



Enteric Diseases Reported in North Carolina, 2021

There are currently more than 20 enteric pathogens that are reportable in North Carolina. Cases of these reportable diseases and conditions are investigated by the Local Health Department (LHD) staff and reported to the North Carolina Department of Health and Human Services Communicable Disease Branch (CBD), then subsequently to the Centers for Disease Control and Prevention (CDC) via the North Carolina Electronic Disease Surveillance System (NCEDSS).

The most frequently reported enteric pathogens are included in the summary table below and subsequent detailed reports.

Surveillance Highlights: Despite competing priorities and limited exposures during the 2020 SARS CoV-2 pandemic, most enteric disease reporting did not significantly decline. In fact, reports of cyclosporiasis and infection with *Vibrio vulnificus* significantly increased during 2021 compared to the average reports received during the previous 5 years (2016-2020). Overall, in 2020, children less than 5 years old have a significantly higher incidence of *Salmonella*, STEC, and *Shigella*. Cases of enteric pathogens remain steady during the last 5 years with minimal decreases during the 2020 SARS CoV-2 pandemic. Shigellosis cases decreased significantly following a large multi-county outbreak in 2016.

Report Specifications. Notable information about this report includes:

- Cases presented include those classified as confirmed, probable or suspect.
- Case counts are based on the earliest date of illness identification, typically the onset year. Therefore, case counts in this report may differ from those included in national summaries, which can be based either on the earliest date of illness identification or on the date when cases were closed and reported to the Centers for Disease Control and Prevention (CDC).
- Unless otherwise noted, ages are based on date when the case was entered in the North Carolina Electronic Disease Surveillance System.
- Incidence rates are based on data obtained from the CDC bridged-race population estimates.
- The most common enteric diseases will be summarized in this report and are shown in the table below.

Number of Cases of Enteric Diseases Reported in North Carolina, 2016-2021

Disease	2016	2017	2018	2019	2020	Five-year average	2021	Significant Change*
<i>Salmonellosis</i>	2,133	2,440	2,877	2,648	2,298	2479	2,238	--
Campylobacter Infection	1,465	1,831	2,157	1,997	1,694	1829	1,858	--
<i>E.coli</i> shiga-toxin producing	333	325	396	386	254	339	315	--
Shigellosis	659	295	301	328	198	356	203	--
Cryptosporidiosis	295	210	266	289	199	252	262	--
Cyclosporiasis	7	63	37	76	34	43	108	↑
<i>Vibrio</i> infection (other than cholera and <i>vulnificus</i>)	27	60	87	72	42	58	64	--
<i>Listeria</i>	23	22	38	32	32	29	25	--
<i>Vibrio vulnificus</i> Infection	6	5	9	4	8	6	14	↑

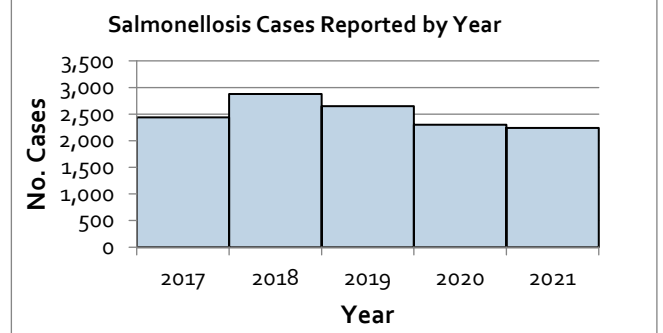
* ↑ = significant increase (≥ 2 standard deviations above average) ↓ = significant decrease (≥ 2 standard deviations below average) -- = no significant change

**Vibrio* infection (other than cholera and *vulnificus*) case definition changed in 2017

Salmonellosis, 2021

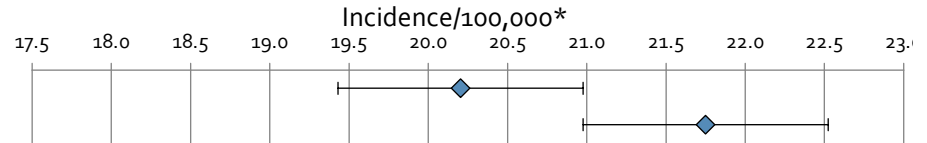
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	24.3	28.3	25.8	22.1	21.3
No. cases	2,440	2,877	2,648	2,298	2,238
Confirmed	79%	76%	74%	77%	74%
Probable	21%	24%	26%	23%	26%
Suspect	0%	0%	0%	0%	0%

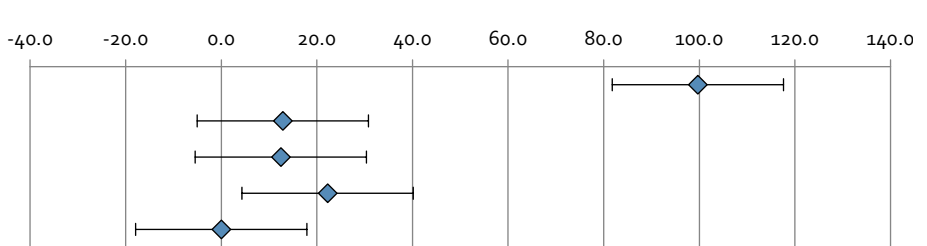


Case Demographics, 2021

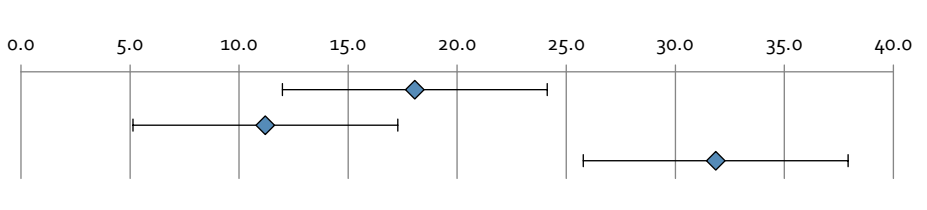
Sex	No. cases	% of total	Incidence/100,000
Male	1041	47%	20.2
Female	1185	53%	21.8
Unknown	12	1%	--



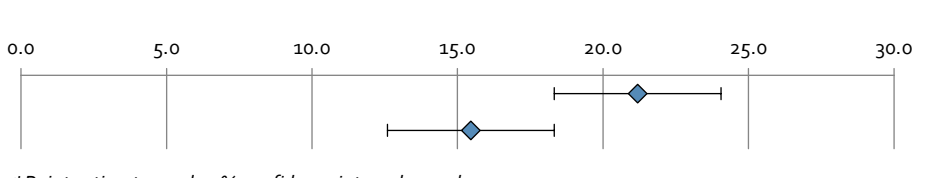
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	605	27%	99.7
5-19 yrs.	256	11%	12.9
20-49 yrs.	515	23%	12.5
50+ yrs.	861	38%	22.2
Unknown	1	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	1368	61%	18.1
Black	275	12%	11.2
Other	182	8%	31.9
Multiple or Unknown	413	18%	--

