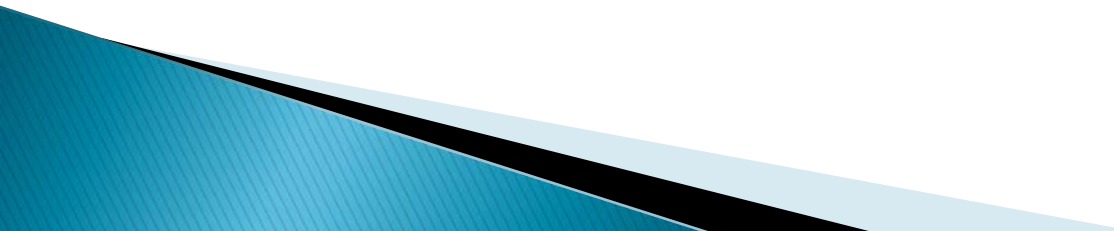


# State Hygienic Lab

- ▶ **Enteric Bacteriology**
  - ▶ Randy Groepper
- ▶ Clinical Analyst Specialist
  - ▶ 10-7-2014

# Stool Culture (Clinical and Outbreak Specimens)

- ▶ Campylobacter
  - ▶ Salmonella
  - ▶ Escherichia coli O157:H7
  - ▶ Other Shiga-toxin producing E. coli
  - ▶ Shigella
  - ▶ Aeromonas
  - ▶ Yersinia
- 

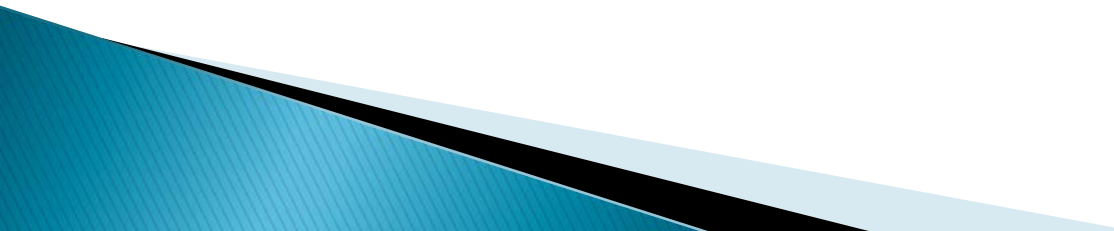
# Enteric Kits

Supplied to any Iowa Physician / Facility

Supplied to County Health Departments for outbreak investigations



# 2013 Positive Enteric Cultures

- ▶ 512 Stool Cultures
  - ▶ 24 Campylobacter
  - ▶ 12 Salmonella
  - ▶ 2 Shigella
  - ▶ 2 Aeromonas
- 

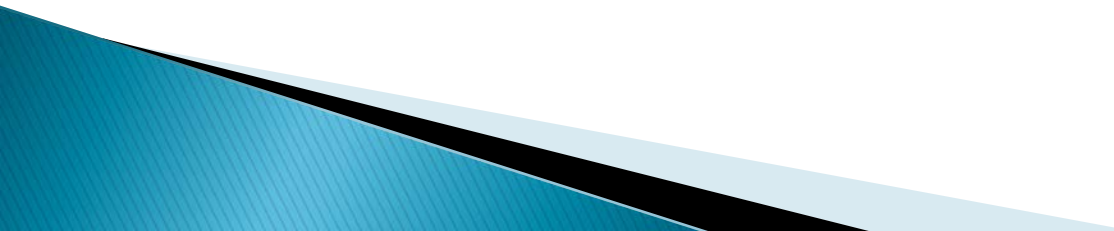
# GN broths

- ▶ Not tested or Positive
- ▶ Positive broths cultured to isolate the toxin producing *E. coli*.

