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Title: Influence of Interpersonal Interaction Between Public Health Sanitarians and Food Service Establishment Personnel on Food Safety Inspections: A Direct Observation of Local Public Health (DOLPH) Study

Meeting/Workshop: Annual Educational Conference

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Date: April 24, 2013

Place: Double Tree, Worthington, OH

Influence of Interpersonal Interaction Between Public Health Sanitarians and Food Service Establishment Personnel on Food Safety Inspections

A Direct Observation of Local Public Health (DOLPH) Study

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Public Health Practice-Based Research Network

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What is the ***Research Association for Public Health Improvement*** (RAPHI)?

- RAPHI is a Public Health Practice-Based Research Network (PH PBRN)
- Organized group of Ohio public health agencies
- 1 of 12 funded PH PBRNs and 12 affiliate PH PBRNs nationally (total 24)
- PH PBRNs support the development & dissemination of evidence-based public health practices
- Funded by the Robert Wood Johnson Foundation (RWJF)—December 2009 through 2013

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Purpose of RAPHI

- Grounded in applied, public health practice
- Ongoing collaborations with public health research centers
- Conducts rigorous, applied studies
- Identify ways of improving the organization, financing and delivery of public health services in real world community settings

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Ohio RAPHI Coordination

- PI—Scott Frank, MD, MS, Case Western Reserve University
- Co-PI (former)—Matthew Stefanak, MPH, RS (former Health Commissioner, Mahoning County District Board of Health)
- Co-PI (new)--Gene Nixon, MPA, RS, Health Commissioner, Summit County Public Health
- Project Coordinator—Michelle Menegay, MPH
- Representatives from Ohio PH Programs

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DOLPH Co-Investigators

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- Kent State University
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- Consortium of Eastern Ohio, NEOMED
  - Amy Lee, MD, MBA, MPH
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- Ohio State University
  - Michael Bisesi, PhD, MS
- Northwest Consortium, University of Toledo
  - Barbara Saltzman, PhD, MPH
  - Brian Fink, PhD, MPH
- Wright State University
  - Sylvia Ellison, MA
  - Christopher Eddy, RS

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Direct Observation of Local Public Health:
Rationale

- Lack of credible evidence regarding the types and levels of workforce, infrastructure, related resources, and financial investments in public health
- Offer evidence to provide a rational approach to changing the public health system in the face of health reform

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Choosing Foodborne Outbreaks as an Archetypal Public Health Problem

- Enforcement is among the ***10 Essential Public Health Services***
- Food safety is among the CDC's six winnable battles
- Represents the face of public health to much of the public

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Direct Observation of Local Public Health

- **Purpose:** Using the Foodborne Illness as a public health archetype, the Direct Observation of Local Public Health (DOLPH) study seeks to illuminate the structure, process, and outcome of the local health department (LHD) role in Foodborne Illness prevention, investigation, and intervention

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Purpose

- Examine the influence of the interpersonal interaction between public health sanitarians and food service establishment personnel on the outcome of food safety inspections

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Project Research Objectives

1. Describe positive characteristics demonstrated by Registered Sanitarians during the conduct of FSE inspections.
2. Discuss the impact of interpersonal interaction on inspection outcomes.
3. Examine the role of complexity in variation in public health outcomes.

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Why Foodborne Illness?

- CDC 2011 estimates:
  - Each year, roughly 1 in 6 Americans (or 48 million people) gets sick
  - 128,000 are hospitalized
  - 3,000 die of foodborne diseases

Sources:http://www.cdc.gov/outbreaknet/outbreaks.html
http://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html

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Why Foodborne Illness?

