Sexually Transmitted Disease Surveillance 2023:
Gonococcal Isolate Surveillance Project Profile

Division of STD Prevention
August 2025

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
NATIONAL CENTER FOR HIV, VIRAL HEPATITIS, STD, AND TB PREVENTION
DIVISION OF STD PREVENTION
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Web Site

The online version of this report is available at https://www.cdc.gov/sti-statistics/gisp-profiles/.

Technical Note

Antimicrobial susceptibility data presented in this report are based on criteria established by the Clinical & Laboratory Standards Institute (CLSI) and the FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria (FDA-STIC).

2023 Gonococcal Isolate Surveillance Project Clinical Sites and Years Participated

Albuquerque, New Mexico *(1987–2023)*	Greensboro, North Carolina *(2002–2023)*	Orange County, California *(1991–2023)*
Anchorage, Alaska *(1987–2003, 2018–2023)*	Honolulu, Hawaii *(1987–2023)*	Philadelphia, Pennsylvania *(1987–2023)*
Baltimore, Maryland *(1987–2013, 2019–2023)*	Indianapolis, Indiana *(2013–2023)*	Phoenix, Arizona *(1987–2023)*
Birmingham, Alabama *(1987–2023)*	Kansas City, Missouri *(1991–2001, 2007–2023)*	Pittsburgh, Pennsylvania *(2022–2023)*
Buffalo, New York *(2014–2023)*	Las Vegas, Nevada *(2002–2023)*	Pontiac, Michigan *(2012–2023)*
Camden, New Jersey *(2019–2023)*	Los Angeles, California *(2003–2023)*	Portland, Oregon *(1987–2023)*
Chicago, Illinois *(1996–2023)*	Milwaukee, Wisconsin *(2018–2023)*	San Diego, California *(1987–2023)*
Columbus, Ohio *(2012–2023)*	Minneapolis, Minnesota *(1992–2023)*	San Francisco, California *(1987–2023)*
Dallas, Texas *(2000–2023)*	New Orleans, Louisiana *(1987–2023)*	Seattle, Washington *(1987–2023)*
Denver, Colorado *(1987–2013, 2018–2023)*	New York, New York *(2006–2023)*	Washington, District of Columbia *(2018–2023)*

2023 Gonococcal Isolate Surveillance Project Regional Laboratories

Maryland Department of Health and Mental Hygeine *Baltimore, Maryland*
Tennessee Department of Health *Nashville, Tennessee*
Utah Department of Health *Salt Lake City, Utah*
Washington State Department of Health *Seattle, Washington*

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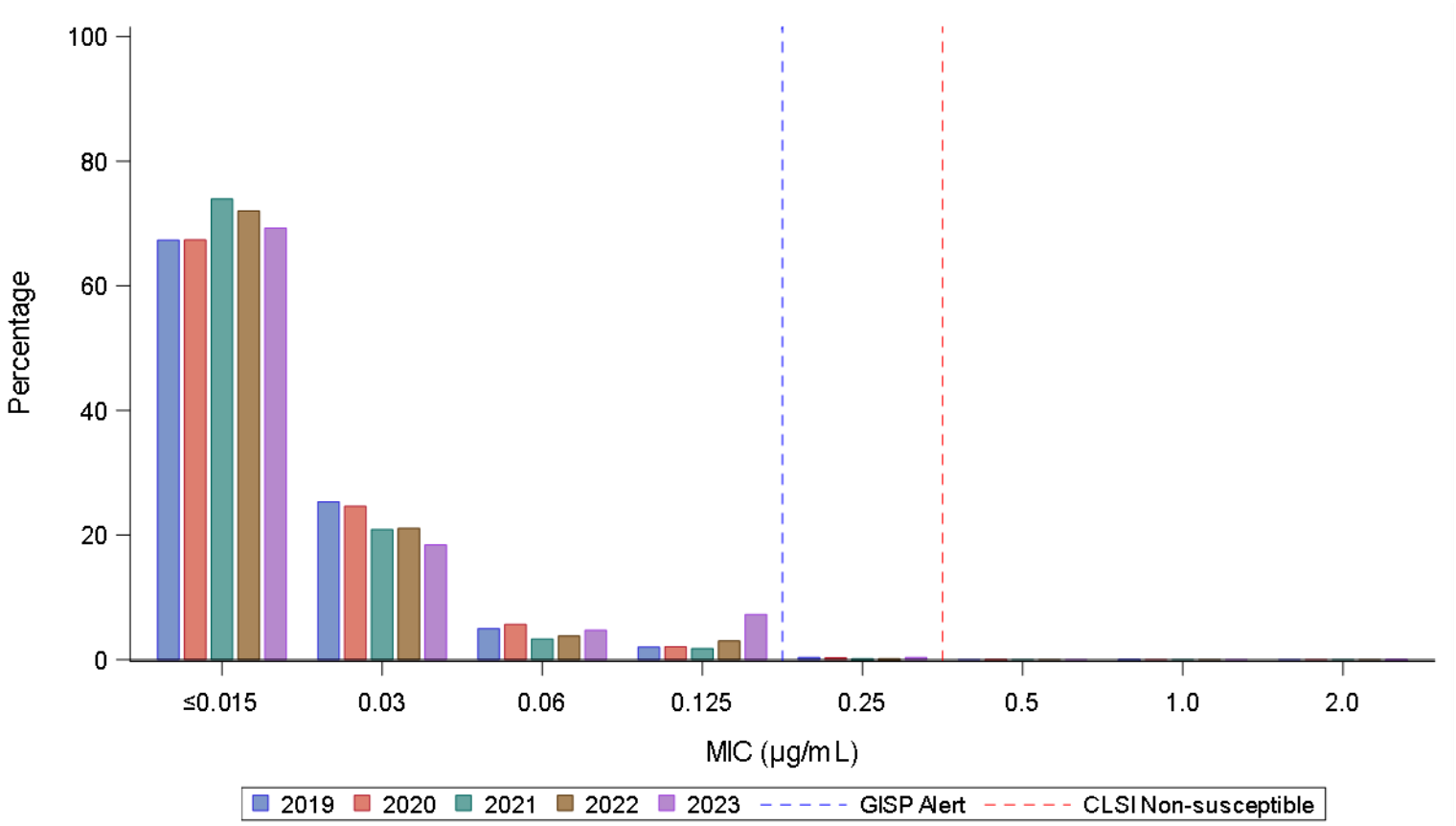
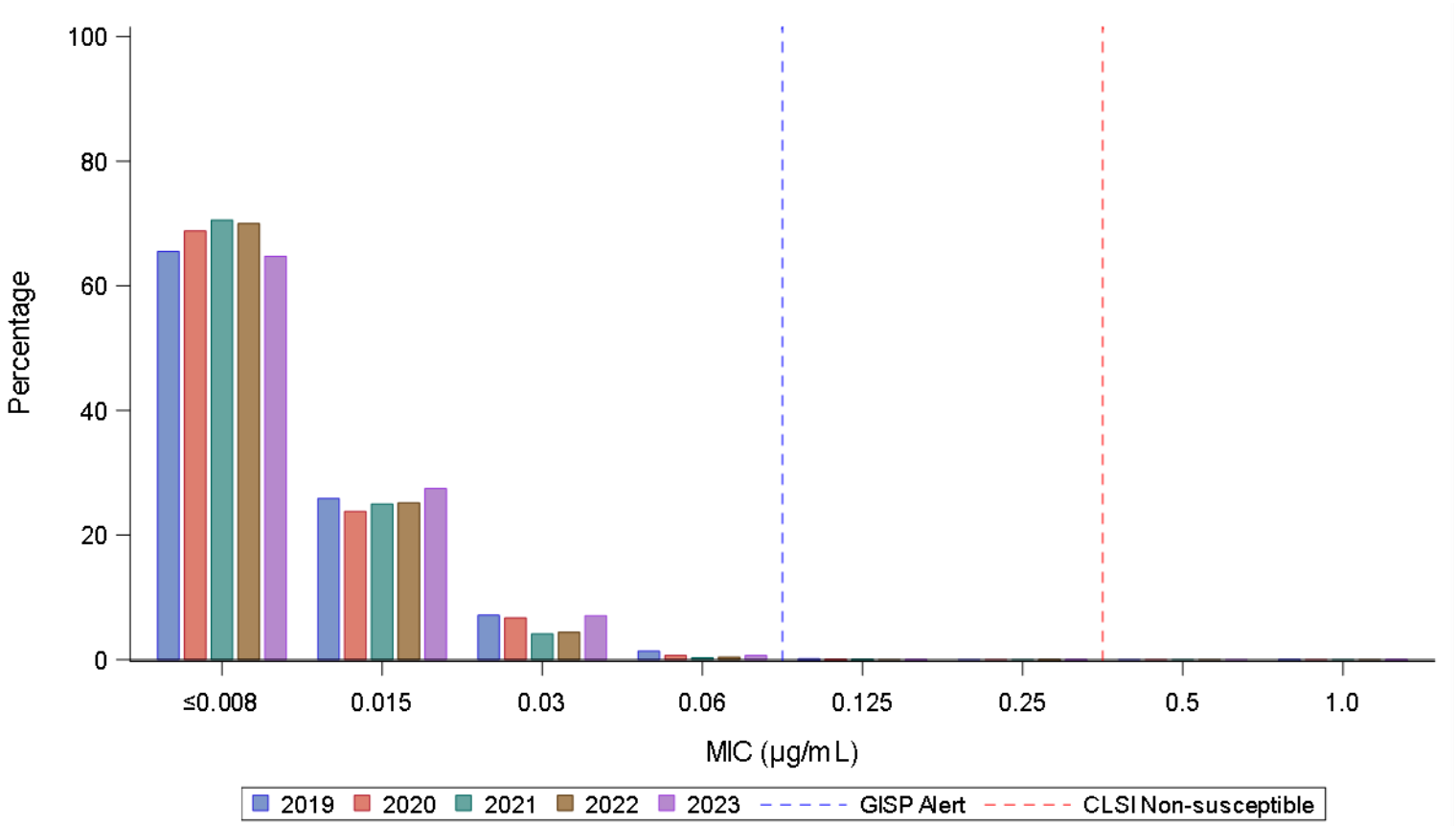
Figure 1. Distribution of Cefixime Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	≤0.015 n (%)	0.03 n (%)	0.06 n (%)	0.125 n (%)	0.25 n (%)	0.5 n (%)	1.0 n (%)	2.0 n (%)	Total
2019	3690 (67.3)	1388 (25.3)	273 (5.0)	110 (2.0)	18 (0.3)	0 (0.0)	1 (0.0)	0 (0.0)	5480
2020	2520 (67.4)	921 (24.6)	211 (5.6)	77 (2.1)	11 (0.3)	1 (0.0)	0 (0.0)	0 (0.0)	3741
2021	2826 (73.9)	798 (20.9)	126 (3.3)	68 (1.8)	5 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	3823
2022	2653 (72.0)	777 (21.1)	139 (3.8)	110 (3.0)	5 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	3684
2023	2425 (69.2)	645 (18.4)	165 (4.7)	254 (7.3)	12 (0.3)	0 (0.0)	0 (0.0)	1 (0.0)	3502

GISP Alert Value = cefixime MIC ≥0.25 µg/mL; CLSI Non-susceptible = cefixime MIC ≥0.5 µg/mL.
CLSI = Clinical & Laboratory Standards Institute.
Non-susceptible = Category used for isolates when only a susceptible breakpoint has been designated and the MIC is above the susceptible breakpoint.
As of publication, the CLSI has not established a cefixime resistance breakpoint for *N. gonorrhoeae*.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