# 2013 Pos STEC Cultures

- ▶ 167 STEC Cultures
- ▶ 87 pos for STEC\*

\* Includes GN broths submitted as pos as well as pos stool cultures



# 2013 Pos STEC Cultures

Month	O157	O26	O111	O103	O145	EHEC+	O45	O121	O	O	TOTAL
Jan			1								1
Feb		1	2	1		1					5
Mar		1				1					2
Apr		2	2			2					6
May	5	1			2	2		1			11
Jun	4	2	1	3	1	3		1			15
Jul	13	6	14	3	5	1		2			44
Aug	4	0	6	6		3	1	1			21
Sep	3	1	4	4	3	1		2			18
Oct	5	1	2			1		2			11
Nov			1					2			3
Dec	1	1	1			2					5
TOTAL	35	16	34	17	11	17	1	11			142
% of total	24.6%	11.2%	23.9%	11.9%	7.7%	11.9%	0.7%	7.7%	0.0%	0.0%	

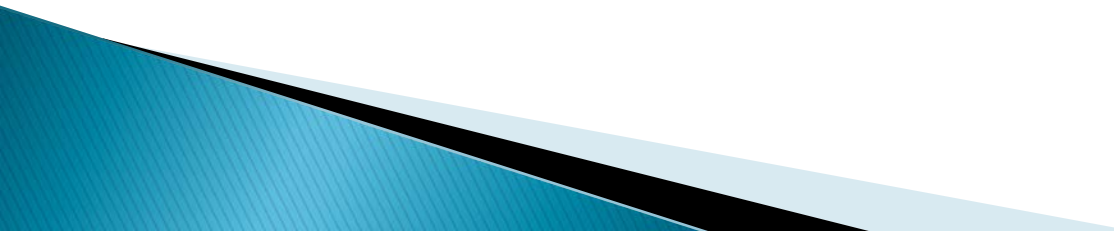
▶ Non-O157 E. coli = 75%

# Campylobacter culture confirmation

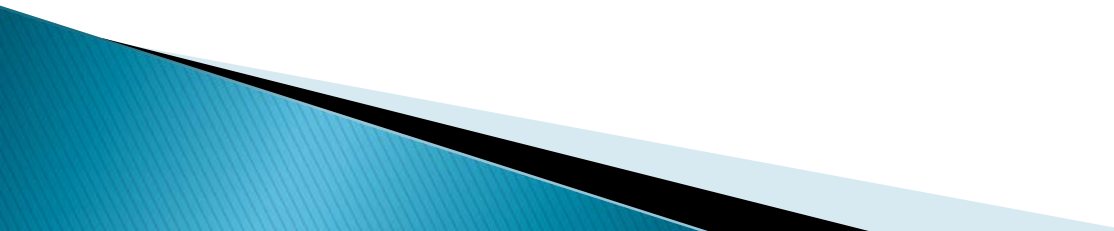
- ▶ Stool samples sent to confirm non-cultural pos. tests for *Campylobacter jejuni*
- ▶ 2013: 83 samples submitted  
38 positive by culture = 46%



