

CUYAHOGA COUNTY BOARD OF HEALTH

YOUR TRUSTED SOURCE FOR PUBLIC HEALTH INFORMATION

5550 Venture Drive Parma, Ohio 44130
216-201-2000 www.ccbh.net

DEDONTE CHEATHAM
COMMUNICABLE DISEASE INVESTIGATOR
Cuyahoga County Board of Health
MARCH 21, 2024

Shigella

- Shigella is a genus of bacteria responsible for shigellosis, an infectious disease characterized by diarrhea, fever, and stomach cramps.
- Spread through contaminated food and water or through direct contact with an infected person
- Symptoms include watery or bloody diarrhea, fever, abdominal pain, and tenesmus
- Treatment primarily involves hydration. Antibiotics are prescribed for severe cases to reduce the duration of symptoms.
- Preventive measures include practicing good hygiene, safe food handling, and ensuring access to clean water.

Multistate Cluster

- Notification from ODH about inclusion in a multistate cluster
- Current scope: At least 231 cases across New York, New Jersey, Michigan, and Ohio
- Affected communities: Observant and/or Orthodox Jewish communities

Shigella Outbreaks

- Since the 1980s, several large outbreaks of *Shigella sonnei* have been identified in Orthodox Jewish communities in the US and abroad
- Typically largely impact children under the age of 5
- Usually highly geographically clustered to specific neighborhoods
- No identified common source- believed to be spread person to person among children
- Often genetically identical, concurrent outbreaks will occur in similar populations in multiple cities

Historical Examples

1986-87: Outbreaks identified in Orthodox Jewish communities in 6 US cities, lasting 8 months, infecting over 1,900 people. Outbreaks were found to be genetically linked and mostly impacted children

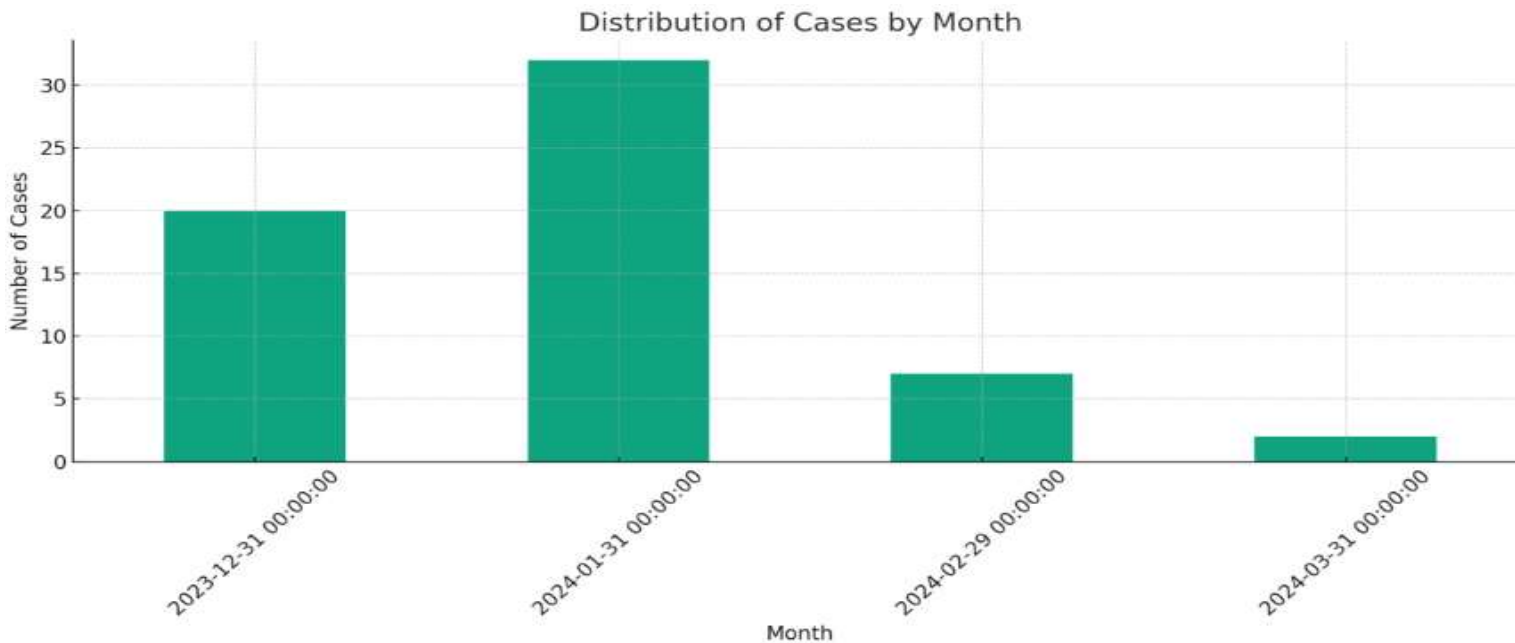
1994-96: Outbreak impacting Orthodox Jewish communities in 8 cities, over 1,000 cases were linked to the outbreak via subtyping.