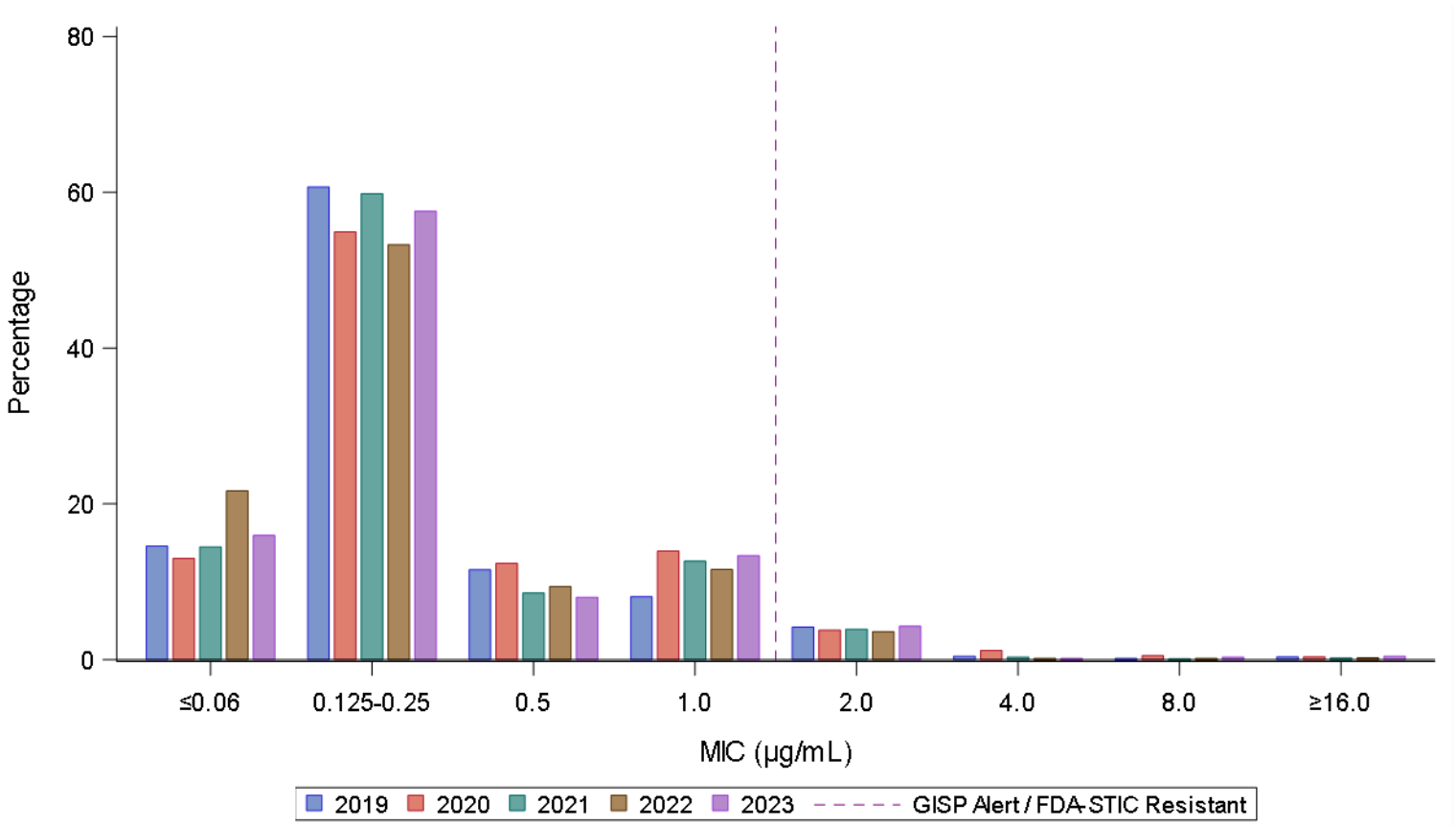
Figure 2. Distribution of Ceftriaxone Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	≤0.008 n (%)	0.015 n (%)	0.03 n (%)	0.06 n (%)	0.125 n (%)	0.25 n (%)	0.5 n (%)	1.0 n (%)	Total
2019	3590 (65.5)	1417 (25.9)	390 (7.1)	75 (1.4)	7 (0.1)	0 (0.0)	0 (0.0)	1 (0.0)	5480
2020	2574 (68.8)	889 (23.8)	250 (6.7)	25 (0.7)	3 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	3741
2021	2697 (70.5)	954 (25.0)	158 (4.1)	11 (0.3)	3 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	3823
2022	2579 (70.0)	927 (25.2)	162 (4.4)	15 (0.4)	0 (0.0)	1 (0.0)	0 (0.0)	0 (0.0)	3684
2023	2267 (64.7)	962 (27.5)	247 (7.1)	23 (0.7)	1 (0.0)	1 (0.0)	0 (0.0)	1 (0.0)	3502

GISP Alert Value = ceftriaxone MIC ≥0.125 µg/mL; CLSI Non-susceptible = ceftriaxone MIC ≥0.5 µg/mL.
CLSI = Clinical & Laboratory Standards Institute.
Non-susceptible = Category used for isolates when only a susceptible breakpoint has been designated and the MIC is above the susceptible breakpoint.
As of publication, the CLSI has not established a ceftriaxone resistance breakpoint for *N. gonorrhoeae*.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

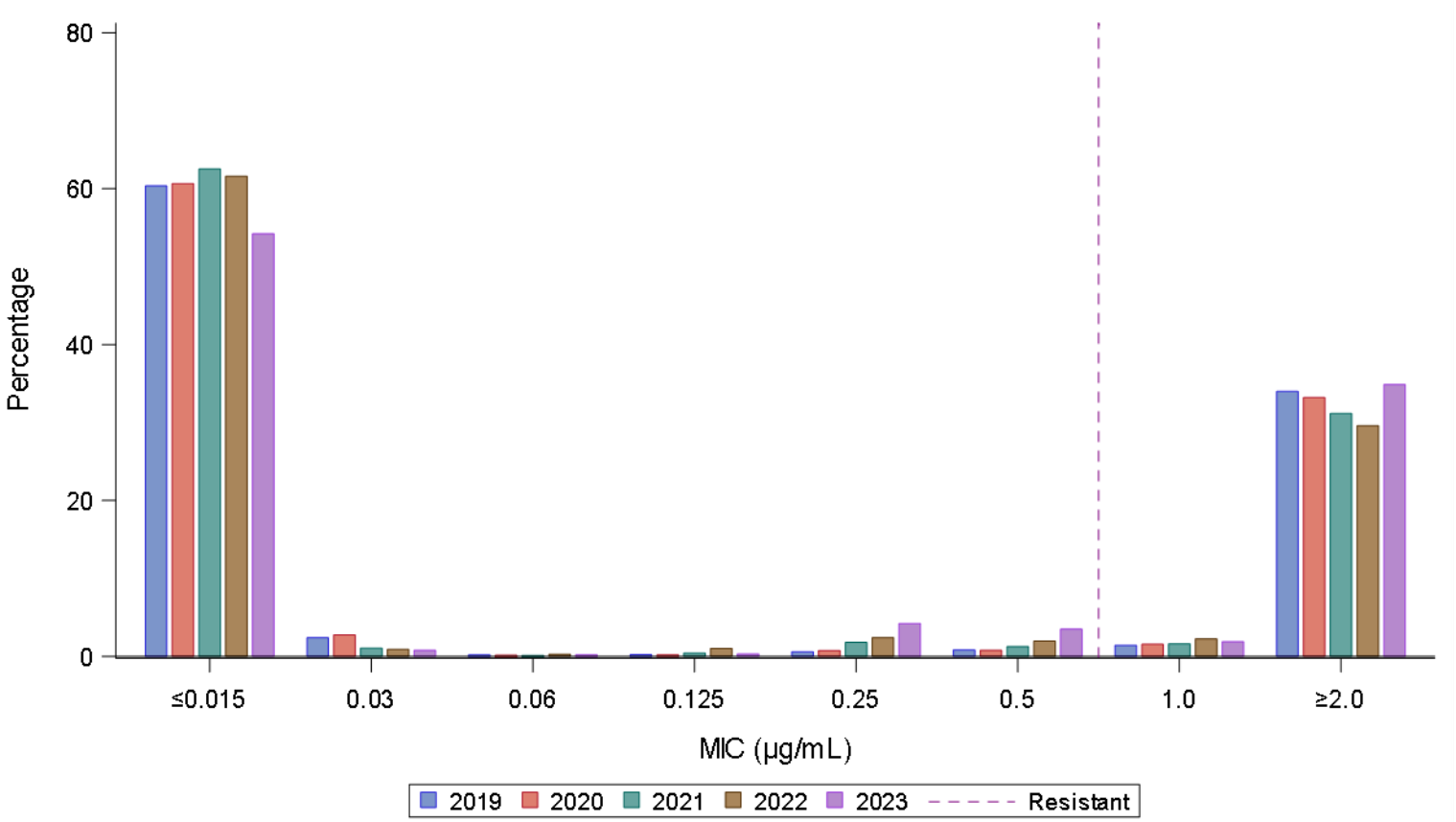
Figure 3. Distribution of Azithromycin Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	≤0.06 n (%)	0.125-0.25 n (%)	0.5 n (%)	1.0 n (%)	2.0 n (%)	4.0 n (%)	8.0 n (%)	≥16.0 n (%)	Total
2019	799 (14.6)	3326 (60.7)	632 (11.5)	442 (8.1)	229 (4.2)	24 (0.4)	9 (0.2)	19 (0.3)	5480
2020	486 (13.0)	2054 (54.9)	462 (12.3)	521 (13.9)	142 (3.8)	44 (1.2)	19 (0.5)	13 (0.3)	3741
2021	553 (14.5)	2287 (59.8)	327 (8.6)	483 (12.6)	149 (3.9)	12 (0.3)	4 (0.1)	8 (0.2)	3823
2022	798 (21.7)	1963 (53.3)	345 (9.4)	426 (11.6)	132 (3.6)	6 (0.2)	6 (0.2)	8 (0.2)	3684
2023	558 (15.9)	2016 (57.6)	280 (8.0)	467 (13.3)	150 (4.3)	5 (0.1)	11 (0.3)	15 (0.4)	3502

GISP Alert Value: azithromycin MIC ≥2.0 µg/mL; FDA-STIC Resistant = azithromycin MIC ≥2.0 µg/mL.
FDA-STIC = FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria.
In 2025, azithromycin resistance was established as ≥2.0 µg/mL (FDA-STIC).
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

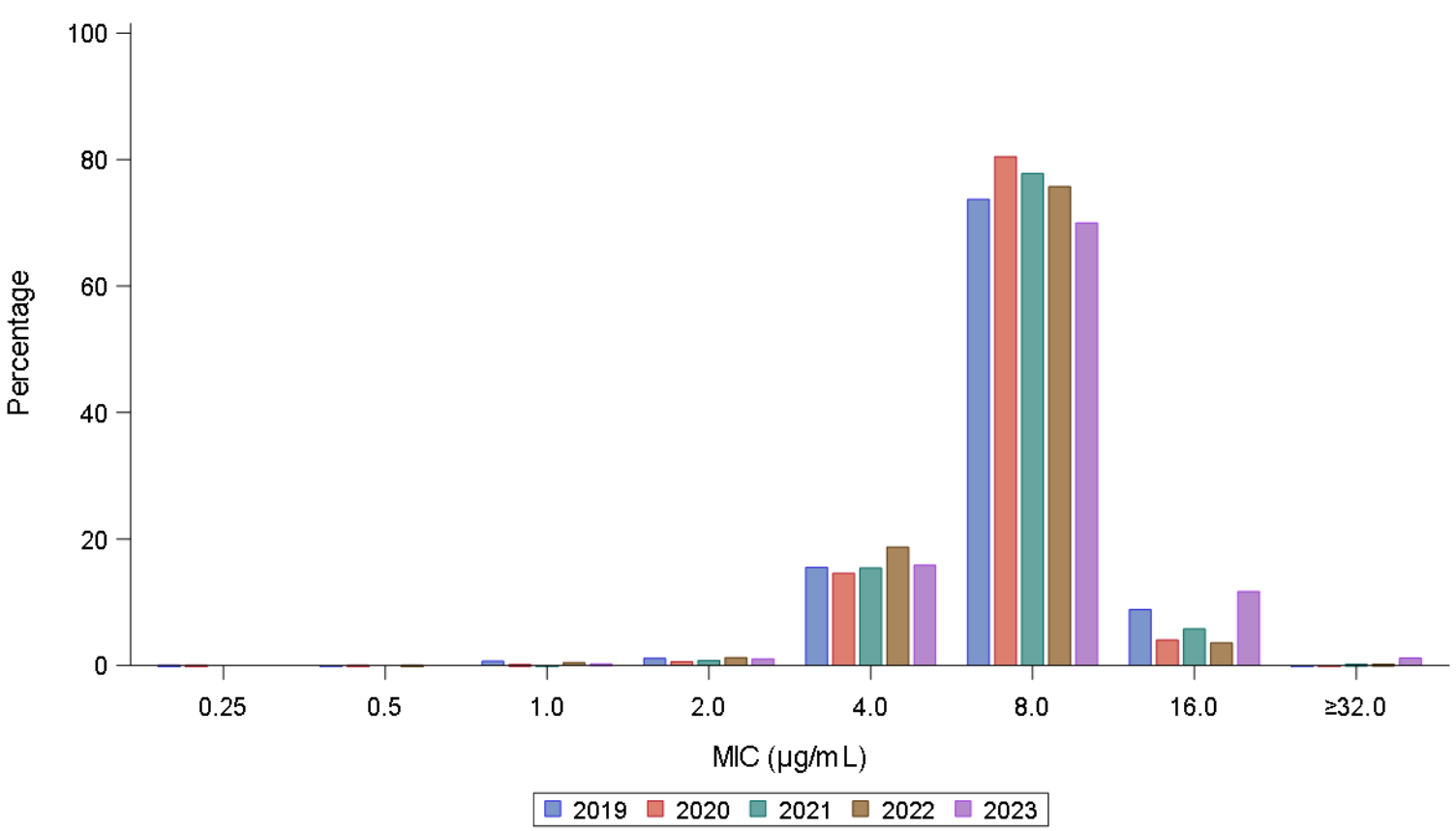
Figure 4. Distribution of Ciprofloxacin Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	≤0.015 n (%)	0.03 n (%)	0.06 n (%)	0.125 n (%)	0.25 n (%)	0.5 n (%)	1.0 n (%)	≥2.0 n (%)	Total
2019	3307 (60.3)	131 (2.4)	10 (0.2)	12 (0.2)	33 (0.6)	46 (0.8)	78 (1.4)	1863 (34.0)	5480
2020	2269 (60.7)	103 (2.8)	5 (0.1)	7 (0.2)	28 (0.7)	29 (0.8)	58 (1.6)	1242 (33.2)	3741
2021	2390 (62.5)	41 (1.1)	5 (0.1)	17 (0.4)	69 (1.8)	48 (1.3)	62 (1.6)	1191 (31.2)	3823
2022	2269 (61.6)	33 (0.9)	10 (0.3)	38 (1.0)	89 (2.4)	72 (2.0)	83 (2.3)	1090 (29.6)	3684
2023	1899 (54.2)	28 (0.8)	7 (0.2)	11 (0.3)	148 (4.2)	122 (3.5)	66 (1.9)	1221 (34.9)	3502

