

Enhanced Surveillance of Campylobacteriosis, Arizona, 2010

A collaboration between the Arizona Department of Health Services, Arizona County Health Departments and the University of Arizona SAFER Program.

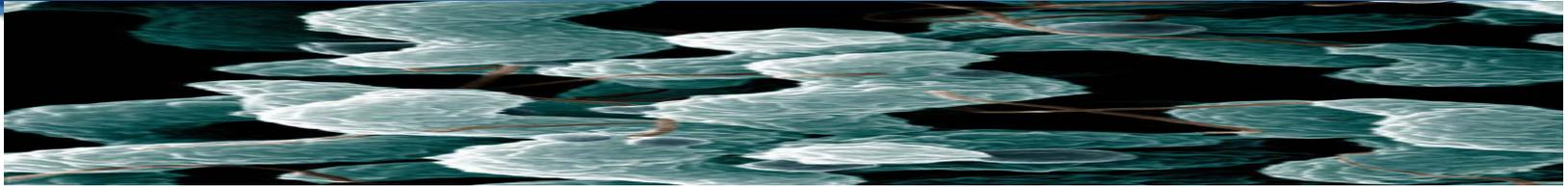
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Campylo-who?



- ◆ Campylobacter: Gram-Negative spiral bacterium with many different species, most common infection is by *C. jejuni*.
- ◆ Symptoms: Diarrhea (often bloody), Nausea, Vomiting, Headache, Fatigue, Fever
- ◆ Self-limiting, usually lasts 5-7 days
- ◆ Complications: UTIs , Meningitis and Guillain-Barre.(rare)

Epidemiology of Campylobacteriosis

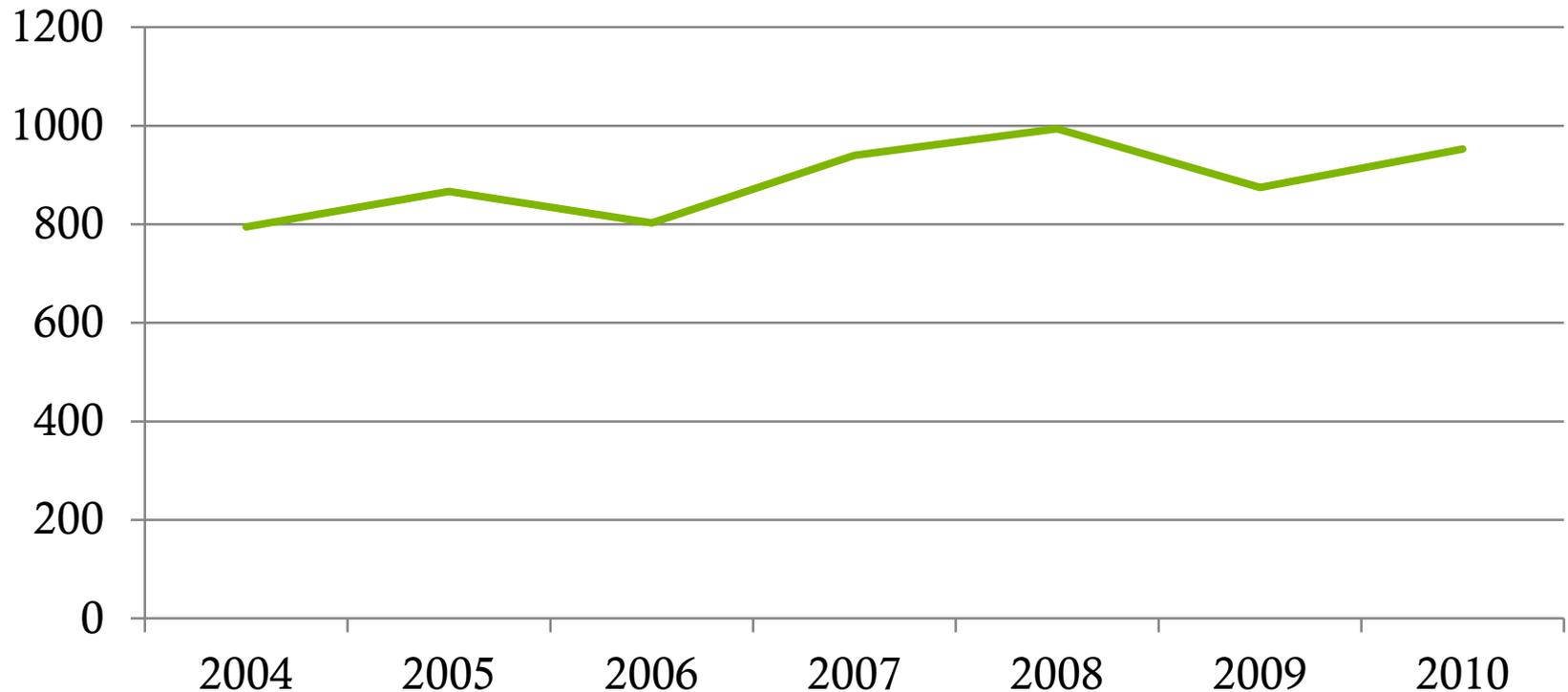
- ◆ Transmission is through the fecal-oral route such as consuming contaminated food.
- ◆ The incubation period is between 2 and 10 days. Usually 3-5 days.
- ◆ Rarely occurs in outbreaks. Usually sporadic cases.
- ◆ Common risk factors include: Ingestion of undercooked poultry, consumption of unpasteurized/raw dairy products*, foreign travel and contaminated water.

