

# "PHI" Public Health Investigation e-Exercise

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Kansas' e-Exercise approach to  
increasing public health competency  
in disease investigation & emergency  
readiness



# History

- Partnership between Kansas Association of Local Health Departments & Kansas Department of Health & Environment to assess County Health Departments (locals) competency in disease investigation
- Planning partners
  - Kansas Association of Local Health Departments (KALHD)
    - Local Health Departments in Kansas



# History, cont

- Kansas Department of Health and Environment (KDHE)
  - Office of Local and Rural Health
  - Bureau of Epidemiology and Disease Prevention (BEDP)
  - Office of Communications
  - Bureau of Consumer Health (BCH)
  - KDHE Laboratory
- St. Louis University Heartland Center for Public Health Workforce Development/Bioterrorism Preparedness (SLU)
- University of Kansas School of Medicine—Wichita (KUMC-W)



# Goals

- Create pilot e-Exercise that would test:
  - KALHD disease investigation guidelines
  - Risk Communication skills
  - Surge capacity skills
  - Coordination skills
- Design e-Exercise that would utilize core competencies as basis for questions

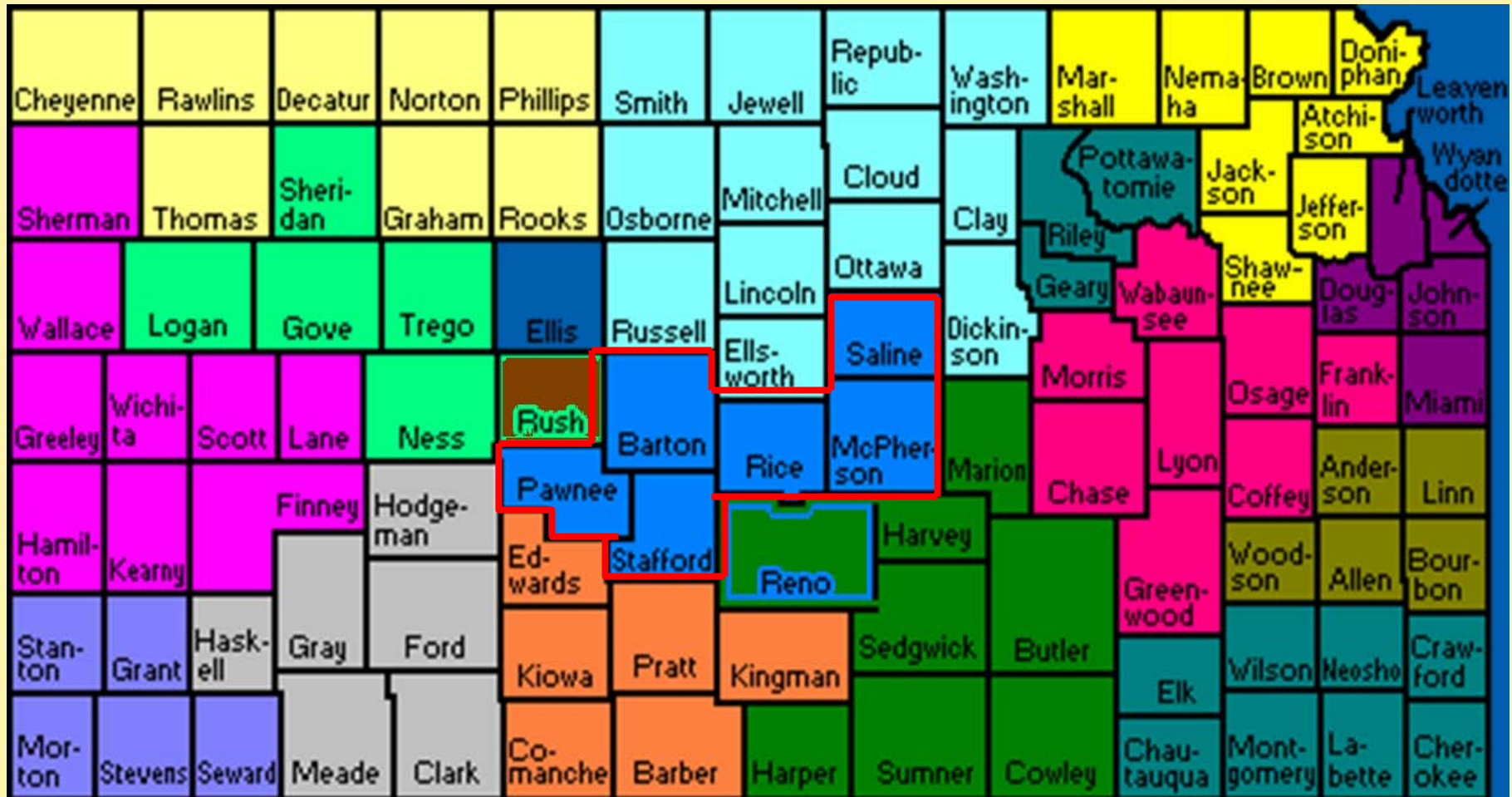


## Goals, cont

- Develop infectious disease e-Exercise that assists local public health workers in building disease investigation skills
- Develop opportunities for new and/or enhanced partnerships related to infectious disease investigation and public health preparedness
- Increase local public health workers' level of preparedness for any public health event



# Pilot Region





# Justification

- Formatted to address concerns of locals about being consistently pulled away from home office
- Create opportunity to have all relevant disease investigation staff involved
- Evaluate retention of training provided in '03-'04
- Identify training needs



# Timeline

- Planning initiated Aug 2004
- e-Exercise development began Oct 2004
