchen? *(Check all that apply)*

❑ Breasts / Tenders	❑ **With Bones** ❑ Unsure ❑ Refused	❑ **Boneless** ❑ Unsure ❑ Refused
	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused
❑ Wings / Legs / Thighs	❑ **With Bones** ❑ Unsure ❑ Refused	❑ **Boneless** ❑ Unsure ❑ Refused
	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused
❑ Whole	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused	
❑ Other (describe): _____ _____ _____	❑ **With Bones** ❑ Unsure ❑ Refused	❑ **Boneless** ❑ Unsure ❑ Refused
	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused	❑ Unprocessed/Minimally processed ❑ Processed ❑ Unsure ❑ Refused

2. Which types of refrigeration units does this restaurant use to store raw chicken?
        (check all that apply)   How many of each unit is used to store raw chicken?
    ❑ Raw animal foods cooler   _____ (# units)
    ❑ General purpose cooler   _____ (# units)
    ❑ Freezer   _____ (# units)
    ❑ Other: _____ _____ (# units)

3. What were the ambient temperatures in these storage units? *(Provide for up to 10 units)*

    1.____ 2.____ 3.____ 4.____ 5.____ 6.____ 7.____ 8.____ 9.____ 10.____   ❍ Unsure

4. Did you observe any **storage** conditions that could cause cross-contamination?
    ❍ Yes (If yes, how many <u>units</u> with x-cont issues? _____ *[# units]*)
    ❍ No *(go to PREPARATION section)*
    ❍ Unsure *(go to PREPARATION section)*

    4a. Describe the storage conditions leading to potential cross-contamination: *(check all that apply)*
    ❑ Raw chicken is stored *above* RTE or cooked foods
    ❑ Raw chicken is stored *so that it (or its container) is touching* RTE or cooked foods
    ❑ Raw chicken is stored above other raw meat
    ❑ Raw chicken containers are nested with other containers (containing any other type of food item)
    ❑ Other potential cross-contamination in storage: _____

For the preparation section: The preparation section is not a "food flow". Therefore, you do not need to answer these questions for the same piece of chicken. For example, if you observe a foodworker de-boning a whole chicken, you would complete Section B (De-bone). If you observe another foodworker marinating raw chicken breasts, you would also complete Section E (Season/Marinate/Batter), too. **NOTE:** Thawing, Cold-holding, and Partially cook/sear are not included in the grid – please see pages following the grid for questions pertaining to those processes.

1. During your time in the kitchen, did you observe raw chicken in any of the following processes?

   a. **Wash, rinse and/or soak** *(If yes, answer Section A in grid)*
      ❍ Yes ❍ No ❍ Unsure

   b. **De-bone** *(If yes, answer Section B in grid)*
      ❍ Yes ❍ No ❍ Unsure

   c. **Skin removal** *(If yes, answer Section C in grid)*
      ❍ Yes ❍ No ❍ Unsure

   d. **Cut/trim/slice** *(If yes, answer Section D in grid)*
      ❍ Yes ❍ No ❍ Unsure

   e. **Season/marinate/batter** *(If yes, answer Section E in grid)*
      ❍ Yes ❍ No ❍ Unsure

   f. **Grind** *(If yes, answer Section F in grid)*
      ❍ Yes ❍ No ❍ Unsure

   g. **Portion** *(If yes, answer Section G in grid)*
      ❍ Yes ❍ No ❍ Unsure

   h. **Other preparation**: _____ *(If yes, answer Section H in grid)*
      ❍ Yes ❍ No ❍ Unsure

   i. **Thawing** *(If yes, answer Section I on Page 15)*
      ❍ Yes ❍ No ❍ Unsure

   j. **Cold-holding** (of previously prepped raw chicken) *(If yes, answer Section J on Page 15)*
      ❍ Yes ❍ No ❍ Unsure

   k. **Partially cook/Sear** *(If yes, complete Section K on Page 16)*
      ❍ Yes ❍ No ❍ Unsure

   Note: Please complete the Preparation grid for each a-j process observed. Complete the Partially cook/Sear grid for process k.

2. If you answered "NO" to all of the above questions, was it because: *(Check all that apply)*
   ❑ Prep was not occurring during your visit, therefore you were not able to make any preparation observations.
   ❑ Raw frozen chicken was cooked directly from a frozen state, therefore no preparation took place.
   ❑ Other: _____

CHICKEN-HANDLING STUDY INSTRUMENT

OBSERVATION SECTION – PREPARATION (PART IV)

INSTRUCTIONS: If you observe a FW de-boning raw chicken, you would complete "De-bone". If you observe another FW grinding raw chicken breasts, you would also complete "Grind", too.	1. What type of raw chicken is being prepped? See chicken types listed in Manager Interview and Storage sections.	2. Where does prep take place? *(Check all that apply)* ❑ Cutting board, multi-purpose ❑ Cutting board, raw meat only ❑ Prep table ❑ Prep sink ❑ Sink, multi-purpose ❑ Sink, raw meat only ❑ Sink drain board, multi-purpose ❑ Sink drain board, raw meat only ❑ Sheet trays ❑ Paper/plastic prep sheets ❑ Other: _____ ❍ Unsure ❍ Unable to observe	3. After this process, were food contact items used in Q2 W/R/S? ❍ Yes ❍ No ❍ N/A- W/R/S not needed (i.e., item was used for other raw chicken immediately after step) ❍ Unsure ❍ Unable to observe *Answer a, b and c for each item noted in Q2. Also note if W/R/S occurred in proper order.*		4. Did you observe food contact items used in Q2 being used for other foods after being used with the chicken? ❍ Yes ❍ No ❍ Unsure ❍ Unable to observe *Answer only if items needed to be W/R/S but weren't* *Answer for each item noted in Q2 that needed to be W/R/S*
			a. W	b. R	C. S	
A. Wash/rinse/soak ❍ Y ❍ N ❍ U						
B. De-bone ❍ Y ❍ N ❍ U						
C. Skin removal ❍ Y ❍ N ❍ U						
D. Cut/trim/slice ❍ Y ❍ N ❍ U						
E. Season/marinate/batter ❍ Y ❍ N ❍ U						
F. Grind ❍ Y ❍ N ❍ U						
G. Portion ❍ Y ❍ N ❍ U						
H. Other prep: _____ ❍ Y ❍ N ❍ U						

CHICKEN-HANDLING STUDY INSTRUMENT
OBSERVATION SECTION – PREPARATION (PART IV)