- Economic burden from health losses due to foodborne illness in the United States is estimated to be on average $1,626 per case
- The overall aggregated annual cost of foodborne illness is roughly $77.7 billion

Source: Scharff RL.(2012), Economic burden from health losses due to foodborne illness in the United States, J Food Prot. Jan;75(1):123-31

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Winnable Battles

Tobacco

Nutrition, Physical Activity, Obesity and Food Safety

Healthcare-Associated Infections

Motor Vehicle Injuries

Teen Pregnancy

HIV

Source: http://www.cdc.gov/winnablebattles/

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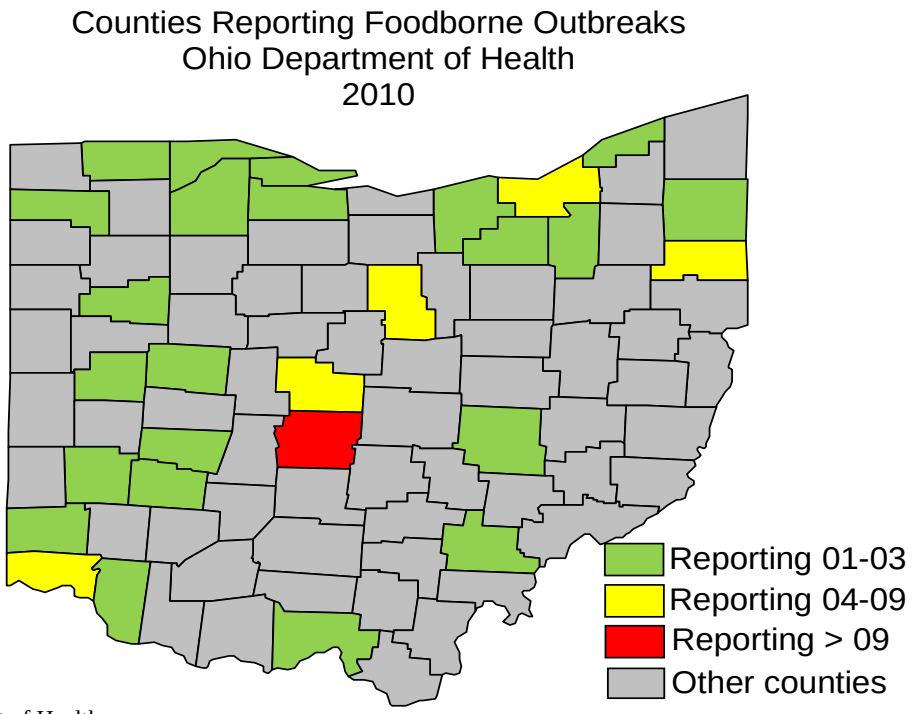
Foodborne Outbreaks

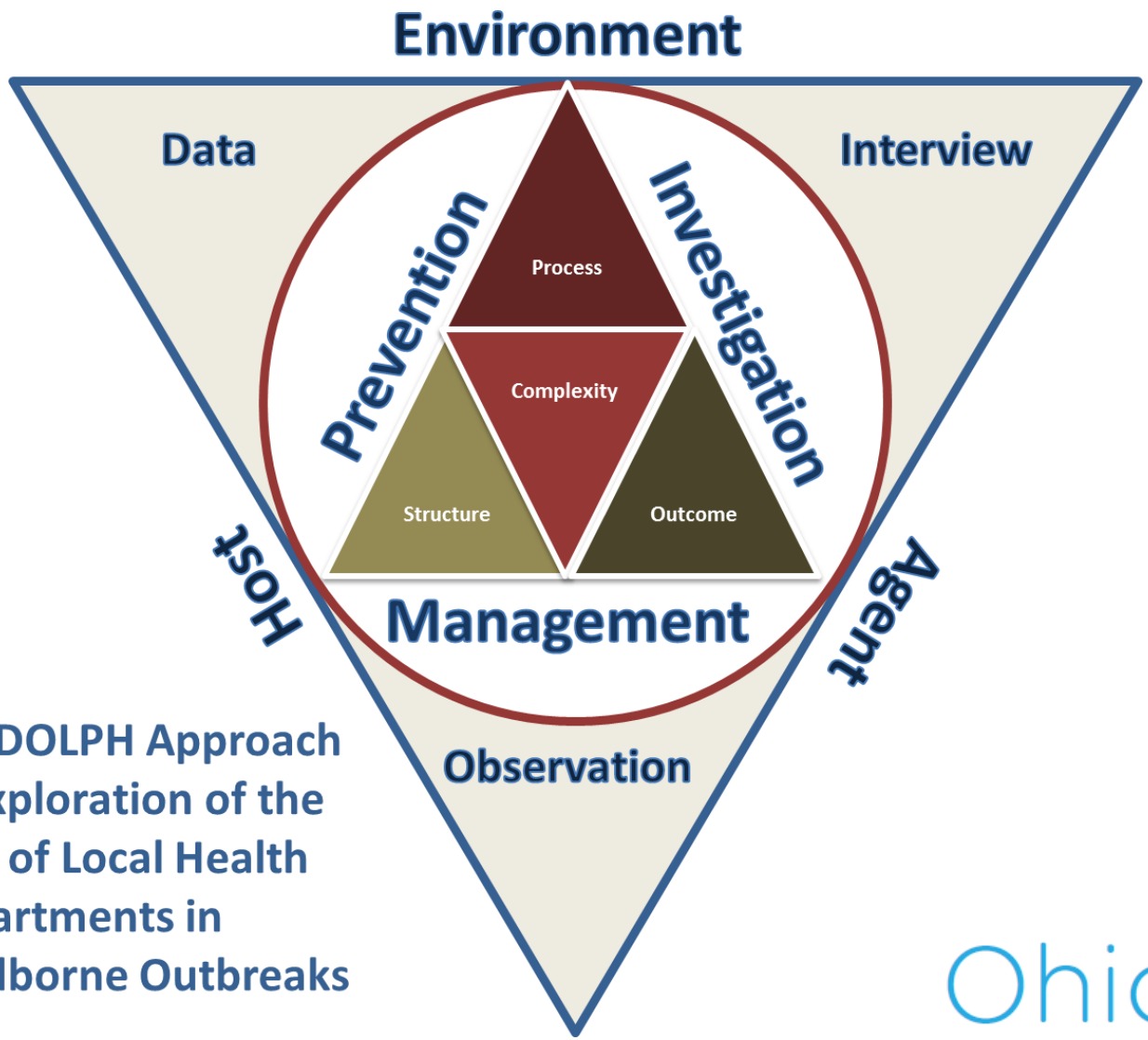
- Statistics
- 67 outbreaks affecting
  - 911 people in 28 of
  - Ohio's 88 counties
- One multi-state

