



## Infectious Diseases at a Glance in Durham Region

Last Updated: October 2019

### Highlights

- Chlamydia was the most commonly reported infectious disease in Durham Region for both males and females in 2018.
- In most years, the rate of enteric illness was higher in the northern municipalities of Durham Region (Brock, Scugog and Uxbridge combined) than in Durham Region as a whole and was higher in Clarington since 2013.
- The rate of influenza was higher in the northern municipalities of Durham Region from 2013 to 2018 compared to Durham Region as a whole.
- Although chlamydia rates decreased between 2011 and 2013 among both Durham Region and Ontario females and levelled off among Durham Region males, rates increased again between 2014 and 2018.
- The rate of chlamydia is higher most years in Ajax, Pickering, and Oshawa than Durham Region as a whole, and lower in Whitby, Clarington, and the northern municipalities of Durham Region.
- Incidence rates of gonorrhoea have been increasing since 2009 in both Durham Region and Ontario, especially among males.
- Incidence rates of syphilis have increased since 2013 in Ontario and since 2014 in Durham Region.
- The rate of hepatitis C infection is consistently higher in Oshawa than in other Durham Region municipalities, and higher than in Durham Region as a whole.
- The rate of latent tuberculosis infection is consistently higher in Ajax than in Durham Region as a whole and the rate has increased since 2011.
- There were more cases than expected in 2018 compared to the 5-year average for chlamydia, gonorrhoea, legionellosis, invasive meningococcal disease, latent tuberculosis infection, and yersiniosis. There were fewer cases than expected for amebiasis.

## Introduction

Ontario's *Health Protection and Promotion Act* (1) requires that physicians, nurses, other regulated health professionals, hospitals, and laboratories report a number of infectious [diseases of public health significance](#) to the local Medical Officer of Health. The Durham Region Health Department investigates and manages identified cases and contacts of infectious diseases and enters them into the integrated Public Health Information System (iPHIS) as outlined in the Ministry of Health's Infectious Disease Protocol (2). The most common source of case finding is through notice of confirmed test results from a laboratory. There may be considerable under-reporting of cases because an infected person with mild or no symptoms may not seek medical care and/or medical professionals may not order laboratory testing.

This report includes confirmed cases, unless otherwise noted, of infectious diseases of public health significance according to provincial case definitions provided in the Infectious Disease Protocol (3). We included probable cases along with confirmed cases for some diseases (noted in the comments below each graph where relevant) from 2009 onward. This enabled comparison to previous years because the case definitions changed in 2009. For all indicators, we analyzed data by the residence of the case at time of diagnosis.

For more detailed, topic specific reports and infographics that include infectious disease data please go to the [Health Statistics in Durham Region webpage](#). The [Health Neighbourhoods](#) project presents indicators, including infectious disease indicators, for 50 Health Neighbourhoods in Durham Region. Public Health Ontario has a variety of reports that include infectious disease data including [Ontario Respiratory Pathogen Bulletins](#), [Monthly Infectious Disease Surveillance Reports](#), [Reportable Diseases Trends in Ontario tool](#), [West Nile Virus surveillance](#), and [Vector-Borne Disease Surveillance Reports](#).

For more information or if you require this information in an accessible format, please contact the Durham Health Connection Line at 905-666-6241 or 1-800-841-2729.

## Definitions

### Incidence rate

The total number of cases per 100,000 population. This rate depicts the "true" picture of disease in a community.