Ciprofloxacin resistance MIC ≥1.0 µg/mL.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

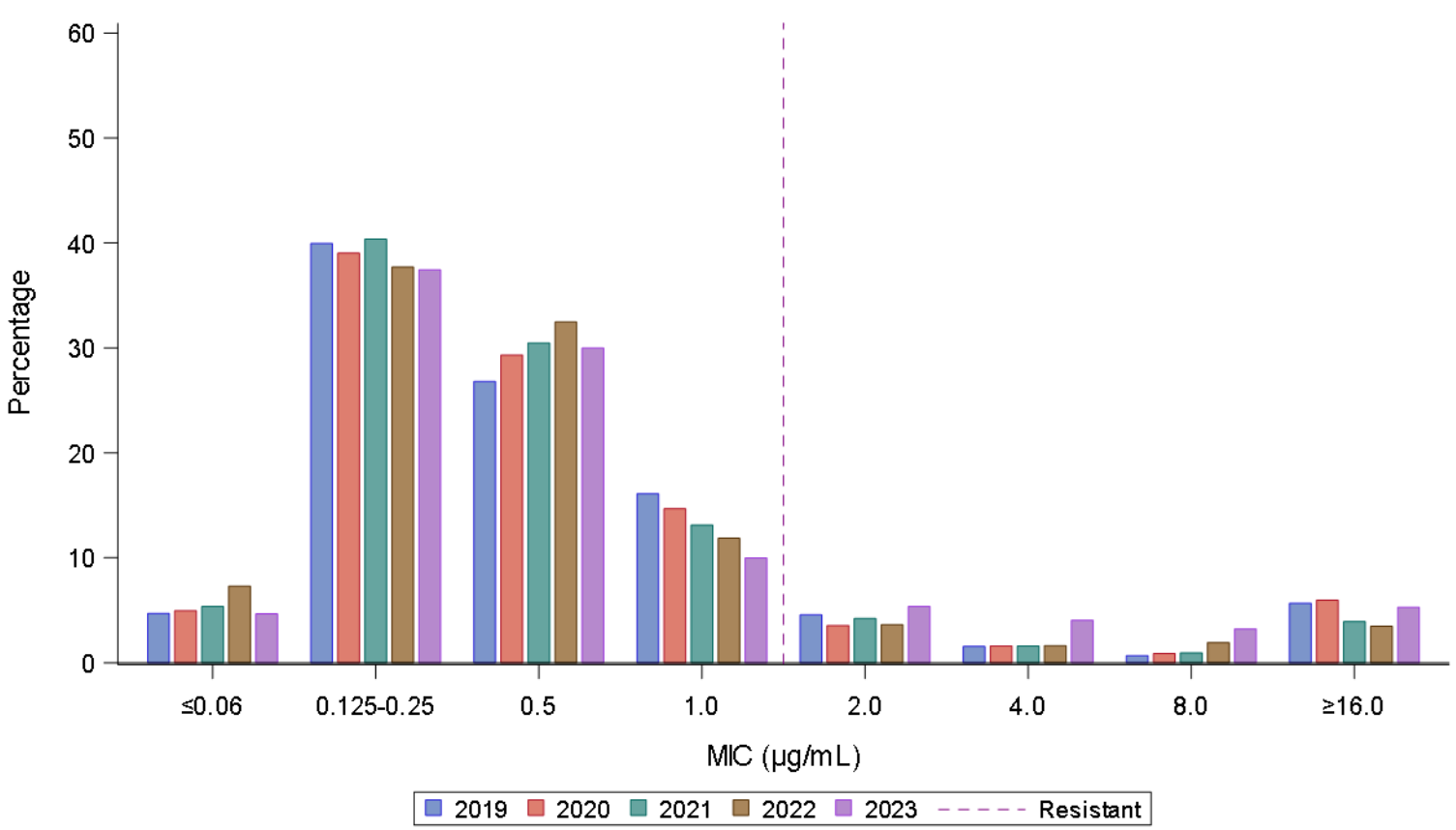
Figure 5. Distribution of Gentamicin Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	0.25 n (%)	0.5 n (%)	1.0 n (%)	2.0 n (%)	4.0 n (%)	8.0 n (%)	16.0 n (%)	≥32.0 n (%)	Total
2019	3 (0.1)	1 (0.0)	37 (0.7)	62 (1.1)	851 (15.5)	4040 (73.7)	485 (8.9)	1 (0.0)	5480
2020	2 (0.1)	2 (0.1)	6 (0.2)	23 (0.6)	546 (14.6)	3010 (80.5)	151 (4.0)	1 (0.0)	3741
2021	0 (0.0)	0 (0.0)	1 (0.0)	31 (0.8)	589 (15.4)	2973 (77.8)	221 (5.8)	8 (0.2)	3823
2022	0 (0.0)	2 (0.1)	16 (0.4)	46 (1.2)	690 (18.7)	2790 (75.7)	132 (3.6)	8 (0.2)	3684
2023	0 (0.0)	0 (0.0)	9 (0.3)	37 (1.1)	555 (15.8)	2451 (70.0)	409 (11.7)	41 (1.2)	3502

As of publication, the Clinical & Laboratory Standards Institute (CLSI) criteria for susceptibility and resistance to gentamicin have not been established for *N. gonorrhoeae*. A GISP alert value for gentamicin has not been determined.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

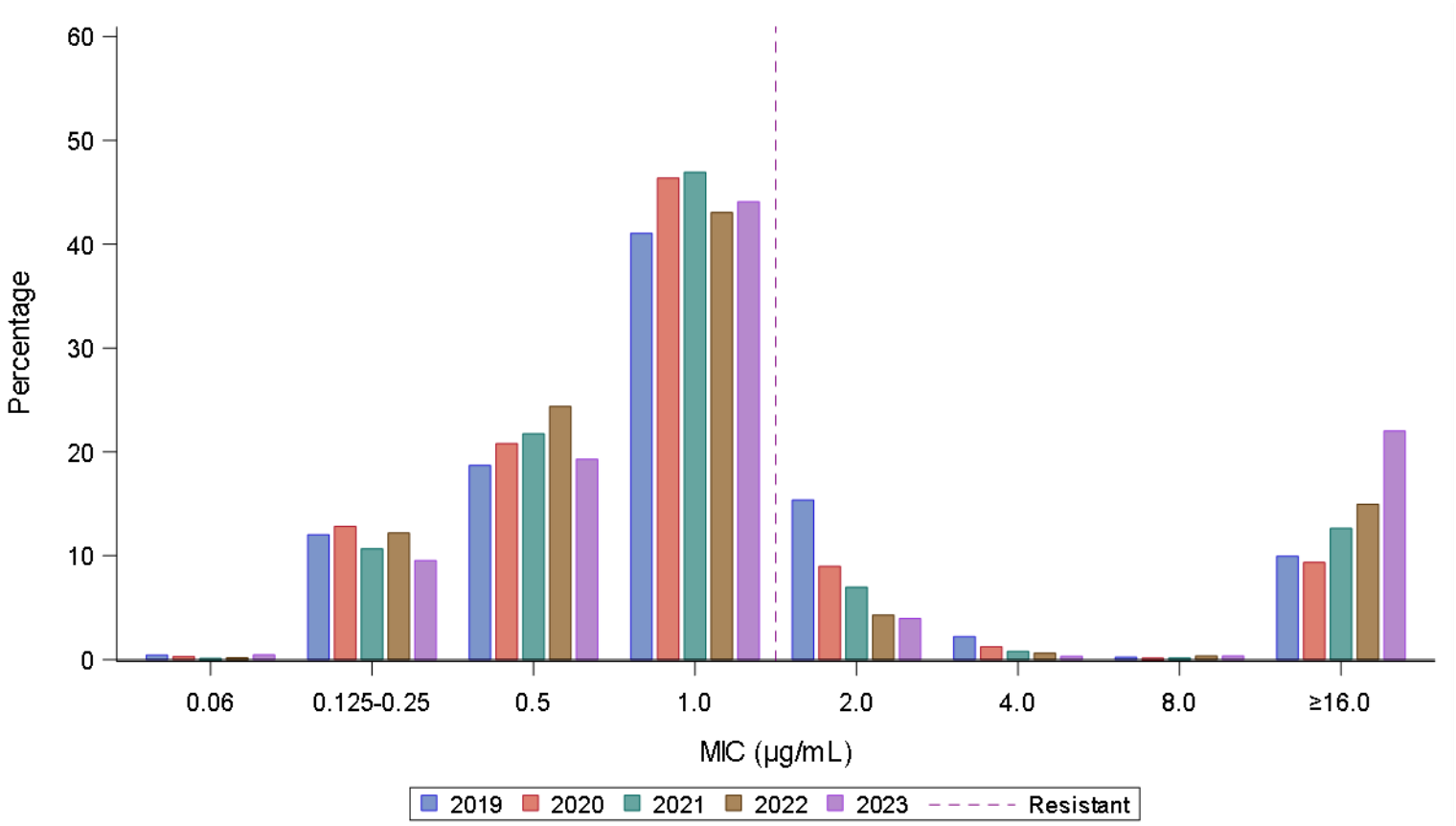
Figure 6. Distribution of Penicillin Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	≤0.06 n (%)	0.125-0.25 n (%)	0.5 n (%)	1.0 n (%)	2.0 n (%)	4.0 n (%)	8.0 n (%)	≥16.0 n (%)	Total
2019	257 (4.7)	2189 (39.9)	1469 (26.8)	882 (16.1)	250 (4.6)	85 (1.6)	37 (0.7)	311 (5.7)	5480
2020	186 (5.0)	1460 (39.0)	1097 (29.3)	549 (14.7)	133 (3.6)	60 (1.6)	33 (0.9)	223 (6.0)	3741
2021	205 (5.4)	1543 (40.4)	1165 (30.5)	502 (13.1)	161 (4.2)	61 (1.6)	36 (0.9)	150 (3.9)	3823
2022	269 (7.3)	1389 (37.7)	1196 (32.5)	437 (11.9)	134 (3.6)	60 (1.6)	71 (1.9)	128 (3.5)	3684
2023	163 (4.7)	1311 (37.4)	1050 (30.0)	350 (10.0)	188 (5.4)	142 (4.1)	113 (3.2)	185 (5.3)	3502