	5. Utensils/equipment used during prep process? *(Check all that apply)*	6. After this process, were utensils/ equipment in Q5 W/R/S?				8. Type of hand contact during process?	8a. Were <u>bare hands</u> used in a way leading to x-cont of environment?	8b. Were <u>gloved hands</u> used in a way leading to x-cont of environment?
	❑ Pan/container/bowl, etc ❑ Knife ❑ Food slicer ❑ Tongs/fork ❑ Processor/blender/grinder ❑ Other utensils (spoons, whisk, tenderizing tool, etc) ——————————— ❍ No utensils/equipment used ❍ Unsure ❍ Unable to observe	❍ Yes ❍ No ❍ W/R/S not needed (i.e., item was used for other raw chicken immediately after step) ❍ Unsure ❍ Unable to observe *Answer a, b and c for each item noted in Q5. Also note if W/R/S occurred in proper order.*						❍ Yes ❍ No ❍ Unsure ❍ Unable to observe
		a. W	b. R	c. S				
A. Wash/rinse/soak ❍ Y ❍ N ❍ U								
B. De-bone ❍ Y ❍ N ❍ U								
C. Skin removal ❍ Y ❍ N ❍ U								
D. Cut/trim/slice ❍ Y ❍ N ❍ U								
E. Season/marinate/batter ❍ Y ❍ N ❍ U								
F. Grind ❍ Y ❍ N ❍ U								
G. Portion ❍ Y ❍ N ❍ U								
H. Other prep: ❍ Y ❍ N ❍ U								

	9. Wiping cloths used during process? ❍ Yes *(9a)* ❍ No *(10)* ❍ Unsure *(10)* ❍ Unable to observe *(10)*	9a. Wiping cloths used in way leading to x-cont? ❍ Yes ❍ No ❍ Unsure ❍ Unable to observe	10. FW wipes hands on apron/clothing during process? ❍ Yes *(10a)* ❍ No *(end of grid)* ❍ Unsure *(end of grid)* ❍ Unable to observe *(end of grid)*	10a. Apron/clothing changed before moving on to another task (not involving raw chicken)? ❍ Yes ❍ No ❍ Unsure ❍ Unable to observe
A. Wash/rinse/soak ❍ Y ❍ N ❍ U				
B. De-bone ❍ Y ❍ N ❍ U				
C. Skin removal ❍ Y ❍ N ❍ U				
D. Cut/trim/slice ❍ Y ❍ N ❍ U				
E. Season/marinate/batter ❍ Y ❍ N ❍ U				
F. Grind ❍ Y ❍ N ❍ U				
G. Portion ❍ Y ❍ N ❍ U				
H. Other prep: _____ _____ ❍ Y ❍ N ❍ U				

SECTION I - THAWING

I1.   Where does **thawing** take place?
    (check all that apply)
- ❑ At ambient temperature
- ❑ Under running water
- ❑ In a refrigeration unit
- ❑ In the microwave
- ❑ Other: _____
- ⭘ Unsure

I2.   Did you observe any **thawing** conditions that could cause cross-contamination?
    ⭘ Yes   ⭘ No   ⭘ Unsure *(go to next section)* ⭘ Unable to observe *(go to next section)*

    I2a.   Describe the **thawing** conditions leading to potential cross-contamination:
        (check all that apply)
- ❑ Raw chicken is thawed above RTE or cooked foods
- ❑ Raw chicken is thawed *so that it (or its container) is touching* RTE or cooked foods
- ❑ Raw chicken is thawed above other raw meat
- ❑ Thawing containers are nested with other containers (containing any other type of food item)
- ❑ Splash from running water contaminating other food items
- ❑ Other potential cross-contamination in **thawing**: _____

SECTION J – COLD-HOLDING (of previously prepped raw chicken)

J1.   Did you observe any **cold-holding** conditions that could cause cross-contamination?
- ⭘ Yes
- ⭘ No *(go to next section)*
- ⭘ Unsure *(go to next section)*

    J1a.   Describe the **cold-holding** conditions leading to potential cross-contamination:
        (check all that apply)
- ❑ Raw chicken is stored above RTE or cooked foods
- ❑ Raw chicken is stored *so that it (or its container) is touching* RTE or cooked foods
- ❑ Raw chicken is stored above other raw meat
- ❑ Raw chicken containers are nested with other containers (containing any other type of food item)
- ❑ Other potential cross-contamination in **cold-holding**: _____

K. PARTIALLY COOK / SEAR: Note that this section is only to be completed for chicken that is *intended to be* partially cooked/seared (e.g., chicken is browned and then placed in cooler to be fully cooked at a later time).

	1. Partial cook/sear process observed? *(Check all that apply)*	2. Is the chicken being partially cooked/seared an individual serving?	3. What type of raw chicken is being partially cooked/seared?	4. Were *any* utensils/food contact surfaces used for both raw/partially cooked chicken and cooked chicken?	5. Type of hand contact used during partially cook/sear?	5a. Were <u>bare hands</u> used in a way leading to x-cont of cooked chicken or environment?	5b. Were <u>gloved hands</u> used in a way leading to x-cont of cooked chicken or environment?
Complete this section only for chicken that is <u>intended to be</u> partially cooked/seared.	❑ Fry ❑ Grill/Broil ❑ Stir-fry ❑ Sauté ❑ Bake ❑ Rotisserie/ Roasted ❑ Boil/Stew ❑ Microwave ❑ Other: _____ ❍ Unsure	❍ Yes ❍ No ❍ Unsure ❍ Unable to observe	See chicken types listed in Manager Interview and Storage sections.	❍ Yes ❍ No ❍ Unsure ❍ Unable to observe		❍ Yes ❍ No ❍ Unsure ❍ Unable to observe	❍ Yes ❍ No ❍ Unsure ❍ Unable to observe
Partially cook/sear							

	6. Wiping cloths used during partially cooked/sear?	6a. Wiping cloths used in way leading to x-cont?	7. FW wipes hands on apron/ clothing after touching raw chicken during partially cook/sear?	7a. Aprons/ clothing changed before moving on to another task?	8. During partially cook/sear, were there conditions leading to x-cont of environment?	8a. Describe conditions:	9. Final temp of partially cook/sear chicken? *Note: If you are missing a final temp, please describe why in Q10.* *Answer 9a, or 9b, or 9c and 9d (9e is optional)*				
							9a. Individual serving	9b. Batch- 1 whole chicken	9c. Center, 9d. Edge, 9e. Other Batch-multiple whole chickens, multiple intact pieces, or shredded/cut/ sliced chicken		
		○ Yes ○ No ○ Unsure ○ Unable to observe	○ Yes *(7a)* ○ No *(8)* ○ Unsure ○ Unable to observe *(8)*	○ Yes ○ No ○ Unsure ○ Unable to observe		i.e., raw/ undercooked chicken touching cooked chicken on grill, raw chickens added to rotisserie dripping on cooked chickens below, etc	○ ___F ○ No temp ○Unsure *(10)*	○ ___F ○ No temp ○Unsure *(10)*	Center ○ ___F ○ No temp ○Unsure *(10)*	Edge ○ ___F ○ No temp ○Unsure *(10)*	Other ○ ___F ○ No temp ○Unsure *(10)* *(describe)*
Partially cook/sear											

	10. If you are missing a temp, please describe why.	11. How did the cook determine when chicken was done being partially cooked/seared? *(Check all that apply)*	12. After partially cook/sear, where was chicken placed? *(Check all that apply)*
		❑ By its appearance ("eye-ball" it) ❑ By touch or probing with utensil ❑ By using timer ❑ Thermometer ❑ "They just know" ❑ Other: _____ ○ Unsure ○ Unable to observe	❑ In cold holding (e.g., reach-in, cold rail, freezer, etc) ❑ Left at ambient temp ❑ Other: _____ ○ Unsure ○ Unable to observe
Partially cook/sear			

CHICKEN-HANDLING STUDY INSTRUMENT

OBSERVATION SECTION – **COOKING** (PART V)

Time evaluation began: _____:_____ AM PM

Did you observe the cooking of any <u>raw chicken</u> during your observation in the kitchen?