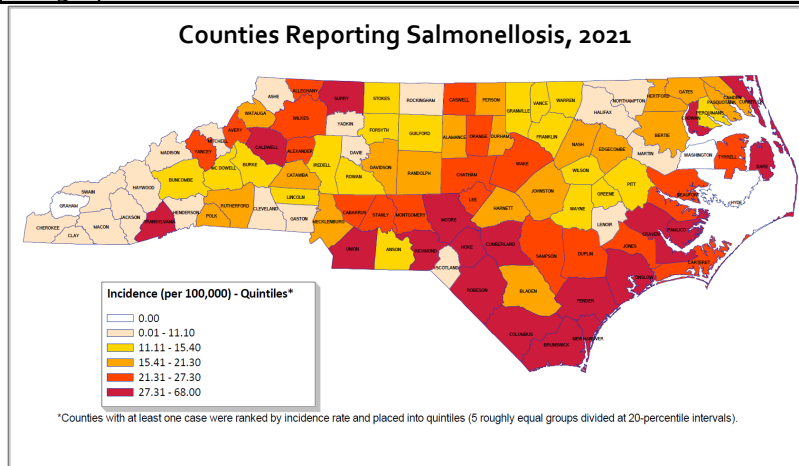


Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	223	10%	21.2
No	1476	66%	15.5
Unknown	539	24%	--

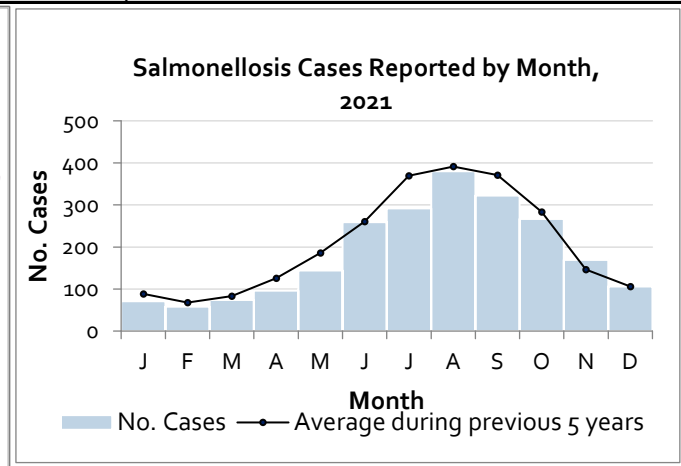


*Point estimates and 95% confidence intervals are shown

Geographic Distribution



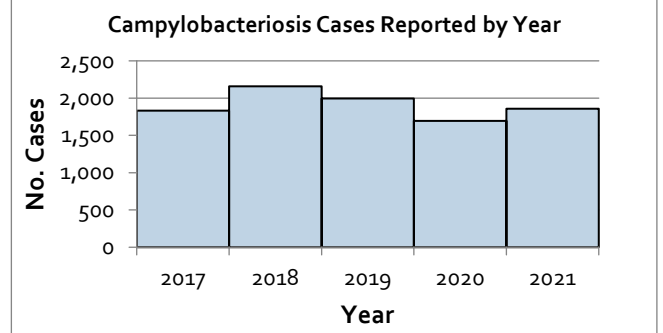
Cases By Month



Campylobacter Infection, 2021

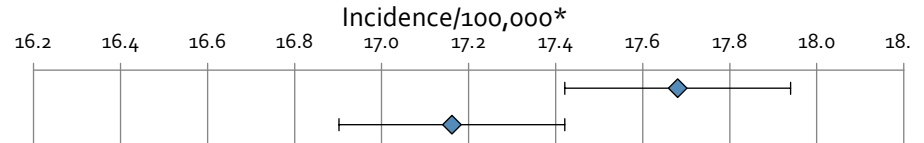
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	18.2	21.2	19.4	16.3	17.7
No. cases	1,831	2,157	1,997	1,694	1,858
Confirmed	60%	63%	59%	59%	59%
Probable	40%	37%	41%	41%	41%
Suspect	0%	0%	0%	0%	0%

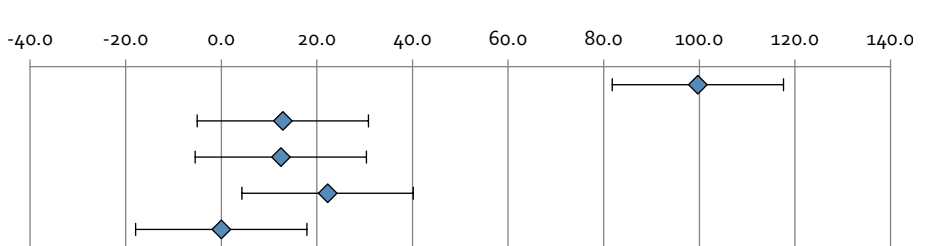


Case Demographics, 2021

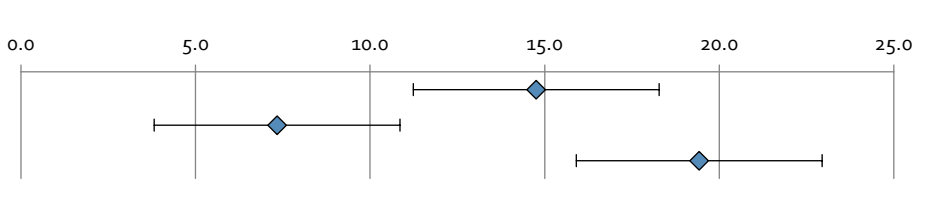
Sex	No. cases	% of total	Incidence/100,000
Male	911	49%	17.7
Female	935	50%	17.2
Unknown	12	1%	--



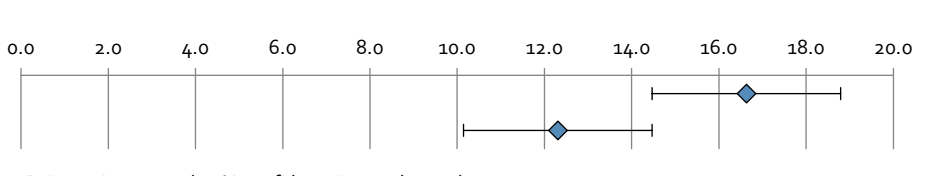
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	605	27%	99.7
5-19 yrs.	256	11%	12.9
20-49 yrs.	515	23%	12.5
50+ yrs.	861	38%	22.2
Unknown	1	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	1118	60%	14.8
Black	180	10%	7.3
Other	111	6%	19.4
Multiple or Unknow	449	24%	--

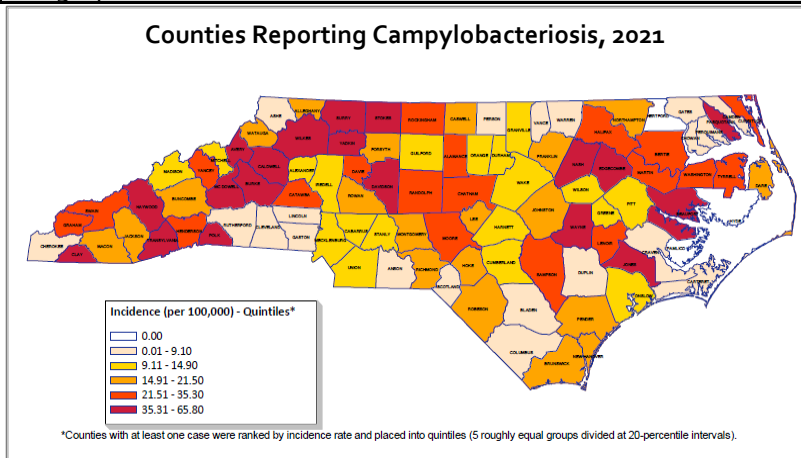


Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	175	9%	16.6
No	1175	63%	12.3
Unknown	508	27%	--