  (*E. coli* O145)



Ohio Department of Health

Ohio Department of Health Provisional Data



The DOLPH Approach to Exploration of the Role of Local Health Departments in Foodborne Outbreaks

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DOLPH Research Structure

- Seven academic public health programs
  - DOLPH liaison(s) at each program
  - Regular conference calls
- 3 to 5 local health departments per program
  - Regular contact with liaison to report on progress and assure opportunity for feedback
- 3 to 5 student observers
  - Statewide and local training

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DOLPH Academic Research Sites

Methods

- Mixed methods approach
  - Qualitative and quantitative interview, observation data
  - Secondary data (health department, jurisdictional profiles)
- Combines original qualitative and quantitative data with existing statewide quantitative databases
- Ohio statewide databases for public health services and systems research:
  - Socio-demographic census data
  - Ohio Annual Financial Report data
  - Local health department performance standards data

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Methods: DOLPH Scales

- PICQRS (PIC Questioning RS); Observational; Alpha= .811
  - Knowledge
  - Judgment
  - Fairness
  - Authority
- RS attitude toward PIC (RS Profile); Alpha= .59
  - PICs try to get away with anything to save money
  - PICs dislike inspections
  - PIC are cooperative (reverse code)
  - PIC are cordial (reverse code)

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Methods: DOLPH Scales

- Job Barriers to Food Safety Inspection (RS Profile); Alpha= .79
  - Competing demands in environmental health
  - Insufficient time to meet expectations
  - Problem relationships health department
  - Problem relationships FSE

Methods

- Participants
  - 78 Registered Sanitarians
  - 20 Health Departments
  - 40 Student Observers
  - 519 Inspections Observed

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Participating Health Departments (20)

- Athens City-County
- Clark County
- Cleveland Public Health
- Cincinnati Public Health
- Cuyahoga County
- Columbus Public Health
- Dayton & Montgomery County
- Franklin County
- Greene County
- Kent City
- Lake County
- Lucas County
- Mahoning County
- Montgomery County
- Norwood City
- Portage County
- Stark County
- Summit County
- Warren County
- Wood County

36 Current Participating Registered Sanitarians

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Results

Registered Sanitarian Profile (n=78)