O Yes   O No *(end observation)*   O Unsure *(end observation)*

	1. Cooking process observed? *(If more than one is selected, indicate which is the final cooking process.)* *(Check all that apply)*	2. Is this chicken being cooked an individual serving?	3. What is the final cooked chicken product?	4. Were *any* utensils/food contact surfaces used for both raw chicken and cooked chicken?	5. Type of hand contact used during cooking?	5a. Were <u>bare hands</u> used in a way leading to x-cont of cooked chicken or environment?	5b. Were <u>gloved hands</u> used in a way leading to x-cont of cooked chicken or environment?
INSTRUCTIONS: Complete this section for up to 4 pieces of chicken being cooked during your visit.	☐ Fry Final? ☐ Grill/Broil Final? ☐ Stir-fry Final? ☐ Sauté Final? ☐ Bake Final? ☐ Rotisserie/Roasted Final? ☐ Boil/Stew Final? ☐ Microwave Final? ☐ Other: _____ Final? O Unsure	O Yes O No O Unsure O Unable to observe	O Boneless (breast/thighs, etc) O With bones O Whole chicken O Cut/sliced/diced /shredded, etc O Breaded/processed/formed O Unsure O Unable to observe	O Yes O No O Unsure O Unable to observe		O Yes O No O Unsure O Unable to observe	O Yes O No O Unsure O Unable to observe
COOKING 1:							
COOKING 2:							
COOKING 3:							
COOKING 4:							

	6. Wiping cloths used during cooking?	6a. Wiping cloths used in way leading to x-cont?	7. FW wipes hands on apron/cloth ing after touching raw chicken during cooking?	7a. Aprons/ clothing changed before moving on to another task?	8. During cooking, were there conditions leading to x-cont of environment?	8a. Describe conditions:	9. Final cook temp? *Note: If you are missing a final cook temp, please describe why in Q10.* *Answer 9a, or 9b, or 9c and 9d (9e is optional)*				
							9a. Individual serving	9b. Batch- 1 whole chicken	9c. Center, 9d. Edge, 9e. Other Batch-multiple whole chickens, multiple intact pieces, or shredded/cut/sliced chicken		
		○ Yes ○ No ○ Unsure ○ Unable to observe	○ Yes *(7a)* ○ No *(8)* ○ Unsure *(8)* ○ Unable to observe *(8)*	○ Yes ○ No ○ Unsure ○ Unable to observe		i.e., raw/ undercooked chicken touching cooked chicken on grill, raw chickens added to rotisserie dripping on cooked chickens below, etc	○ ___F ○ No temp ○Unsure *(10)*	○ ___F ○ No temp ○Unsure *(10)*	Center ○ ___F ○ No temp ○Unsure *(10)*	Edge ○ ___F ○ No temp ○Unsure *(10)*	Other ○ ___F ○ No temp ○Unsure *(10)* *(describe)*
COOKING 1:											
COOKING 2:											
COOKING 3:											
COOKING 4:											

	10. If you are missing a final cook temp, please describe why.	11. How did the cook determine when chicken was done? *(Check all that apply)*	12. <u>After cooking</u>, was chicken: *(Check all that apply)*	13. <u>After cooking</u>, were there conditions leading to x-cont of <u>cooked chicken product</u>?	13a. Describe x-cont conditions:	14. Did you notice any conditions during cooking that may lead to undercooking or uneven cooking of chicken?	14a. Describe conditions:
		❑ By its appearance ("eye-ball" it) ❑ By touch or probing with utensil ❑ By using timer ❑ Thermometer ❑ "They just know" ❑ Other: _____ ○ Unsure ○ Unable to observe	❑ Served to customer (individually plated) ❑ Placed on self-service buffet (hot or cold) ❑ Placed in hot-holding unit ❑ Placed in cold-holding unit (i.e., reach-in, cold rail, blast chiller, walk-in, etc) ❑ Other: _____ ○ Unsure ○ Unable to observe		i.e., cooked chicken placed on cutting board that was previously used for raw meat		
COOKING 1:							
COOKING 2:							
COOKING 3:							
COOKING 4:							

Chicken Handling Study Instructions

I. Study Design
- Study design will be cross-sectional.
- Study will include a manager interview and observation of chicken preparation and cooking.
- Data collection will be independent of an inspection.
- Restaurants will be randomly selected from a list supplied by the EHS.
- Data will be collected in 50 restaurants in each catchment area.
- Data will be anonymous.
- EHS-Net specialists will collect the data.
- An appointment will be made with the establishment to collect the data.

Eligible restaurants: Only restaurants that meet the EHS-Net definition of a restaurant and receive and prepare raw chicken will be included in the study. Raw chicken is defined as chicken that has **not** been through a kill step and needs further cooking to reduce pathogens to a level unable to cause adverse health. Chicken that is whole, pre-cut, and processed (e.g., frozen, breaded, seared) will be included in the study, *as long as it has not been through a kill step.* The recruiting script will be designed to ensure we only include eligible restaurants in the study.

Use of locals for data collection: Locals will **not** be used in the data collection for this study.

II. Recruitment

A. Recruiting Procedure
We expect each state to collect data for this study in 50 restaurants. Each state will receive a list of randomly selected restaurants from the CDC and will use this list to obtain restaurant participants for this study. The number of restaurants on this list will be inflated by state refusal and ineligible rates (as determined by previous studies) to ensure that each state will be able to meet the target of 50 restaurants. For example, if 25% of restaurants in a state refused or were ineligible (e.g., they were shut down, didn't meet the EHS-Net definition of a restaurant), we will provide that state with a list of 67 restaurants, expecting that approximately 25% (17) of the 67 would refuse to participate or would be ineligible to participate, and 50 would agree to participate.

WHEN RECRUITING, PLEASE ADHERE TO THE GUIDELINES DESCRIBED BELOW.

1. **Make multiple attempts to contact restaurants**.
   Recruiters need to make a concerted effort to establish contact with any restaurant that they initially try to contact. This is important because there may be systematic differences between easy-to-contact restaurants and hard-to-contact restaurants. For example, easy-to-contact restaurants may be less busy, better staffed, or better run than hard-to-contact restaurants. As these systematic differences could impact practices in the restaurant, we want to be sure that hard-to-contact restaurants are represented in our sample as well as easy-to-contact restaurants. To ensure that every effort is made to contact all restaurants in the sample, please do the following:
   - **Unanswered calls:** For unanswered calls make a minimum of 10 attempts over 5 days to reach an establishment.
   - **Answered calls:** For an answered call where no response was given (i.e. call back later) a minimum of 5 attempts over a minimum of 4 days should be made to the establishment to attempt to get a response.
   You should make your call attempts at different times during the day.
2. **Record all call attempts in the provided Call Tracking Log**. A Call Tracking Log designed to assist in keeping track of your calls can be found in back of this document. Please fill out the Call Log with the following information:
   - Call Date
   - Call Time
   - Establishment Information
   - Attempt Number: The number of the attempt to call a particular restaurant
   - Results or Disposition of Call: No answer, Nonworking number, Told to call back, etc.
   If you wish, you can use another method for keeping track of your calls. The CDC will not be requesting these logs.