Penicillin resistance based on Clinical & Laboratory Standards Institute (CLSI) MIC criteria only (MIC ≥2.0 µg/mL). Additional data on β-lactamase positivity are not depicted.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

Figure 7. Distribution of Tetracycline Minimum Inhibitory Concentrations (MICs) Among *Neisseria gonorrhoeae* Isolates, Gonococcal Isolate Surveillance Project (GISP), 2019-2023



Year	0.06 n (%)	0.125-0.25 n (%)	0.5 n (%)	1.0 n (%)	2.0 n (%)	4.0 n (%)	8.0 n (%)	≥16.0 n (%)	Total
2019	24 (0.4)	659 (12.0)	1025 (18.7)	2250 (41.1)	842 (15.4)	122 (2.2)	12 (0.2)	546 (10.0)	5480
2020	11 (0.3)	480 (12.8)	778 (20.8)	1735 (46.4)	336 (9.0)	46 (1.2)	5 (0.1)	350 (9.4)	3741
2021	4 (0.1)	408 (10.7)	831 (21.7)	1794 (46.9)	267 (7.0)	30 (0.8)	6 (0.2)	483 (12.6)	3823
2022	6 (0.2)	449 (12.2)	898 (24.4)	1586 (43.1)	158 (4.3)	23 (0.6)	13 (0.4)	551 (15.0)	3684
2023	16 (0.5)	334 (9.5)	676 (19.3)	1544 (44.1)	138 (3.9)	11 (0.3)	12 (0.3)	771 (22.0)	3502

Tetracycline resistance MIC ≥2.0 µg/mL.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

Table 1: Antimicrobial Minimum Inhibitory Concentration Parameters
by 5-Year Periods in the Gonococcal Isolate Surveillance Project (GISP), 1999-2023

1A. Cefixime

Time Range	MIC 50* (µg/mL)	MIC 90** (µg/mL)	Min MIC (µg/mL)	Max MIC (µg/mL)	% with MIC ≥0.25	% with MIC ≥0.5
1999-2003	0.015	0.03	0.002	0.5	0.2	<0.1
2004-2008	0.008	0.03	0.001	0.5	<0.1	<0.1
2009-2013	0.015	0.03	0.002	1.0	1.0	<0.1
2014-2018	0.015	0.03	0.002	0.5	0.5	<0.1
2019-2023	0.015	0.03	0.002	2.0	0.3	<0.1

1B. Ceftriaxone

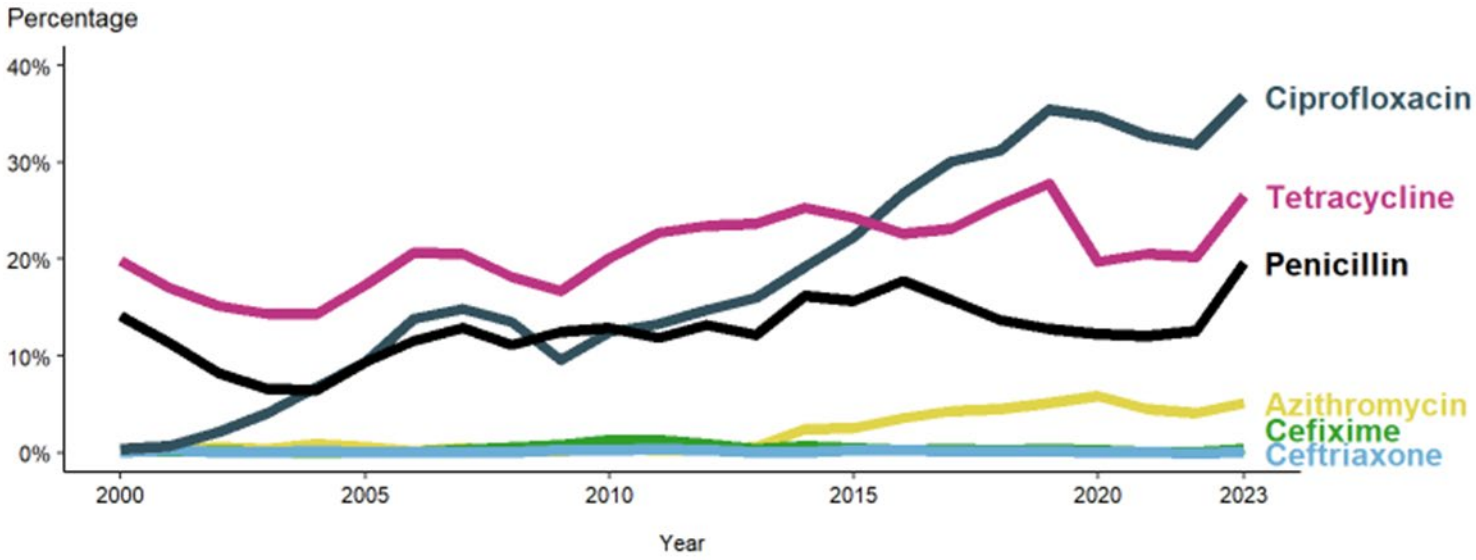
Time Range	MIC 50* (µg/mL)	MIC 90** (µg/mL)	Min MIC (µg/mL)	Max MIC (µg/mL)	% with MIC ≥0.125	% with MIC ≥0.5
1999-2003	0.004	0.015	0.001	0.25	0.2	0
2004-2008	0.008	0.015	0.001	0.25	0.1	0
2009-2013	0.008	0.015	0.001	0.5	0.3	<0.1
2014-2018	0.008	0.03	0.001	0.25	0.2	0
2019-2023	0.008	0.015	0.001	1.0	<0.1	<0.1

1C. Azithromycin

Time Range	MIC 50* (µg/mL)	MIC 90** (µg/mL)	Min MIC (µg/mL)	Max MIC (µg/mL)	% with MIC ≥1.0	% with MIC ≥2.0	% with MIC ≥16.0
1999-2003	0.125	0.25	0.001	8.0	0.4	0.2	0
2004-2008	0.25	0.5	0.004	16.0	4.0	0.4	<0.1
2009-2013	0.25	0.5	0.015	64.0	4.0	0.4	<0.1
2014-2018	0.25	0.5	0.008	64.0	8.7	3.5	0.4
2019-2023	0.25	1.0	0.008	16.0	16.5	5.0	0.3

*MIC 50: lowest concentration of an antimicrobial that inhibits the growth of 50% of the isolates.
**MIC 90: lowest concentration of an antimicrobial that inhibits the growth of 90% of the isolates.
All MICs reported in GISP for each antimicrobial were combined for the noted time period.
Cefixime susceptibility was not tested in 2007 and 2008.
Azithromycin alert MIC changed from 1.0 µg/mL to 2.0 µg/mL starting in 2005 due to a media change.
In 2025, azithromycin resistance was established as ≥2.0 µg/mL (FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria).
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

Figure 8. Percentage of Tetracycline, Penicillin, Ciprofloxacin, or Azithromycin Resistance* or Elevated Cefixime or Ceftriaxone Minimum Inhibitory Concentrations (MICs)†, by Year — Gonococcal Isolate Surveillance Project (GISP), 2000-2023

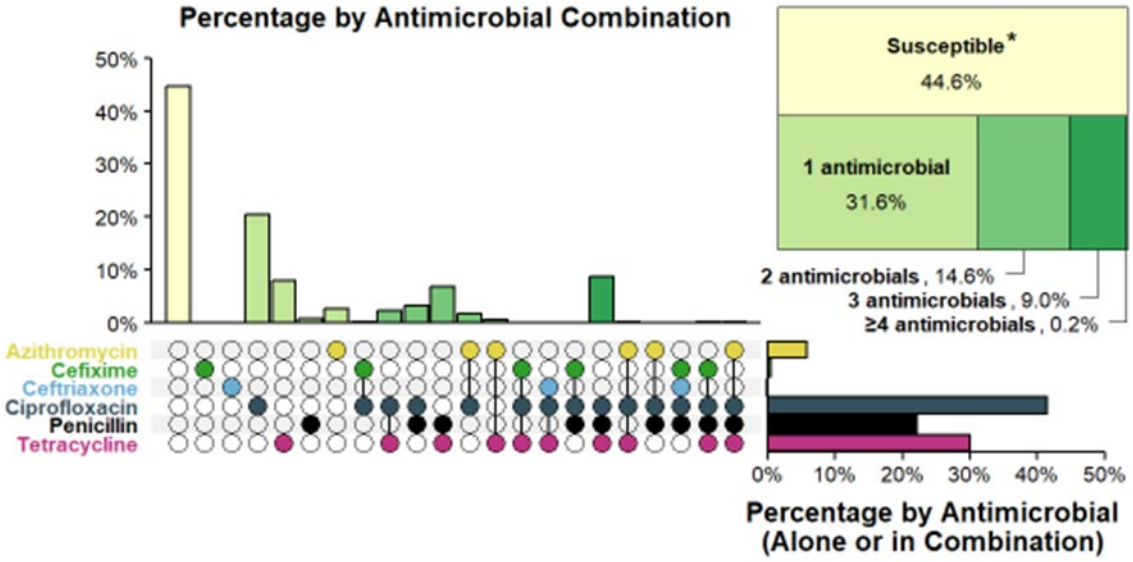


Antimicrobials	2000 n (%)	2001 n (%)	2002 n (%)	2003 n (%)	2004 n (%)	2005 n (%)	2006 n (%)	2007 n (%)	2008 n (%)	2009 n (%)	2010 n (%)	2011 n (%)
Azithromycin	19 (0.3)	15 (0.3)	33 (0.6)	26 (0.4)	57 (0.9)	35 (0.6)	14 (0.2)	27 (0.4)	11 (0.2)	12 (0.2)	27 (0.5)	16 (0.3)
Cefixime	10 (0.2)	12 (0.2)	9 (0.2)	4 (0.1)	6 (0.1)	6 (0.1)	5 (0.1)	N/A	N/A	45 (0.8)	77 (1.4)	74 (1.4)
Ceftriaxone	5 (0.1)	16 (0.3)	7 (0.1)	3 (0.0)	9 (0.1)	8 (0.1)	3 (0.0)	7 (0.1)	4 (0.1)	16 (0.3)	19 (0.3)	21 (0.4)
Ciprofloxacin	19 (0.3)	38 (0.7)	116 (2.2)	270 (4.1)	429 (6.8)	581 (9.4)	843 (13.8)	891 (14.8)	775 (13.5)	542 (9.6)	709 (12.5)	726 (13.3)
Penicillin	773 (14.2)	622 (11.4)	441 (8.2)	434 (6.6)	411 (6.5)	581 (9.4)	702 (11.5)	776 (12.9)	639 (11.2)	702 (12.5)	733 (12.9)	647 (11.8)
Tetracycline	1085 (19.9)	931 (17.0)	814 (15.2)	942 (14.4)	909 (14.4)	1073 (17.3)	1256 (20.6)	1233 (20.5)	1010 (18.2)	941 (16.7)	1149 (20.2)	1245 (22.8)

Antimicrobials	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
Azithromycin	15 (0.3)	33 (0.6)	125 (2.5)	133 (2.6)	190 (3.6)	221 (4.4)	235 (4.6)	281 (5.1)	218 (5.8)	173 (4.5)	152 (4.1)	181 (5.2)
Cefixime	52 (0.9)	25 (0.4)	38 (0.7)	25 (0.5)	17 (0.3)	22 (0.4)	15 (0.3)	19 (0.3)	12 (0.3)	5 (0.1)	5 (0.1)	13 (0.4)
Ceftriaxone	15 (0.3)	3 (0.1)	7 (0.1)	14 (0.3)	14 (0.3)	10 (0.2)	9 (0.2)	8 (0.1)	3 (0.1)	3 (0.1)	1 (0.0)	3 (0.1)
Ciprofloxacin	809 (14.7)	955 (16.1)	978 (19.2)	1149 (22.3)	1409 (26.8)	1524 (30.1)	1611 (31.2)	1941 (35.4)	1300 (34.8)	1253 (32.8)	1173 (31.8)	1287 (36.8)
Penicillin	725 (13.2)	725 (12.2)	826 (16.2)	809 (15.7)	934 (17.8)	800 (15.8)	707 (13.7)	699 (12.8)	461 (12.3)	460 (12.0)	466 (12.6)	687 (19.6)
Tetracycline	1288 (23.4)	1410 (23.7)	1287 (25.3)	1248 (24.2)	1187 (22.6)	1169 (23.1)	1322 (25.6)	1522 (27.8)	737 (19.7)	786 (20.6)	745 (20.2)	932 (26.6)