### Age-specific incidence rate

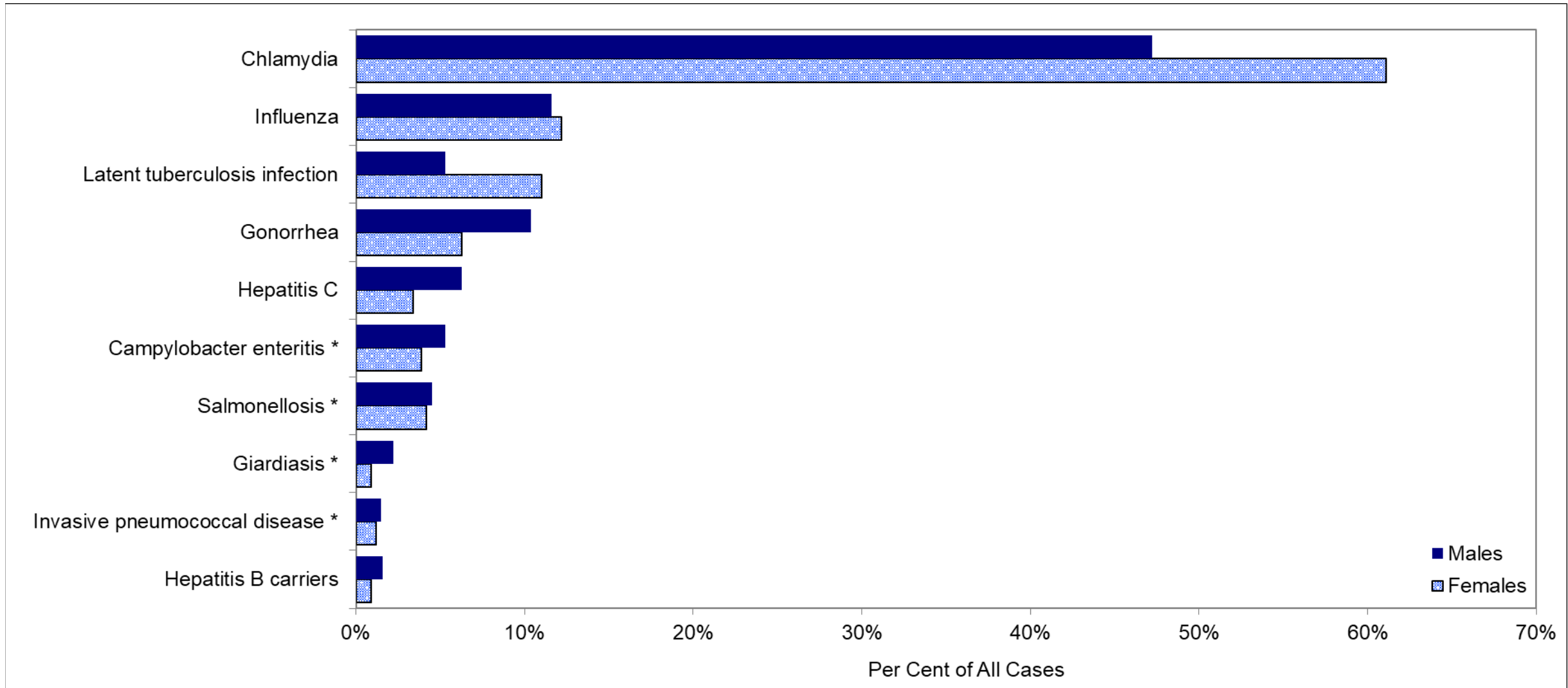
The total number of cases in a specified age group per 100,000 population in that age group. The numerator and denominator refer to the same age group.

For some indicators, the count of total cases displayed is more than the sum of male and female cases because of unspecified or other gender.

## **Most common infectious diseases of public health significance**

All infectious diseases of public health significance are included except for adverse events following immunization; chickenpox (*varicella*); *Clostridium difficile* infection; gastroenteritis, institutional outbreaks; & respiratory infection outbreaks in institutions. Institutions include long-term care homes, hospitals, retirement homes, child care centres and schools.

**Figure 1: Ten most common infectious diseases of public health significance in Durham Region, 2014 to 2018 combined**



Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2014 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 2014 to 2018, Public Health Ontario, Accessed July 2019.

\* We included probable cases along with confirmed cases for these diseases to be consistent with other reporting.

Chlamydia was the most commonly reported infectious disease in Durham Region males and females for 2014 to 2018. Chlamydia accounted for a much larger proportion of all infectious diseases of public health significance among females (61 per cent) than among males (47 per cent).

**Table 1: Twenty most common infectious diseases of public health significance in Durham Region, 2014 to 2018 combined**

