



OUTDOOR MASS GATHERINGS IN KANSAS:
AN EXAMINATION OF LOCAL HEALTH
DEPARTMENT AWARENESS AND INVOLVEMENT

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INTRODUCTION

- Master's of Public Health
 - Infectious Disease and Zoonosis
- Kansas Department of Health and Environment (KDHE) Bureau of Epidemiology and Public Health Informatics (BEPHI)
 - Provides education and support to the public and to local health departments (LHDs)
 - Works to prevent infectious disease in the state of Kansas
 - Assists LHDs in investigation of cases of reportable disease and disease outbreaks



INTRODUCTION

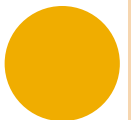
○ Field Experience

- Observation of an investigation of nosocomial *Burkholderia* at a hospital
- Input data from *Burkholderia* investigation into a database
- Performed a phone interview for an investigation
- Learned disease investigation processes
- Outdoor mass gathering (OMG) project



OUTLINE

- Outbreaks Associated with a Mass Gathering
- KDHE Definition of an OMG
- Methods
- Results
- Discussion
- Recommendations
- Limitations



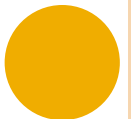
OUTBREAKS ASSOCIATED WITH A MASS GATHERING

- Rainbow Family of Living Light Annual Gathering
- Taste of Chicago
- Biking Across Kansas (BAK)

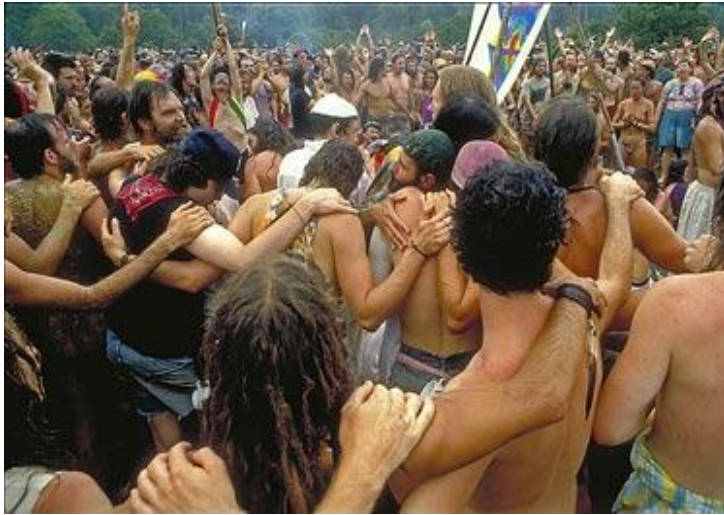


RAINBOW FAMILY GATHERING

- July 1987
- Temporary camping community in Nantahala National Forest in North Carolina
- Peak attendance 12,700



RAINBOW FAMILY GATHERING



- United States Forest Service noted diarrheal illness amongst attendees
- North Carolina Division of Health Services notified
- Interviews on site:
 - 92 of approx. 1,300 still on site were interviewed
 - 54 out of 92 report diarrhea
- Mailed surveys:
 - Sent to 1,719 previous attendees
 - 185 out of 317 who responded fit case definition



RAINBOW FAMILY GATHERING

○ Case definition

- Attendee with diarrhea or a stool sample positive for *Shigella sonnei*
- Onset during the gathering or within a week of leaving

○ *Shigella sonnei*

- Causes shigellosis
 - Enteric disease
 - Bloody stool
 - Diarrhea
- Fecal-oral route



RAINBOW FAMILY GATHERING

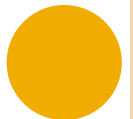


- Lack of hygiene
- Lack of hand-washing facilities
- Open trench latrines
- Secondary cases occurred in 27 people



TASTE OF CHICAGO

- July 2007
- Large outdoor food festival
- An estimated 3.5 million people attended

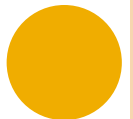


TASTE OF CHICAGO



Photo: City of Chicago/Chris McGuire

- Chicago Department of Public Health issued a press release and survey
- 802 people had *Salmonella* symptoms
- 191 met confirmed or probable case definition
 - Laboratory-confirmed *Salmonella* infection after eating at the implicated food booth



TASTE OF CHICAGO

- *Salmonella* Heidelberg
 - Causes salmonellosis
 - Enteric disease
 - Fever
 - Nausea
 - Vomiting
 - Diarrhea
 - Fecal-oral route
- Hummus shirazi from Pars Cove booth found responsible for outbreak



BIKING ACROSS KANSAS

- June 2006
- Biking and camping on a pre-determined route across Kansas
- Approximately 870 participants
 - Volunteer workers not included
- Approx. 20 people initially reported ill with gastrointestinal symptoms



BIKING ACROSS KANSAS



- KDHE assisted in LHD investigation on site
- Surveys conducted
- 126 met the case definition
- Case defined as:
 - Person associated with BAK 2006 and had diarrhea and/or vomiting between June 9- 19, 2006