- e-Exercise piloted in Feb 2005
- Proposed future actions:
  - Take e-Exercise to regions around state
  - Develop other e-Exercise scenarios



# Exercise Timetable

<b>Task</b>	<b>Date</b>	<b>Time</b>	<b>By</b>	<b>Special Details</b>
Rules of the Game	1-28-05	Before 10AM	PHIX	
Week 1, Scene 1	1-31-05	Before 10 AM	PHIX	Results back 2-2
Week 1, Scene 2	1-31-05	2-4 PM	PHIX	Results back 2-2
Live Simulator tc	2-3-05	Before 10 AM	Daniel N.	
Week 1, Scene 3	2-3-05	Noon-2 PM	PHIX	Results back 2-8
Live Simulator tc	2-3-05	1-2 PM	Linda F.	
Week 1, Scene 4	2-3-05	2-4 PM	PHIX	Results back 2-8



# Exercise Design

- Test resources on:
  - Accessibility
  - Usability
  - Accuracy
- Utilize new & existing communication systems
  - PHIX (Kansas Health Alert Network System)
  - HAWK (electronic disease surveillance and reporting system)
  - Fax
  - E-mail
  - Phone



# Exercise Design, cont

- e-Exercise done in real-time
- e-Exercise divided into injects and questions
  - Divided by week
- Created clues by underlining or using quotes for key prompts

\*Please refer to “Rules of the Game” handout for further information



# Exercise Design, cont

- Injects distributed via PHIX
  - Responses to questions submitted through PHIX
  - Only e-Exercise participants & selected observers could access exercise materials on PHIX
- Questions derived from injects
  - Completed from local office
  - Completed as a disease investigation team
- Forms used were existing disease investigation tools in KALHD guidelines



# Scenario

- Infectious disease outbreak
- Transmission is fecal-oral
- Each county had at least one case
- Included a food worker
- Food worker worked while infectious
- Regional control activities indicated



# Scene Example

- Week 1: Co A finds out they have an infectious disease, confirmed by lab report
- Week 2: Co A finds out that the contact of this case is a food worker
- Week 3: Co A finds out that this food worker continued to work during infectious period
- Surprise!

# Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		<b>1</b> <u>Contacts infectious</u>	<b>2</b> WK 1, Scene 1 & 2 responses due	<b>3</b> <u>Scene 3, 1:00 &amp; 2:00 PM</u> <u>Scene 4, 3:10 &amp; 3:45 PM</u>	<b>4</b>	<b>5</b>
<b>6</b>	<b>7</b> Food worker@ Salina	<b>8</b> WK 1, Scene 3 & 4 responses due	<b>9</b> <u>Scene 1, 8:10 AM</u> <u>Scene 2, 12:00 AM</u> <u>Scene 3, 2:25 &amp; 3:00 PM</u> <u>Scene 4, 3:30 PM</u> Food worker @ Salina	<b>10</b> <u>Food worker</u> <u>symptomatic</u> Food worker@ Salina	<b>11</b>	<b>12</b> Food worker@ Great Bend
<b>13</b> <u>Other contacts</u> <u>symptomatic</u> Food worker@ Great Bend	<b>14</b> <u>Scene 1 &amp; 2, 10:05 AM</u> WK 2, Scene 1, 2, 3, 4 responses due	<b>15</b>	<b>16</b>	<b>17</b> <u>Scene 3, 3:22 PM</u> WK 3, Scene 1 responses due	<b>18</b>	<b>19</b>
<b>20</b>	<b>21</b> <u>Last day for Ig to food worker 2/7 contacts</u>	<b>22</b> WK 3, Scene 3 responses due	<b>23</b> <u>Last day for Ig to food worker 2/9 contacts</u>  <u>Scene 1, 9:01 AM</u>	<b>24</b> <u>Last day for Ig to food worker 2/10 contacts</u>	<b>25</b>	<b>26</b> <u>Last day for Ig to food worker 2/12 contacts</u>
<b>27</b> <u>Last day for Ig to food worker 2/13 contacts</u>	<b>28</b>					



# Participant Guidance

## e-Exercise prompting/guidance provided

- as requested by counties
- as deemed appropriate per facilitator's review of county answers
- to participants by state, regional, and local facilitators
- per uniform facilitator designed tool to determine level of guidance




# Exercise Guidance Scale

## **6-point scale**

- 0: No assistance needed
- 1: Review material and action, no support needed
- 2: Required minimal support of action
- 3: Needed support w/ prompts or hints w/ both process & details
- 4: Full support w/ review of action & assurance action is corrected, key prompts on both process & details
- 5: Maximum support, gave answer; provided instructions on both process & details




# Evaluation



# Evaluation Components

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- **Pre- & Post-exercise survey** via Internet
- **76 Questions from Scenes** via PHIX
- **County focus groups** (n=6)
- **Regional focus group**
- **Interviews** with KDHE staff & regional coordinator



# Pre-Exercise Survey



# Pre-Exercise Survey

- Included all health department staff with e-mail addresses
- 65 surveys sent through Zoomerang (and fax) 56 responded
- 86% response rate
- Most questions asked respondents to rate their abilities from very poor to excellent
- Scale: very poor, poor, average, good, excellent



# Pre-Exercise Survey Results

Exercise participants reported **higher** abilities than non-participants in:

- Recognizing infectious disease cases
- Alerting the public health system
- Understanding Incident Command System
- Implementing risk communication skills
- Use of computer software



# Pre-Exercise Survey Results

## Participants Self-Rated “Average” Abilities

- Recognize infectious disease cases (56%)
- Alert to potential for an outbreak (60%)
- Participated in a coordinated response (52%)
- Alerted the public health system (40%)
- Understood Incident Command structure (40%)
- Need for & implementation of surge capacity (56%)

(Scale: very poor, poor, average, good, excellent)



# Pre-Exercise Survey Results

## **Participant Goals**

“[Develop] Familiarity and proficiency using available resources to address epidemiology-related issues.”

“The capacity of our health department to handle large scale emergency events.”



