



# ***Salmonella* Outbreak at an Outdoor Event**

**Arizona Infectious Disease Training and Exercise  
July 23, 2015 11:40-12:00**

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# EPIDEMIOLOGICAL INVESTIGATION

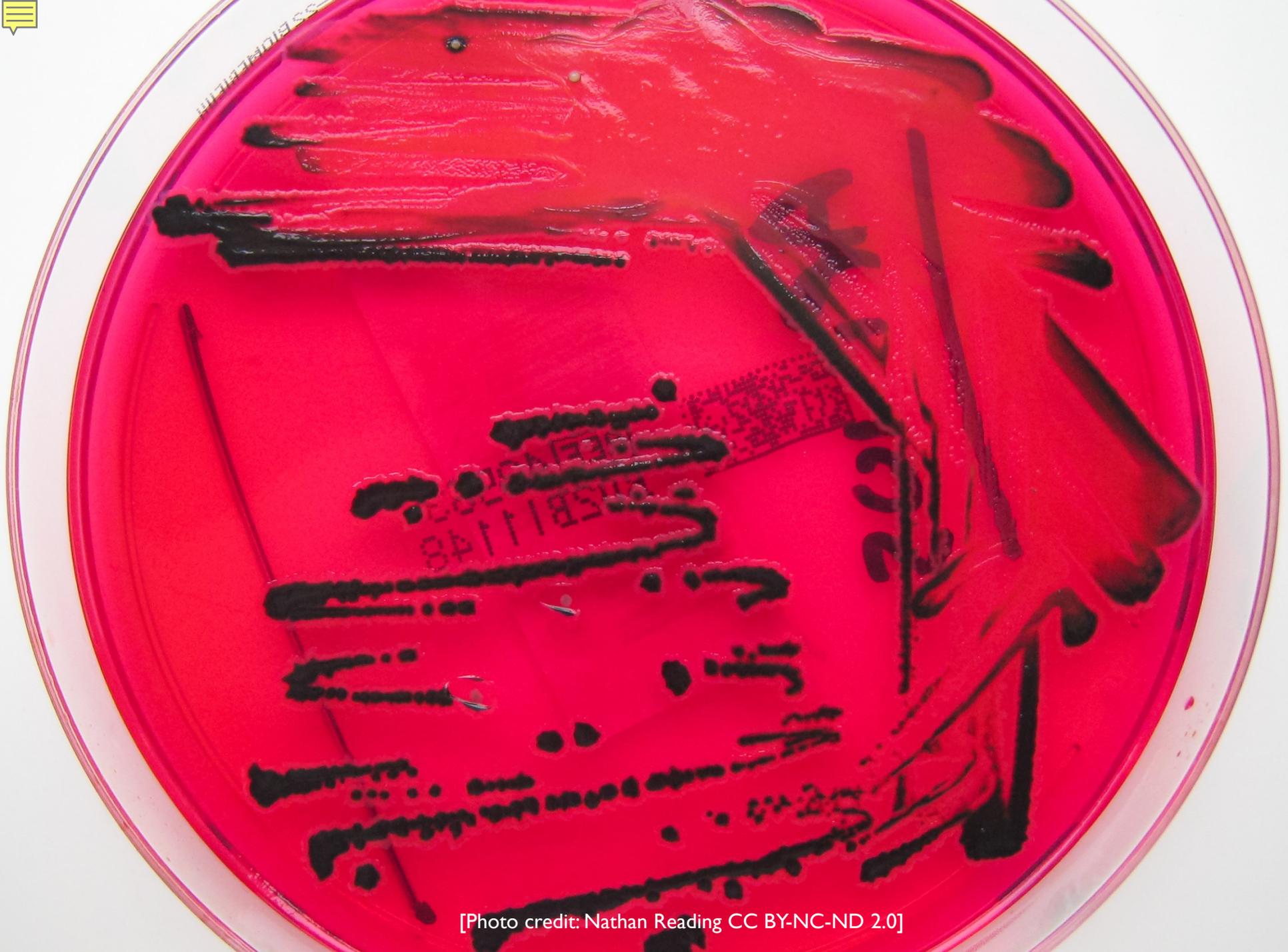


[Photo credit: Thomas Hawk CC BY-NC 2.0]





Photo credit: gfpeck CC BY-NC-ND 2.0]