*Shigella subtypes causing these outbreaks have been shown to be genetically distinct from organisms causing illness in the overall population

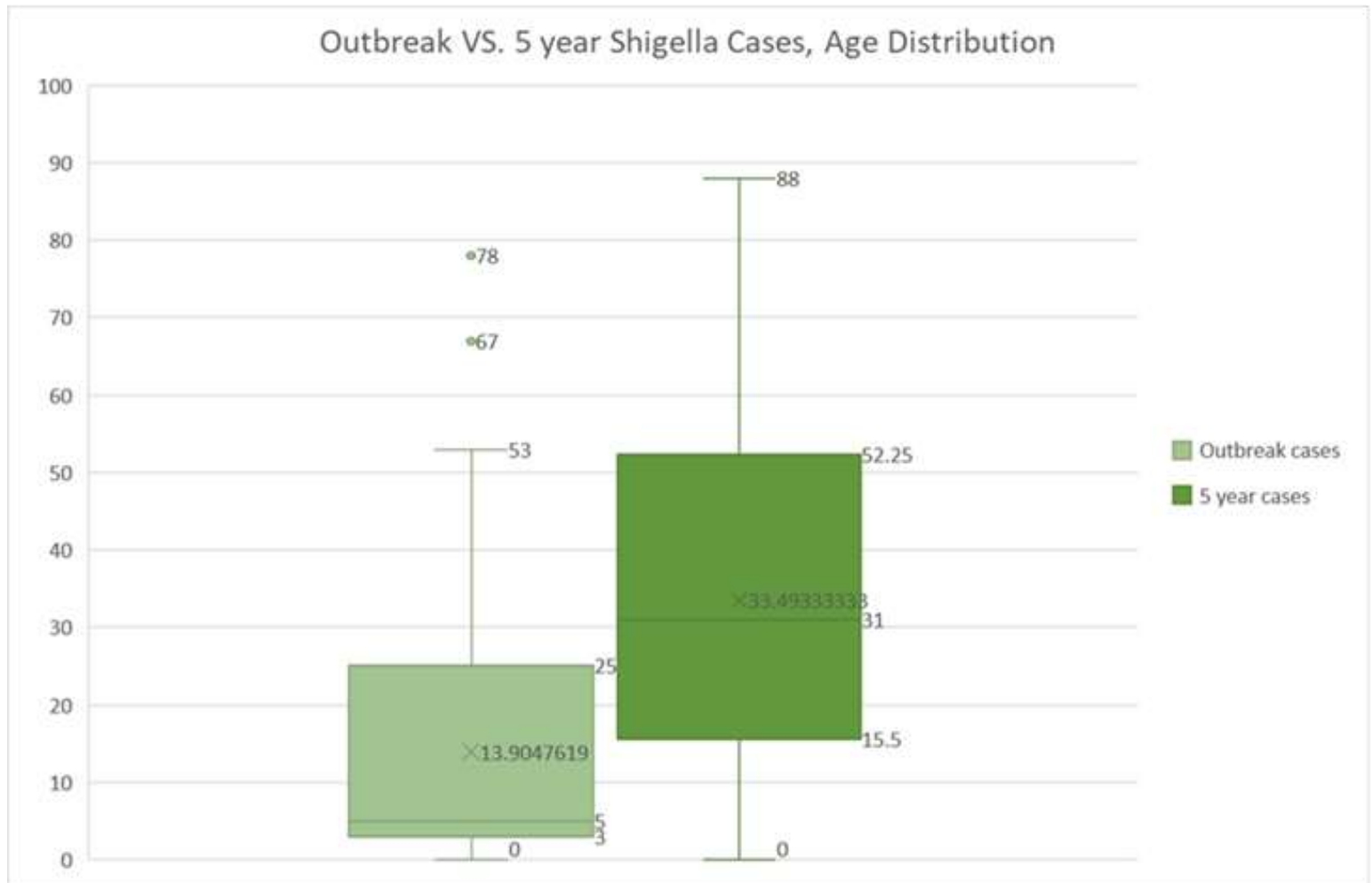


Timeline and Case Count

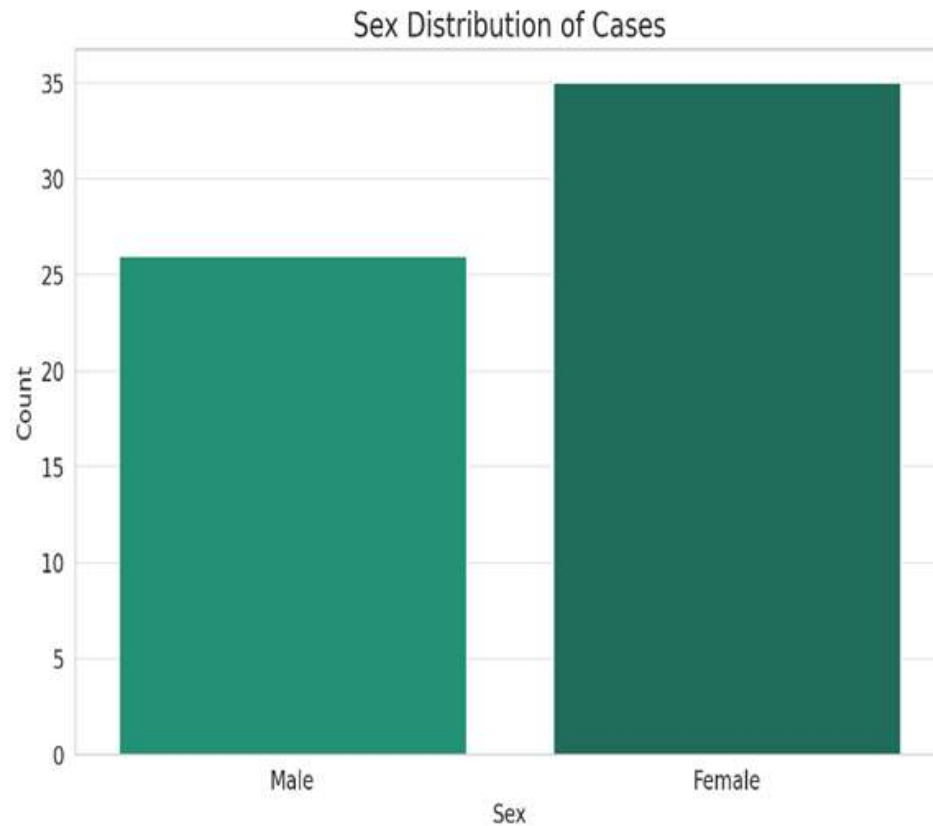
- December 2023: 20 cases reported, indicating the start of the outbreak.
- January 2024: Increase to 32 cases, possibly indicating a peak
- February 2024: Sharp decline to 7 cases
- March 2024: Further reduction to 2 cases