BIKING ACROSS KANSAS

○ Norovirus

- Viral infection
 - Enteric disease
 - Diarrhea
 - Nausea
 - Vomiting
 - Stomach pain
- Fecal-oral route

- Lack of hand-washing and bathroom facilities along the route



KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT (KDHE)

- Since the 2006 BAK outbreak, KDHE has developed an interest in OMGs in Kansas
- Important public health implications:
 - Heat
 - Injuries
 - Infectious disease
 - Zoonotic
 - Foodborne
 - Person- to- person



OUTDOOR MASS GATHERING (OMG)

- No common definition for outdoor mass gatherings
- The Northwest Center for Public Health Practice defines a mass gathering in the following ways:
 - “...a preplanned event held at a specific location for a defined period of time that strains planning and response resources.”
 - “Some people define a mass gathering as having more than 5,000 attendees... any event with more than 25,000 attendees is considered a mass gathering”
- The World Health Organization defines a mass gathering as:
 - “...more than 1,000, but usually about 25,000 people at a specific location, for a specific purpose, for a period of time.”



OUTDOOR MASS GATHERING (OMG)

- KDHE has defined an OMG as meeting the following criteria:
 - Has a specifically defined outdoor location(s)
 - Utilizes temporary facilities such as portable food vendors, hand washing stations, portable restrooms, etc.
 - Is preplanned
 - Occurs over the course of 2 or more days
 - Has a total attendance of 1,000 or more visitors and staff



METHODS: INTERNET SURVEY

- A survey was created using SurveyMonkey
 - Contained 13 questions
 - A notification and link to the survey was sent via e-mail
 - An administrator or a representative from each LHD were to respond
 - At least 4 e-mail attempts and 4 phone call attempts were made to contact the LHDs



METHODS: OMG DATABASE

- A database containing OMGs was created using Microsoft Excel
- OMGs were obtained from:
 - The internet survey
 - Kansas Department of Commerce database
 - Internet research
- Database contains:
 - Name of OMG
 - County of occurrence
 - Attendance size
 - Dates of occurrence and time frame
 - City and site of location
 - Source OMG was obtained from
 - Season in which event occurs