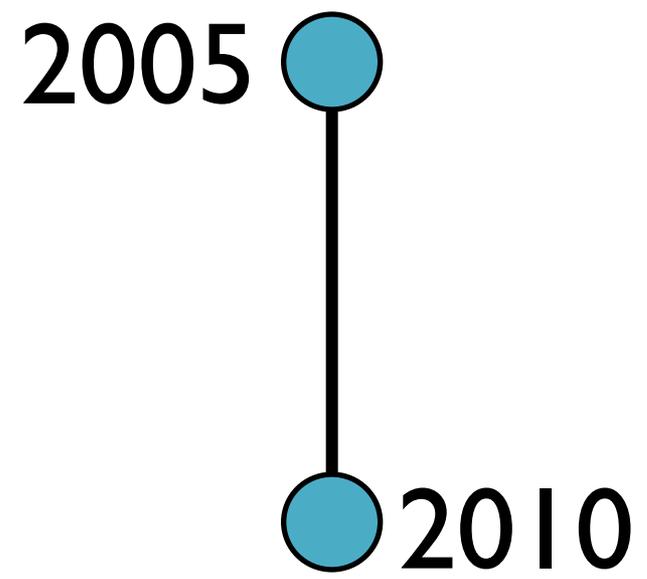
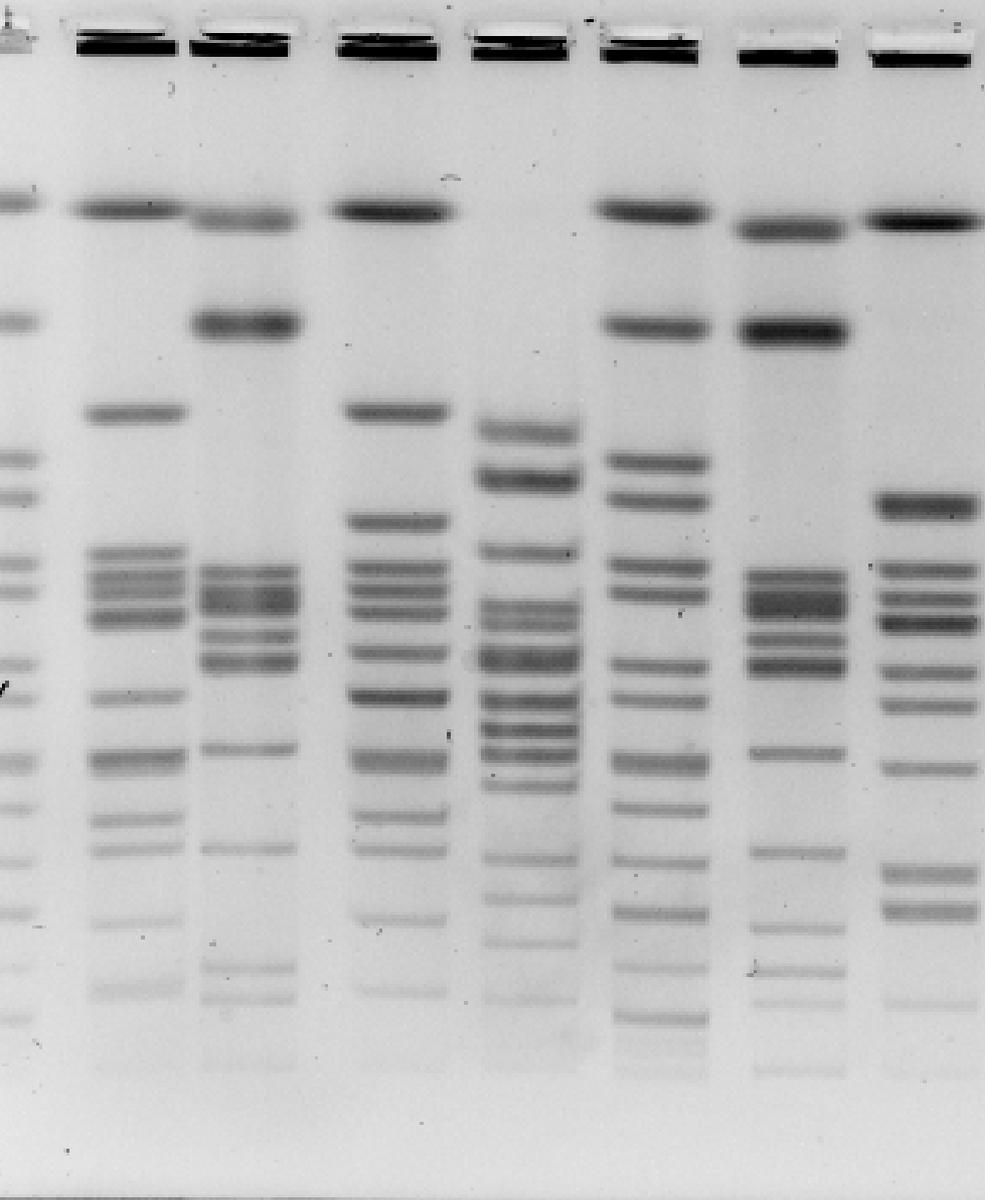
[Photo credit: Nathan Reading CC BY-NC-ND 2.0]