3. **Record the final disposition of all restaurants in the Participation Log**. The Excel file called *Chicken Study Participation Log* should be used to keep track of the responses of the restaurants. Once you have made a final determination about a restaurant, fill out the Participation Log with the following information. *Please note that drop-down menus are provided in the spreadsheet to assist you in data entry.* When you click on a cell, a boxed arrow will appear to the right of the cell. Click on it, and your response options will appear. **This completed Participation Log will be given to the CDC at the end of data collection, and used to calculate refusal and participation rates and to examine differences between refusing and participating restaurants.**

For all restaurants you attempt to contact, enter in the appropriate spaces:
- **Participation code:** Indicate the response you received from the restaurant using the following codes.
  - **UNABLE TO CONTACT (U):** Use this response code if you followed the protocol above for unanswered calls and do not ever make contact with a restaurant. Also use this code if you cannot find a working number for a restaurant.
  - **PARTICIPATING (P):** Use this code if you are able to contact a restaurant, it meets the EHS-Net definition, it is not part of an already participating chain, it is eligible to participate, and the restaurant agrees to participate.
  - **REFUSED (R):** Use this code if you followed the protocol above for answered calls and make contact with a restaurant, but do not ever get a definitive response on participation. You will also use this code if you do make contact but the manager/owner declines to participate.
  - **CLOSED (CL):** Use this code if you determine that the restaurant is closed.
  - **CHAIN (C):** Use this code if a restaurant on your list is part of chain, and you have already collected data (or you are scheduled to collect data) from a restaurant in that chain.
  - **INELIGIBLE RESTAURANT- NOT EHS-NET (I1):** Use this code if you determine that the restaurant *does not meet the EHS-Net definition of a restaurant*. The following is the EHS-Net definition of a restaurant: An establishment that prepares and serves food to customers; institutions, food carts, mobile food units, temporary food stands, restaurants in supermarkets, and establishments that *only* cater are *not* included.
  - **INELIGIBLE RESTAURANT-CHICKEN (I2):** Use this code if you are able to contact a restaurant, it meets the EHS-Net definition, and it is not part of an already participating chain but it *does not receive and prepare raw chicken*.
  - **INELIGIBLE RESTAURANT- LANGUAGE (I3):** Use this code if you are able to contact a restaurant, it meets the EHS-Net definition, and it is not part of an already participating chain but *there are no managers who speak English*.
  - **OTHER (O):** Something that does not fall into any of the other categories.

For all participating and refusing restaurants, also enter in the appropriate spaces:
- **The answers to the following 5 questions:**
  1. Is this an independent or chain establishment?
  2. How much difficulty did you have communicating with the person who gave you your answer on participation?
        None   A little   Some   A lot
  3. How many calls did you make before receiving an answer?
  4. What day of the week did you receive your answer?
  5. What time of day did you receive your answer? *(Please choose the half hour segment that best matches the time.)*

The above questions should be answered by you, *not* the respondent.

For all <u>refusing</u> restaurants, also enter in the appropriate spaces:
- **Refusal reason:** Any information they may provide on the reasons for refusal
- **Whether they agreed to answer the 3 refuser questions.**
- **If so, the respondent's answers to the 3 refuser questions:**
  1. **Approximately how many meals do you serve on your busiest day?**
     - ○ 1-50 meals per day
     - ○ 51-100 meals per day
     - ○ 101-200 meals per day
     - ○ 201-300 meals per day
     - ○ 301-500 meals per day
     - ○ More than 500 meals per day
     - ○ Unsure
     - ○ Refused
  2. **Which one of the following best describes your restaurant's menu—American, Asian, Italian, Mexican, or other?**
     - ○ American (non-ethnic)
     - ○ Asian
     - ○ Mexican
     - ○ Italian
     - ○ Other
     - ○ Unsure
     - ○ Refused
  3. **Do you ever hold cooked meat or poultry overnight for service the next day?**
     - ○ Yes   ○ Unsure
     - ○ No   ○ Refused

4. **Stop collecting data once you have collected data in 50 restaurants**. When you have collected data in 50 restaurants, you do not have to collect any more data, even if you have restaurants on the list that you have not yet contacted.

B. Recruiting Script
A recruiting script for calls to managers is included in the protocol and below.

Appendix A: Recruiting Script

Hello this is _____ with the _____ Health Department. We are working with the Centers for Disease Control and Prevention (CDC) on a research project that focuses on restaurant chicken handling policies and practices and your location has been randomly selected to participate. Does this establishment serve any food item that includes chicken that arrives at your establishment raw? By raw, I mean chicken, even if it has been processed, that requires additional cooking before it is safe to eat. For example, this would include whole chickens, boneless chickens, and processed chicken pieces, like breaded nuggets, that can't be consumed without additional cooking.

☐ No → Thank you for your time.

☐ Yes ↓

Great! The study consists of a brief interview with the manager and observation of chicken storage, preparation, and cooking. Specifically we would like to observe where chicken is stored before preparation, preparation activities, including cutting, deboning, etc., and the cooking processes. Please keep in mind this is not an inspection and participation is voluntary but we would really appreciate your participation. Also, if you decide to participate, your name and your restaurant's name will not be linked in any way to the information we collect, nor will they be included in any reports.

Having said that, I need to let you know that at any time during the survey if I see something that is an imminent health hazard, such as no power, no water or sewage on the floor, I will need to stop the study and report the problem to your local health department.

Could we schedule a time to come out when you will be preparing and cooking chicken and complete the survey?

☐ No → Thank you for your time. Do you have a moment to answer 3 quick questions before hanging up?
If Yes,

1. **Approximately how many meals are served here daily?** _____ (# meals)
   - ❍ Unsure
   - ❍ Refused

2. **Which one of the options below best describes the menu for this establishment?**
   - ❍ American (non-ethnic)
   - ❍ Asian
   - ❍ Italian
   - ❍ Mexican
   - ❍ Other
   - ❍ Unsure
   - ❍ Refused

3. **Do you ever hold cooked meat or poultry overnight for service the next day?**
   - ❍ Yes   ❍ Unsure
   - ❍ No   ❍ Refused

If No, Thank you for your time.

☐ Yes ↓
Great! I'll visit your restaurant for about an hour and a half. Keeping in mind that a manager responsible for managing the kitchen must be available for the interview, and that we would like to be there when chicken is being prepared and cooked, when would be a convenient time to schedule the visit?

Date: Time:

Please call me at if you need to cancel or re-schedule, or if you have any questions.

III. Data Collection

Scheduling visits around preparation and cooking: Ideally, you will be able to schedule a time to visit the restaurant when both chicken preparation and cooking are occurring. We strongly encourage this. However, you may not always be able to do this. If you are unable to visit the restaurant when both preparation and cooking are occurring, you have two choices: 1) Schedule the visit for when preparation will be occurring. 2) If it is feasible (i.e., the restaurant is willing and you have the time) to visit the restaurant at two different times (prep time and cooking time), then do so.

