



AN UPDATE:
**PREVENTION OF
CAMPYLOBACTER IN THE
RETAIL FOOD ENVIRONMENT**



Emmy S.
Myszka,
MPH, REHS
Principal
Investigator

San Mateo
County
Environmental
Health
Services
Division



OUTLINE

- **History: Why San Mateo?**
 - The Grant
 - Goals & Objectives
- **Review of *Campylobacter* & campylobacteriosis**
- **Overview of Activities: What are we doing?**
 - Case Investigations
 - Case Control Study
 - Restaurant Intervention Study
- **The Future Outlook: What next?**



HISTORY

THE GRANT

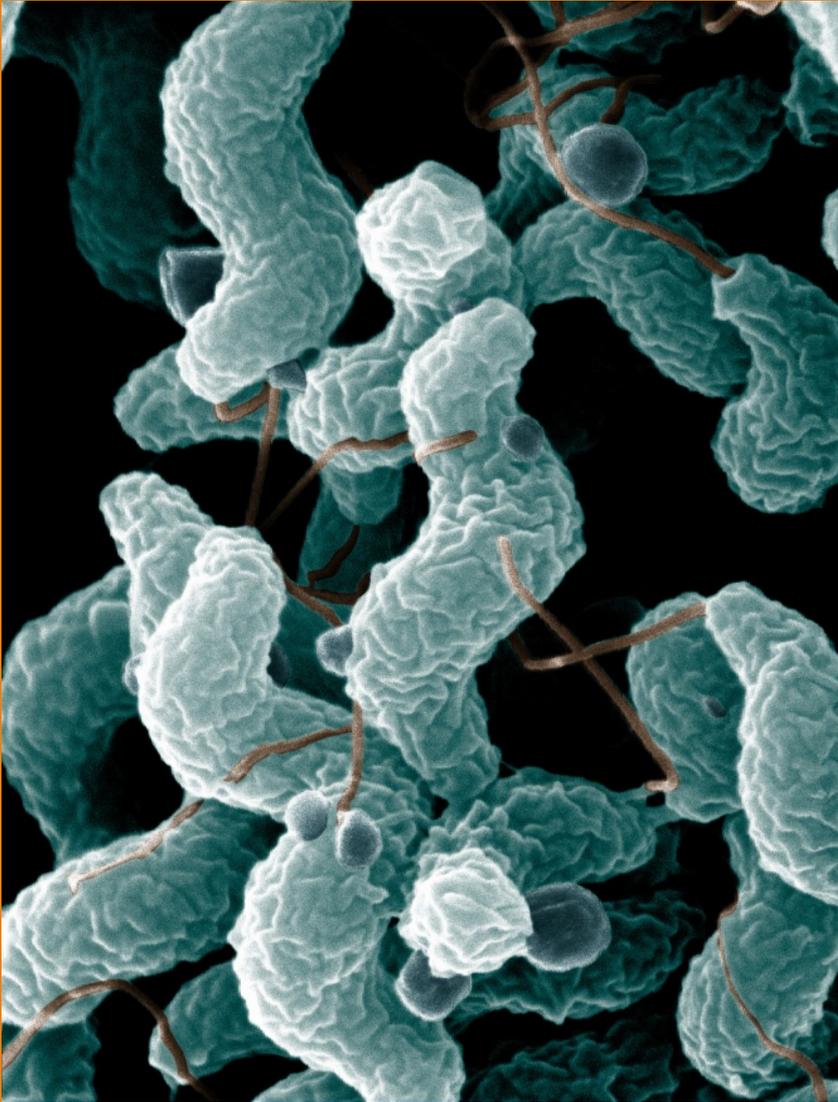
- Environmental Health Services Network (EHS-Net)
- Centers for Disease Control and Prevention's National Center for Environmental Health
- Cooperative agreement awarded to San Mateo County Environmental Health in 2010
- July 1, 2010 to June 30, 2015
- \$149,000 annually



GOALS



1. To reduce *Campylobacter* infections
2. To reduce facility risk factors related to raw chicken handling
3. To increase food handler knowledge of safe chicken handling practices



CAMPY REVIEW

FACTS REVIEW

Campylobacter

- *Campylobacter jejuni* natural occurs in chickens & other avian mammals
- Symptoms: 2-5 days after exposure
- Include: diarrhea, abdominal pain or cramps, fever, nausea
- Infectious dose: >500 organisms





Picture from:

<http://www.npr.org/blogs/thesalt/2013/08/27/213578553/julia-child-was-wrong-don-t-wash-your-raw-chicken-folks>

To
WASH
OR NOT
TO
WASH?