# Pre-Exercise Survey Results

## **Non-Participants Goals**

“I need to learn to recognize a communicable disease and then be able to know how to handle or at least help in the process of investigation.”

“Whatever it takes to help control infectious diseases from spreading.”



# Post-Exercise Survey



# Post-Exercise Survey Results

## Participants Self-Rated Abilities as “**Good**”

- Recognized infectious disease cases (59%)
- Alerted to potential for an outbreak (59%)
- Participated in a coordinated response (77%)
- Alerted the public health system (50%)
- Understood Incident Command Structure (50%)
- Need for & implementation of surge capacity (68%)

(Scale: very poor, poor, average, good, excellent)

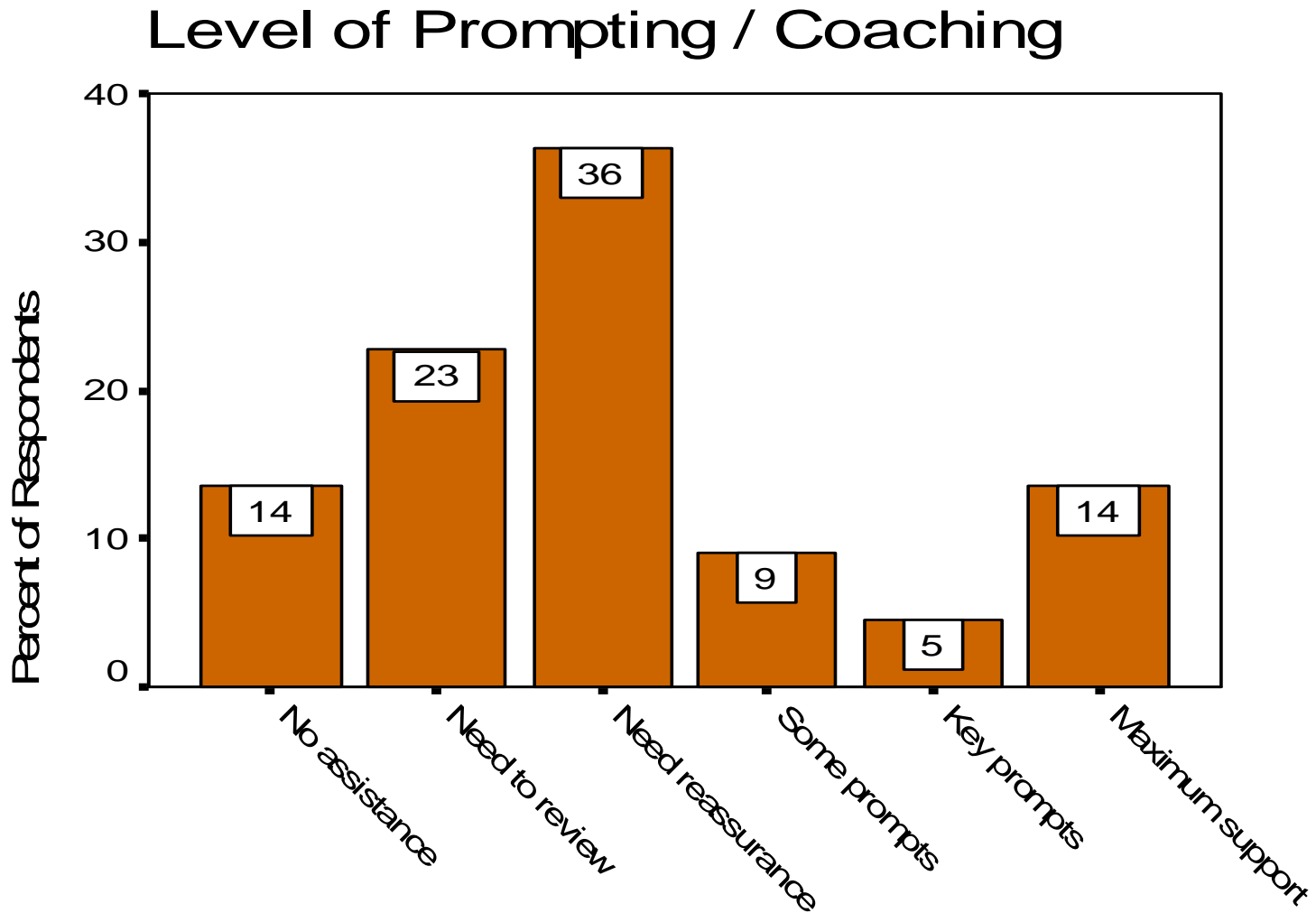


# Post-Exercise Survey Results

## Participant Self-Rated Abilities as “**Good**”

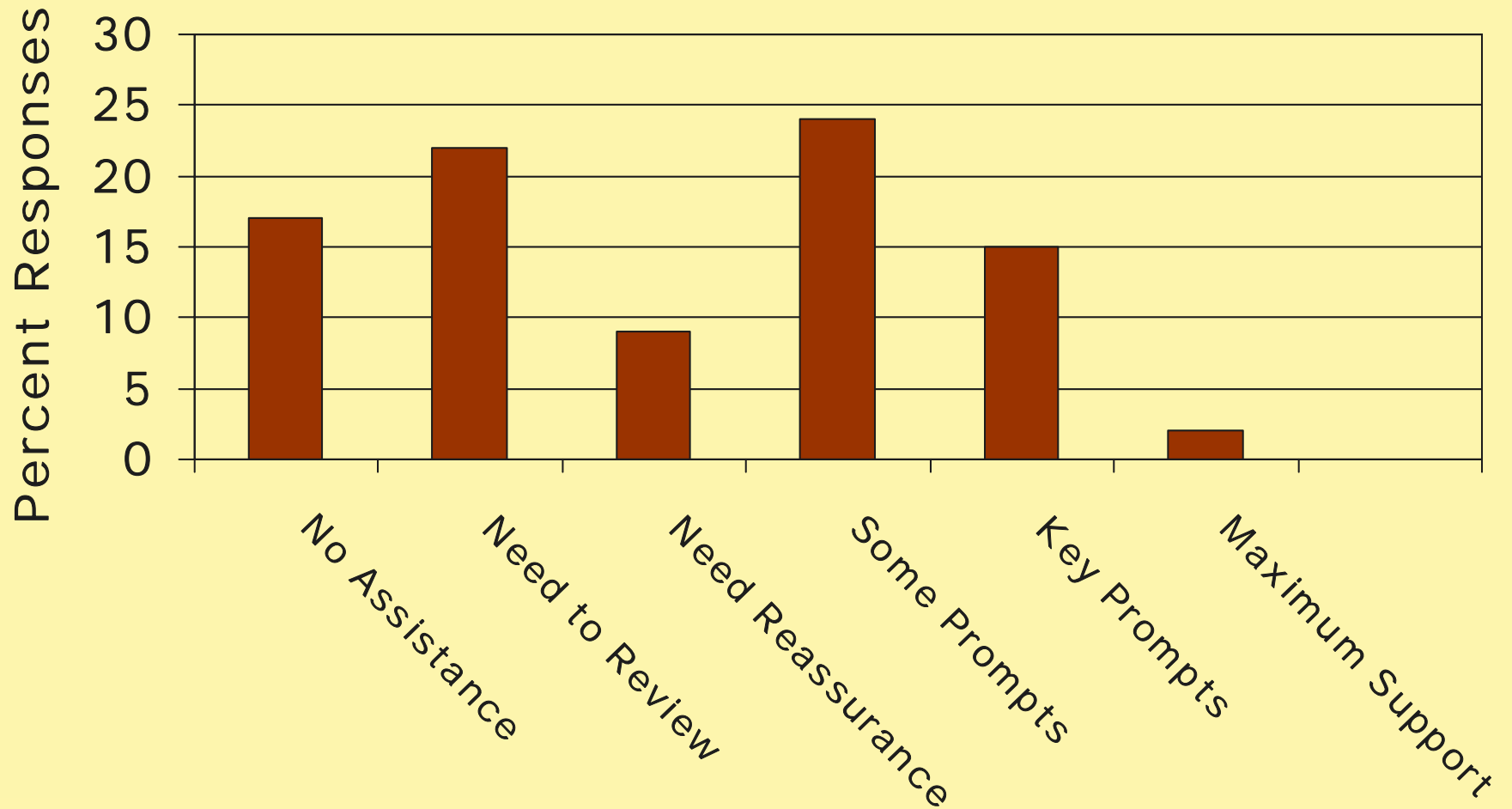
- Coordinated with state partners (82%)
- Coordinated with regional partners (91%)
- Coordinated internally (64%)