- Mean age 40.5 years;
  - 40.35 years for inspections
- 50% male/female
  - 58.2% male for inspections
- 13.7% African American
  - 8.0% for inspections
- 3% Hispanic
  - 2.9% for inspections
- 53% Generalist
  - 61.7% Specialist for inspections
- 11.0 years working as a Sanitarian

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Registered Sanitarian Profile

- Time allocation
  - 61.5% of time spent conducting food inspections
  - 24.2% of time with paperwork
  - 8.1% Nuisance inspection
  - 8.6% School inspection
  - 6.7% Swimming pool
  - 3.6% Water/Septic

Registered Sanitarian Profile

- In the past 2 years
  - 81.5% have experience with suspected foodborne outbreaks
  - 55.3% suspected foodborne outbreaks have been verified
- 51.3% consider their job very demanding
- 84.4% report experiencing good decision latitude on the job

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Registered Sanitarian Profile

- 85.4% like investigating FBOs
- 66.2% like conducting food inspections
- 72.7% like interacting with PICs
- 76.7% like doing food safety education during inspections
- 71.5% like doing continuing education

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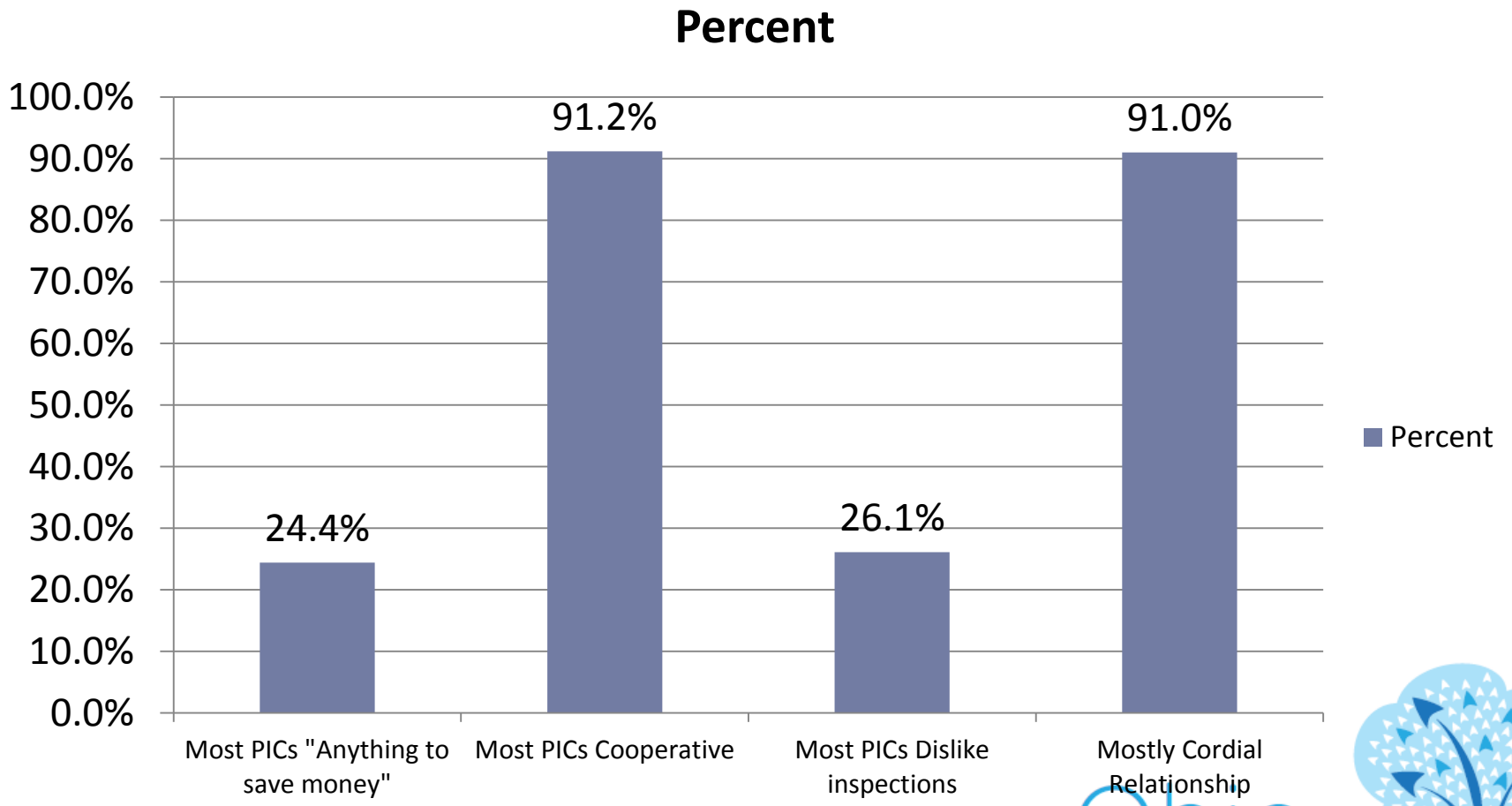
Sanitarian Perceptions of PICs