* Resistance: ciprofloxacin: MIC ≥1.0 µg/mL; penicillin: MIC ≥2.0 µg/mL or β-lactamase positive; tetracycline: MIC ≥2.0 µg/mL.; azithromycin: MIC ≥2.0 µg/mL
† Elevated MICs: ceftriaxone: MIC ≥0.125 µg/mL; cefixime: MIC ≥0.25 µg/mL.
Cefixime susceptibility was not tested in 2007 and 2008.
Azithromycin alert MICs changed from 1.0 µg/mL to 2.0 µg/mL starting in 2005 due to a shift in MICs caused by culture media change.
In 2025, azithromycin resistance was established as ≥2.0 µg/mL (FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria).
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

Figure 9. Resistance or Elevated Minimum Inhibitory Concentration (MIC) Patterns of *Neisseria gonorrhoeae* Isolates to Antimicrobials, Gonococcal Isolate Surveillance Project (GISP), 2023

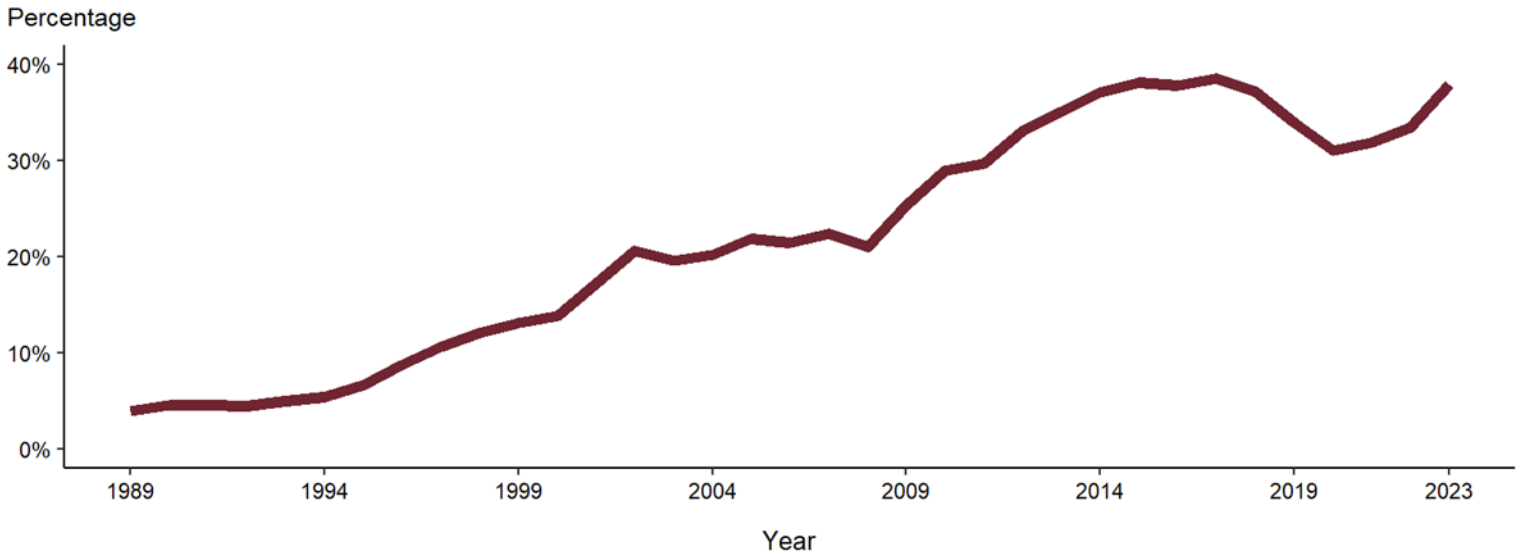


Total # Antimicrobials	Azithromycin	Cefixime	Ceftriaxone	Ciprofloxacin	Penicillin	Tetracycline	Isolate Count	% Total Isolates
0*							1562	44.6
1	✓						89	2.5
1		✓					2	0.1
1			✓				1	0.0
1				✓			712	20.3
1					✓		27	0.8
1						✓	276	7.9
2	✓			✓			59	1.7
2	✓					✓	20	0.6
2		✓		✓			5	0.1
2				✓	✓		109	3.1
2				✓		✓	79	2.3
2					✓	✓	238	6.8
3	✓			✓	✓		2	0.1
3	✓			✓		✓	8	0.2
3		✓		✓	✓		1	0.0
3		✓		✓		✓	1	0.0
3			✓	✓		✓	1	0.0
3				✓	✓	✓	303	8.7
4	✓			✓	✓	✓	3	0.1
4		✓	✓	✓	✓		1	0.0
4		✓		✓	✓	✓	3	0.1

* Susceptible category includes isolates with penicillin (or β-lactamase negative), tetracycline, ciprofloxacin, and azithromycin MIC values that are not considered resistant (i.e., susceptible and intermediate resistant) based on Clinical & Laboratory Standards Institute criteria or FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria and isolates with ceftriaxone or cefixime MIC values that are not considered elevated based on GISP "alert" values.
In 2025, azithromycin resistance was established as ≥2.0 µg/mL (FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria).

Elevated MICs = ceftriaxone: MIC ≥0.125 µg/mL; cefixime: MIC ≥0.25 µg/mL;
Resistance = azithromycin: MIC ≥2.0 µg/mL.; tetracycline: MIC ≥2.0 µg/mL; ciprofloxacin: MIC ≥1.0 µg/mL; penicillin: MIC ≥2.0 µg/mL or β-lactamase positive.
In the figure or table, respectively, a filled circle or check mark reflects resistance or an elevated MIC to a specific antimicrobial; only antimicrobial combinations with non-zero percentages are shown.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

Figure 10. Percentage of Isolates Obtained from MSM Attending Participating STD Clinics, Gonococcal Isolate Surveillance Project (GISP), 1989-2023

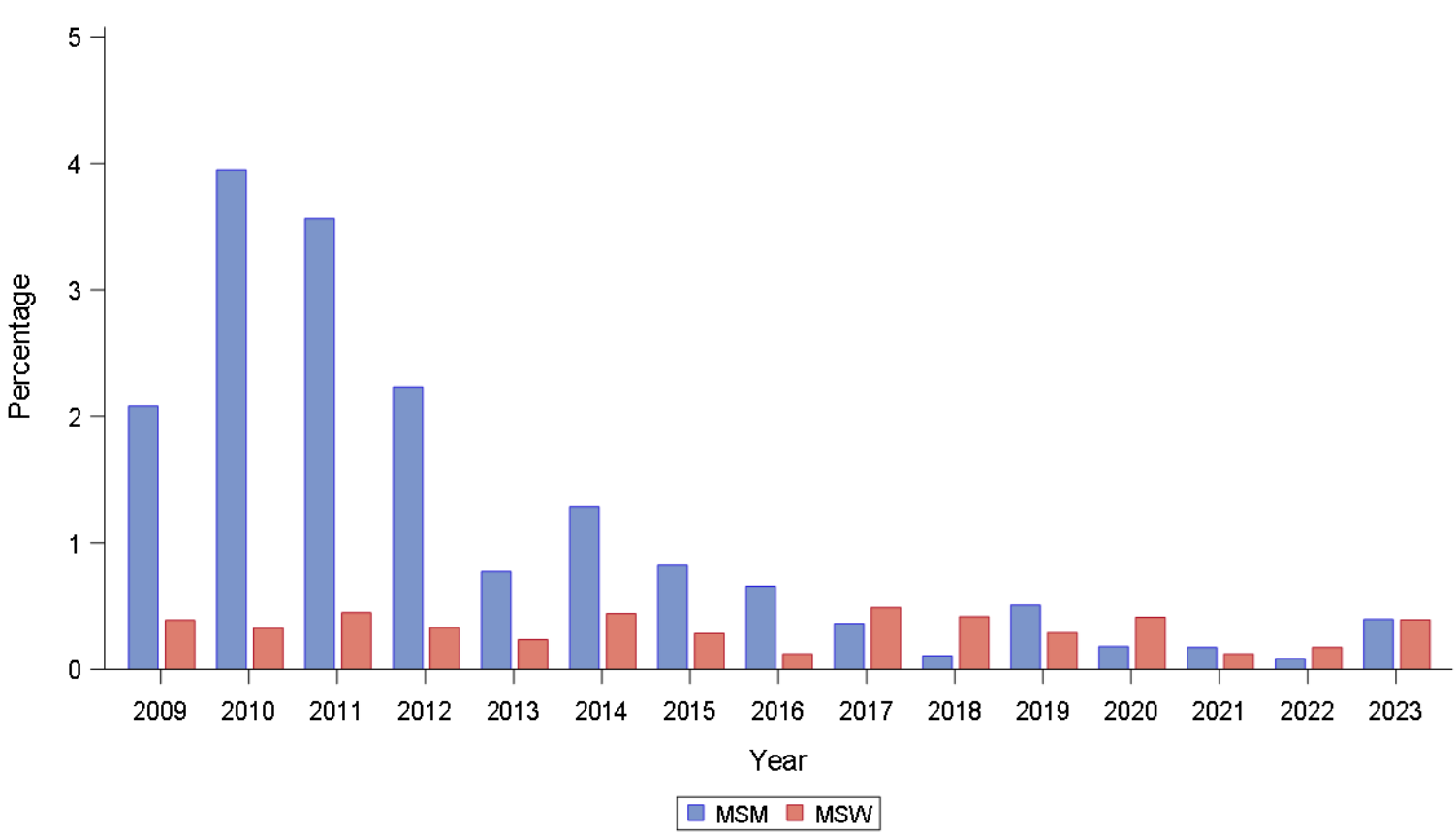


1989 n (%)	1990 n (%)	1991 n (%)	1992 n (%)	1993 n (%)	1994 n (%)	1995 n (%)	1996 n (%)	1997 n (%)	1998 n (%)	1999 n (%)	2000 n (%)	2001 n (%)	2002 n (%)	2003 n (%)	2004 n (%)	2005 n (%)
174 (3.9)	191 (4.6)	221 (4.6)	228 (4.5)	239 (5.0)	248 (5.4)	305 (6.7)	389 (8.7)	441 (10.7)	503 (12.0)	613 (13.1)	690 (13.8)	896 (17.2)	1069 (20.6)	1253 (19.6)	1202 (20.2)	1335 (21.9)

2006 n (%)	2007 n (%)	2008 n (%)	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
1281 (21.5)	1316 (22.4)	1173 (21.0)	1393 (25.3)	1619 (28.9)	1599 (29.7)	1792 (33.1)	2070 (35.1)	1867 (37.1)	1944 (38.1)	1974 (37.8)	1922 (38.5)	1842 (37.2)	1767 (33.9)	1096 (31.1)	1143 (31.9)	1152 (33.4)	1258 (38.0)

MSM = Men who have sex with men.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.