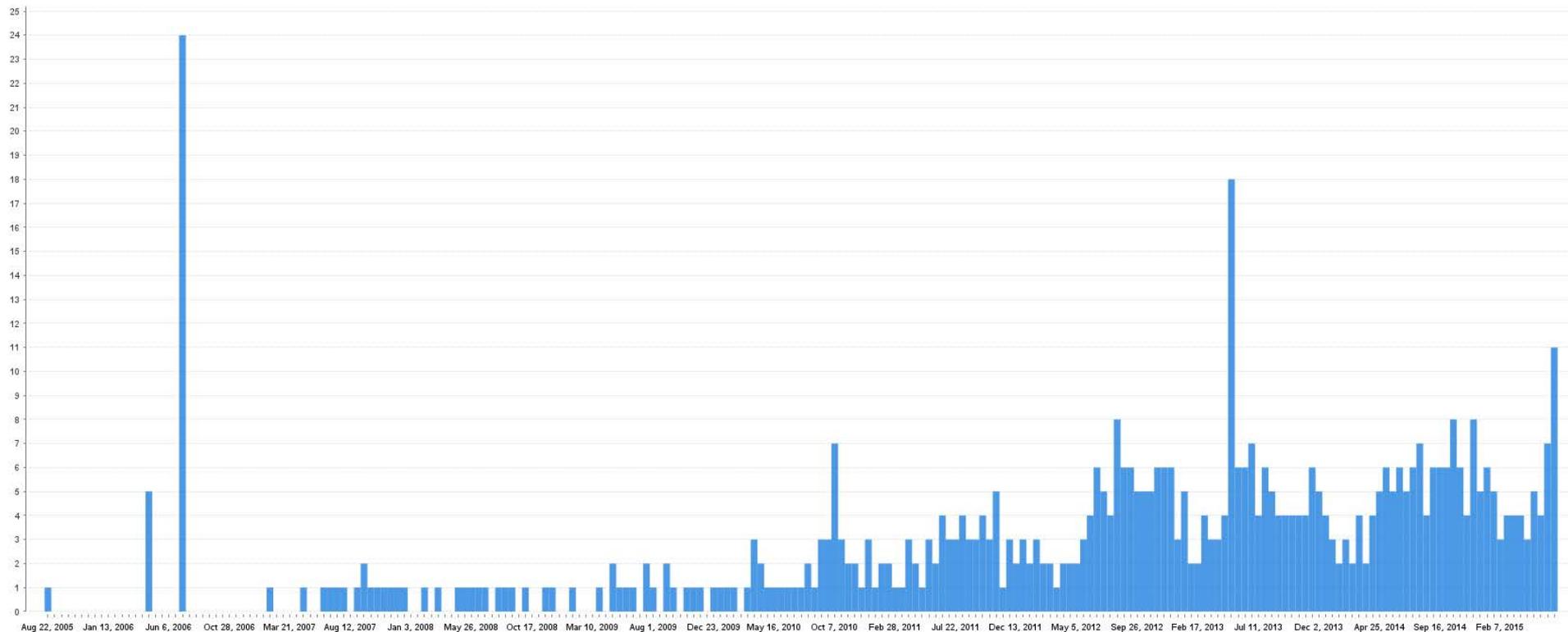
2005 ●



*Health and Wellness for all Arizonans*

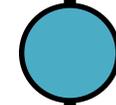
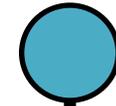