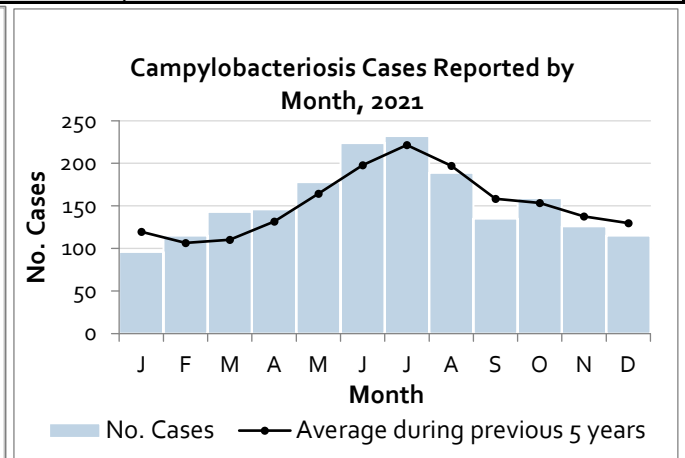


*Point estimates and 95% confidence intervals are shown

Geographic Distribution



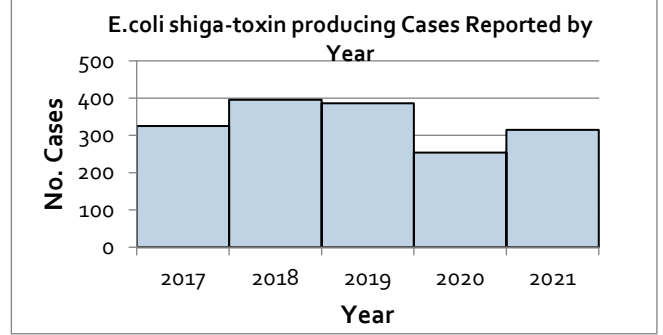
Cases By Month



E.coli shiga-toxin producing, 2021

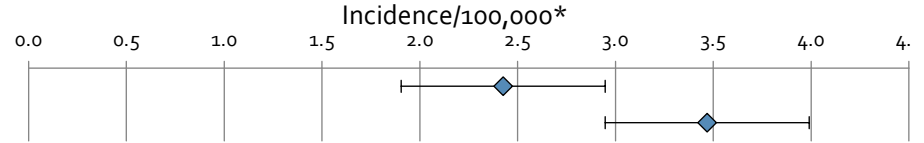
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	3.2	3.9	3.8	2.4	3.0
No. cases	325	396	386	254	315
Confirmed	19%	77%	73%	79%	81%
Probable	6%	23%	27%	21%	19%
Suspect	74%	0%	0%	0%	1%

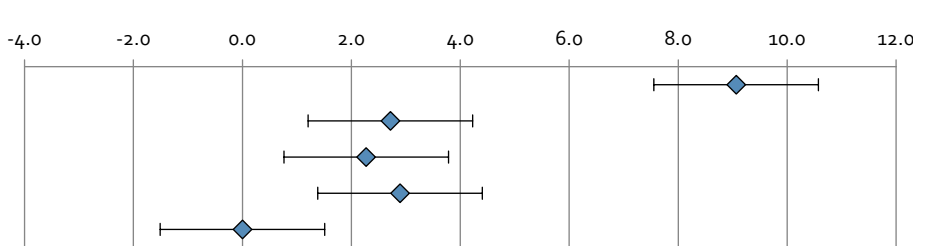


Case Demographics, 2021

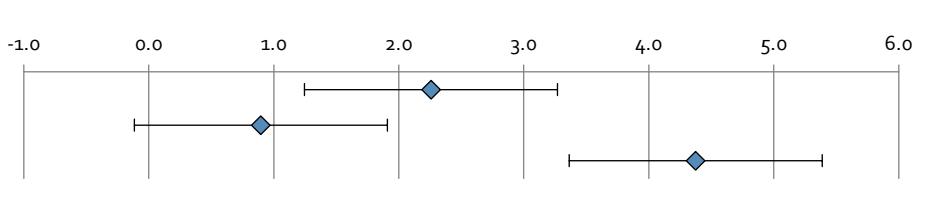
Sex	No. cases	% of total	Incidence/100,000
Male	125	40%	2.4
Female	189	60%	3.5
Unknown	1	0%	--



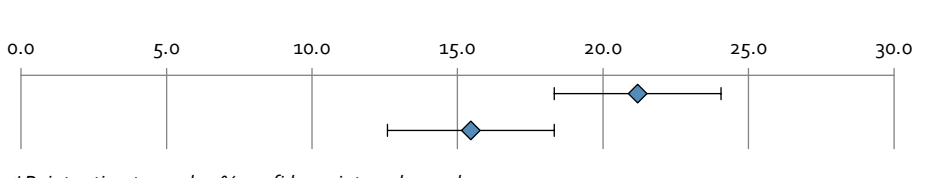
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	55	17%	9.1
5-19 yrs.	54	17%	2.7
20-49 yrs.	94	30%	2.3
50+ yrs.	112	36%	2.9
Unknown	0	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	171	54%	2.3
Black	22	7%	0.9
Other	25	8%	4.4
Multiple or Unknow	97	31%	--

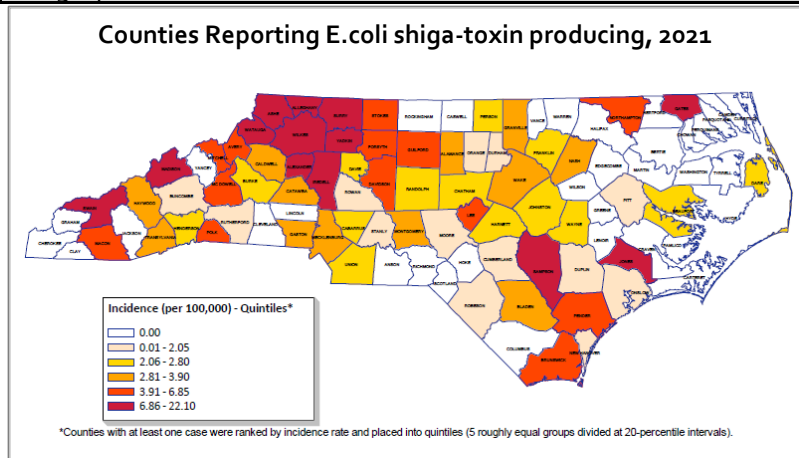


Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	223	10%	21.2
No	1476	66%	15.5
Unknown	539	24%	--