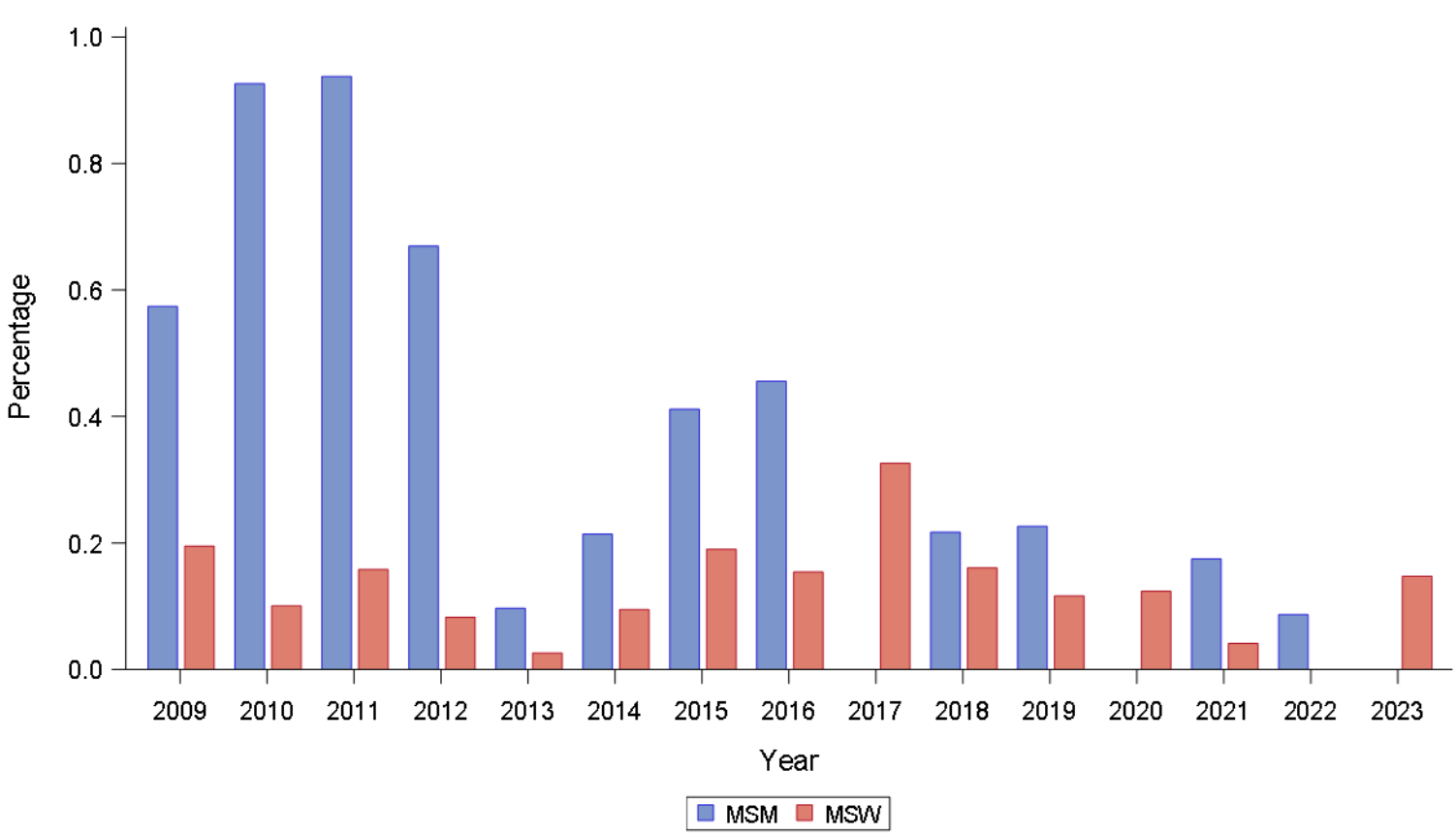
Figure 11. Percentage of *Neisseria gonorrhoeae* Isolates with an Elevated Minimum Inhibitory Concentration (MIC) to Cefixime by Reported Sex of Sex Partners, Gonococcal Isolate Surveillance Project (GISP), 2009-2023



Sex of Sex Partners	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
MSM	29 (2.1)	64 (4.0)	57 (3.6)	40 (2.2)	16 (0.8)	24 (1.3)	16 (0.8)	13 (0.7)	7 (0.4)	2 (0.1)	9 (0.5)	2 (0.2)	2 (0.2)	1 (0.1)	5 (0.4)
MSW	16 (0.4)	13 (0.3)	17 (0.4)	12 (0.3)	9 (0.2)	14 (0.4)	9 (0.3)	4 (0.1)	15 (0.5)	13 (0.4)	10 (0.3)	10 (0.4)	3 (0.1)	4 (0.2)	8 (0.4)

MSM = Men who have sex with men; MSW = Men who have sex with women only.
Isolates were not tested for cefixime susceptibility in 2007-2008.
Cefixime elevated MIC ≥0.25 µg/mL.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

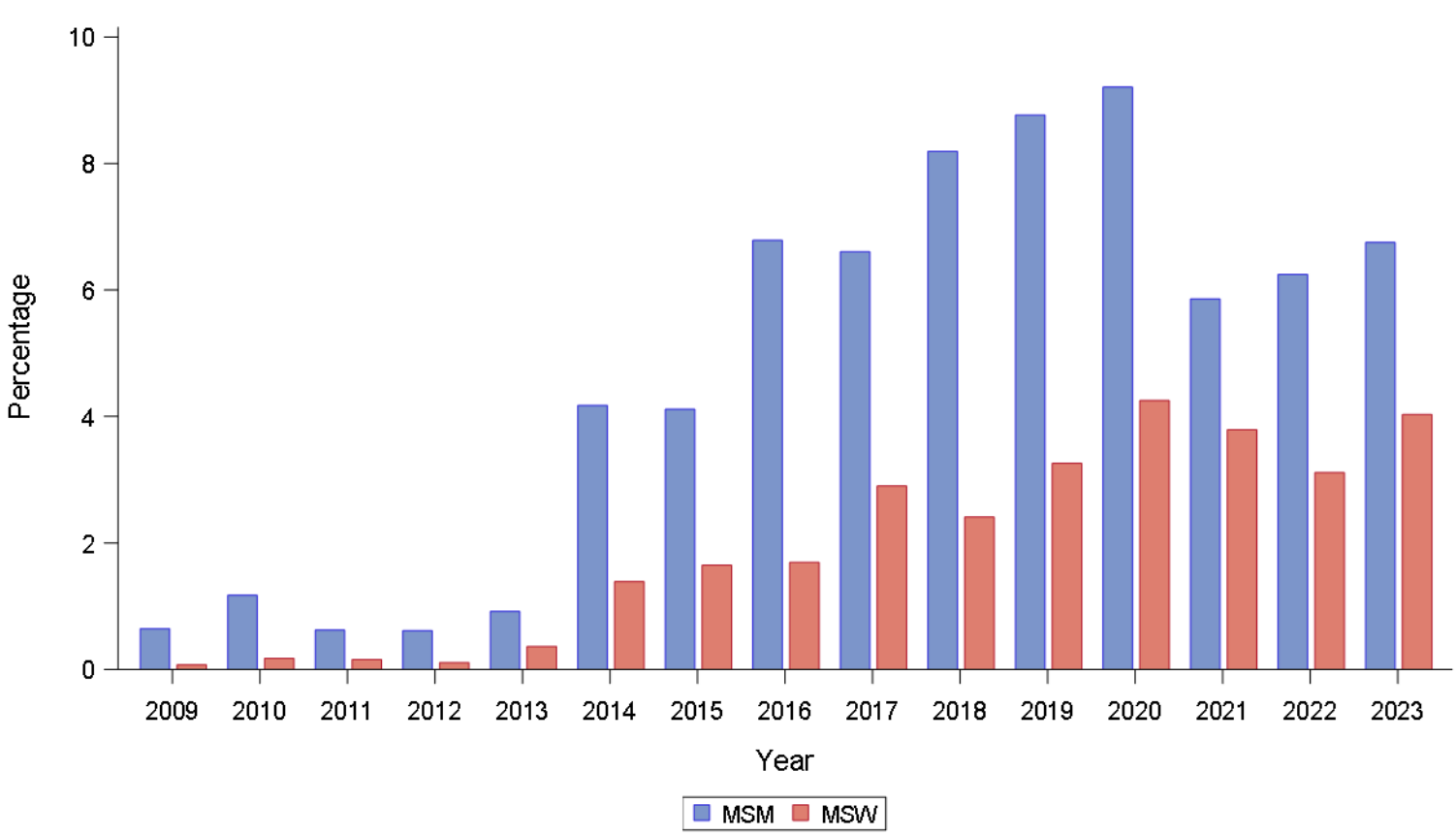
Figure 12. Percentage of *Neisseria gonorrhoeae* Isolates with an Elevated Minimum Inhibitory Concentration (MIC) to Ceftriaxone by Reported Sex of Sex Partners, Gonococcal Isolate Surveillance Project (GISP), 2009-2023



Sex of Sex Partners	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
MSM	8 (0.6)	15 (0.9)	15 (0.9)	12 (0.7)	2 (0.1)	4 (0.2)	8 (0.4)	9 (0.5)	0 (0.0)	4 (0.2)	4 (0.2)	0 (0.0)	2 (0.2)	1 (0.1)	0 (0.0)
MSW	8 (0.2)	4 (0.1)	6 (0.2)	3 (0.1)	1 (0.0)	3 (0.1)	6 (0.2)	5 (0.2)	10 (0.3)	5 (0.2)	4 (0.1)	3 (0.1)	1 (0.0)	0 (0.0)	3 (0.1)

MSM = Men who have sex with men; MSW = Men who have sex with women only.
Ceftriaxone elevated MIC ≥0.125 µg/mL.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

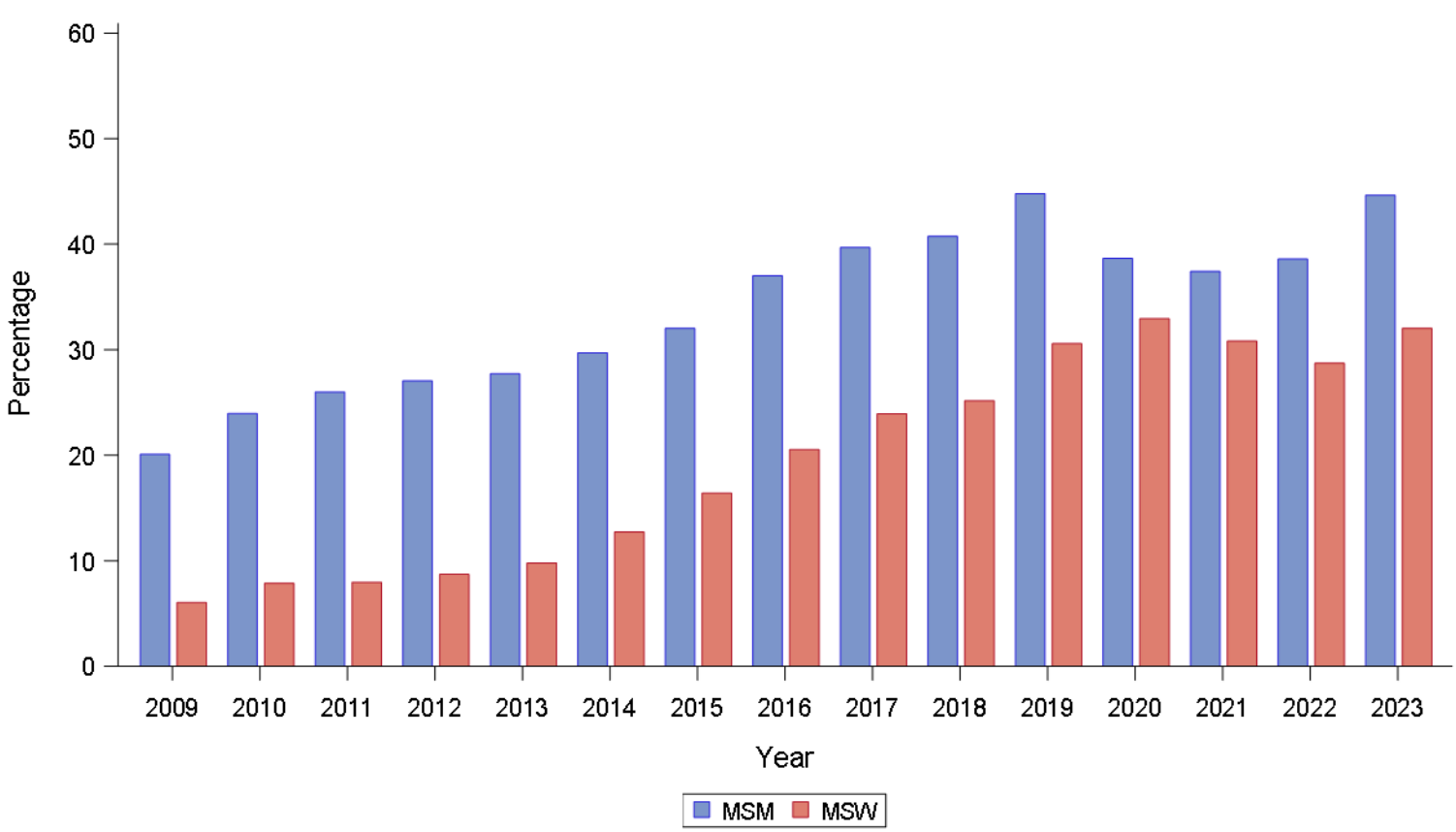
Figure 13. Percentage of *Neisseria gonorrhoeae* Isolates with Resistance to Azithromycin by Reported Sex of Sex Partners, Gonococcal Isolate Surveillance Project (GISP), 2009-2023