*Health and Wellness for all Arizonans*



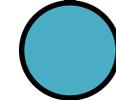


2005



2010

2014



ab

caps lock

A

S

search

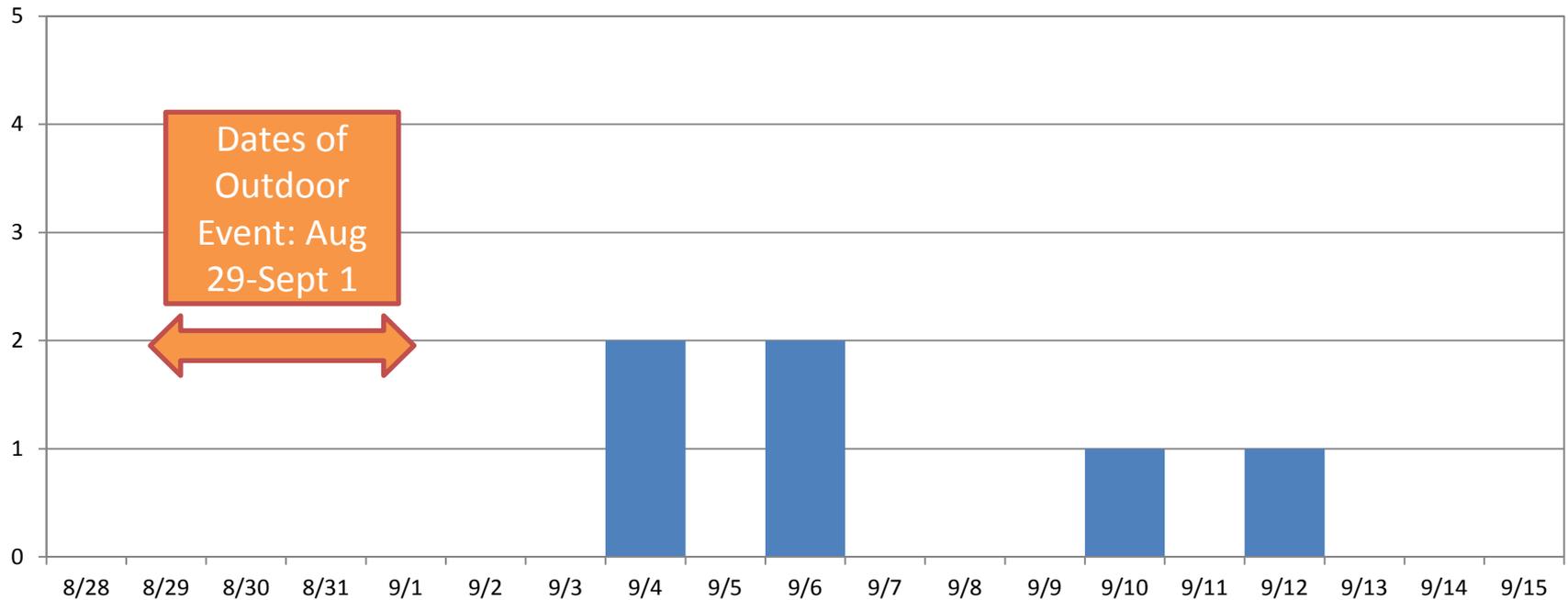
Z

control

alt  
option

# Epidemic curve

Persons infected with the *Salmonella* I 4,[5],12:i:-, JPXX01.1314, by date of illness onset





[Photo credit: Stuart Bramley CC BY-NC-ND 2.0]



[Photo credit: Jim Belford CC BY-NC 2.0]



[Photo credit: Anthony Albright CC BY-SA 2.0]

# Descriptive analysis

Description	Cases (N = 6)
Female	5 (83%)
Median age	14 years (range 3 – 44 years)
Hospitalized	0 (0%)
Attended the event	6 (100%) <ul style="list-style-type: none"><li>• Sun 8/31 (4 cases)</li><li>• Mon 9/1 (1 case)</li><li>• Thu 8/28 through Mon 9/1 (1 case)</li></ul>
Ate at the event	6 (100%) <ul style="list-style-type: none"><li>• All reported different food exposures</li></ul>



Photo by michaelloudon CC BY-NC-ND 2.0

# Animal exposures

Exposure	Cases reporting this exposure (N = 5)
Looked at animals	5 (100%)
Exposure to chicken enclosure	5 (100%)
Exposure to pig enclosure	4 (80%)
Exposure to cow enclosure	4 (80%)
Touched sheep	4 (80%)
Exposure to llama enclosure	4 (80%)