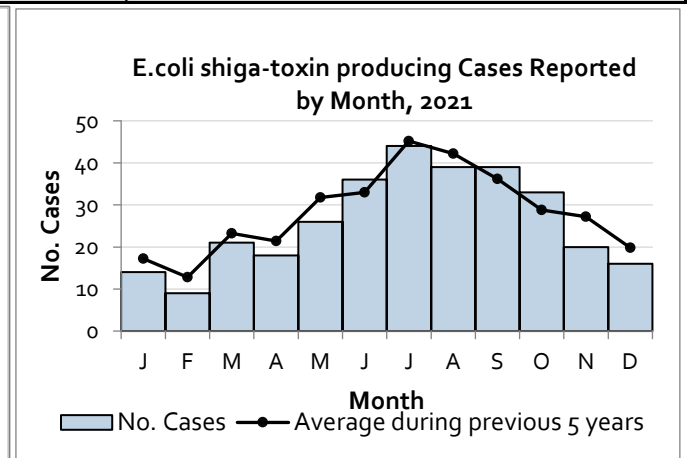


*Point estimates and 95% confidence intervals are shown

Geographic Distribution



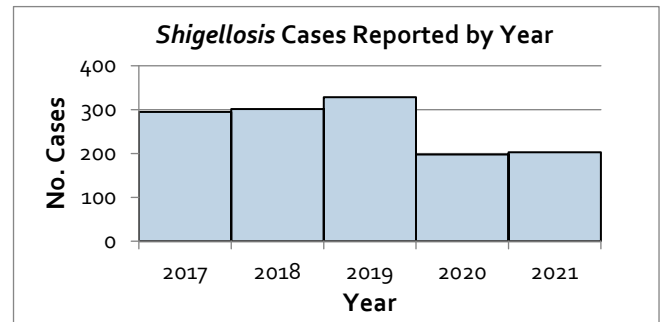
Cases By Month



Shigellosis, 2021

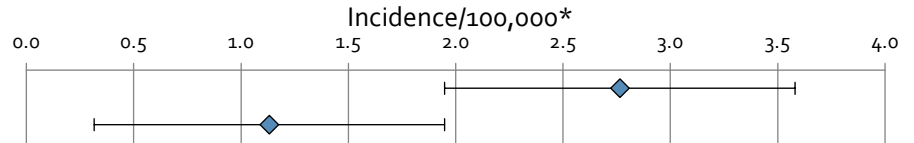
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	2.9	3.0	3.2	1.9	1.9
No. cases	295	301	328	198	203
Confirmed	51%	50%	43%	42%	40%
Probable	49%	50%	57%	58%	60%
Suspect	0%	0%	0%	0%	0%

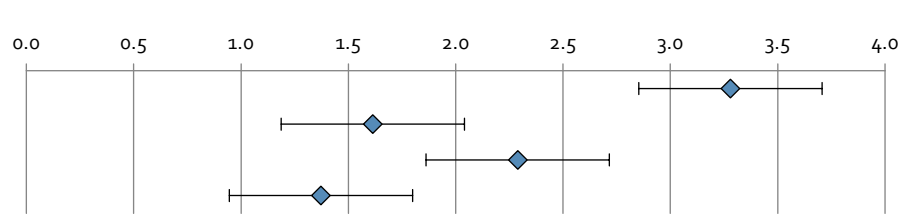


Case Demographics, 2021

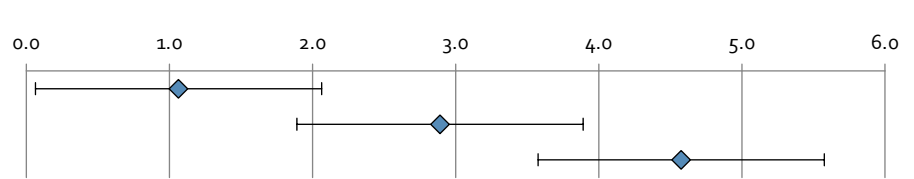
Sex	No. cases	% of total	Incidence/100,000
Male	141	69%	2.8
Female	61	30%	1.1
Unknown	1	0%	--



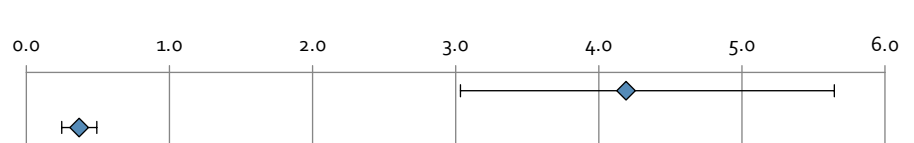
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	20	10%	3.3
5-19 yrs.	32	16%	1.6
20-49 yrs.	94	47%	2.3
50+ yrs.	52	26%	1.4
Unknown	0	0%	--



Race	No. cases	% of total	Incidence/100,000
White	80	39%	1.1
Black	70	34%	2.9
Other	25	12%	4.6
Multiple or Unknown	28	14%	--



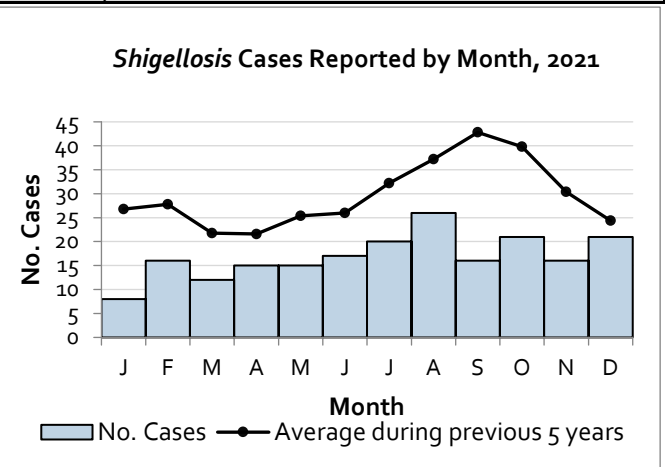
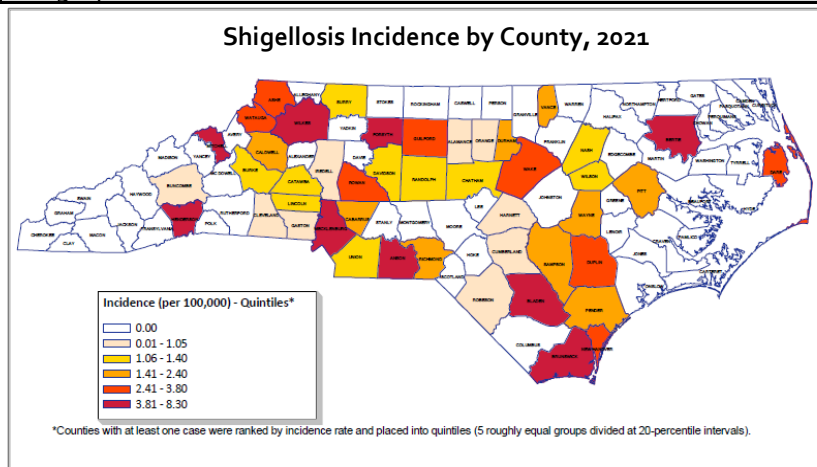
Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	43	21%	4.2
No	35	17%	0.4
Unknown	125	62%	--



*Point estimates and 95% confidence intervals are shown

Geographic Distribution

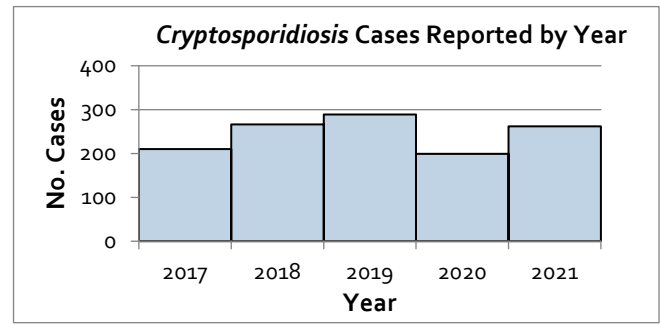
Cases By Month



Cryptosporidiosis, 2021

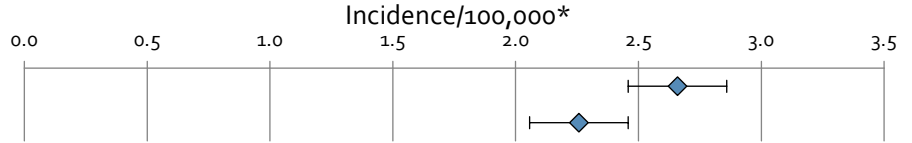
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	2.1	2.6	2.8	1.9	2.5
No. cases	210	266	289	199	262
Confirmed	69%	86%	92%	87%	85%
Probable	31%	14%	8%	13%	15%
Suspect	0%	0%	0%	0%	0%