Burden of Illness

- ◆ Campylobacteriosis is the most common cause of gastroenteritis in the United States & all industrialized countries.
- ◆ Current incidence rate in the United State is ~13 cases/ 100,000 people.
- ◆ Campylobacteriosis is estimated to affect over 2.4 million persons every year, or 0.8% of the population.
- ◆ It is not usually fatal but it estimated to cause about 124 deaths each year.

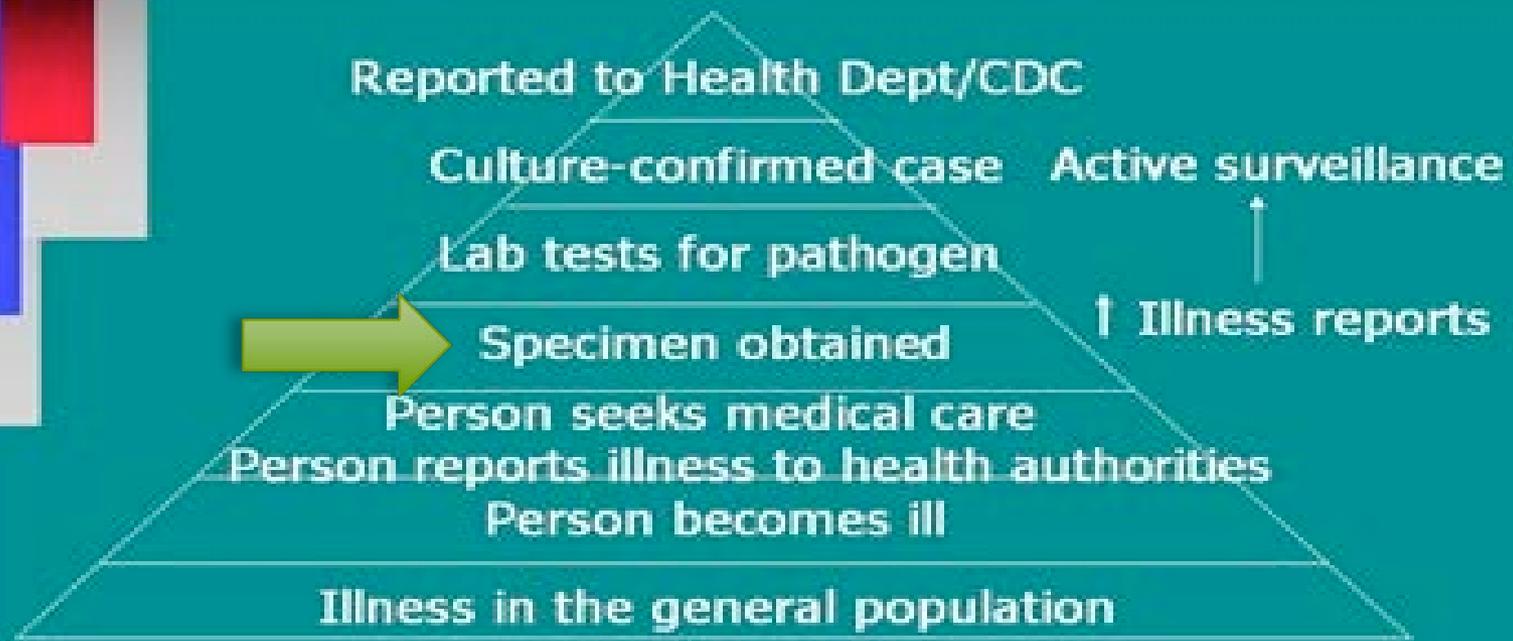
Campylobacteriosis in Arizona

**Number of Reported Cases of Campylobacteriosis
in the State of Arizona by Year**



Reported Cases=Tip of the Iceberg!

Surveillance and Reporting



Previous Studies

- ◆ Meta-analysis (38 studies) of case-control studies (most in U.S., Northern EU, UK, Australia & New Zealand)
- ◆ Many are matched Case-Control studies: Age, Gender and Geographic Locations
- ◆ Findings Consistent: Risk factors include,
 - ◆ raw/undercooked poultry, foreign travel, contaminated water, unpasteurized dairy consumption, contact with puppies & farm animals (especially for children), BBQ food (7-13)

Our Study

- ◆ Design: Matched Case-Control Study 1:2
 - ◆ Matched on Age, Gender, Neighborhood
 - ◆ Age Groups: 1-11 months, 1-9, 10-19, 20-29, 30-59, >60
 - ◆ Exclusion Criteria: part of a recognized outbreak, non-culture confirmed case, no working phone number, not a resident of a county in Arizona
- ◆ Controls selected by random digit dialing using Google maps to match to the case's neighborhood. Then we used the case's address on whitepages.com and did a neighbor lookup.

The Questionnaires

- ◆ Case: Demographic Information, Medical History, Symptomology, Travel History, Restaurant recall, Poultry Consumption, Fruits/Vegetable, Dairy/Eggs, Seafood, Food Handling practices, Animal exposures, Occupation exposure, Water exposures.
- ◆ Control: Travel History, Restaurant recall, Poultry Consumption, Fruits/Vegetable, Dairy/Eggs, Seafood, Food Handling practices, Animal exposures, Occupation exposure, Water exposures.