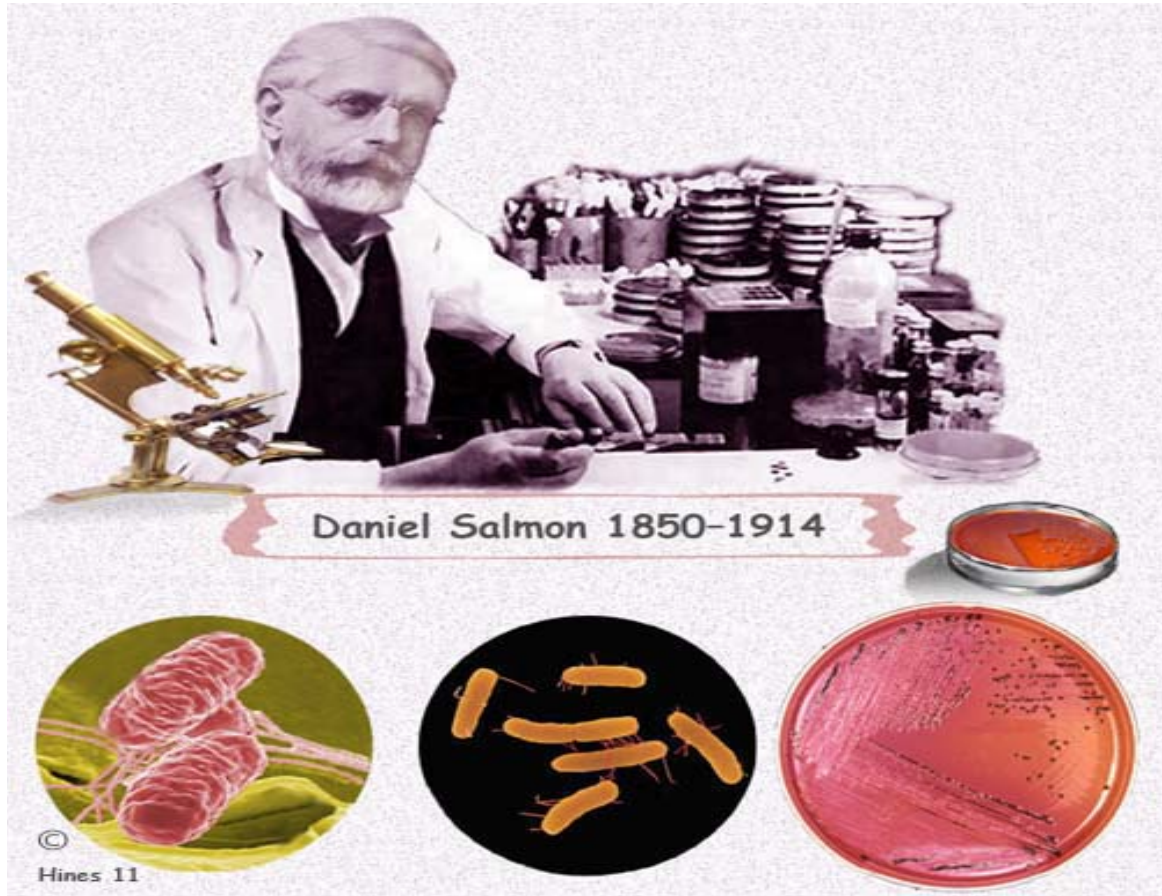
# Isolates submitted by Iowa Labs for serotyping

- ▶ Salmonella
  - ▶ Shigella
  - ▶ E. coli O157:H7
- 

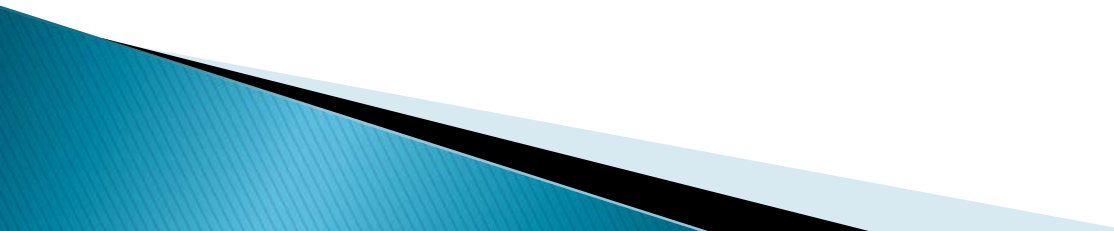
# Outbreak detection by isolate submissions

- ▶ Primary means of detecting outbreaks
  - ▶ Encourage all Iowa labs to submit isolates for serotyping
  - ▶ Encourage out of state labs to submit isolates from Iowa patients
  - ▶ Will supply transport media to facilitate this
- 

# Salmonella



# Salmonella serotyping

- ▶ Determine O serogroup
  - ▶ Determine H serotype (usually requires 2 – 3 days )
  - ▶ Serotyping puts the isolate in the ballpark as to being part of a possible outbreak.
  - ▶ There are 2,500 serotypes.
  - ▶ Less than 100 serotypes make up the majority of human isolates
- 

# Final identification

- ▶ “O” and “H” antigens determine serotype
- ▶ Kaufman–White Scheme
- ▶ O = 4 (B) H = i,1,2
- ▶ I 4,12:i:1,2 = S. ser. Typhimurium
- ▶ O = 9 (D) H = g,m
- ▶ I 9,12:g,m:- = S. ser. Enteritidis