Time in establishment: Spend about *an hour and a half* in the establishment (note that we say in the recruiting script that we will be there about an hour and a half, so be careful about not going too much over that). The manager interview will take about 20 minutes; spend the rest of the time conducting the storage, preparation, and cooking observations. After the manager interview, you may wish to find out from the manager what will be happening in the kitchen and when, so that you can plan accordingly. For example, if a piece of chicken will shortly be cooked for an hour in the oven, you may wish to observe the beginning cooking process, then observe preparation processes, and then go back and observe the end of the cooking process.

Organizing Forms. We are keeping the data collected in this study anonymous, meaning that we do not want to be able to link any data collected to the restaurant from which the data came. Thus, once you complete your data collection, you will need to separate any identifying information on the restaurant from the restaurant's data.

Manager Informed Consent
Once at the restaurant, you will meet with the manager and obtain their informed consent. This script is included in the protocol.

Note: Throughout the data collection instrument, boxes (❑) indicate that there could be multiple answers to the question, while circles (❍) indicate that there should be only one answer to the question. Additionally, instructions to the interviewers are in italics.

Part I. Manager Interview
- After obtaining informed consent, you will interview a *manager with authority over the kitchen*. Please use the following guidelines.

1. General Guidelines
- Boxes (❑) indicate that there could be multiple answers to the question.
- Circles (❍) indicate that there should be only one answer to the question.
- For each survey question, you will read each question aloud and mark the appropriate response.
- Do not read answer choices aloud unless the instructions indicate that you should do so.
- You should attempt to obtain an answer to each question in the interview; however, if you believe that the establishment manager is unaware or unsure of the answer to a question, the response should be recorded as "Unsure," and if the manager refuses to answer a question, the response should be recorded as "Refused." If you forgot to answer a question, the response should be recorded as "Missing."

2. Specific Questions
- **Question 10, establishment kitchen manager certification requirement:** This question is designed to determine if the *establishment* requires certification. If the state or local jurisdiction requires certification, then the answer to this question will be "yes" by default. If the jurisdiction does not require certification, then the answer to this question could be "yes" or "no.
- **Question 18, Chicken type question:** This question is designed to determine the type of *raw* chicken the restaurant purchases. Specifically, we are interested in the type of chicken part (breasts/tenders, wings/legs/thighs, whole chicken, or other), whether the chicken has bones, and whether the chicken is processed prior to purchase.
  - Use the following definitions when answering this question.
    - *Unprocessed/Minimally processed chicken* is an intact piece of chicken that is unseasoned, unbreaded, and not formed. The chicken may be whole, pre-cut with bones and skin, or boneless and skinless. The chicken may be fresh or frozen. (Note that skinning and de-boning are considered minimal processing.)
    - *Processed chicken* is chicken that has received more than minimal processing. This processing may include one or several of the following: *portioning, grinding, seasoning, breading, forming* or *battering*. Processed chicken is considered **ready-to-cook**. The chicken may be fresh, frozen, or individually quick frozen.
    - *Examples*:
      - <u>Minimally processed</u>: a package of unseasoned chicken breasts.
      - <u>Processed</u>: a package of seasoned chicken breasts.
      - <u>Minimally processed</u>: a 10 lb bag of boneless, skinless breasts; breasts vary in size and contain rib meat. (Because the chicken contains rib meat, it is likely that some trimming/cutting will be necessary.)
      - <u>Processed</u>: chicken breasts packed 15 to a tray and ready to be prepared or cooked with little or no additional preparation.

This question may require some probing to ensure that you determine whether each chicken type has bones, and how processed the chicken is. Suggested probes include: "What is done to the chicken prior to cooking it? For example, is it seasoned?" An example follows:

Data collector (DC): What type of chicken do you purchase?
Manager (M): Breasts and legs.
DC: Do the breasts and legs have bones?
M: The breasts don't, but the legs do.
DC: Does the manufacturer do anything to the breasts? For example, are they breaded or seasoned?
M: No, I don't think so.
DC: What about the legs?
M: We buy them pre-breaded.

Example: A restaurant purchases bone-in breasts with breading (processed); bone-in breasts, minimally processed; boneless thighs breaded (processed), and whole chickens, minimally processed.
  - *Bone-in breasts with breading:* Check Breasts/Tenders, check the With Bones option that corresponds with the Breasts/Tenders option, and check the Processed option that corresponds with that With Bones option.

- o *Bone-in breasts, minimally processed:* Check Breasts/Tenders (already checked), check the With Bones option that corresponds with the Breasts/Tenders option (already checked), and check the Minimally processed option that corresponds with that With Bones option.
- o *Boneless thighs breaded:* Check the Wings/Legs/Thighs option, check the Boneless options that corresponds with the Wings/Legs/Thighs option, and check the Processed option that corresponds with that Boneless option.
- o *Whole chickens, minimally processed:* Check the Whole option, and check the Minimally processed option that corresponds with that Whole option.

Example

☒ **Breasts / Tenders**	☒ **With Bones** ☐ Unsure ☐ Refused		☐ **Boneless** ☐ Unsure ☐ Refused	
	☒ Minimally processed	☐ Unsure	☐ Minimally processed	☐ Unsure
	☒ Processed	☐ Refused	☐ Processed	☐ Refused
☒ **Wings / Legs / Thighs**	☐ **With Bones** ☐ Unsure ☐ Refused		☒ **Boneless** ☐ Unsure ☐ Refused	
	☐ Minimally processed	☐ Unsure	☐ Minimally processed	☐ Unsure
	☐ Processed	☐ Refused	☒ Processed	☐ Refused
☒ **Whole**	☒ Minimally processed	☐ Unsure		
	☐ Processed	☐ Refused		
☐ **Other (describe):** ——————— ——————— ———————	☐ **With Bones** ☐ Unsure ☐ Refused		☐ **Boneless** ☐ Unsure ☐ Refused	
	☐ Minimally processed	☐ Unsure	☐ Minimally processed	☐ Unsure
	☐ Processed	☐ Refused	☐ Processed	☐ Refused

Part II. Questions To Be Answered By Data Collector

This section contains several questions that the data collector should answer. The data collector should determine the EHS-Net establishment type (Question 1), and the FoodNet establishment type (Question 2), note who collected the data (Question 3), describe the establishment (Question 4), note requirements in that jurisdiction (Questions 5-7), and answer the sink questions (Question 8).

Observation Response Options

Unsure- You were able to observe the action in question, but could not determine exactly what happened. For example, you saw tongs being dipped in a bucket of water, but could not ascertain if the water contained sanitizer.

Unable To Observe- The action of interest was not occurring during your observation. For example, you had to leave before a worker finished using tongs, so you could not observe if the tongs were washed when the worker was finished.

Missing- You forgot to observe/record something. This option is not included on the form; only on the data entry system.

Part III. Storage Observation

After the interview, you will observe storage units to determine what kind of raw chicken and is stored in the kitchen and how it is stored in the kitchen.