Sex of Sex Partners	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
MSM	9 (0.6)	19 (1.2)	10 (0.6)	11 (0.6)	19 (0.9)	78 (4.2)	80 (4.1)	134 (6.8)	127 (6.6)	151 (8.2)	155 (8.8)	101 (9.2)	67 (5.9)	72 (6.2)	85 (6.8)
MSW	3 (0.1)	7 (0.2)	6 (0.2)	4 (0.1)	14 (0.4)	44 (1.4)	52 (1.6)	55 (1.7)	89 (2.9)	75 (2.4)	112 (3.3)	103 (4.3)	92 (3.8)	71 (3.1)	82 (4.0)

MSM = Men who have sex with men; MSW = Men who have sex with women only.
Azithromycin resistance ≥2.0 µg/ml (FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria).
In 2025, azithromycin resistance was established as ≥2.0 µg/mL (FDA-STIC).
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

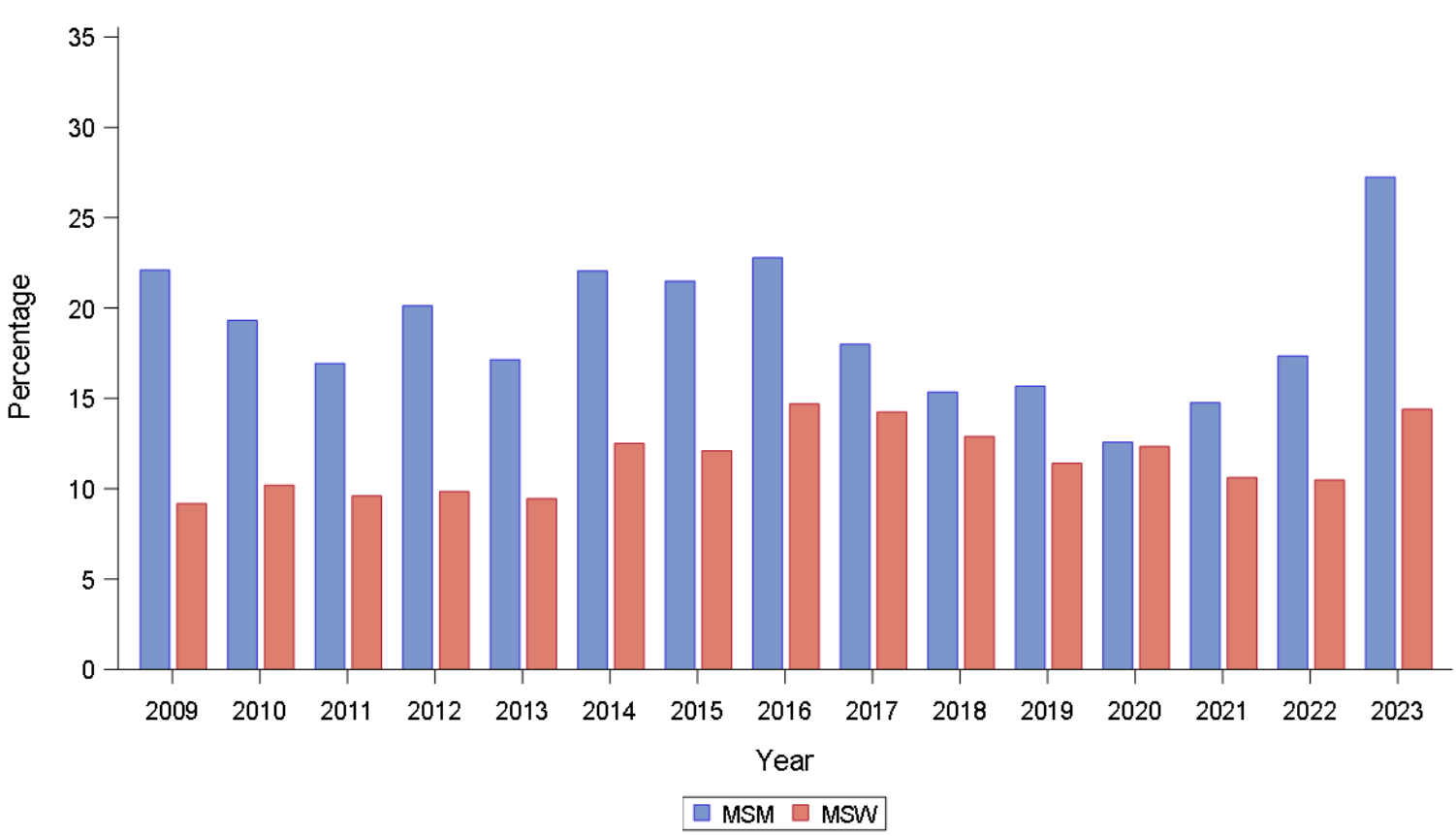
Figure 14. Percentage of *Neisseria gonorrhoeae* Isolates with Resistance to Ciprofloxacin by Reported Sex of Sex Partners, Gonococcal Isolate Surveillance Project (GISP), 2009-2023



Sex of Sex Partners	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
MSM	280 (20.1)	388 (24.0)	416 (26.0)	485 (27.0)	574 (27.7)	555 (29.7)	623 (32.0)	731 (37.0)	763 (39.7)	751 (40.7)	792 (44.8)	424 (38.7)	428 (37.4)	445 (38.6)	562 (44.6)
MSW	248 (6.0)	313 (7.9)	302 (8.0)	316 (8.7)	375 (9.8)	403 (12.7)	518 (16.4)	667 (20.5)	734 (23.9)	783 (25.2)	1051 (30.6)	798 (32.9)	748 (30.8)	655 (28.7)	652 (32.0)

MSM = Men who have sex with men; MSW = Men who have sex with women only.
Ciprofloxacin resistance MIC ≥1.0 µg/mL.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

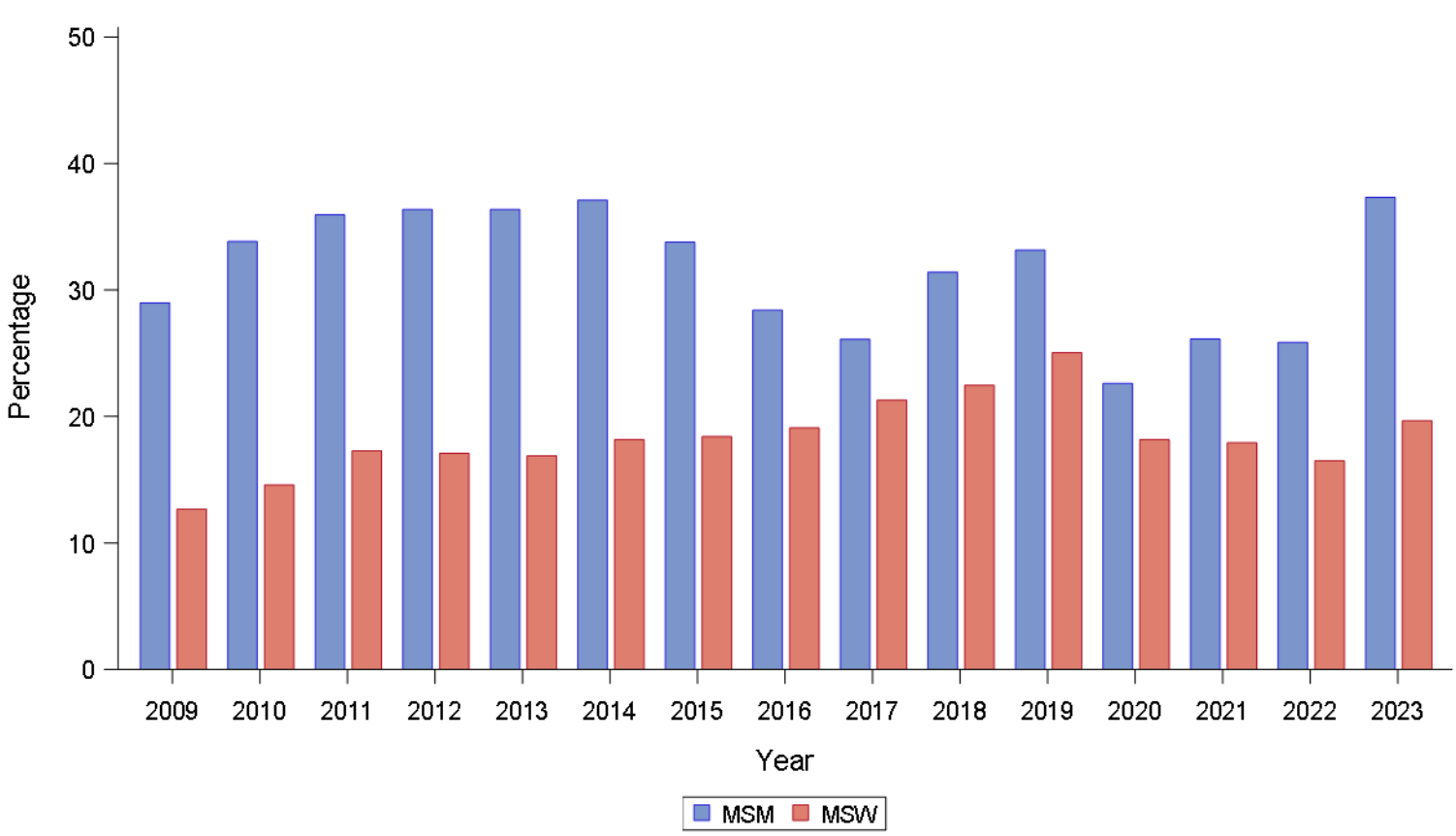
Figure 15. Percentage of *Neisseria gonorrhoeae* Isolates with Resistance to Penicillin by Reported Sex of Sex Partners, Gonococcal Isolate Surveillance Project (GISP), 2009-2023



Sex of Sex Partners	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
MSM	308 (22.1)	313 (19.3)	271 (16.9)	361 (20.1)	355 (17.1)	412 (22.1)	418 (21.5)	450 (22.8)	346 (18.0)	283 (15.4)	277 (15.7)	138 (12.6)	169 (14.8)	200 (17.3)	343 (27.2)
MSW	377 (9.2)	405 (10.2)	364 (9.6)	357 (9.8)	362 (9.5)	396 (12.5)	382 (12.1)	477 (14.7)	437 (14.2)	401 (12.9)	392 (11.4)	299 (12.3)	258 (10.6)	239 (10.5)	293 (14.4)

MSM = Men who have sex with men; MSW = Men who have sex with women only.
Penicillin resistance ≥2.0 µg/mL or β-lactamase positive.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

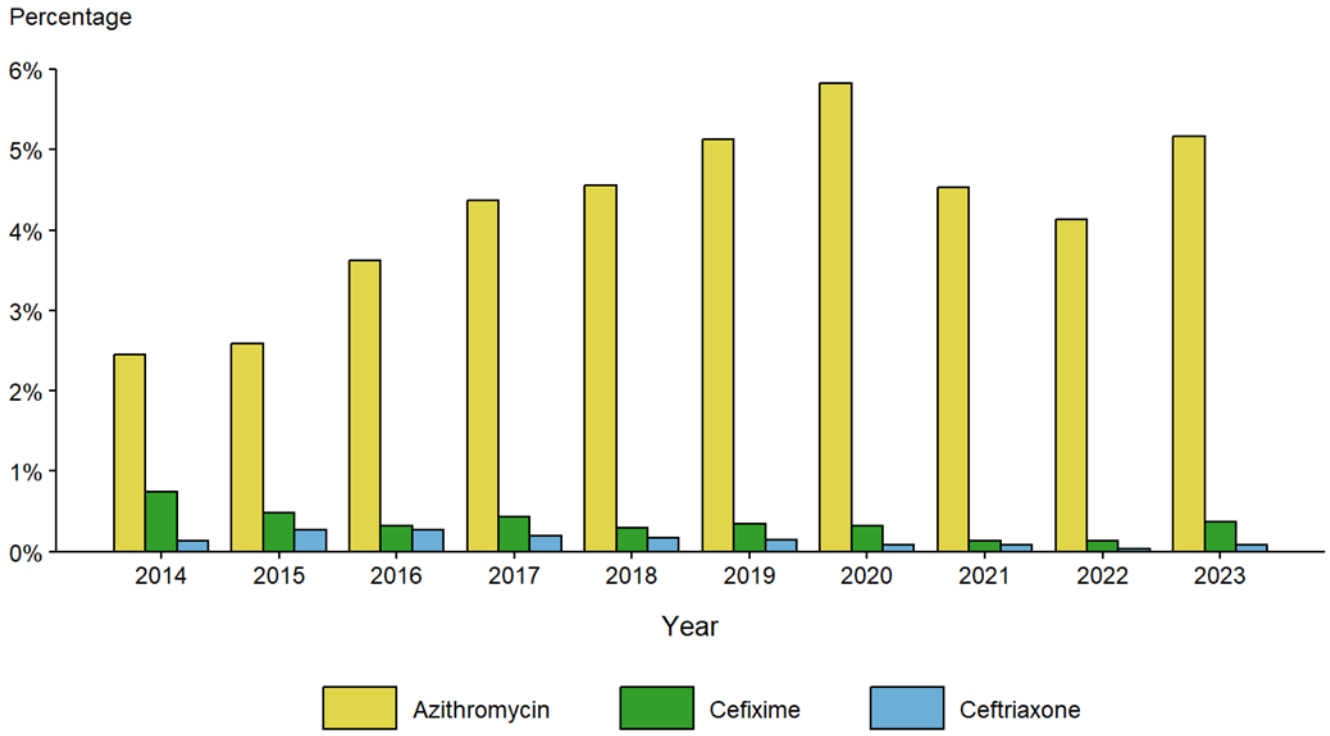
Figure 16. Percentage of *Neisseria gonorrhoeae* Isolates with Resistance to Tetracycline by Reported Sex of Sex Partners, Gonococcal Isolate Surveillance Project (GISP), 2009-2023