Results

- ◆ **Total Cases interviewed: 110**
- ◆ **Total Controls: 61**

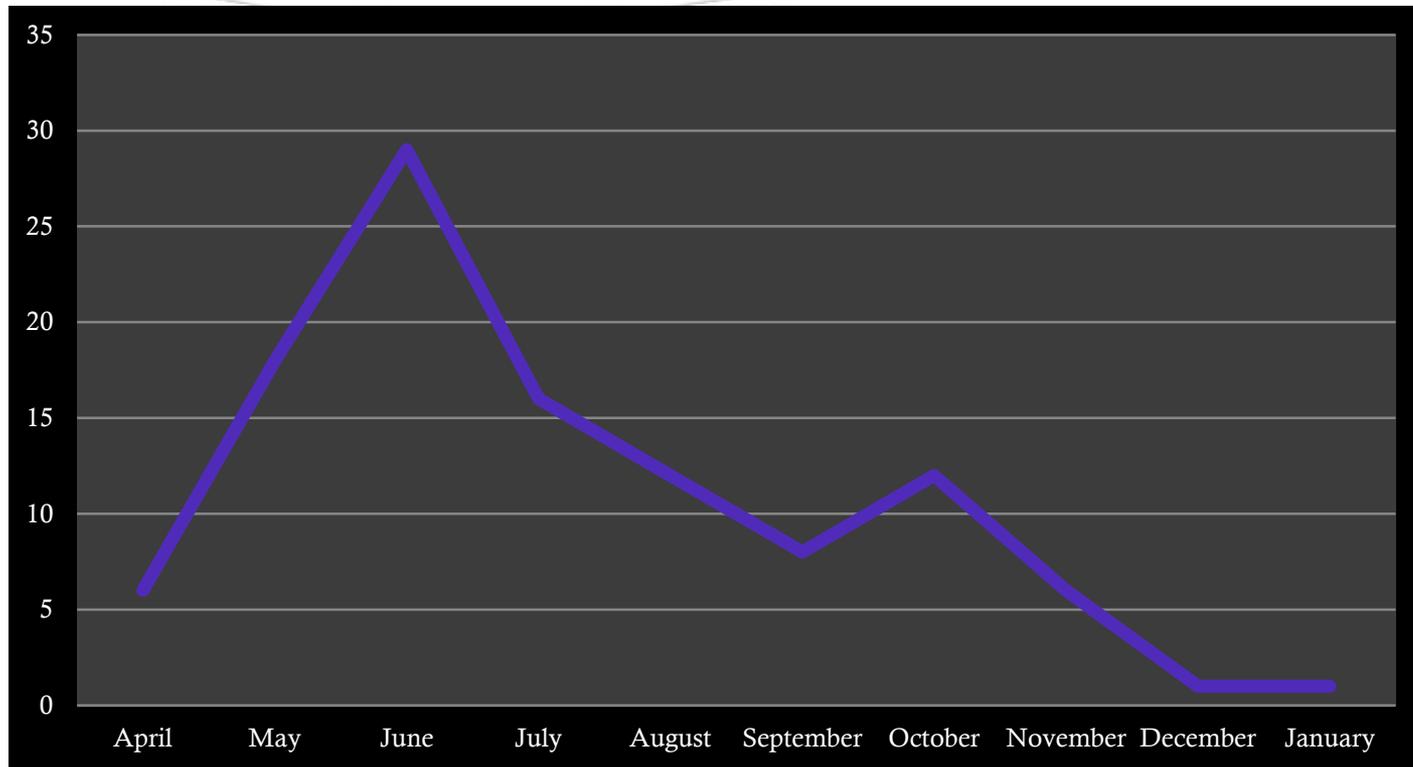
Cases & Controls

Total Interviews = 171
Cases: 110 / Controls: 61

- ◆ Cochise - 18
- ◆ Coconino - 7
- ◆ La Paz - 1
- ◆ Maricopa - 72
- ◆ Mohave - 3
- ◆ Pima - 18
- ◆ Pinal - 15
- ◆ Santa Cruz - 7
- ◆ Yavapai - 8
- ◆ Yuma - 22

