



**Public Health**  
Prevent. Promote. Protect.  
Dayton & Montgomery County

## Streptococcal Disease, Group A – Invasive Investigation, Montgomery County, January 2019 – November 2019

### Sources:

- Ohio Disease Reporting System, Ohio Department of Health, 2019
- Group A Strep Calculator, Centers for Disease Control and Prevention, 2019  
[https://www2.cdc.gov/ncidod/dbmd/abcs/calc/calc\\_new/intro.html](https://www2.cdc.gov/ncidod/dbmd/abcs/calc/calc_new/intro.html)
- Dayton Climate, Climate-Data.org, 2019 <https://en.climate-data.org/north-america/united-states-of-america/ohio/dayton-1663/>

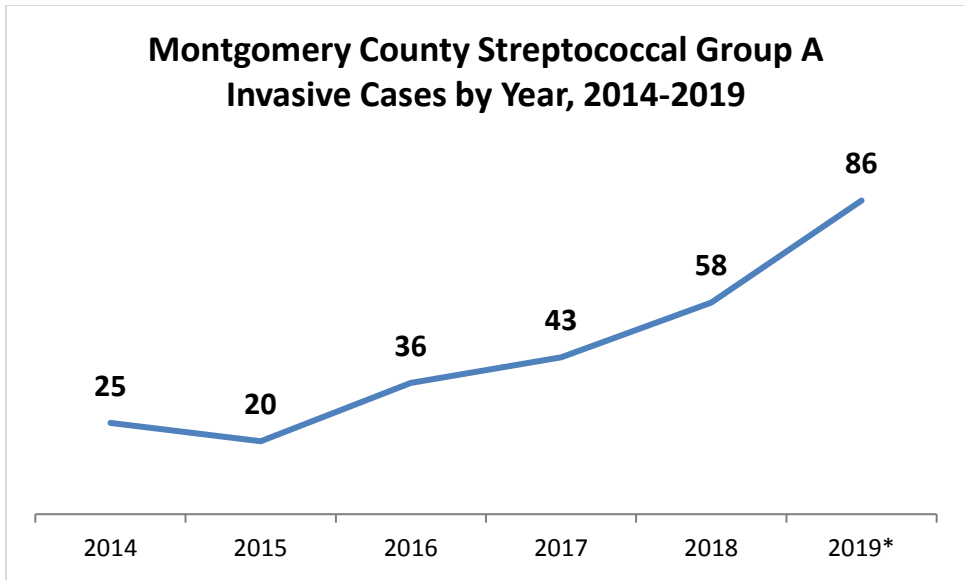
### Streptococcal disease, group A – invasive Case Characteristics:

Sex	#	%
Female	33	38.4%
Male	53	61.6%
Total	86	100%

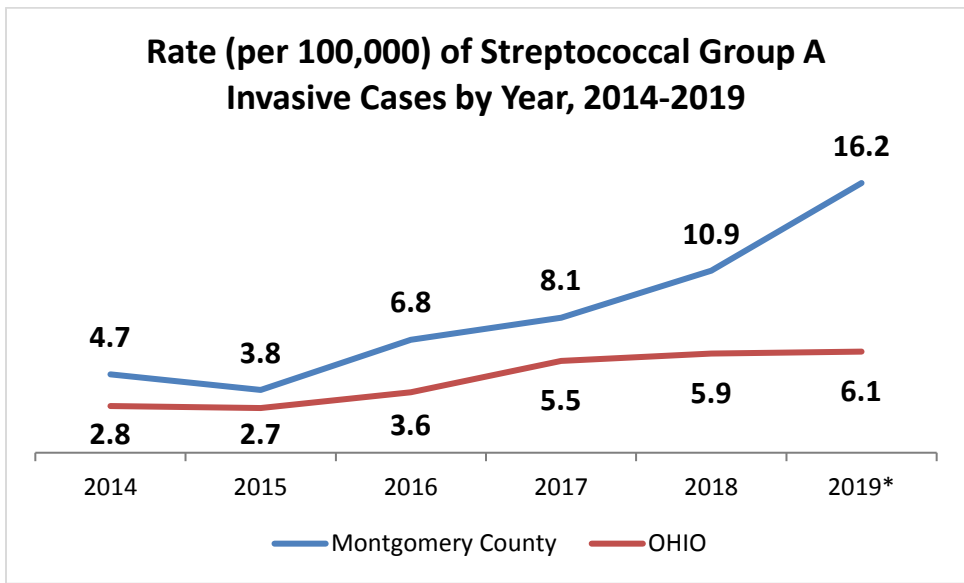
Age Group	#	%
20-24 years	3	3.5%
25-29 years	4	4.7%
30-34 years	6	7.0%
35-39 years	6	7.0%
40-44 years	3	3.5%
45-49 years	3	3.5%
50-54 years	8	9.3%
55-59 years	11	12.8%
60-64 years	9	10.5%
65+ years	33	38.4%
Total	86	100%
Age Range		
Average Age	58 years	
Median Age	59 years	
Min age	22 years	
Max Age	94 years	