Sex of Sex Partners	2009 n (%)	2010 n (%)	2011 n (%)	2012 n (%)	2013 n (%)	2014 n (%)	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
MSM	404 (29.0)	548 (33.8)	575 (35.9)	652 (36.4)	753 (36.4)	693 (37.1)	657 (33.8)	561 (28.4)	502 (26.1)	579 (31.4)	586 (33.1)	248 (22.6)	299 (26.1)	298 (25.8)	470 (37.3)
MSW	520 (12.7)	580 (14.6)	655 (17.3)	620 (17.1)	647 (16.9)	575 (18.2)	581 (18.4)	620 (19.1)	653 (21.3)	699 (22.5)	861 (25.1)	440 (18.2)	435 (17.9)	376 (16.5)	400 (19.7)

MSM = Men who have sex with men; MSW = Men who have sex with women only.
Tetracycline resistance ≥2.0 µg/mL.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

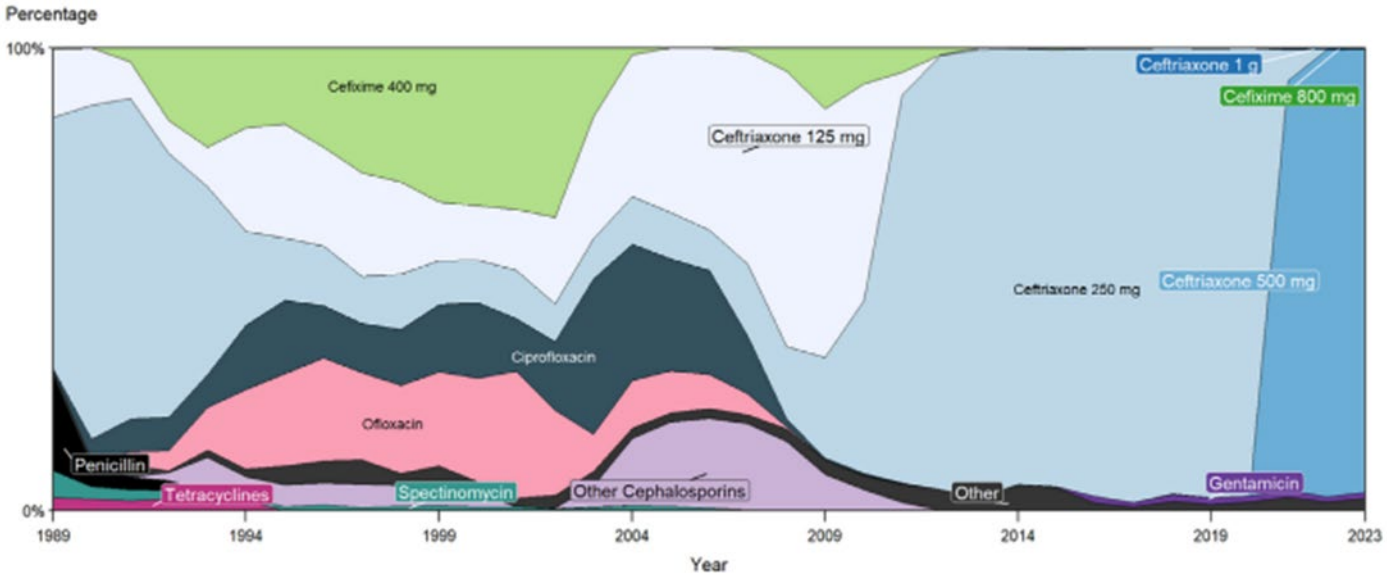
Figure 17. Percentage of Isolates with Resistance* or Elevated Minimum Inhibitory Concentrations† (MICs) to Azithromycin, Cefixime, and Ceftriaxone, Gonococcal Isolate Surveillance Project (GISP), 2014-2023



Year	Azithromycin n (%)	Cefixime n (%)	Ceftriaxone n (%)
2014	125 (2.5)	38 (0.7)	7 (0.1)
2015	133 (2.6)	25 (0.5)	14 (0.3)
2016	190 (3.6)	17 (0.3)	14 (0.3)
2017	221 (4.4)	22 (0.4)	10 (0.2)
2018	235 (4.6)	15 (0.3)	9 (0.2)
2019	281 (5.1)	19 (0.3)	8 (0.1)
2020	218 (5.8)	12 (0.3)	3 (0.1)
2021	173 (4.5)	5 (0.1)	3 (0.1)
2022	152 (4.1)	5 (0.1)	1 (0.0)
2023	181 (5.2)	13 (0.4)	3 (0.1)

* Resistance: azithromycin: MIC ≥2.0 µg/mL.
† Elevated MICs: ceftriaxone: MIC ≥0.125 µg/mL; cefixime: MIC ≥0.25 µg/mL.
In 2025, azithromycin resistance was established as ≥2.0 µg/mL (FDA-Recognized Antimicrobial Susceptibility Test Interpretive Criteria).
Data for years 2020-2022 may not match previously reported data due to MIC data updates made by reporting labs.

Figure 18. Distribution of Primary Antimicrobial Drugs Used to Treat Gonorrhea Among Participants, Gonococcal Isolate Surveillance Project (GISP), 1989-2023



Year	Cefixime 400 mg	Ceftriaxone 125 mg	Ceftriaxone 250 mg	Ciprofloxacin	Other	Other Cephalosporins	Penicillin	Spectinomycin	Tetracyclines	Ofloxacin	Gentamicin	Cefixime 800 mg	Ceftriaxone 1 g	Ceftriaxone 500 mg
1989	0.3%	14.7%	54.3%	0.5%	1.0%	0.2%	20.4%	5.8%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%
1990	0.0%	12.4%	72.2%	4.6%	1.1%	0.1%	4.6%	2.6%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%
1991	3.0%	7.9%	69.4%	7.1%	2.5%	0.1%	2.7%	2.4%	2.1%	2.8%	0.0%	0.0%	0.0%	0.0%
1992	15.7%	7.1%	57.1%	7.2%	0.5%	1.6%	2.1%	1.8%	2.5%	4.4%	0.0%	0.0%	0.0%	0.0%
1993	21.6%	8.5%	40.6%	7.1%	1.6%	7.2%	1.2%	1.3%	1.7%	9.2%	0.0%	0.0%	0.0%	0.0%
1994	17.4%	22.3%	20.3%	14.0%	1.8%	4.5%	0.0%	0.8%	1.9%	17.0%	0.0%	0.0%	0.0%	0.0%
1995	16.5%	24.8%	13.4%	15.9%	4.1%	4.7%	0.0%	0.7%	0.0%	19.9%	0.0%	0.0%	0.0%	0.0%
1996	21.6%	21.3%	12.9%	11.3%	4.8%	4.7%	0.0%	1.2%	0.0%	22.2%	0.0%	0.0%	0.0%	0.0%
1997	27.1%	22.4%	10.2%	10.7%	5.2%	5.0%	0.0%	0.7%	0.0%	18.8%	0.0%	0.0%	0.0%	0.0%
1998	29.1%	19.9%	11.9%	12.2%	2.6%	4.5%	0.0%	0.8%	0.0%	19.0%	0.0%	0.0%	0.0%	0.0%
1999	33.3%	12.7%	9.5%	14.6%	3.6%	4.9%	0.0%	1.0%	0.0%	20.3%	0.0%	0.0%	0.0%	0.0%
2000	34.2%	11.7%	9.2%	16.3%	2.6%	2.9%	0.0%	0.6%	0.1%	22.4%	0.0%	0.0%	0.0%	0.0%
2001	35.0%	13.1%	10.4%	11.5%	1.9%	0.0%	0.0%	0.6%	0.1%	27.5%	0.0%	0.0%	0.0%	0.0%
2002	36.7%	18.7%	8.2%	14.9%	2.8%	0.1%	0.0%	0.3%	0.0%	18.2%	0.0%	0.0%	0.0%	0.0%
2003	15.0%	26.3%	8.7%	33.6%	3.2%	4.6%	0.0%	0.6%	0.0%	8.0%	0.0%	0.0%	0.0%	0.0%
2004	1.5%	30.7%	10.3%	29.5%	2.2%	14.5%	0.0%	1.0%	0.0%	10.3%	0.0%	0.0%	0.0%	0.0%
2005	0.1%	35.5%	10.0%	24.3%	2.0%	18.1%	0.0%	0.9%	0.0%	9.0%	0.0%	0.0%	0.0%	0.0%
2006	0.1%	39.4%	8.7%	22.6%	2.1%	19.5%	0.0%	0.4%	0.0%	7.3%	0.0%	0.0%	0.0%	0.0%
2007	0.8%	46.0%	15.5%	12.5%	2.0%	18.6%	0.0%	0.0%	0.1%	4.4%	0.0%	0.0%	0.0%	0.0%
2008	5.1%	59.5%	15.6%	1.7%	2.7%	14.9%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%
2009	13.2%	53.9%	21.6%	0.4%	3.1%	7.7%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2010	7.8%	46.9%	37.4%	0.3%	3.0%	4.4%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
2011	5.3%	4.8%	84.0%	0.1%	3.9%	1.7%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
2012	1.6%	0.1%	93.9%	0.0%	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2013	0.0%	0.4%	96.9%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2014	0.0%	0.1%	94.3%	0.0%	5.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2015	0.3%	0.1%	94.4%	0.0%	4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%

Figure 18. Distribution of Primary Antimicrobial Drugs Used to Treat Gonorrhea Among Participants, Gonococcal Isolate Surveillance Project (GISP), 1989-2023
(Continued)

Year	Cefixime 400 mg	Ceftriaxone 125 mg	Ceftriaxone 250 mg	Ciprofloxacin	Other	Other Cephalosporins	Penicillin	Spectinomycin	Tetracyclines	Ofloxacin	Gentamicin	Cefixime 800 mg	Ceftriaxone 1 g	Ceftriaxone 500 mg
2016	0.1%	0.1%	96.9%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%
2017	0.1%	0.1%	98.1%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%
2018	0.1%	0.0%	96.5%	0.1%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%
2019	0.2%	0.0%	97.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%
2020	0.1%	0.0%	96.8%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%
2021	0.1%	0.0%	6.7%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.1%	0.3%	88.5%
2022	0.0%	0.0%	0.2%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.1%	0.2%	96.7%
2023	0.0%	0.0%	0.1%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.1%	0.1%	95.7%

In 2023, Cefixime 800 mg (0.1%) and Ceftriaxone 1 g (0.1%) each represented less than one percent of primary antimicrobial drugs used to treat gonorrhea among GISP participants and may not be visible in this figure.
Results for 2023 are based on data obtained from participants in all participating GISP jurisdictions except for Cleveland due to missing data.
Results for 2022 are based on data obtained from participants in all participating GISP jurisdictions except for Pittsburgh due to missing data.