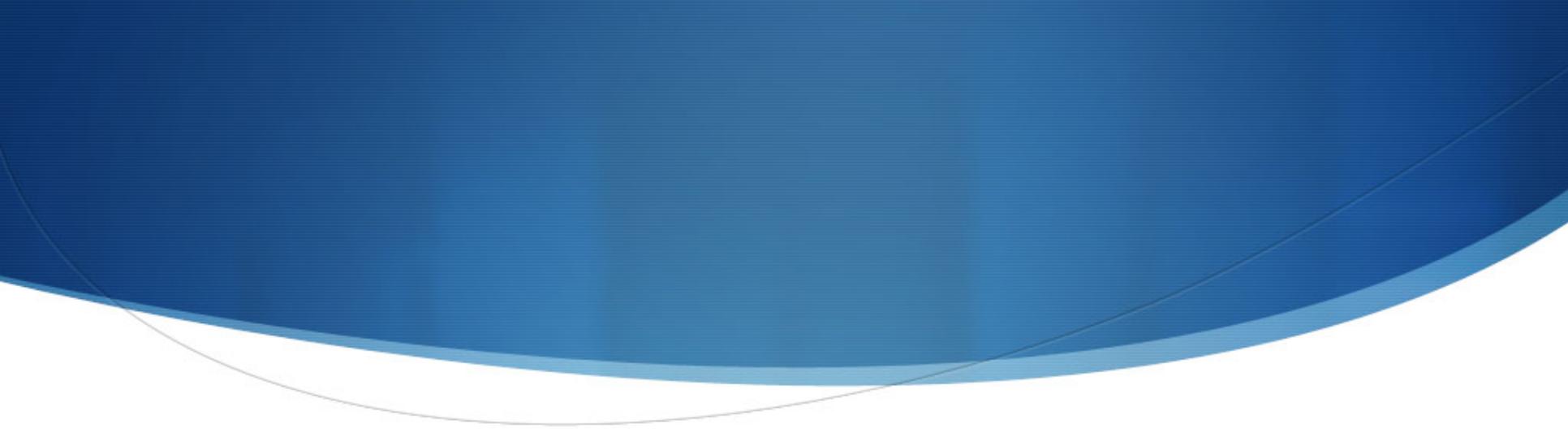
Results: Seasonal Variation

Based on interview date



Results: Demographics

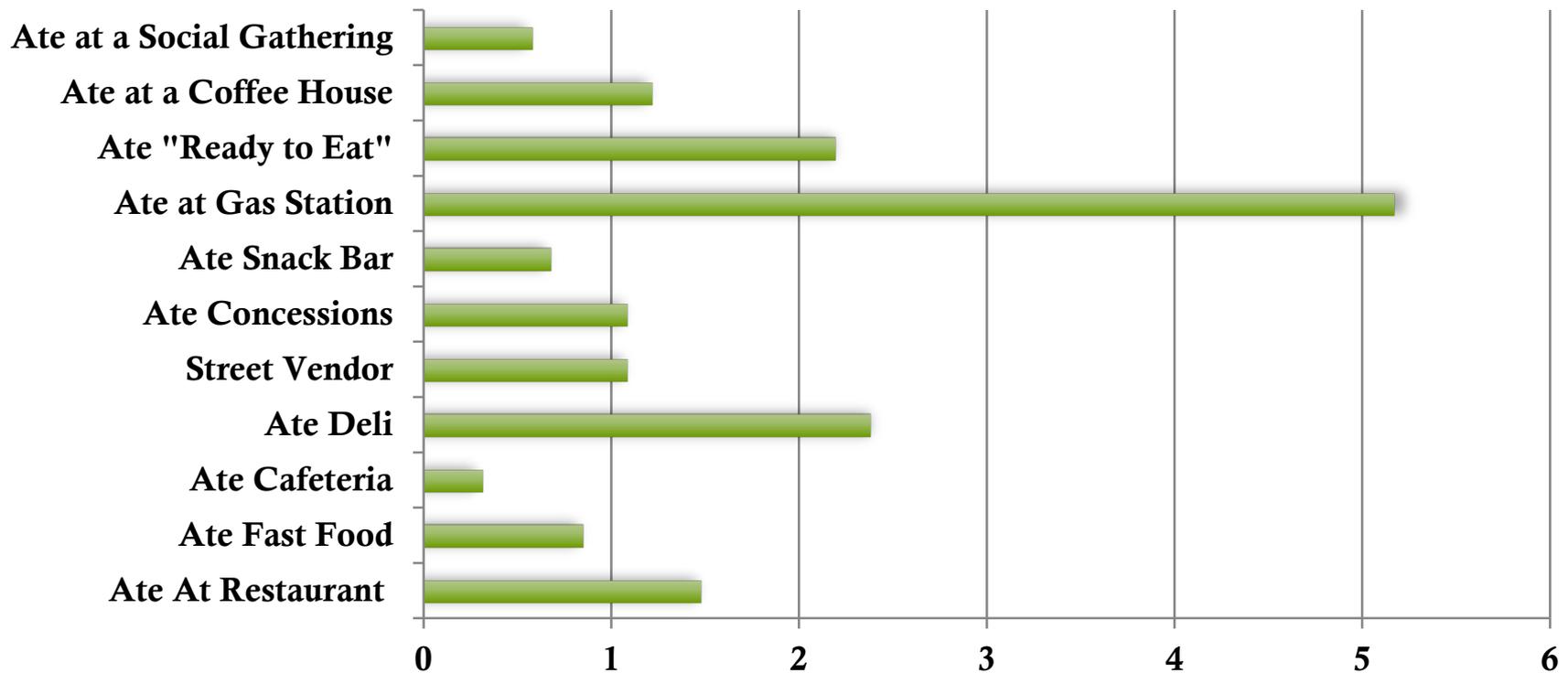
	Cases N (%)	Controls N (%)
Total	110	61
Male	63 (57%)	35 (57%)
Female	45 (41%)	26 (43%)
Age (mean & range)	31.9 (9mo-82 yr)	43.8 (3mo-80yr)
Hispanic	46 (42%)	9 (9.8%)
Non-Hispanic	53 (48.2%)	50 (82%)
Urban	33	14
Suburban	24	17
Town	31	9
Rural/Farm	16	12