- **Question 1, chicken types:** Note all the types of raw chicken stored in the kitchen. Base your categorization on the definitions and instructions provided above for Manager Interview, Question 20.
- **Question 2, storage units:** Note the types of storage units used to store the chicken.
- **Question 3, ambient temps:** Take the ambient temperatures of all storage units containing raw chicken record them. If there are more than 10 units, you will only report temps of the first 10 units.
- **Questions 4 and 4a, storage cross-contamination:** Observe for potential cross contamination from raw chicken to other things in storage and note how many units you saw this in and what the potential cross contamination was.

- Note that during your observation of storage units, you may see raw chicken that has been previously prepped. An example would be raw chicken that is marinating in the cooler. *This previously prepped chicken is to be excluded when answering Questions 1-4.* You will need to complete Section J (cold holding) on this previously prepped chicken.

Part IV: Preparation Observation

- a-l: Note whether you **observed** each of the 10 processes listed. Note that this is <u>not</u> a food flow; you will <u>not</u> be observing all the processes that occur in the preparation of one single piece of chicken. Instead, you will collect data on whatever chicken is being prepared during your observation. For example, if you observe one worker season a piece of chicken, and then observe another worker de-bone a different piece of chicken, you will record information on both of these processes.
- You will try to capture information on all the chicken preparation processes that occur in the restaurant and that are listed in a-j.

1. Section A-H, Preparation Observation Grid

- This grid collects information on 8 of the 10 possible chicken preparation processes-(W/R/S, De-bone, Skin removal, Cut/trim/slice, Season/marinate/batter, Grind, Portion, Other)
- If a preparation process occurs *during the cooking process* (e.g., marinade is added to chicken being grilled*)*, it will <u>not</u> be recorded in this grid.
- **Question 1, chicken type:** Base your categorization on the definitions and instructions provided above for Manager Interview, Question 20.
- **Question 2, where does prep take place:** Note where the preparation takes place. You may need to ask the worker to determine if the cutting board is a meat only cutting board.
- **Question 3, were food contact items W/R/S:**
  - o Note whether you saw the food contact items noted in Q2 washed, rinsed and sanitized after use with chicken. This question should be answered for each item noted in Question 2. If the items were washed, rinsed, and sanitized, you will also note if the W/R/S occurred in the proper order.
    - ▪ *Example:* You observe a worker wash and rinse a prep table, and then spray a solution from a bottle labeled SANITIZER onto a prep table. The answers to Q3a-c would be YES because you saw attempts to wash, rinse and sanitize.
    - ▪ *Example:* You observed a worker wash a prep table and then spray a chemical sanitizer on a prep table. The answer to Q3a would be YES, the answer to Q3b would be NO, because you saw no attempt to rinse the table, and the answer to Q3c would be YES.
    - ▪ *Example:* If you are unable to observe the W/R/S process for a piece of equipment but you see it sent to the dirty dish area of the mechanical dishwasher or the drain board of a properly set up 3-bay sink, assume the answers to Q3a-c are YES.
    - ▪ *Example:* If the worker dips equipment into a soapy solution, wipes it off with a towel and puts it into a rack, the answer to Q3a is YES, but the answers to Q3b and c are NO because there was no attempt to rinse or sanitize.
  - o We are merely trying to ascertain if they are making an *attempt* at washing, rinsing and sanitizing. The concentration of chemical sanitizers will<u>not</u> be measured by the data collector. If you are not sure what they are attempting; for example, the prep table is washed with soapy water and then wiped down with a cloth from a bucket, you may want to ask the food worker if the bucket has sanitizer in it (to determine if they were attempting a rinse step or a sanitizer step).
  - o If an item did not need to be W/R/S because it was used for other raw chicken immediately after the step in question, you will choose the 'N/A- W/R/S NOT NEEDED' response option.
- **Question 4, were food contact items used for other foods:** Note whether you saw the food contact items noted in Question 2 used with other foods after being used with the chicken you were observing. Note this for each item noted in Question 2. You will only answer this question if the item needed to be W/R/S. If the item was W/R/S and was done so in the correct order, you will choose the 'N/A- W/R/S OCCURRED IN PROPER ORDER' response option.
- **Question 5, utensils/equipment used during step:** Note the utensils and equipment used during this process.
- **Question 6, were utensils/equipment W/R/S:**
  - o Note whether you saw the food contact items noted in Q5 washed, rinsed and sanitized after use with chicken. This question should be answered for each item noted in Question 5. If the items were washed, rinsed, and sanitized, you will also note if the W/R/S occurred in the proper order.

- o We are merely trying to ascertain if they are making an *attempt* at washing, rinsing and sanitizing. The concentration of chemical sanitizers will <u>not</u> be measured by the data collector. If you are not sure what they are attempting, you may want to ask the food worker if sanitizer is being used.
  - o If an item did not need to be W/R/S because it was used for other raw chicken immediately after the step in question, you will choose the 'N/A- W/R/S NOT NEEDED' response option.
- **Question 7, were utensils/equipment used for other foods:** Note whether you saw the items noted in Question 5 used with other foods after being used with the chicken you were observing. Note this for each item noted in Question 5. You will only answer this question if the item needed to be W/R/S. If the item was W/R/S and was done so in the correct order, you will choose the 'N/A- W/R/S OCCURRED IN PROPER ORDER' response option.
- **Question 8, hand contact:** Note whether there was bare-hand, glove-hand, or both kinds of hand contact during the process. If the answer is bare-hand, answer 8a, if the answer is glove-hand, answer 8b, if the answer is both, answer both 8a and 8b.
- **Question 8a, hand use lead to cross-contamination:** Note whether hands are used in a way that could cause cross-contamination of cooked chicken or the environment (other foods, equipment, etc.). For example, if bare-hands are used to handle raw chicken and then are used to touch clean pans without washing first, then the answer to this question would be yes. Note: For the purpose of this study, a handwash is defined as an attempt with soap, water, and a proper drying method (e.g., single use clean dry towel, hot air dryer, paper towels).
- **Question 8b, glove use lead to cross-contamination:** Note whether gloves are used in a way that could cause cross-contamination of cooked chicken or the environment (other foods, equipment, etc.). For example, if glove-hands are used to handle raw chicken and then are used to touch clean pans without removing the gloves first, then the answer to this question would be Yes.
- **Question 9, wiping cloths used:** Note whether wiping cloths were used during this process. For the purpose of this study, wiping cloths are defined as wet or dry cloths in use to remove soil from people or equipment surfaces. This includes cloths stored in a sanitizing solution. Answer 9a if the answer to this question is Yes.
- **Question 9a, wiping cloths use lead to cross-contamination:** Question 9a is designed to assess whether wiping cloths are used in a way that could cause cross contamination of cooked chicken or the environment (other foods, equipment, etc.). Thus, wiping cloths used with both raw chicken and other items, such as food or equipment, would be classified as being used in a way that could cause cross contamination. For example, if a worker wipes his hands that he just used to handle raw chicken on a wiping cloth, and the cloth is then used to wipe down a prep table, the answer to this question would be Yes.
- **Question 10, wipe hands on apron/clothing:** Note whether the worker wipes his hands on his apron or clothing at any point during the process. Answer 10a if the answer to this question is Yes.
- **Question 10a, apron/clothing changed:** If the worker wiped his hands on his apron or clothing during the process, note whether he then changed his apron/clothing.
- Appendix A includes preparation process examples with corresponding actions coded in the grid.