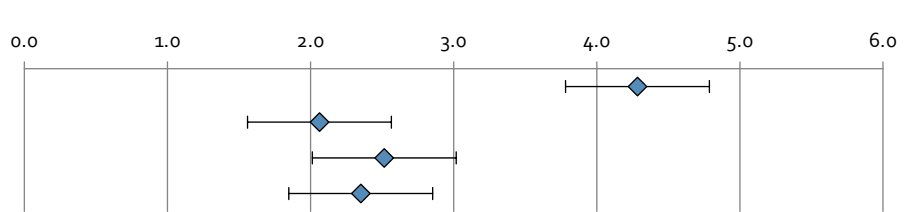


Case Demographics, 2021

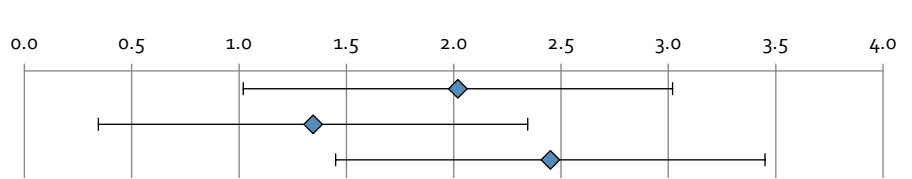
Sex	No. cases	% of total	Incidence/100,000
Male	137	52%	2.7
Female	123	47%	2.3
Unknown	2	1%	--



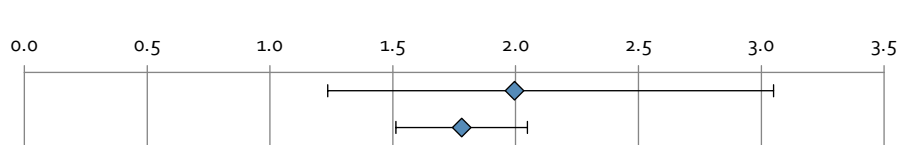
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	26	10%	4.3
5-19 yrs.	41	16%	2.1
20-49 yrs.	104	40%	2.5
50+ yrs.	91	35%	2.4
Unknown	0	0%	--



Race	No. cases	% of total	Incidence/100,000
White	153	58%	2.0
Black	33	13%	1.3
Other	14	5%	2.5
Multiple or Unknown	62	24%	--



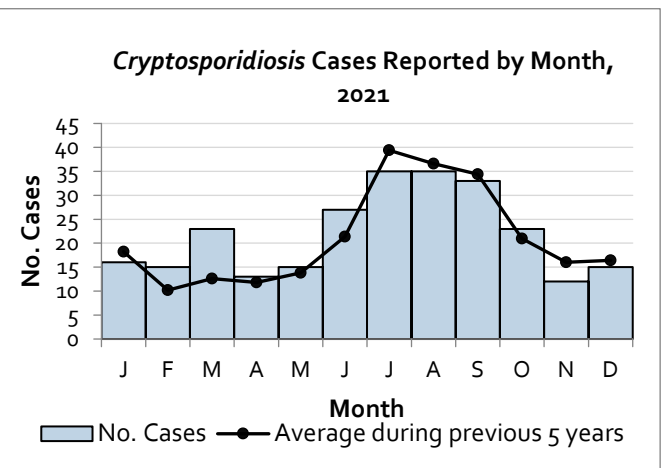
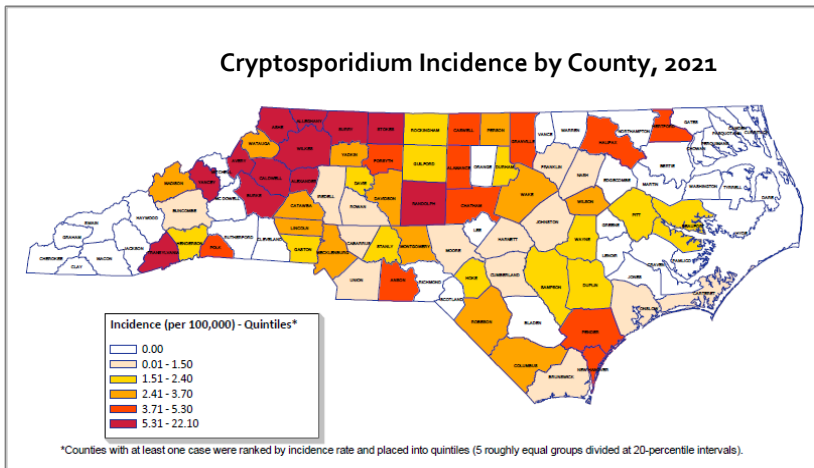
Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	21	8%	2.0
No	170	65%	1.8
Unknown	71	27%	--



*Point estimates and 95% confidence intervals are shown

Geographic Distribution

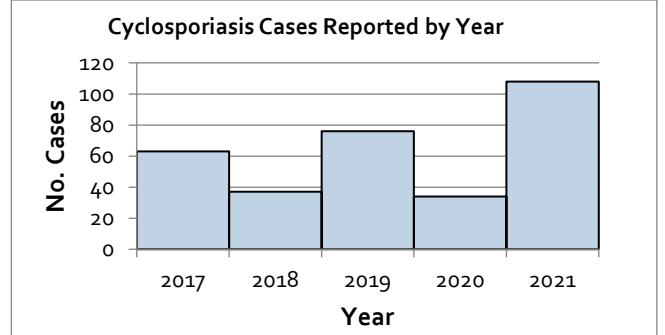
Cases By Month



Cyclosporiasis, 2021

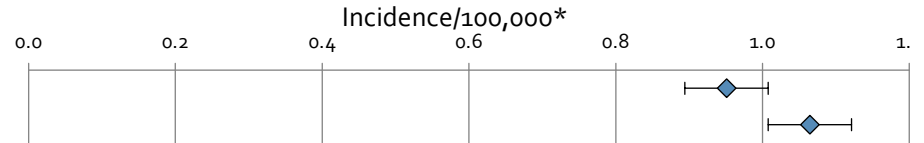
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	0.6	0.4	0.7	0.3	1.0
No. cases	63	37	76	34	108
Confirmed	100%	100%	83%	94%	94%
Probable	0%	0%	17%	6%	6%
Suspect	0%	0%	0%	0%	0%

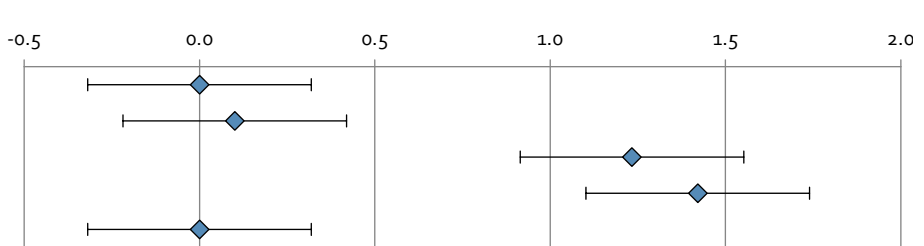


Case Demographics, 2021

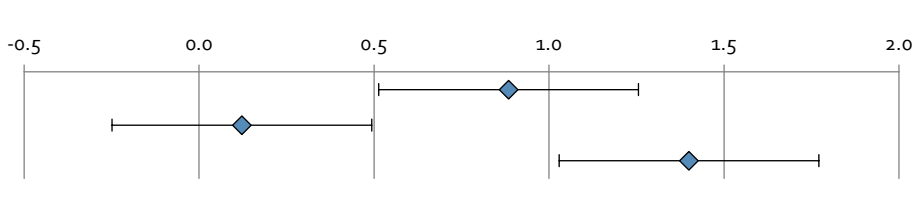
Sex	No. cases	% of total	Incidence/100,000
Male	49	45%	1.0
Female	58	54%	1.1
Unknown	1	1%	--