DID YOU KNOW THAT...?

- Est. 2.4 million *Campylobacter* infections annually in United States
- Approx. \$1.7 billion morbidity: 8,400 hospitalizations, medical care expenses, lost productivity

2010:

- 13.6 cases per 100,000 persons in United States
- 14.4 cases per 100,000 persons in California
- 32.6 cases per 100,000 persons in San Mateo County

Healthy People 2010
target: 12.3 per 100,000

FOOD SAFETY



PROGRESS REPORT

FOR 2012



Disease Agents	Percentage change in 2012 compared with 2006–2008		2012 rate per 100,000 Population	2020 target rate per 100,000 Population	CDC estimates that...
<i>Campylobacter</i>		 14% increase	14.30	 8.5	For every <i>Campylobacter</i> case reported, there are 30 cases not diagnosed
<i>Escherichia coli</i> O157		No change	1.12	 0.6	For every <i>E. coli</i> O157 case reported, there are 26 cases not diagnosed
<i>Listeria</i>		No change	0.25	 0.2	For every <i>Listeria</i> case reported, there are 2 cases not diagnosed
<i>Salmonella</i>		No change	16.42	 11.4	For every <i>Salmonella</i> case reported, there are 29 cases not diagnosed
<i>Vibrio</i>		 43% increase	0.41	 0.2	For every <i>Vibrio parahaemolyticus</i> case reported, there are 142 cases not diagnosed
<i>Yersinia</i>		No change	0.33	 0.3	For every <i>Yersinia</i> case reported, there are 123 cases not diagnosed



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

For more information, see <http://www.cdc.gov/foodnet/>

Preliminary FoodNet 2012 Data

ACTIVITIES

CASE INVESTIGATIONS

- In 2011, 246 cases
- In 2012, 264 cases
- Ages 1-92
- 57% male
- 52% white

Table 3. Frequency of Food-Related and Non-food-Related

BEHAVIORS	2011 N (%)	2012 N (%)	TOTAL N (%)
Food-Related			
Retail	172 (76.8)	193 (80.4)	365 (78.7)
Event	31 (13.8)	46 (19.2)	77 (16.6)
Raw Milk Product	22 (9.8)	21 (8.8)	43 (9.3)
Raw Shellfish [†]	14 (11.7)	8 (3.3)	22 (6.1)
Raw/Undercooked Chicken	21 (9.4)	16 (6.7)	37 (8.0)
Home Prep of Raw Chicken	88 (39.3)	96 (40.0)	188 (43.7)
Non-food-Related			
International Travel	37 (16.5)	48 (20.0)	85 (18.3)
Farm Visits [‡]	12 (10.1)	12 (5.1)	24 (6.8)
Animal Contact	25 (11.3)	22 (9.6)	47 (10.4)
Natural Water	29 (13.0)	35 (14.6)	64 (13.8)
Sewage/Waste	19 (8.5)	5 (2.1)	24 (5.2)
Direct Human Contact	54 (24.4)	42 (17.5)	96 (20.7)

[†], [‡] Surveillance initiated 06/2011. Numbers are calculated as a percentage of the entire year.

CASE CONTROL STUDY

- Facilities named vs. facilities not named
- How well do routine inspections predict whether or not a restaurant *may be* implicated in a foodborne illness?
- Initial Results:
- Need standardization among inspection staff
- Demonstrate need to adopt FDA's risk-based inspection model & conduct standardization training



RESTAURANT INTERVENTION STUDY

STUDY DESIGN

- **700 food facilities included in study**
 - Handle raw chicken
 - Primary language: English, Spanish, or Chinese
- **Control Group: 200 restaurants**
- **Intervention Lite Group: 250 restaurants**
- **Intervention Full Group: 250 restaurants**