Preliminary Results:
Matched Analyses

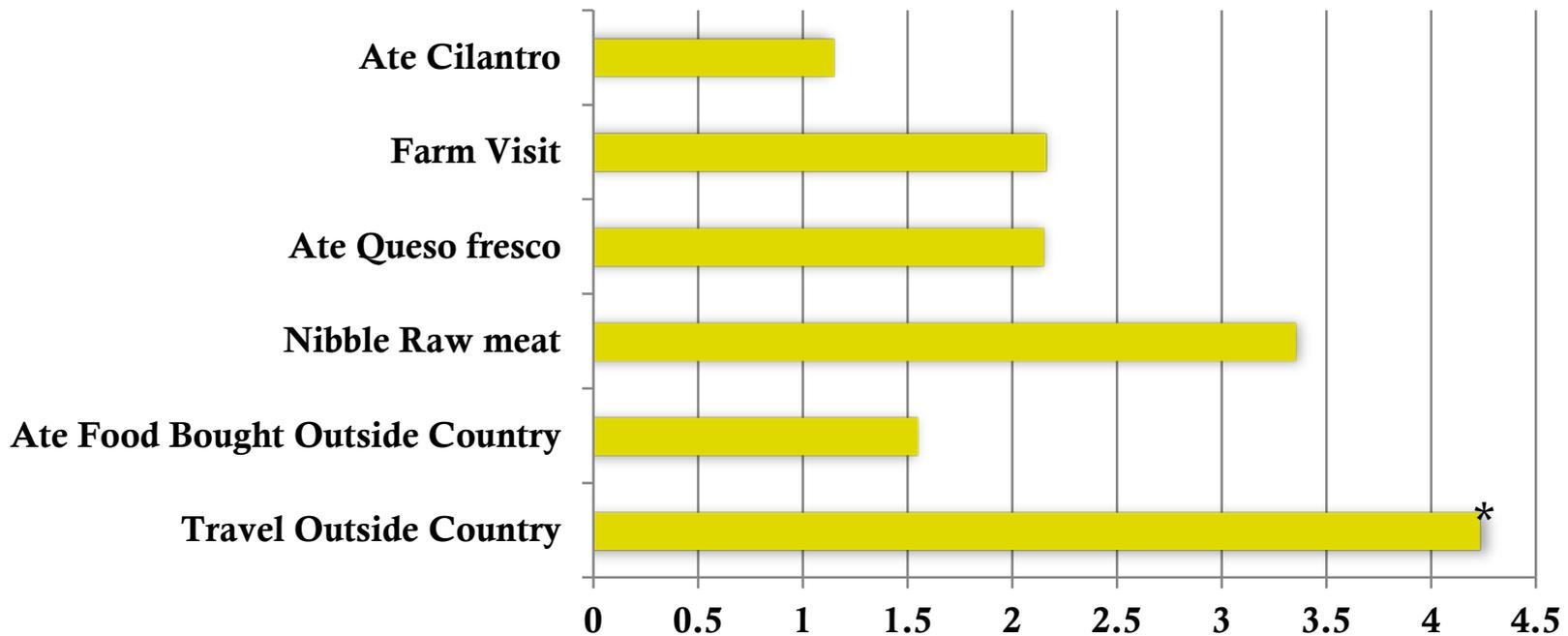
Results: Risk Factors

Odds Ratio of Risk Factors: Outside the Home



Results: Risk Factors

Odds Ratios of Arizona-Specific Risk Factors



Discussion: Problems Encountered

- ◆ Cases – getting people on the phone
- ◆ Controls - who wants to complete a 30-45 minute interview without an incentive?
- ◆ Possible biased sample with making majority of calls from 9-5 M-F
- ◆ Difference between ethnicity of cases and controls

Discussion:

- ◆ Recall Bias: Remember correctly?
- ◆ Selection Bias: Healthy controls? Severe cases?
- ◆ Residual Confounding: Socioeconomic status?
- ◆ Over-matched: Matching on gender?
- ◆ Representativeness: Lack of ethnic diversity