Person in Charge (PIC) Characteristics

- 51% female
- Age estimate
  - <40 years 46%
  - >50 years 54%
- PIC role
  - Manager 56%
  - Owner 17%
  - Other/DK 28%
- Facility with English
  - Spoken English excellent 85%
  - English Comprehension excellent 88%

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Starting the Inspection

- 68% addressed the PIC by name or title
- 71% introduced themselves
  - 57% by first name
- 50% had a previous relationship with the PIC
- 43% shook hands
- 80% spent less than 5 minutes checking in prior to the inspection
- 7% of the time PICs appeared to be stalling the start of inspections

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Food Safety Violations

- Citation given 3.22/inspection
  - 72.5% of inspections resulted in at least 1 citation
  - 10 or more citations 7%
- Verbal corrections given 1.93/inspection
  - 64% of inspections verbal correction
  - 5 or more violations 4%
- Critical Violations 1.38/inspection
  - 50% had at least 1 critical violation
  - 5 or more violations 5%

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RS-PIC interaction variables

- Admit uncertainty (RS and PIC)
- Use of humor (RS and PIC)
- Interruption (RS and PIC)
- Conflict observed
- Use of unexplained jargon
- Positive feedback given
- Feedback given negatively
- Parting “Thank You”

Sanitarian…	Gender	Race	Experience ≥10 years	>60% Inspections	Generalist v. Specialist
Admits Uncertainty	*Female 10.3% Male 5.2%	White 6.7% Black 11.1%	Less 8.5% More 5.6%	Less 5.5% More 7.8%	Generalist 5.9% Specialist 7.7%
Uses humor	Female 59.8% Male 61.7%	*White 59.1% Black 83.3%	Less 61.7% More 59.5%	Less 61.3% More 60.1%	Generalist 65.1% Specialist 57.7%
Interrupts	*Female 13.4% Male 22.2%	White 18.2% Black 8.6%	**Less 20.3% More 13.5%	Less 13.1% More 18.8%	*Generalist 8.3% Specialist 22.0%
Conflict observed	Female 3.0% Male 5.5%	White 4.1% Black 0%	Less 4.7% More 2.6%	*Less 0.6% More 5.3%	Generalist 2.9% Specialist 4.0%
Use jargon	Female 3.0% Male 0.9%	White 1.5% Black 5.7%	Less 2.3% More 1.3%	Less 1.2% More 2.1%	Generalist 1.2% Specialist 2.2%
Gives positive feedback	Female 81.8% Male 78.7%	White 81.4% Black 91.4%	Less 78.7% More 83.5%	Less 83.8% More 79.7%	Generalist 80.5% Specialist 81.6%
Gives feedback negatively	*Female 8.5% Male 16.0%	White 11.7% Black11.1%	Less 11.9% More 12.9%	Less 12.3% More 12.5%	**Generalist 8.8% Specialist 14.7%

*$p < 0.05$ **$p < 0.1$

Admitting Uncertainty

- RS less *expressed uncertainty* associated with:
  - Clear feedback at checkout
  - Contingency planning at checkout
- Higher PIC *expressed uncertainty* associated with:
  - No RS self introduction
  - More questioning RS integrity
  - PIC stalling
  - With someone other than owner or manager
  - Among less cooperative and engaged PICs
  - Heart sink inspections
  - More citations, critical violations and verbal corrections