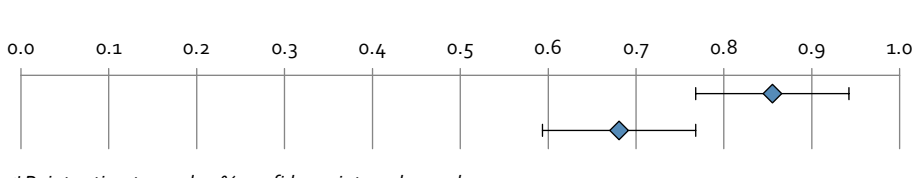
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	0	0%	0.0
5-19 yrs.	2	2%	0.1
20-49 yrs.	51	47%	1.2
50+ yrs.	55	51%	1.4
Unknown	0	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	67	62%	0.9
Black	3	3%	0.1
Other	8	7%	1.4
Multiple or Unknown	30	28%	--

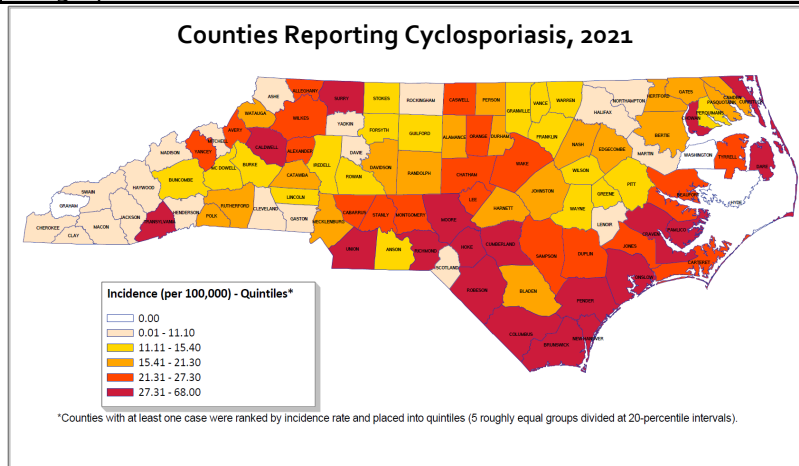


Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	9	8%	0.9
No	65	60%	0.7
Unknown	34	31%	--

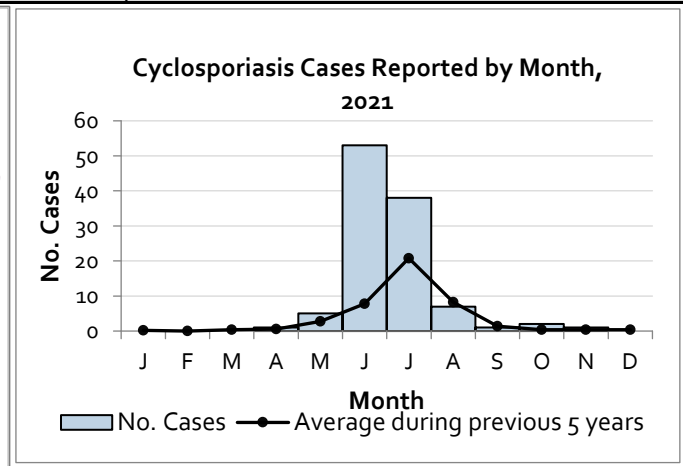


*Point estimates and 95% confidence intervals are shown

Geographic Distribution



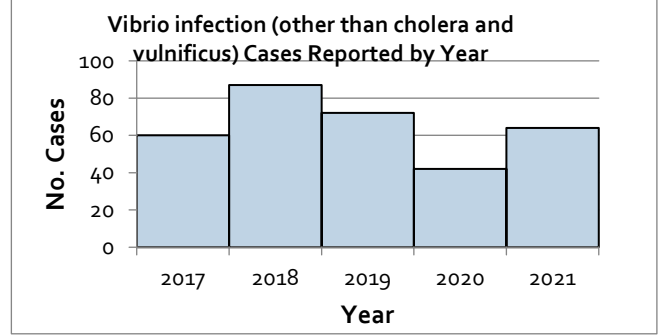
Cases By Month



Vibrio infection (other than cholera and vulnificus), 2021

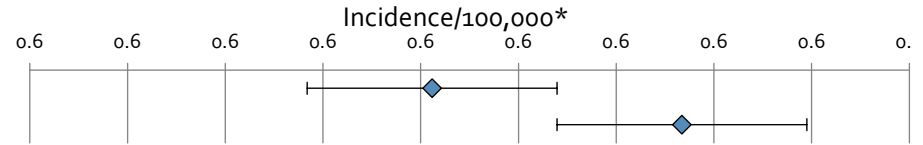
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	0.6	0.9	0.7	0.4	0.6
No. cases	60	87	72	42	64
Confirmed	45%	45%	51%	45%	45%
Probable	55%	55%	49%	55%	55%
Suspect	0%	0%	0%	0%	0%

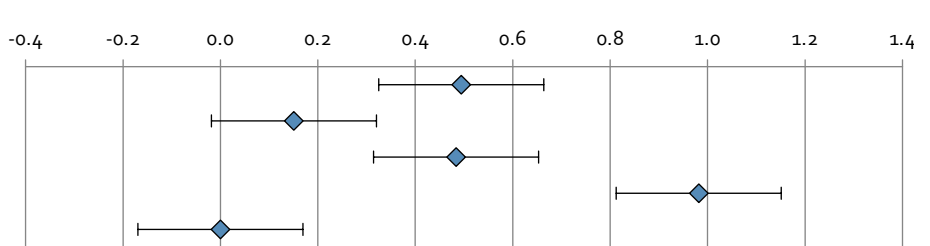


Case Demographics, 2021

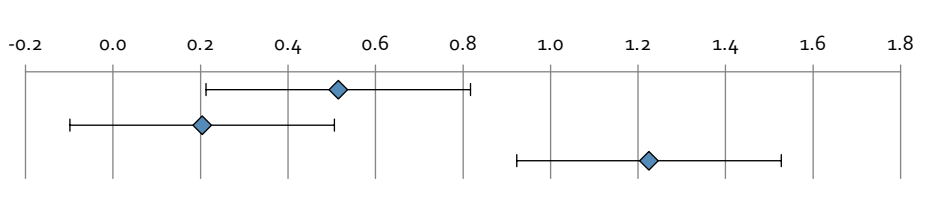
Sex	No. cases	% of total	Incidence/100,000
Male	30	47%	0.6
Female	32	50%	0.6
Unknown	2	3%	--