<b>Race</b>	<b>#</b>	<b>%</b>
American Indian/Alaskan Native	1	1.1%
Black	11	12.8%
White	65	75.6%
Unknown	9	10.5%
Total	86	100%

<b>Facility</b>	<b>#</b>	<b>%</b>
Grandview Hospital	6	7.0%
Kettering Health Network	31	36.1%
MedLab (Long Term Care Patients)	4	4.7%
Miami Valley Hospital	41	47.7%
Southview Hospital	1	1.2%
Sycamore Hospital	2	2.3%
Veterans Affairs Medical Center - Dayton	1	1.2%
Total	86	100%



\*Through 11/30/19



\*Through 11/30/19

## CDC Streptococcal Disease, Group A - Invasive Calculator Results

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	January
Number of invasive GAS cases in current month (observed)	8
Number of invasive GAS cases in previous month	7
Mean temperature in previous month (°F)	33
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>2.9298</b>
<b>Difference between observed and expected # cases</b>	<b>5.0702</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0192</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	February
Number of invasive GAS cases in current month (observed)	10
Number of invasive GAS cases in previous month	8
Mean temperature in previous month (°F)	27
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>3.5006</b>
<b>Difference between observed and expected # cases</b>	<b>6.4994</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0088</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	March
Number of invasive GAS cases in current month (observed)	5
Number of invasive GAS cases in previous month	10
Mean temperature in previous month (°F)	31
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>3.7112</b>
<b>Difference between observed and expected # cases</b>	<b>1.2888</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.3232</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	April
Number of invasive GAS cases in current month (observed)	12
Number of invasive GAS cases in previous month	5
Mean temperature in previous month (°F)	41
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>2.2108</b>
<b>Difference between observed and expected # cases</b>	<b>9.7892</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0000</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	May
Number of invasive GAS cases in current month (observed)	8
Number of invasive GAS cases in previous month	12
Mean temperature in previous month (°F)	52
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>3.1285</b>
<b>Difference between observed and expected # cases</b>	<b>4.8715</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0261</b>



**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	June
Number of invasive GAS cases in current month (observed)	5
Number of invasive GAS cases in previous month	8
Mean temperature in previous month (°F)	63
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>1.9549</b>
<b>Difference between observed and expected # cases</b>	<b>3.0451</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0604</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	July
Number of invasive GAS cases in current month (observed)	8
Number of invasive GAS cases in previous month	5
Mean temperature in previous month (°F)	72
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>1.4215</b>
<b>Difference between observed and expected # cases</b>	<b>6.5785</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0003</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	August
Number of invasive GAS cases in current month (observed)	8
Number of invasive GAS cases in previous month	8
Mean temperature in previous month (°F)	76
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>1.6105</b>
<b>Difference between observed and expected # cases</b>	<b>6.3895</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0007</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	September
Number of invasive GAS cases in current month (observed)	5
Number of invasive GAS cases in previous month	8
Mean temperature in previous month (°F)	74
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>1.6715</b>
<b>Difference between observed and expected # cases</b>	<b>3.3285</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0362</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	October
Number of invasive GAS cases in current month (observed)	6
Number of invasive GAS cases in previous month	5
Mean temperature in previous month (°F)	67
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>1.5601</b>
<b>Difference between observed and expected # cases</b>	<b>4.4399</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0087</b>

**Model Inputs**

<b>Model Inputs</b>	<b>Values</b>
Current month	November
Number of invasive GAS cases in current month (observed)	11
Number of invasive GAS cases in previous month	6
Mean temperature in previous month (°F)	55
County or region population	531239
Region size (square miles)	464
Black or African American persons, percent	22
Persons below poverty line, percent	18
Estimated % of cases who are HIV+ (historically)	
Estimated % of cases who are injection drug users (historically)	

<b>Results</b>	<b>Values</b>
<b>Expected number of GAS cases in region</b>	<b>1.9864</b>
<b>Difference between observed and expected # cases</b>	<b>9.0136</b>
<b>p-value (probability of observed # cases or more)</b>	<b>0.0001</b>