# Level of Prompting/Coaching





# Level of Prompting/Coaching--Facilitators' Perspective



# Overall Rating of Exercise





Pre vs. Post



# Pre vs. Post

- Among those who participated, increased:
  - Ability to participate in a coordinated response
  - Ability to identify the need for and implement surge capacity
- Among those who did not participate:
  - No significant differences



# County Focus Groups



# County Focus Groups Results

- **Communication** - challenges (PHIX, e-mails), positives (phone conference)
- **Design** - Preferred this design over tabletop or other off-site exercises
- **Activities** - Made changes you liked; meeting more often



# County Focus Groups Results

- **Impact** - Powerful; sometimes seemed real; of value to you personally and to agencies
- **Length** - Seemed long at Week 4; but it would have lasted longer if real
- **Lesson** – Can work together, relied on partners



# Participant Impressions

- **Exercise was:**
  - Reasonable
  - Manageable
  - Provided good internal and partner challenges
  - Recommend e-exercise in this format to be conducted at least every 15 months
- **Participants had fun**



# Facilitator Impressions

- Counties were exceptionally cooperative
- Counties were prepared
- Received positive feedback from:
  - Within KDHE
  - External Stakeholders
- Counties gained confidence in disease investigation and coordination skills



# Challenges

- Facilitators lacked formal exercise design education
- Designing e-Exercise consistent with disease process
- Determining mode of communication during e-Exercise
- Developing and implementing new training
- Facilitators' time not 100% devoted to exercise development



## Challenges, cont

- Keeping exercise details a secret
- Creating questions that had participants explaining process
- Timing of injects & responses to avoid suggesting the correct course of action
- Developing a scenario that would effect each county



# Conclusions

- Improved utilization of regional BT coordinators
- Re-evaluation of regional roles & responsibilities
- Identification of new external partners for large-scale public health emergency
- Suggested modification of disease investigation resources & guidelines



# Future Actions

- Incorporate feedback to improve e-Exercise
- Consider other electronic systems for interactive e-Exercise participation
- Move to next level of e-Exercise design
  - Intentional events vs. unintentional events
- Create library of scenarios for future e-Exercises
- Develop strategies for sustainability

Questions?






# Additional Information



# Modifications to Exercise

- Had to correct minor errors
  - Corrected a fax number
  - Corrected information on food worker sheet
  - Corrected date on food worker lab report
- Risk Communication observer was ill
- Clarified food worker information during conference call w/ counties



# Pre-Training Survey Results

## Participants Reporting “**Never**” Using Available Technology/Resource

- PHIX (24%) – lack of access
- KALHD disease investigation protocols (28%)
- Foodborne Illness and Outbreak Investigation Manual (24%)
- HAWK (68%)