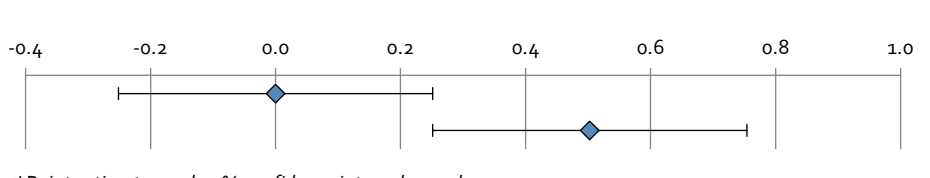
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	3	5%	0.5
5-19 yrs.	3	5%	0.2
20-49 yrs.	20	31%	0.5
50+ yrs.	38	59%	1.0
Unknown	0	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	39	61%	0.5
Black	5	8%	0.2
Other	7	11%	1.2
Multiple or Unknown	13	20%	--

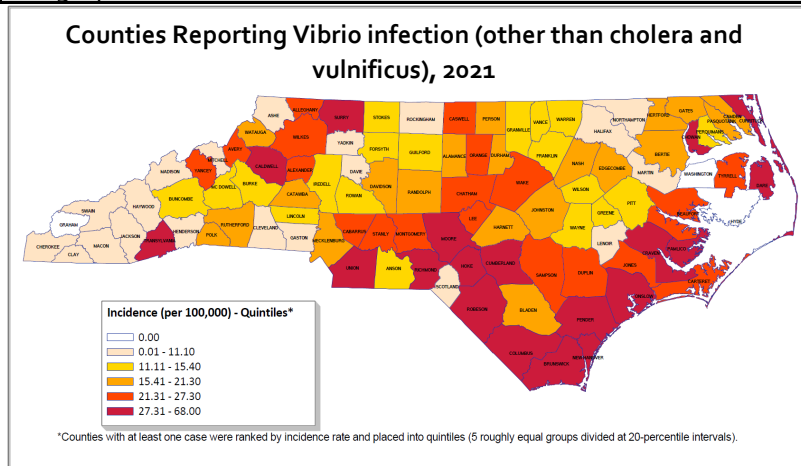


Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	0	0%	0.0
No	48	75%	0.5
Unknown	16	25%	--

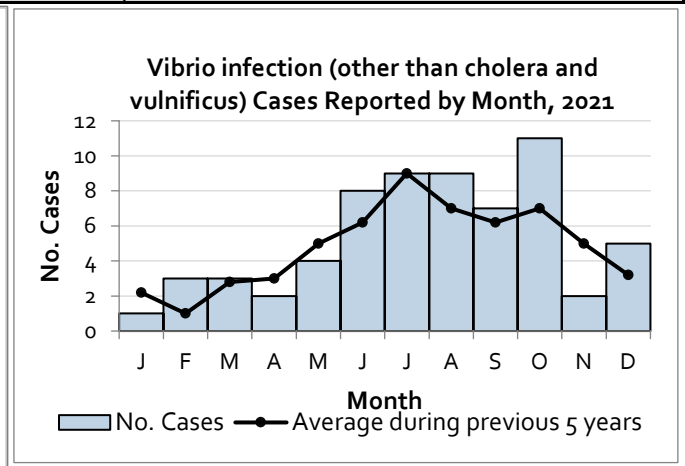


*Point estimates and 95% confidence intervals are shown

Geographic Distribution



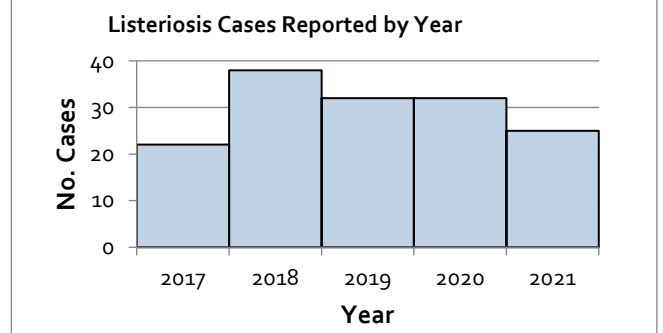
Cases By Month



Listeriosis, 2021

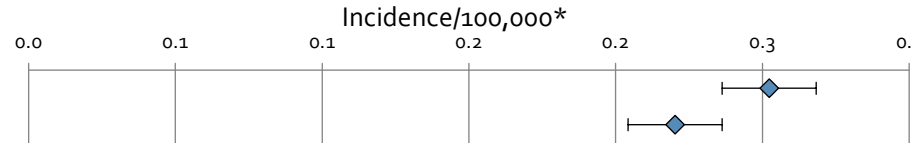
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	0.2	0.4	0.3	0.3	0.2
No. cases	22	38	32	32	25
Confirmed	100%	100%	100%	100%	96%
Probable	0%	0%	0%	0%	4%
Suspect	0%	0%	0%	0%	0%

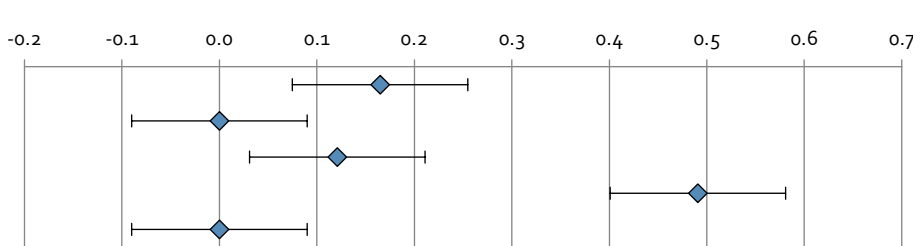


Case Demographics, 2021

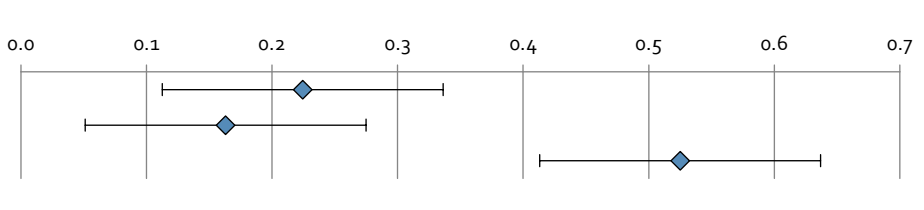
Sex	No. cases	% of total	Incidence/100,000
Male	13	52%	0.3
Female	12	48%	0.2
Unknown	0	0%	--



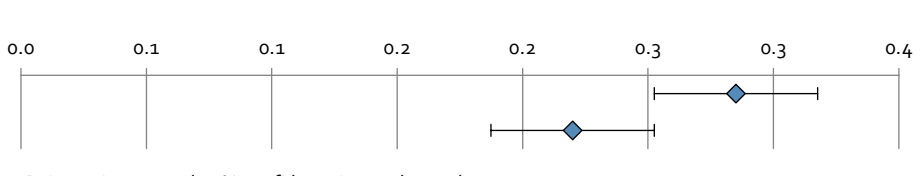
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	1	4%	0.2
5-19 yrs.	0	0%	0.0
20-49 yrs.	5	20%	0.1
50+ yrs.	19	76%	0.5
Unknown	0	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	17	68%	0.2
Black	4	16%	0.2
Other	3	12%	0.5
Multiple or Unknown	1	4%	--