Public Health Implications

- ◆ What did this pilot study achieve?
- ◆ Modification of the *Campylobacter* investigation form
- ◆ Identified novel risk factors for Arizona
- ◆ Starting point for further research
- ◆ Looking glass into dietary habits of Arizona residents

Current Analyses and Studies

- ◆ Original analyses done on matched cases & controls only – many cases had to be dropped
 - ◆ Additional analyses on full dataset
- ◆ Re-enter data into online database
 - ◆ Further cleaning
 - ◆ Matched variables to current case series
- ◆ Case-series of all Maricopa cases from Feb 2011-August 2012 using modified questionnaire
 - ◆ Case-Case analyses

Questions?

◆ Agencies involved

- ◆ ADHS
- ◆ ALL County Health Depts.
- ◆ MEZCOPH/UofA

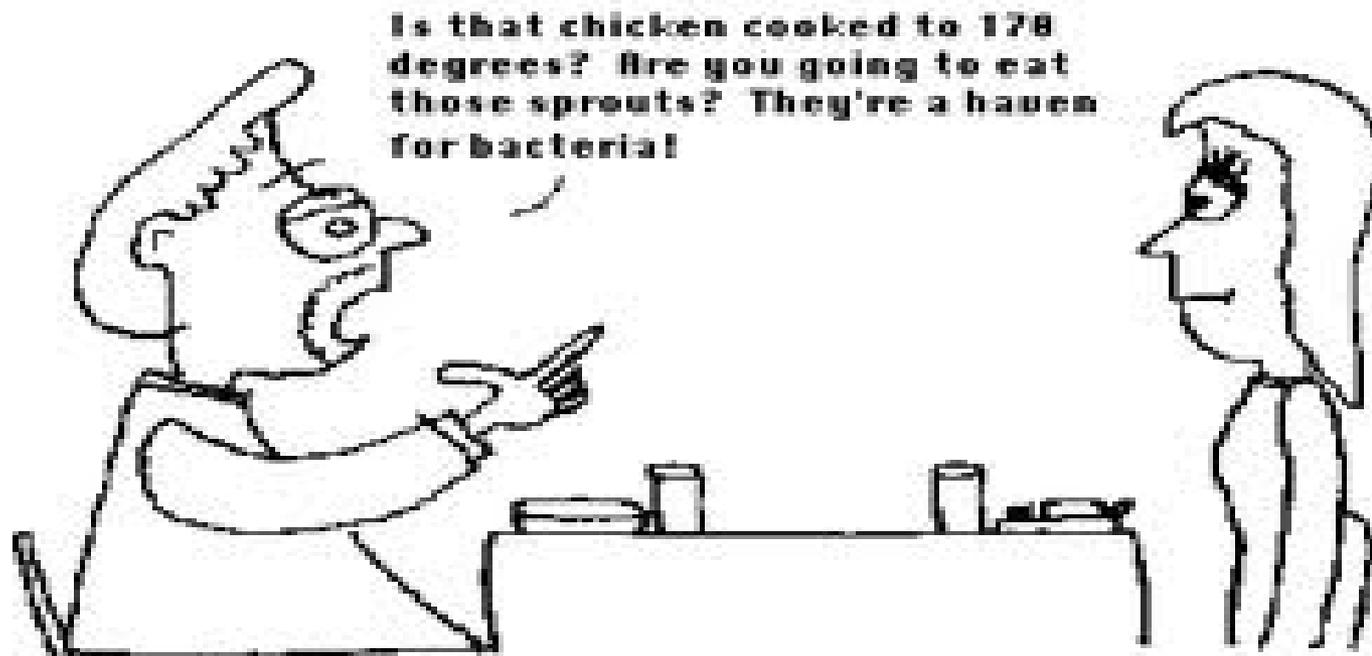
◆ Special Thanks

- ◆ Joli Weiss
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- ◆ Kacey Ernst
- ◆ Robin Harris
- ◆ ADHS Staff & Interns
- ◆ County Health Dept Epi's and CDI's

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Questions?



WHY MICROBIOLOGISTS HARDLY EVER GET A SECOND DINNER DATE.