INTERVENTION

Lite

- Campy Training Kit
- Hand delivery



Full

- Campy Training Kit
- Hand delivery
- In-person training with REHS

INTERVENTION TRAINING

Campy Training Kit

- Training Manual
- Quick Reference Cards
- Video
- Poster
- Thermometer
- Shelving Label
- Postcards

In-Person Training

- 1-hour
- In-language:
 - 40% English
 - 40% Spanish
 - 20% Chinese
- Purpose: train the manager/owner to train the food handlers



CAMPY TRAINING KIT



**RAW
CHICKEN
HANDLING
TRAINING
MANUAL FOR
OWNERS &
MANAGERS**

SAFE CHICKEN HANDLING MANIPULACIÓN SEGURA DEL POLLO



STORE (GUARDE)

- Store raw chicken below other foods and covered.
- Label shelf for raw chicken storage only.

- Guarde el pollo crudo abajo de otros alimentos y tápelo.
- Etiquete el estante para guardar pollo crudo solamente.

Store chicken on
BOTTOM

Guarde el pollo en el FONDO



PREPARE (PREPARE)

- Do not wash chicken.
- Prepare raw chicken and other foods separately.
- Use designated cutting boards and knives.

- No lave el pollo.
- Prepare el pollo crudo y otros alimentos de forma separada.
- Use tablas de cortar y cuchillos designados.

Prep chicken
SEPARATELY

Prepare el pollo SEPARADAMENTE



COOK (COCINE)

- Use separate utensils for raw and cooked chicken.
- Don't let raw chicken or juices touch other foods when cooking.
- Check temperature by putting thermometer into thickest part of chicken.
- Above 165°F is safe to serve.
- Below 165°F, food is NOT safe. Continue cooking.

- Use utensilios distintos para pollo crudo y cocinado.
- No permita que el pollo crudo o sus jugos toquen otros alimentos cuando esté cocinando.

- Verifique la temperatura colocando el termómetro en la parte más gruesa del pollo.
- Arriba de 165°F (74°C) es seguro para servirlo.
- Abajo de 165°F (74°C), el alimento NO es seguro. Continúe cocinando.

Don't let chicken
DRIP

No permita que el pollo GOTEE

Cook chicken to
165°F

Cocine el pollo a 165°F (74°C)



TRAINING MATERIALS

- Poster
- Thermometer
- Shelving Label
- Video

EVALUATION

Facility Assessment

- Observation of raw chicken handling practices in facility
 - Storage
 - Preparation
 - Cooking

Interviews

- Two Parts: Food Handler & Manager
- Food Handler:
 - Support
 - Knowledge
- Manager:
 - Facility demographics

STANDARDIZATION TRAINING

Classroom Training

- Aug 27 & 29
- Conducted by a contracted trainer: Vicki Everly
- Review Marking Guide, Facility Assessment, Food Handler/Manager Interview

Field Training

- Sept 3-6
- Trainers: EHS IV & Supervisors
- 3 facilities/training
 - Facilities included in study
 - Opt out of 3rd if do well
- Used modified field worksheet from CFP

TIMELINE

2013:

Aug 27-29

- Assessment/Interview classroom standardization training

Sep 3-6

- Assessment/Interview field standardization

Sep 9-Oct 11

- Pre-Assessments & Interviews

Sep 20

- Intervention standardization training

Oct-Dec

- Intervention delivery

2014:

Jan 9

- Standardization review

Jan 13-Feb 14

- Post-Assessments & Interviews

DATA ANALYSIS

- Is there a reduction in risk factors related to raw chicken handling?
- Do food handlers have increased knowledge about the dangers of raw chicken & safe chicken handling practices?
- Do food handlers feel increased support from their managers to prepare food safely?
- Is there a difference between Intervention-Lite & Intervention-Full?
- Did the incidence rate of *Campylobacter* infection go down?



FUTURE OUTLOOK



- Deliver Campy Training Kits to control group via mail
- PDFs of Training Manual, Quick Reference Cards & Posters
- Production of Campy Kits for remaining high-risk food facilities
- Standardization of REHS in risk-based inspection methods
- Better data to conduct additional research projects

THANK YOU!

EMMY MYSZKA

650.372.6211

EMYSZKA@SMCGOV.ORG