[Photo credit: Michael Kappel CC BY-NC 2.0]



# Handwashing





# Handwashing

Hand washing	Cases (N = 5)
Washed hands with soap and water	0 (0%)
Used hand sanitizer after seeing animals	4 (80%)

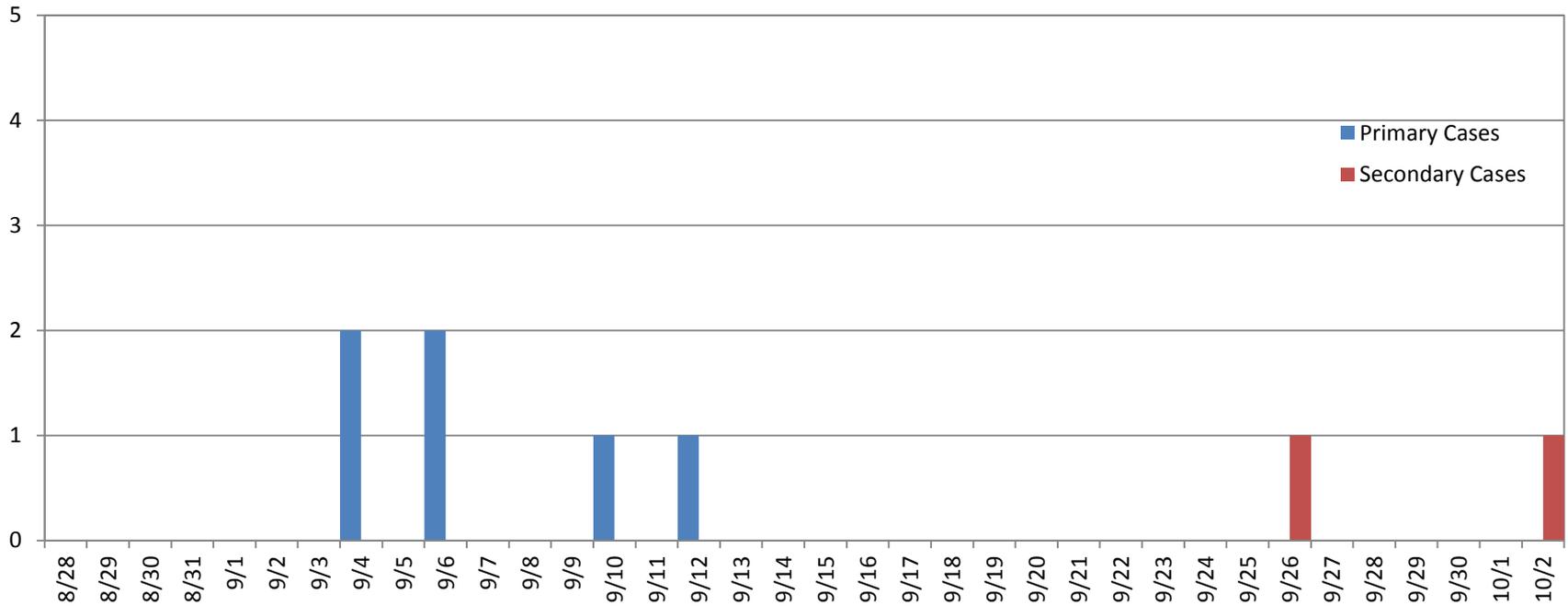
# Secondary cases



[Photo credit: Chapendra CC BY-NC 2.0]

# Epidemic curve

Persons infected with the *Salmonella* I 4,[5],12:i:-, JPXX01.1314, by date of illness onset





# Epi Conclusions



# ENVIRONMENTAL CONSIDERATIONS & RECOMMENDATIONS

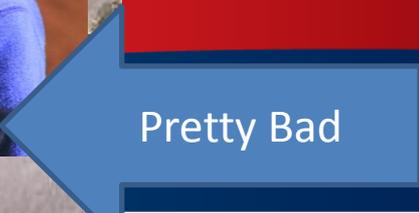
# Burden of Animal Contact Diseases

- Gastro-intestinal illnesses attributable to animal contact in the United States annually:
  - 445,213 illnesses
  - 4,933 hospitalizations
  - 76 deaths



