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Validity & Reliability of the Direct Observation Methodology: A Focus on Ohio Local Public Health

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Ohio Public Health Association
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Ohio Research Association for Public Health Improvement

Public Health Practice-Based Research Network

Purpose

- To investigate the reliability, validity, acceptability and utility of a novel direct observation methodology in examining the role of local health departments (LHDs) in prevention of foodborne illness.

DOLPH
A RAPHI Project
for Direct Observation
of Local Public Health

Background: Foodborne Illness

- Foodborne illness represents a problem of increasing relevance in the US and is an issue that embodies nearly all essential public health services (Tauxe, 1997)
- While the incidence of foodborne illness has increased, there has been little investigation of the process or quality of LHD involvement
- 76 million cases of foodborne illness occur each year
  - 300,000 hospitalizations and 5,000 deaths
- Foodborne illness outbreaks reportedly cost US citizens $152 billion dollars a year (Scharff, 2010)
  - Ohio ranks number 7 in the US for total cost of foodborne illness

Background: DOLPH Study

- Direct Observation of Local Public Health
  - Investigates the structure, process, and outcome of the Local Health Department (LHD) role in prevention, investigation and management of foodborne outbreaks (FBOs)
- Collaborative effort among all seven graduate public health programs in Ohio
- Each academic institution recruited 3-5 students to act as observers
- Convenience sample of 25-30 LHDs recruited
  - 2-5 Registered Sanitarians (RS) from each LHD recruited

Observational Protocol: Components

- Pre-inspection interview
- Check-in (process)
- Inspection—interaction (process and structure)
- Inspection—content (process and structure)
- Check-out (process and outcomes)
- Post-inspection interview

Observational Protocol: Item Types

- Process
  - Yes/ No
    - Does the Sanitarian shake hands with the Person-In-Charge
  - Likert
    - The PIC admits uncertainty
    - The RS gives positive feedback
  - Field notes
- Content
  - Frequency count
    - RS checks preparation area
    - RS checks equipment
  - Likert
    - Thermometer Calibration
    - Food Protection
  - Field notes

Methods

- Inter-rater reliability will be assessed:
  - Using shared viewing of a mock inspection video
    - N = 27 responses
    - Compared responses to Gold Standard Video
  - Through paired observation among student observers during early observational sessions and when new observers join the project

Methods: Semi-Structured Interviews

- Debriefed Student Observers after paired observations for quality control and protocol evolution

- Conducted Short Phone Interviews with Registered Sanitarians
  - Topics Included:
    - Strengths and Challenges of Methodology
    - Perceptions of Effectiveness and Intrusiveness
    - Professionalism of RS/Observers

Results: Process Observations (Yes/No or Likert)

Variable	N	Percent Correct	Gold Standard Observation
PIC Age	27	63.0%	31-40
PIC and RS Shake Hands	27	92.6%	Yes
RS Wash Hands	27	100%	Yes
Check-In Time	27	96.3%	1-5 minutes
RS Interact with PIC solely	27	88.9%	No
Number of Employees	27	88.8%	>5 employees
RS admits uncertainty	27	85.2%	Not at all
RS uses humor	27	85.2%	More than once
PIC interrupts RS	27	74.1%	Not at all
RS uses unexplained jargon	27	100%	Not at all
Argumentation occurs	27	96.3%	Not at all
RS gives Positive Feedback	27	96.3%	More than once
RS gives Negative Feedback	27	88.9%	Not at all
RS discuss improvement plan	27	85.2%	More than once
RS elicits questions	26	66.6%	Once or more
Hand on Doorknob Syndrome	27	37.0%	Yes
Inspection results discussed privately	27	59.3%	No

Results: Content Observations (Count or Likert)

Variable	N	Percent Correct	Gold Standard Observation
RS squats/bends over	27	96.3%	> 5 times
RS looks under item	27	74.1%	> 5 times
RS inspects prep area	27	44.4%	> 5 times
Hot/Cold Temperature	27	81.5%	> 5 times
Equipment Check	26	48.1%	Comment made
Sanitation	27	74.1%	Comment made
Thermometer Calibration	27	55.6%	Apparently
Hand washing Facilities	27	48.1%	Apparently
Date Marking	27	85.2%	Apparently
Food Protection	27	70.4%	Comment made
Cross Contamination	27	81.5%	Comment made

Preliminary Qualitative Feedback: Registered Sanitarian Interviews

- RS Perceptions
  - Concern about difficulty recording multiple tasks without dialogue, but the check-out report at the end of the inspection should be helpful
  - Students are not intrusive, act/dress professionally and are accurately capturing the full range of actions
  - "The study is definitely helpful to dispel a lot of half truths – people think we [RS] are coming in to shut them down. We have good relationship with our [food service] operators."

Preliminary Qualitative Feedback: Student Observer Interviews

- Themes
  - Methodology allows for observation of
    - Interpersonal interactions between Person In Charge and RS
    - Content of physical inspection and food safety education
    - Variation in the process of FSE Inspections
  - Observers are able to better understand
    - Role of food safety education
    - Variation in Food Service Establishments
    - Variation in LHDs and RS
  - Observers comment on great experience observing RS

Strengths

- High degree of concordance among 27 observers
- Use of Gold Standard to measure accuracy and agreement
- Opportunity for students to get hands-on experience
- Methodology allows for observation of interpersonal interactions between the RS and food service operators

Limitations

- Awaiting paired observation results
- The observer cannot read the mind of RS; therefore, students may be uncertain as to what an RS is inspecting
- Many RS examine multiple characteristics of a food service establishment that may be difficult for an observer to ascertain

Conclusion

- Direct observation is a novel methodology that is useful in public health settings
- There was a high degree of accuracy and concordance among student observers
- Qualitative quality control data has allowed for protocol adjustments to increase accuracy and incorporate items not initially anticipated
- RS and student observers perceive the direct observation methodology as useful, unobtrusive, and accurate
- DOLPH represents a crucial evidence based project to establish a more accurate depiction of LHD structure, process and outcome, ultimately resulting in improved performance, greater accountability, and more stable funding

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Thank you!

Questions?