2. Section I- Thawing
- Answer questions I1-I2a if you observe thawing. Note that you must observe chicken thawing to complete this section.

3. Section J- Cold-holding
- Answer questions J1 and J1a if you observe cold-holding.

4. Section K- Partial Cooking/Searing
- This section is only to be completed for chicken that is *intended to be* partially cooked/seared (e.g., chicken is browned, and then placed in cooler to be fully cooked at a later time). A partial cook/sear process is one in which the chicken goes from some kind of heating process (that is *not* intended to be a kill step) to storage/holding for some period of time. You may need to ask the cook whether the cooking process you are observing is intended to be a partial cook process. If the chicken goes from cook process to cook process, with the end result being a kill step, then no process would be considered partial cook, and you would record all data in the cooking grid. You may start off your observation recording data in the cooking grid, but you may need to switch to recording the data in the partial cook/sear section, if you determine that the process is actually a partial cook process, rather than a process that involves a kill step.
- The instructions for completing the Partially Cook/Sear observation section mirror those for the Cooking observation section.

Part V: Cooking Observation
1. Cooking Grid
- For this section, you will observe the cooking of *at least one* piece of chicken, and *up to four* pieces of chicken.
- You will answer Questions 1-14a for each piece of chicken observed. Data on the first piece of chicken will be recorded in the first row, data on the second piece of chicken will be recorded in the second row, and so on.
- **Question 1, cooking process:** Note all the cooking processes that happen to the chicken. For example, if the chicken is grilled and then baked, you would check both those options. You will also make a note of which cook process was the <u>final</u> cook process here.
- **Question 2, individual serving**: Note here whether the chicken being cooked is an individual serving. If the chicken is being cooked in a batch, then the answer to this question is No. Use the following definitions to answer this question:
    o *Individual serving:* a quantity of food intended for one person. *Example*: one chicken breast cooked on the grill; chicken stir fry for one person
    o *"Batch":*
       -multiple pieces of intact chicken, intended for more than one serving, cooked together. *Example*: 10 chicken legs fried together; 10 chicken breasts baked on the same tray
       -aggregate of chopped/cut/sliced chicken pieces cooked together. *Example*: sliced breast pieces (e.g., for fajitas) cooked in large quantities on the grill
       -a whole chicken, multiple whole chickens
- **Question 3, final cooked product:** Note the option that best describes the final cooked product.
- **Question 4, same utensils for raw and cooked chicken:** Note whether the same utensils were used for both raw and cooked chicken during the cooking process.
- **Question 5, hand contact:** Note whether there was bare-hand, glove-hand, or both kinds of hand contact during the process. If the answer is bare-hand, answer 5a, if the answer is glove-hand, answer 5b, if the answer is both, answer both 5a and 5b.
- **Question 5a, hand use lead to cross-contamination:** Note whether hands are used in a way that could cause cross-contamination of cooked chicken or the environment (other foods, equipment, etc.). For example, if bare-hands are used to handle raw chicken and then are used to touch clean pans without washing first, then the answer to this question would be yes. For the purpose of this study, a handwash is defined as an attempt with soap, water, and a proper drying method (e.g., single use clean dry towel, hot air dryer, paper towels).
- **Question 5b, glove use lead to cross-contamination:** Note whether gloves are used in a way that could cause cross-contamination of cooked chicken or the environment (other foods, equipment, etc.). For example, if glove-hands are used to handle raw chicken and then are used to touch clean pans without removing the gloves first, then the answer to this question would be Yes.
- **Question 6, wiping cloths used:** Note whether wiping cloths were used during this process. For the purpose of this study, wiping cloths are defined as wet or dry cloths in use to remove soil from people or equipment surfaces. This includes cloths stored in a sanitizing solution. Answer 6a if the answer to this question is Yes.
- **Question 6a, wiping cloths use lead to cross-contamination:** Question 6a is designed to assess whether wiping cloths are used in a way that could cause cross contamination of cooked chicken or the environment (other foods, equipment, etc.). Thus, wiping cloths used with both raw chicken and other items, such as food or equipment, would be classified as being used in a way that could cause cross contamination. For example, if a worker wipes his hands that he just used to handle raw chicken on a wiping cloth, and the cloth is then used to wipe down a prep table, the answer to this question would be Yes.
- **Question 7, wipe hands on apron/clothing:** Note whether the worker wipes his hands on his apron or clothing at any point during the process. Answer 7a if the answer to this question is Yes.
- **Question 7a, apron/clothing changed:** If the worker wiped his hands on his apron or clothing during the process, note whether he then changed his apron/clothing.
- **Question 8, cross-contamination of environment:** Note whether you saw any possible cross contamination of the environment during the cooking process (other than those noted in the other questions in this grid). For example, if you saw marinade dripping over RTE foods as the chicken was being placed on the grill, the answer to this question would be Yes. If the answer to this question is Yes, answer question 8a.
- **Question 8a, cross contamination of environment:** Describe the cross contamination event here. *(Need an example here)*
- **Question 9, final cook temp:** Take and record the temperature of the chicken at the end of the cooking process. Follow these guidelines:

- o Remember to clean and sanitize your thermometer between taking temperatures of different chickens or chicken parts. Record all temperatures in Fahrenheit. When recording temperatures round to the nearest whole number (if ≥ .5°F round up, if <.5°F round down).
- o Use a sensor type temperature measuring device. This includes a bimetal bayonet style, thermistor (recommend) or a thermocouple (recommend). When possible carry two thermometers with you. Before visiting the facility your thermometers should be checked to verify their accuracy.
  - o **9a, individual serving:** For individual serving or portion, take one temperature:
    - o intact pieces of chicken- take temperature at thickest part of chicken.
    - o shredded/cut/sliced chicken- take temperature in center of chicken.
  - o **9b, batch- one whole chicken**: take temperature between breast and thigh.
  - o **9c, 9d, 9e, batch- multiple whole chickens, multiple intact chicken pieces, more than one serving of shredded/cut/sliced chicken:** For batch cooking- take between 2 and 3 temperatures.
    9c: Take one temperature in *center* of pan. Follow instructions above for intact, shredded, and whole chicken.
    9d: Take one temperature at the *edge* of the pan. Follow instructions above for intact, shredded, and whole chicken.
    9e: If you wish, take a third temperature elsewhere, and describe where that was. For example, you may wish to take a temperature in the middle layer of an aggregate pan of stir fry.
  - o For batch cooking, be sure to take multiple temps only from batches in which the cooking started and ended at the same time.
- **Question 10**, **cook temps:** If you are missing any final cook temps, please briefly describe the reason here.
- **Question 11, cook determination of chicken doneness**: You may need to ask the cook how he decided it was time to stop cooking the chicken in order to answer this question.
- **Question 12, where cooked chicken placed:** Note where the cooked chicken was placed.
- **Question 13, 13a, cross-contamination of cooked chicken:** You will only observe for instances of cross-contamination of cooked chicken from cooking to the next place it is put. For example, if chicken is taken from a pan and put into hot holding or on a cutting board, we will no longer observe for cross-contamination once it is placed in hot holding/on the cutting board. An example of possible cross-contamination would be placing cooked chicken on a cutting board that had been used to cut raw chicken and had not been cleaned.
- **Question 14, 14a conditions that may lead to under-cooking:** Note here any conditions that might have led to under-cooking or uneven cooking of the chicken, excluding batch cooking (because this is already noted in another question). Examples include overcrowding of chicken on a tray and inadequate equipment (a toaster oven).