# Transmission

- Petting, touching, feeding animals
- Touching environmental surfaces (barriers, bedding)
- Getting licked by an animal
- Food contamination



# Transmission

- Risk for infection at public settings with animals increased (especially with children) when:
  - Lack of awareness of disease transmission possible
  - Lack of supervision
  - Hand to mouth activities
- Layout and maintenance of facility, such as
  - Inadequate hand washing facilities
  - Flow of visitors not encouraging hand cleaning
  - Separate animal and food areas

Source: The National Association of State Public Health Veterinarians Animal Contact Compendium Committee (NASPHV) 2013 , *Compendium of Measures to Prevent Disease Associated with Animals in Public Settings, 2013*.  
Journal of the American Veterinary Medical Association, Vol 243, No. 9: 1270-1287. November 1, 2013.





# Prevention: Hand Sanitizer

- Hand sanitizer stations
- Continue in animal areas
- Between key locations – e.g., between portable toilets and food court
- HS stations peopled with volunteers giving out Fight Bac<sup>®</sup> Stickers



Small Livestock Show Area

CARNIVAL



Other Exhibits

Animal Exhibits

Livestock Show Ring

Animal Exhibits

93	92	91	81	22
		90	82	34
94		89	83	35
		88	84	36
95	96	87	85	37
			86	38



Thrill Quest

28	75	74	97
27		73	
26			
21	71	72	106

Beer Trailer



Wood Turners

Fun Zone

Kiddie Caboose

39
40
41
42
43
44
45

Covered Seating

Beer Garden

Food Vendors

24	23	22	21	20	19	18	17	16	15	
25										
1	2	3	4	5	6	7	8	9	10	11



Covered Seating

99
100
101

102 PEPSI



MAIN ENTRANCE

Train Club 3

MAIN STAGE



INDOOR VENDORS

58			
46	57	59	
47		60	