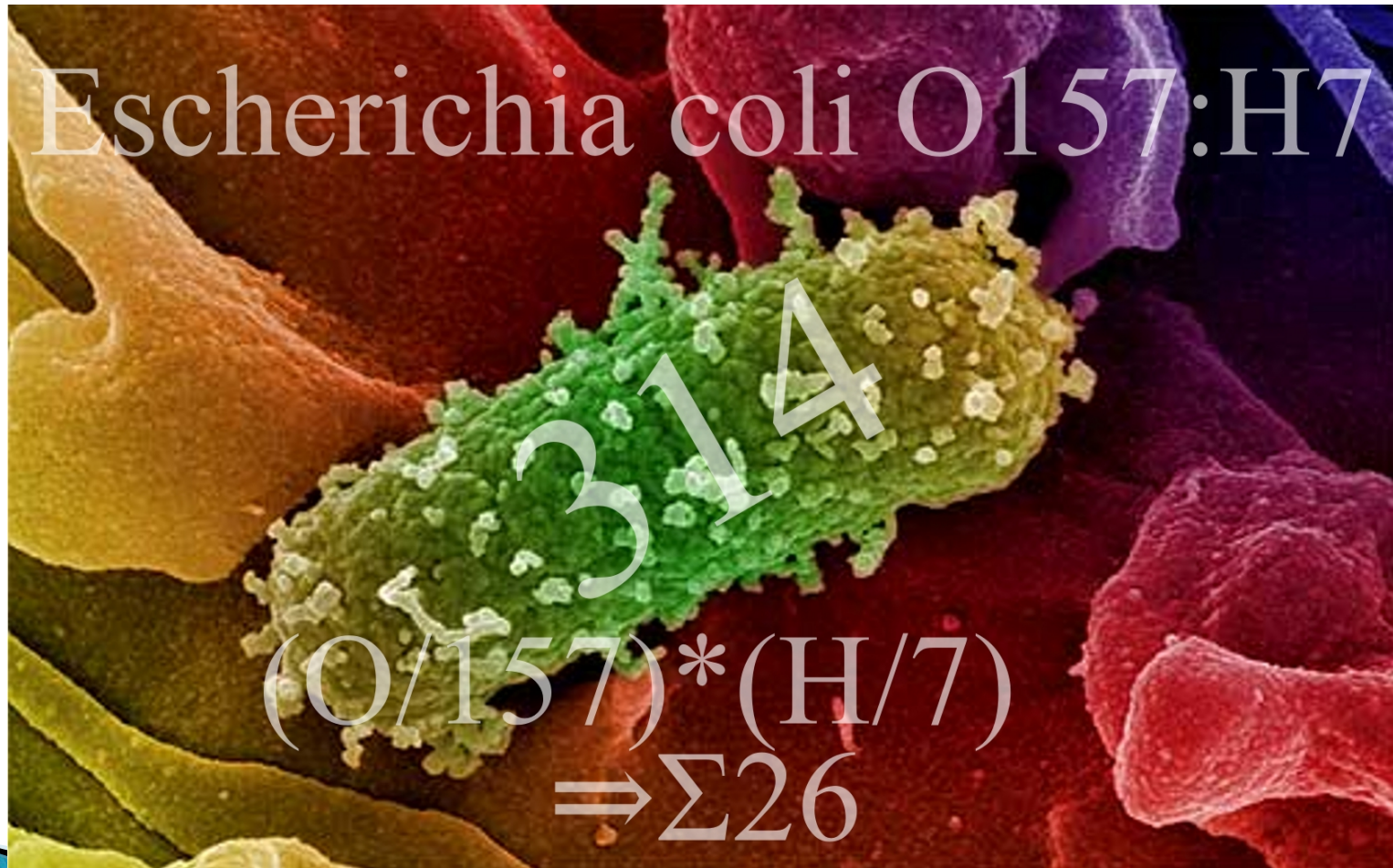
# Salmonella Outbreak

- ▶ Family gathering
- ▶ Salmonella serotype:  
I 4,5,12:i:–

(O:5 may or may not be present)  
I 4,12:i:–



# E. coli O157:H7



# Submitted E.coli O157:H7 isolates

- ▶ Confirm O157, test for H7



# Non-O157 STECs most from submitted pos broths

- ▶ EHEC Positive isolates are serogrouped:

[O:26, O:103, O111, O145, O45, O121]

# Questions?