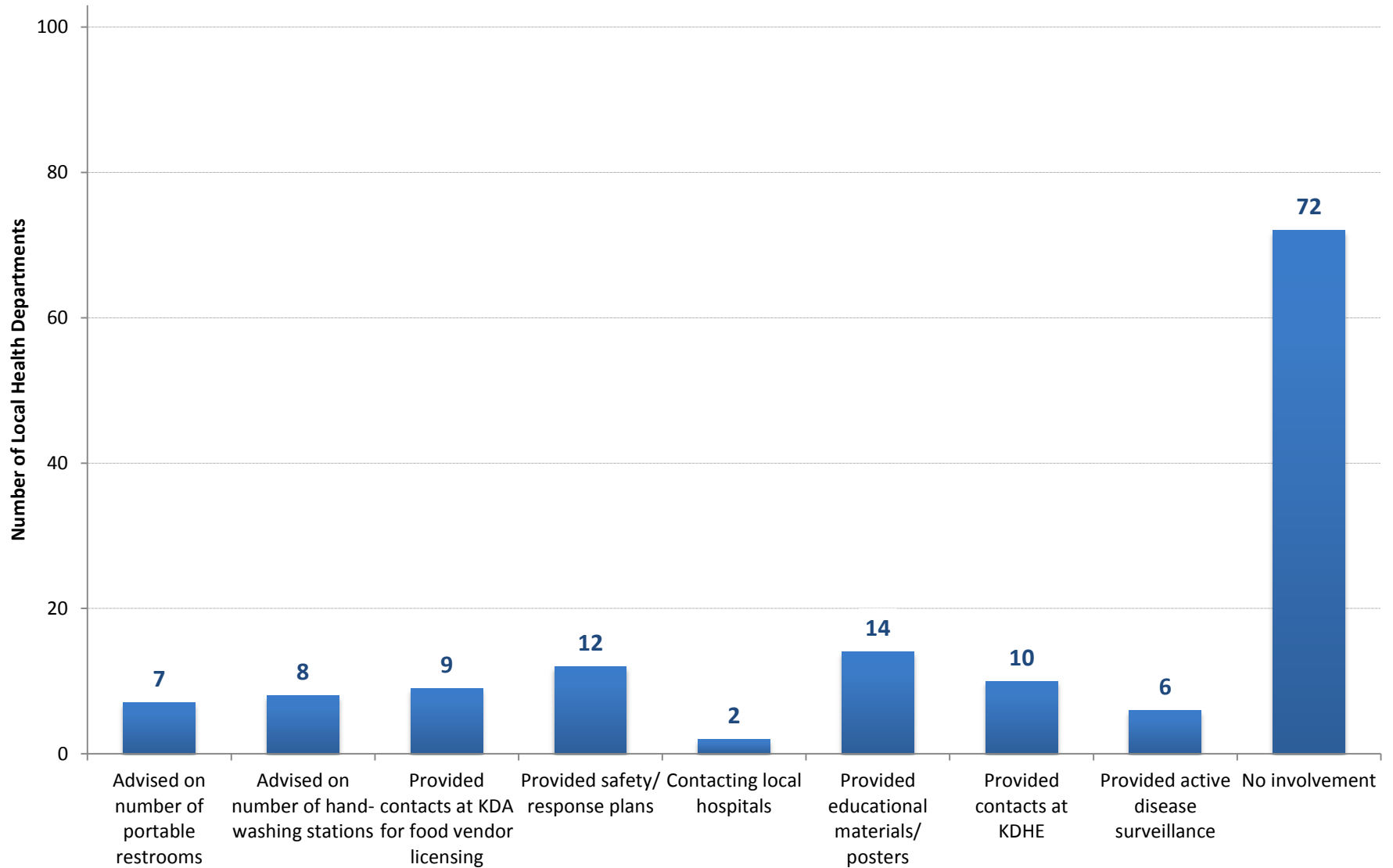


RESULTS: INTERNET SURVEY

- 103 of 105 LHDs responded to the survey
 - 66 of 103 (64%) said their counties do host OMGs
 - 58 of 103 (56%) are not notified by organizers of the OMG
 - 72 of 103 (70%) do not have any involvement in planning OMGs
 - 62 of 101 (61%) of LHD representatives agreed that it is important for their LHD to have some involvement with planning OMGs
 - 31 of 103 (30%) do have some type of involvement in OMG planning

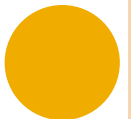


NUMBER OF LOCAL HEALTH DEPARTMENTS INVOLVED IN OUTDOOR MASS GATHERING PLANNING, BY TYPE OF PLANNING INVOLVEMENT (N=103)



RESULTS: OMG DATABASE

- 185 OMGs in the database
- 125 (60%) occur during summer
- 39 of 185 (21%) have estimated attendance size listed
 - 18 of 39 (46%) have an attendance of 10,000 and over
- Barton County has 9 OMGs, the most in the database
- Franklin and Marion Counties both have 7 OMGs in the database



SELECTED ANNUAL OUTDOOR MASS GATHERINGS IN KANSAS.

Name of OMG	County	Attendance	Length	Month of Occurrence
Kansas State Fair	Reno	350,000	10 days	September
Riverfest	Sedgwick	275,000	9 days	June
KC Renaissance Festival	Wyandotte	200,000	20 days	September-October
Country Stampede	Pottawatomie	160,000	4 days	June
Dodge City Days	Ford	100,000	10 days	July-August
Neewollah	Montgomery	75,000	9 days	October
KanRocksUs	Wyandotte	60,000	2 days	August
Walnut Valley Festival	Cowley	20,000	4 days	September
Finney County Fair	Finney	10,000	5 days	July
Trego County Fair	Trego	6,000	5 days	August
Osborne County Fair	Osborne	2,700	4 days	July
Mitchell County Fair	Mitchell	1,400	7 days	August



DISCUSSION

- Primary objectives:
 - Define an OMG
 - Build a database of OMGs in KS
 - Determine LHD awareness and involvement in OMGs
- 185 OMGs recorded in database
- The majority of LHDs:
 - Are not involved with OMGs
 - Agree they should be involved



DISCUSSION

- Coordination is needed between the event organizers and other entities to ensure a safe environment for attendees
- City hosting the event
 - Permit required before event can take place
- Private entities
 - Rental facilities
- Kansas Department of Agriculture (KDA)
 - Licensing for food vendors



RECOMMENDATIONS

- Municipality hosting the event should require organizers to notify LHD and KDA as part of the approval process
 - Ensure these entities are aware of OMG
- Event organizers should inform the LHD of the upcoming OMG
 - Monitor for infectious disease outbreaks
 - Monitor for weather and accident related illnesses
 - Provide public health resources
- Event organizers should inform KDA of the upcoming OMG
 - KDA can ensure food vendors are currently licensed



RECOMMENDATIONS

- A standard tool with planning guidelines should be made available for LHDs, municipalities, and event organizers
 - Contain estimations for correct numbers of hand-washing stations and portable restrooms from reputable sources
 - Contain the list of organizations that should be notified of the OMG
 - LHD
 - KDA
 - Local hospitals
 - Local police and fire departments
 - Local emergency management office
- These recommendations may be useful for all events that occur in Kansas, not just those that fit the OMG definition



LIMITATIONS

○ Recall bias

- Answering survey based on memory
- Listing OMGs based on memory

○ Interview bias

- Survey answered online, directly by responder
- Survey answered via phone interview

○ OMG database not comprehensive:

- Lack of reporting protocol for events
- Currently no good way to find them all
- Not all attendance sizes could be found



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QUESTIONS?



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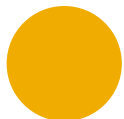


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