48	56	61	69
49		62	68
50	55	63	67
51		64	
52	54	65	66

Fine Arts

Law Enforcement

78 80 79

Kid's Zone

Breast Feeding Area

Monday, Sept 1  
Craft Beer Tasting  
11AM - 2PM

Smoking Area



Main Office

Entrance/Exit

Ft Tuthill Military Museum

TO AMPHITHEATER

# Prevention: Enclosures

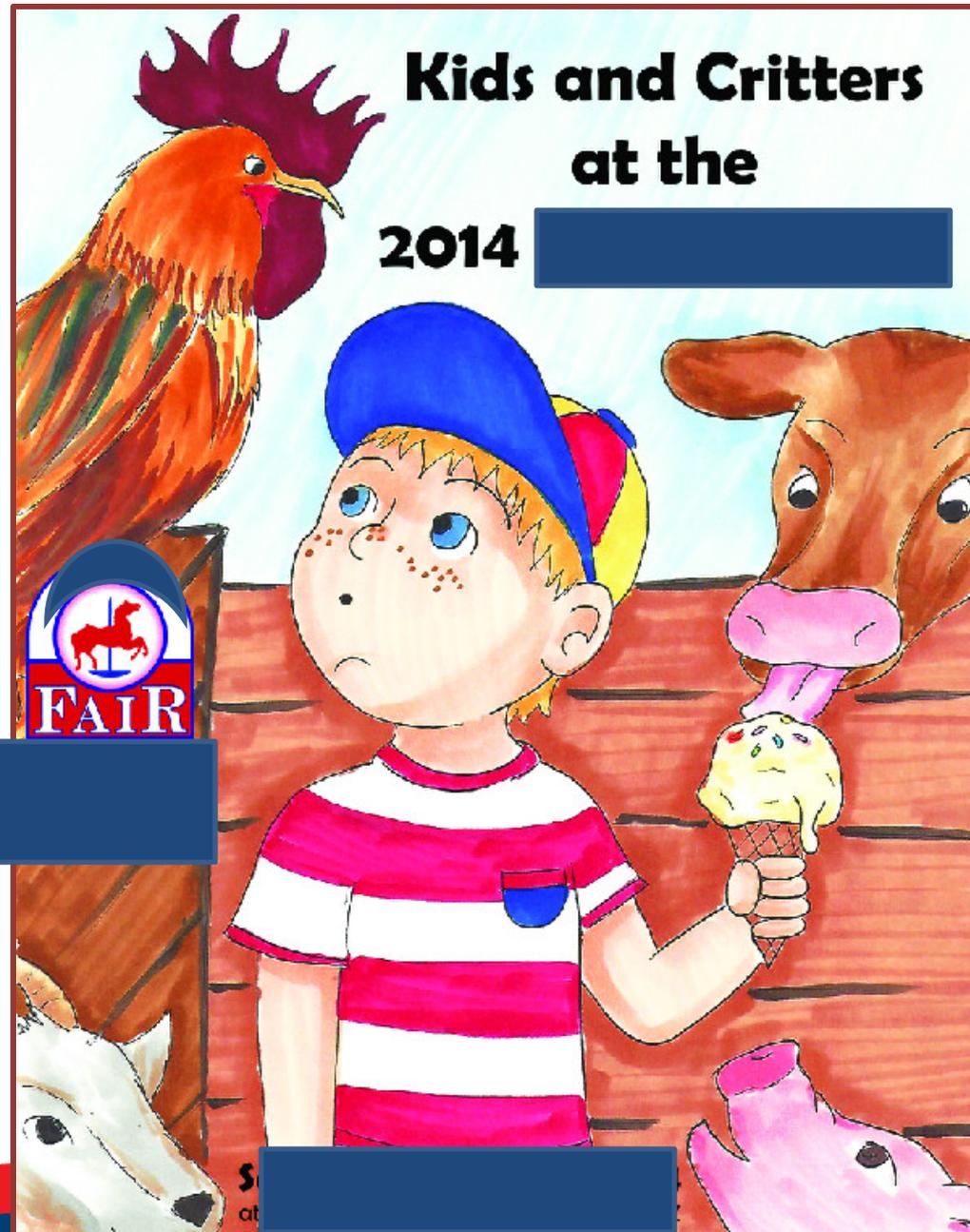


- Wipe down animal enclosures with cleaning solution that animals can tolerate



- Advisories on the way in (no pacifiers)
- Signs and sanitizer on the way out (use hand sanitizer or wash)

Perhaps not  
to be  
encouraged

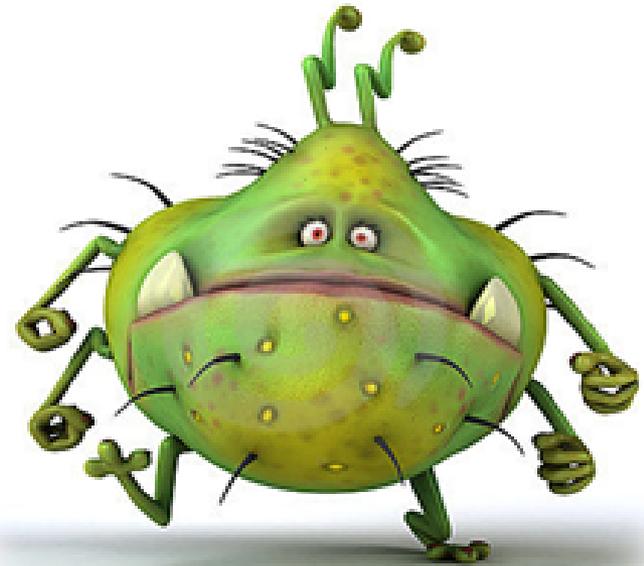


# Prevention: Advertising

- Fight Bac!® Campaign (Partnership for Food Safety Education, [www.fightbac.org](http://www.fightbac.org))
- Appear on official map
- Signage, especially around food areas, animal enclosures
  - Wash hands
  - Use hand sanitizer
  - No toys, pacifiers, etc. in animal areas



# Fight Back!



## Clean Your Hands

Stop the spread of germs—fight bacteria!  
Wash your hands with soap and water  
or use hand sanitizer after visiting the  
animal area and right before eating.

 **PUBLIC HEALTH  
SERVICES DISTRICT  
COCONINO COUNTY**

# Prevention: Education

- Education with
  - Animal caregivers
  - School groups
  - Event volunteers and staff
  - Website
  - Social media



# Wish List for Future

- More bathrooms with sinks, or
- Free-standing handwash stations
- “Advertise” in program



# Acknowledgements

- CCPHSD: Marlene Gaither, Randy Phillips, ADHS: Brenna Garrett, Heidi Dragoo
- Information from Centers for Disease Control and Prevention
- Partnership for Food Safety Education ([www.fightbac.org](http://www.fightbac.org))