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Using Humor

- Less RS use of Humor is associated with:
  - Higher job demands
  - More time conflicts
  - Problem Health Department relationships
  - Problem FSE relationships
  - Poorer spoken and receptive English
  - More critical violations and verbal corrections
- More RS use of Humor is associated with:
  - Shaking hands at onset of inspection
  - Existing positive relationship
  - Working with owner or manager

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Using Humor

- PIC is less likely to use humor if:
  - The RS doesn't introduce self
  - Doesn't address PIC by name
  - No hand shake at introduction
  - Interaction rated challenging by RS
- PIC is more likely to use humor if:
  - Effective contingency planning at checkout

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Interrupting

- RS interruptions are associated with:
  - No hand shake at introduction
  - Greater PIC Questioning
  - Higher levels of RS job strain
  - Problem Health Department relationships
  - Problem FSE relationships
  - Perception of more challenging interpersonal PIC interactions
  - More citations and verbal corrections
- Fewer RS interruptions are associated with:
  - More engaged PICs
  - Clear feedback at Checkout

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Interrupting

- PIC interruptions are associated with:
  - Greater PIC Questioning
  - Poorer RS attitudes about PIC interaction
  - Poorer spoken and receptive use of English
  - PIC stalling
  - RS perception of more challenging inspections and interpersonal PIC interactions
  - More critical violations and verbal corrections
- Fewer PIC interruptions are associated with:
  - The perception of greater cooperation
  - Clear feedback at checkout

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Conflict Observed

- More conflict is associated with:
  - More PIC Questioning of RS integrity
  - RS disliking PIC interaction
  - Heart sink inspections
  - Previous negative experience with this FSE
  - Dealing directly with the owner
  - Poorer spoken and receptive English
  - Less cooperative and engaged PIC
  - RS perception of challenging inspection and PIC interaction
  - Lower RS satisfaction with the inspection
  - More citations, critical violations, and verbal corrections

Using Jargon

- More RS use of jargon is associated with:
  - Higher job demands
  - More time conflicts
  - RS disliking food safety education

Giving Positive Feedback

- Giving positive feedback is associated with:
  - Introducing self
  - Addressing PIC by name
  - Shaking hands at introduction
  - Higher job decision latitude
  - Liking doing food safety education
  - Previous positive relationship
  - Eliciting questions form PIC at Check Out
  - Higher RS satisfaction with inspection results
  - **NOT with citations, critical violations, and verbal correction**
- Giving lower levels of positive feedback is associated with:
  - Heart sink inspections
  - Poorer spoken English
  - Perception of challenging inspection and PIC interpersonal interactions

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Giving Feedback Negatively

- Giving feedback negatively is associated with:
  - Not introducing self
  - Not shaking hands at introduction
  - PIC questioning RS integrity
  - Higher job demands
  - More time conflicts
  - Heart sink inspections
  - PIC other than owner or manager
  - Less check out planning
  - Not eliciting questions at check out
  - Perception of challenging PIC interpersonal interactions
  - **NOT with citations, critical violations, and verbal correction**

“Thank You” as a proxy metric for a job well done

- “Thank You” associated with:
  - Introducing self at onset of inspection
  - Addressing PIC by name or title
  - Shaking hands on inspection onset
  - PIC perception of RS integrity
  - RS liking food safety education
  - Effective check out planning
  - Eliciting questions at checkout
  - Positive RS perception of interaction with PIC
  - **NOT with citations, critical violations, or verbal correction**

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Key Findings

- This study provides profound affirmation of the role of RS in the food safety chain
- Highly positive relationships between RS and PICs contrast with public perception
- Job strain for RS is associated with poorer interpersonal interaction
- Food safety education is a key component of the FSE inspection process

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Key Findings

- Language restrictions demonstrate a consistent barrier to effective RS-PIC interactions
- Simple courtesies appear to have a laudable effect on inspections (and are highly prevalent among these observations!)
- “Thank You” may represent a meaningful proxy for effective inspection conduct

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Conclusion

- Its not just what we do that matters, but how we do what we do
- This study presents a provocative call to examine the influence of the interpersonal interaction between public health professionals and those we serve; and the impact of those interactions on the public health outcomes

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Thanks! Questions?

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