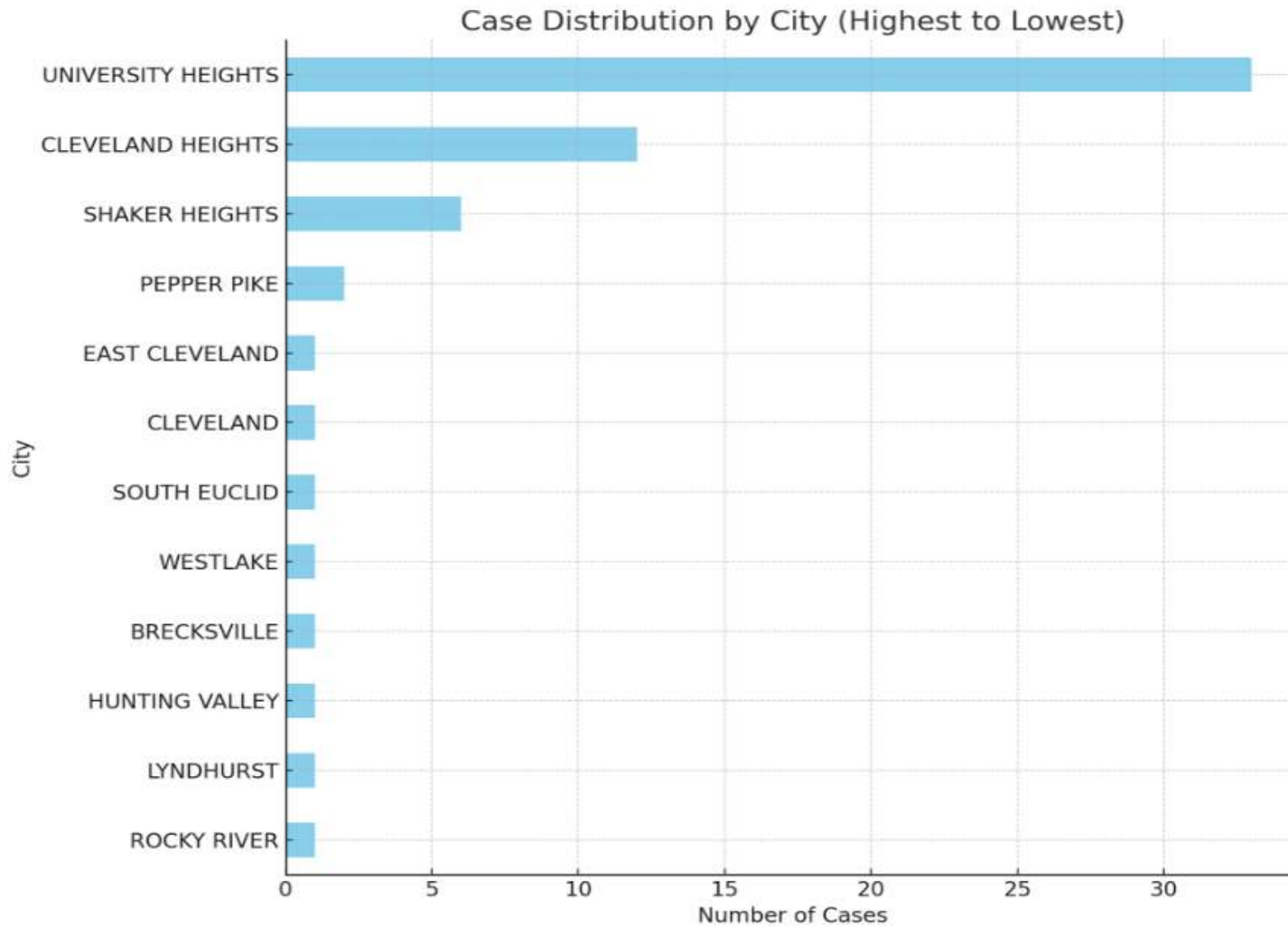
Demographic Distribution



Demographic Distribution



Geographical Focus



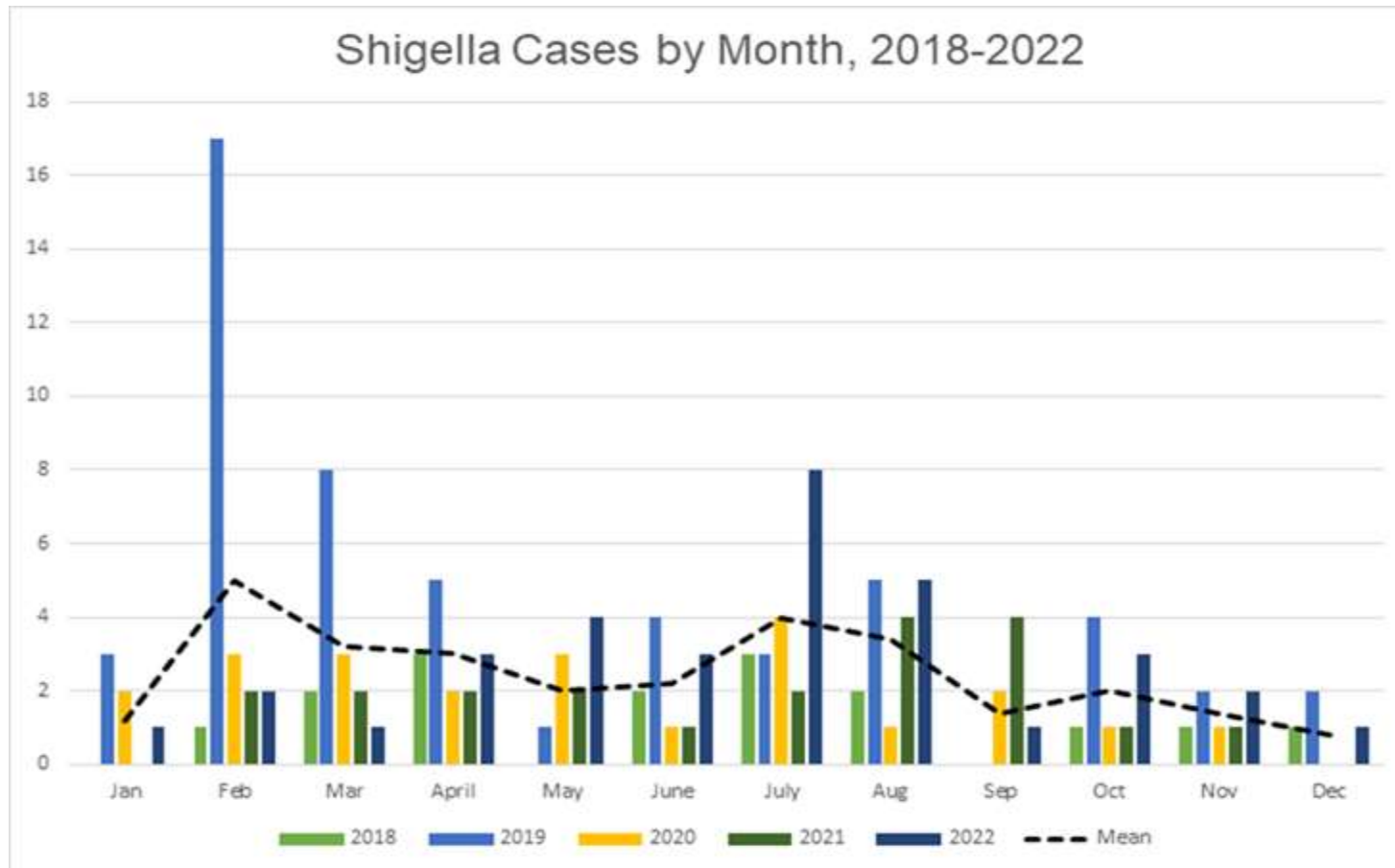
Local Cases and Challenges

- 10 serotyped cases closely related within 0-3 alleles
- Primary demographics: Children in Cleveland Heights, linked to the Jewish community
- Challenges: Resistance to and refusal of interviews by several families