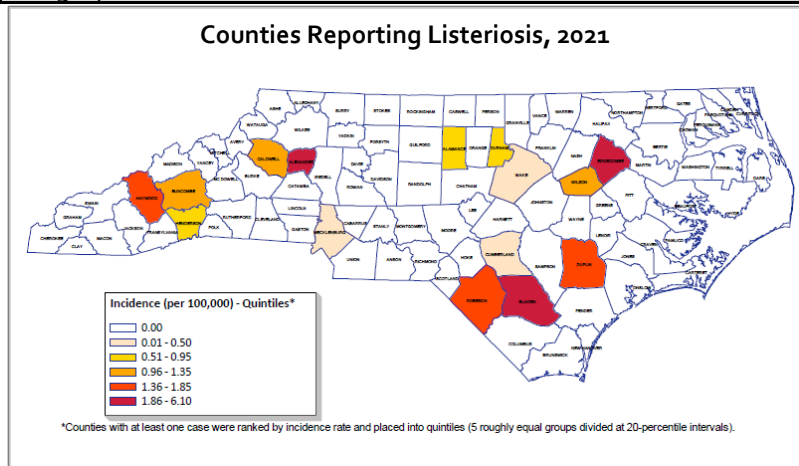


Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	3	12%	0.3
No	21	84%	0.2
Unknown	1	4%	--

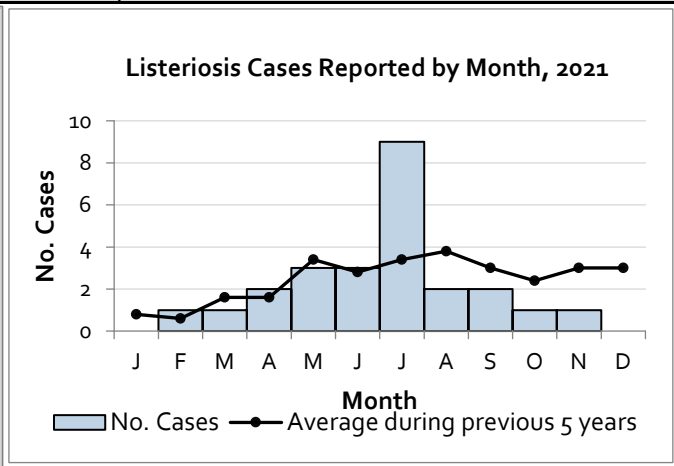


*Point estimates and 95% confidence intervals are shown

Geographic Distribution



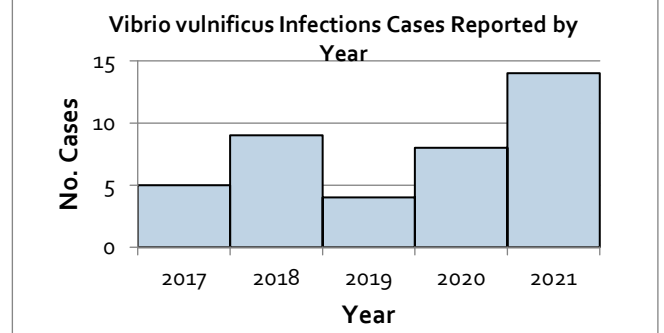
Cases By Month



Vibrio vulnificus Infection, 2021

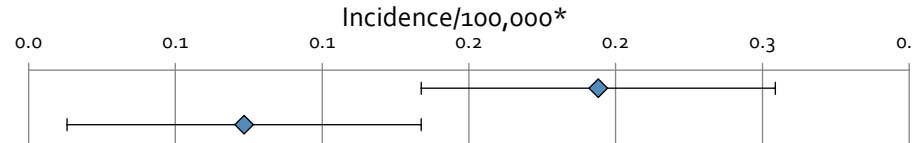
Annual Summary

	2017	2018	2019	2020	2021
Incidence / 100,000	0.0	0.1	0.0	0.1	0.1
No. cases	5	9	4	8	14
Confirmed	100%	78%	100%	100%	93%
Probable	0%	22%	0%	0%	7%
Suspect	0%	0%	0%	0%	0%

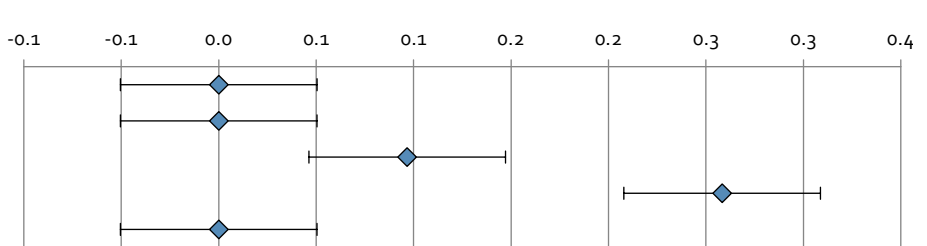


Case Demographics, 2021

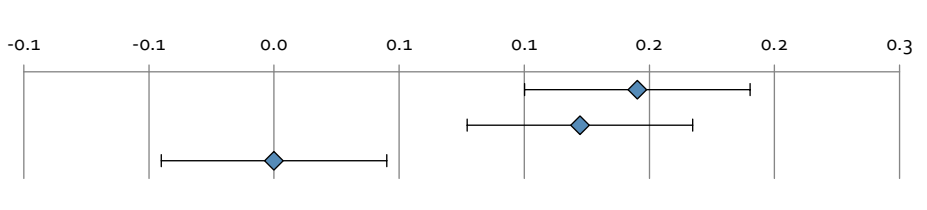
Sex	No. cases	% of total	Incidence/100,000
Male	10	71%	0.2
Female	4	29%	0.1
Unknown	0	0%	--



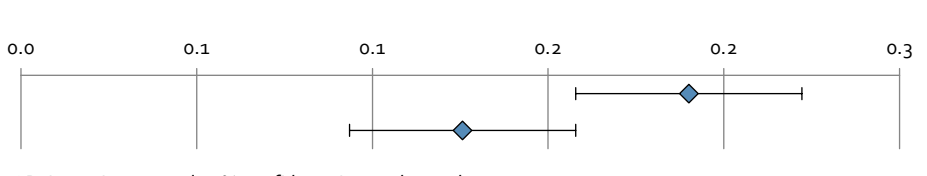
Age Group	No. cases	% of total	Incidence/100,000
Under 5 yrs.	0	0%	0.0
5-19 yrs.	0	0%	0.0
20-49 yrs.	4	29%	0.1
50+ yrs.	10	71%	0.3
Unknown	0	0%	0.0



Race	No. cases	% of total	Incidence/100,000
White	11	79%	0.1
Black	3	21%	0.1
Other	0	0%	0.0
Multiple or Unknown	0	0%	--



Hispanic Ethnicity	No. cases	% of total	Incidence/100,000
Yes	2	14%	0.2
No	12	86%	0.1
Unknown	0	0%	--

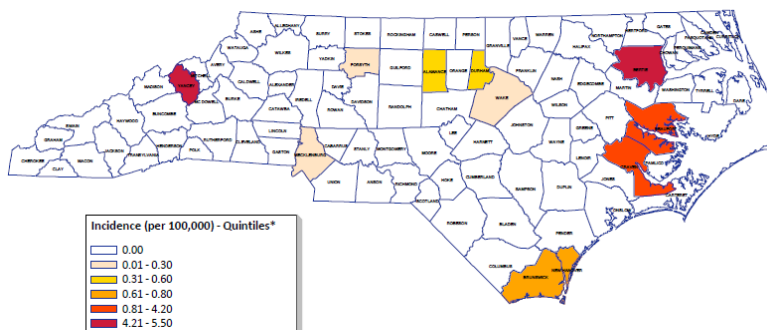


*Point estimates and 95% confidence intervals are shown

Geographic Distribution

Cases By Month

Counties Reporting Vibrio vulnificus Infection, 2021



*Counties with at least one case were ranked by incidence rate and placed into quintiles (5 roughly equal groups divided at 20-percentile intervals).

Vibrio vulnificus Infection Cases Reported by Month, 2021