Appendix A: Example Preparation Processes

The following section describes a chicken preparation process and how it would be coded in the preparation grid.

Start Cut/trim/slice preparation

A food worker starts by putting a cutting board, knife, and hotel pan on a prep table.

The FW takes 5 lb bag of chicken breast out of walk-in, puts it on a prep table.

He opens the plastic bag and uses his hands (no gloves) to pulls out a several pieces of chicken.

He puts the chicken on the cutting board and proceeds to trim and cut it.

He places the cut chicken into the hotel pan.

When all the chicken is cut he wipes his hand on a dry wiping cloth. (He does not wash his hands.)

This preparation is not over until we know what is done with the cutting board and knife…

Start Season/Marinate/batter preparation

The raw chicken is in a hotel pan.

The same FW grabs a container of dry spice rub that he puts on the chicken

He uses his hands to coat the chicken with the spices.

He wipes his hands on the dry cloth again, and leaves the dry cloth on the table.

He grabs the plastic wrap; he covers the chicken, and puts it in a reach-in on the cooking line.

END Season/Marinate/batter preparation

The following goes with the Cut/trim/slice preparation

The FW returns to the prep table where he picks up the board, brings it to the DW.

He gets his knife, takes it to the 3 bay sink, he washes and rinses it and then dries it with a clean dry wiping cloth.
He places the knife in a knife rack.

The prep table is wiped down with a wet wiping cloth that was dipped into a solution of sanitizer (the table was not washed or rinsed prior to the application of the sanitizer solution.)

The food worker then goes to the hand sink and washes his hands.

Appendix A: Example Preparation Processes

INSTRUCTIONS: If you observe a FW de-boning raw chicken, you would complete "De-bone". If you observe another FW grinding raw chicken breasts, you would also complete "Grind", too.	1. What type of raw chicken is being prepped? See chicken types listed in Manager Interview and Storage sections.	2. Where does prep take place? ❑ Cutting board, multi-purpose ❑ Cutting board, raw meat only ❑ Prep table ❑ Prep sink ❑ Sink, multi-purpose ❑ Sink, raw meat only ❑ Sink drain board, multi-purpose ❑ Sink drain board, raw meat only ❑ Sheet trays ❑ Paper/plastic prep sheets ❑ Other: _____ ◯ Unsure ◯ Unable to observe	3. After this process, were food contact items used in Q2 W/R/S? ◯ Yes ◯ No ◯ N/A- W/R/S not needed (i.e., item was used for other raw chicken immediately after step) ◯ Unsure ◯ Unable to observe *Answer a, b and c for each item noted in Q2. Also note if W/R/S occurred in proper order.*			4. Did you observe food contact items used in Q2 being used for other foods after being used with the chicken? ◯ Yes ◯ No ◯ Unsure ◯ Unable to observe *Answer only if items needed to be W/R/S but weren't Answer for each item noted in Q2 that needed to be W/R/S*
			a. W	b. R	C. S	
A. Wash/rinse/soak ◯ Y ◯ N ◯ U						
B. De-bone ◯ Y ◯ N ◯ U						
C. Skin removal ◯ Y ◯ N ◯ U						
D. Cut/trim/slice ◯ Y ◯ N ◯ U	Chicken breast, bone-in, minimally processed	Cutting board, prep table	Board: Y Table: N	Board: Y Table N	Board: Yes Table: Y	No
E. Season/marinate/batter ◯ Y ◯ N ◯ U	Chicken breast, bone-in, minimally processed	Prep table	No	No	Yes	No
F. Grind ◯ Y ◯ N ◯ U						
G. Portion ◯ Y ◯ N ◯ U						
H. Other prep: _____ _____ ◯ Y ◯ N ◯ U						

	5. Utensils/equipment used during prep process?	6. After this process, were utensils/ equipment in Q5 W/R/S?			7. Did you observe utensils/equipment in Q5 being used for other foods after being used with the chicken?	8. Type of hand contact during process?	8a. Were <u>bare hands</u> used in a way leading to x-cont of environment?	8b. Were <u>gloved hands</u> used in a way leading to x-cont of environment?
	❑ Pan/container/bowl, etc ❑ Knife ❑ Food slicer ❑ Tongs/fork ❑ Processor/blender/grinder ❑ Other utensils (spoons, whisk, tenderizing tool, etc) _____ ❍ No utensils/equipment used ❍ Unsure ❍ Unable to observe	❍ Yes ❍ No ❍ W/R/S not needed (i.e., item was used for other raw chicken immediately after step) ❍ Unsure ❍ Unable to observe *Answer a, b and c for <u>each</u> item noted in Q5. Also note if W/R/S occurred in proper order.*			❍ Yes ❍ No ❍ Unsure ❍ Unable to observe *Answer only if items needed to be W/R/S but weren't* *Answer for <u>each</u> item noted in Q5 that needed to be W/R/S*			❍ Yes ❍ No ❍ Unsure ❍ Unable to observe
		a. W	b. R	c. S				
A. Wash/rinse/soak ❍ Y ❍ N ❍ U								
B. De-bone ❍ Y ❍ N ❍ U								
C. Skin removal ❍ Y ❍ N ❍ U								
D. Cut/trim/slice ❍ Y ❍ N ❍ U	Knife	Yes	Yes	No	No	Bare hand	Yes	-
E. Season/marinate/batter ❍ Y ❍ N ❍ U	None	--	--	--	--	Bare hand	Yes	--
F. Grind ❍ Y ❍ N ❍ U								
G. Portion ❍ Y ❍ N ❍ U								
H. Other prep: _____ _____ ❍ Y ❍ N ❍ U								

	9. Wiping cloths used during process?	9a. Wiping cloths used in way leading to x-cont?	10. FW wipes hands on apron/clothing during process?	10a. Apron/clothing changed before moving on to another task (not involving raw chicken)?
	○ Yes *(9a)* ○ No *(10)* ○ Unsure *(10)* ○ Unable to observe *(10)*	○ Yes ○ No ○ Unsure ○ Unable to observe	○ Yes *(10a)* ○ No *(end of grid)* ○ Unsure *(end of grid)* ○ Unable to observe *(end of grid)*	○ Yes ○ No ○ Unsure ○ Unable to observe
A. Wash/rinse/soak ○ Y ○ N ○ U				
B. De-bone ○ Y ○ N ○ U				
C. Skin removal ○ Y ○ N ○ U				
D. Cut/trim/slice ○ Y ○ N ○ U	Yes	Yes	No	--
E. Season/marinate/batter ○ Y ○ N ○ U	Yes	Yes	No	--
F. Grind ○ Y ○ N ○ U				
G. Portion ○ Y ○ N ○ U				
H. Other prep: _____ _____ ○ Y ○ N ○ U				