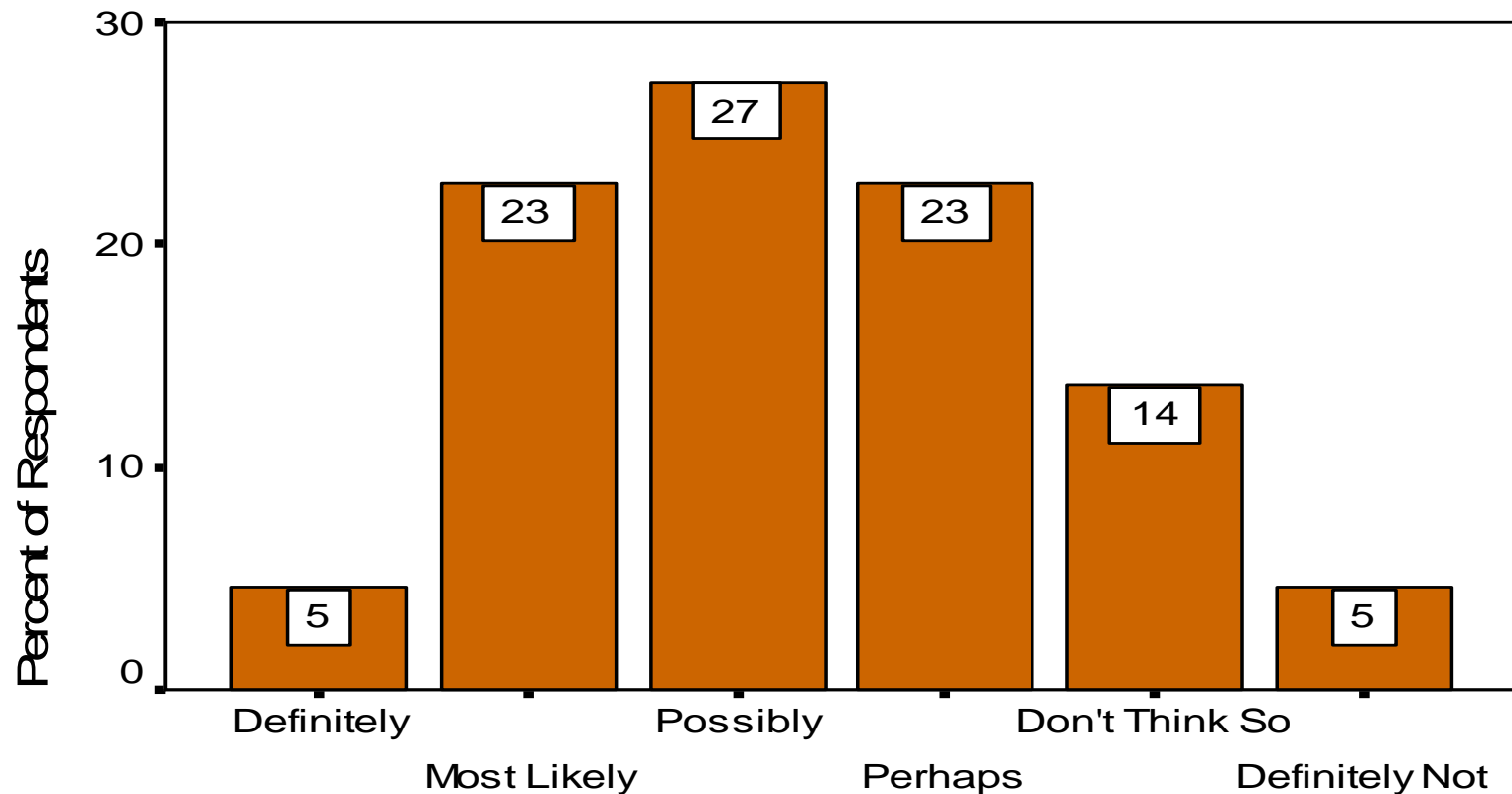
# Post-Exercise Survey Results

## Participants Reported Needing More Training Resources:

- Foodborne Manual (46%)
- Kansas TRAIN (59%)

# Decisions - Actions

Will You Change Ways You Make  
Collective Decisions or Take Action



# New Partnerships

How Many New Partners or Stakeholders Did You Identify?