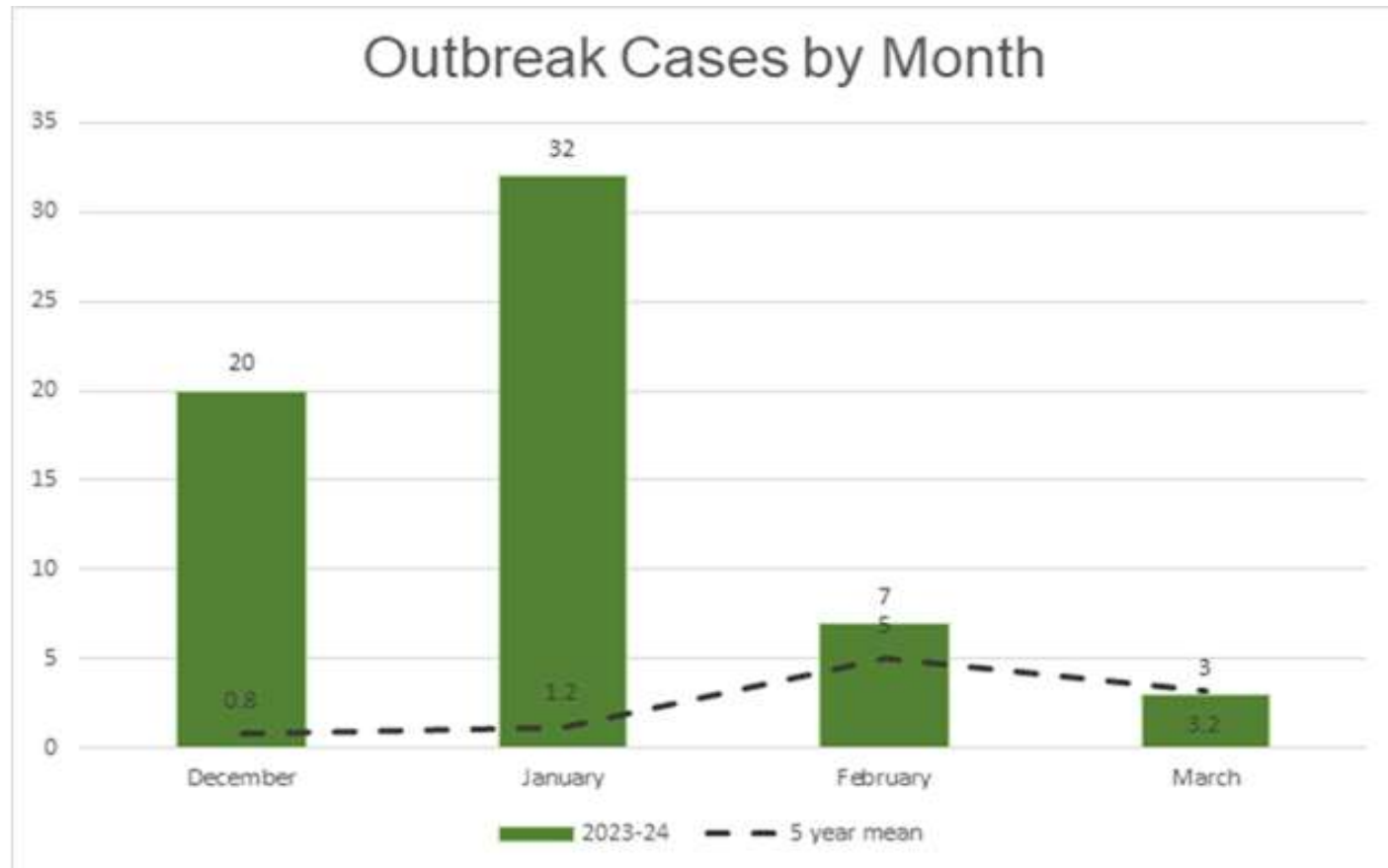
Engagement with Hebrew Academy of Cleveland

- Visit to Oakwood Campus on 1/9/2024 to advise on the outbreak and transmission reduction measures
- Identified the primary care provider who was diagnosing a bulk of cases. Advised them on testing and exclusion from school requirements so that they could advise the families first

Shigella 5 Years vs 5 year Median



Shigella 5 Year Median Vs 2023-2024



Ongoing Efforts and Next Steps

- Coordination with ODH for continued monitoring and investigation
- Improve cooperation and lower disease transmission within the affected communities and institutions
- Commitment to updating relevant parties and requesting additional support as necessary

Conclusion and Q&A



Citations

Sobel J, Cameron DN, Ismail J, Strockbine N, Williams M, Diaz PS, Westley B, Rittmann M, DiCristina J, Ragazzoni H, Tauxe RV, Mintz ED. A prolonged outbreak of *Shigella sonnei* infections in traditionally observant Jewish communities in North America caused by a molecularly distinct bacterial subtype. *J Infect Dis*. 1998 May;177(5):1405-9. doi: 10.1086/517825. PMID: 9593035.

Rew V, Mook P, Trienekens S, Baker KS, Dallman TJ, Jenkins C, Crook PD, Thomson NR. Whole-genome sequencing revealed concurrent outbreaks of shigellosis in the English Orthodox Jewish Community caused by multiple importations of *Shigella sonnei* from Israel. *Microb Genom*. 2018 Mar;4(3):e000170. doi: 10.1099/mgen.0.000170. Epub 2018 Mar 27. PMID: 29583113; PMCID: PMC5885021.

Garrett V, Bornschlegel K, Lange D, Reddy V, Kornstein L, Kornblum J, Agasan A, Hoekstra M, Layton M, Sobel J. A recurring outbreak of *Shigella sonnei* among traditionally observant Jewish children in New York City: the risks of daycare and household transmission. *Epidemiol Infect*. 2006 Dec;134(6):1231-6. doi: 10.1017/S0950268806006182. Epub 2006 Apr 20. PMID: 16623986; PMCID: PMC2870505

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