Reportable Disease	Total Percent	Total Rank	Male Percent	Male Rank	Female Percent	Female Rank
Chlamydia	54.7%	1	47.2%	1	61.1%	1
Influenza	11.9%	2	11.6%	2	12.2%	2
Latent tuberculosis infection	8.4%	3	5.3%	5	11.0%	3
Gonorrhea	8.2%	4	10.4%	3	6.3%	4
Hepatitis C	4.7%	5	6.3%	4	3.4%	7
<i>Campylobacter</i> enteritis *	4.5%	6	5.3%	6	3.9%	6
Salmonellosis *	4.3%	7	4.5%	7	4.2%	5
Giardiasis *	1.5%	8	2.2%	8	0.9%	9
Invasive pneumococcal disease *	1.3%	9	1.5%	11	1.2%	8
Hepatitis B carriers	1.2%	10	1.6%	10	0.9%	10
Infectious syphilis	1.1%	11	2.1%	9	0.2%	22
Non-infectious syphilis	0.9%	12	1.1%	12	0.6%	13
Lyme disease *	0.8%	13	0.9%	13	0.7%	12
Invasive group A streptococcal disease	0.8%	13	0.7%	15	0.8%	11
Amebiasis *	0.6%	15	0.8%	14	0.4%	16
Legionellosis *	0.4%	16	0.6%	16	0.3%	19
Active tuberculosis	0.4%	17	0.5%	17	0.4%	15
Cyclosporiasis *	0.4%	18	0.5%	18	0.4%	14
Viral meningitis	0.4%	19	0.4%	19	0.3%	20
Cryptosporidiosis *	0.4%	20	0.4%	20	0.4%	18

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2014 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 2014 to 2018, Public Health Ontario, Accessed July 2019.

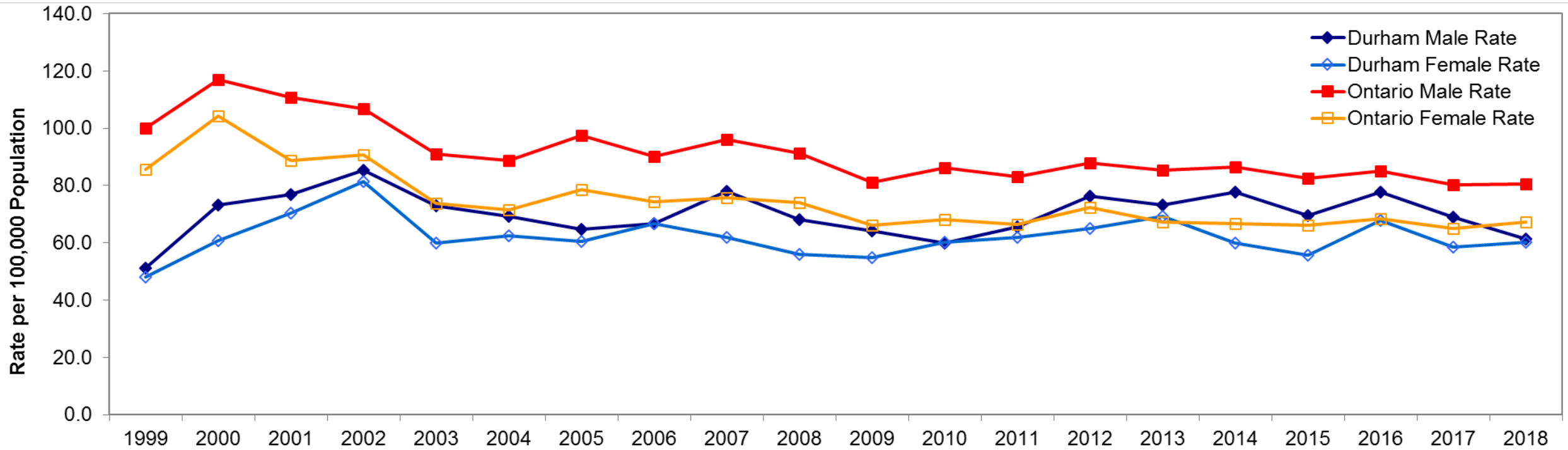
\* We included probable cases along with confirmed cases for these diseases to be consistent with other reporting.

Influenza was the second most commonly reported infectious disease among Durham Region males and females accounting for close to 12 per cent of all infectious diseases of public health significance between 2014 and 2018. Among Durham Region females, latent tuberculosis infection was the third most commonly reported infectious disease at 11 per cent of female cases. Among males, gonorrhea was the third most commonly reported infectious disease accounting for 10 per cent of all infectious diseases of public health significance in males.

## Enteric diseases

Enteric diseases are diseases that affect the stomach and intestines and commonly cause symptoms such as diarrhea, nausea, vomiting, stomach pain, and fever. They can be spread by drinking contaminated water, eating contaminated food, or contact with sick people or animals or surfaces that they have touched. People can protect themselves from enteric diseases by washing their hands thoroughly and frequently, using safe food handling practices, and through safe use of drinking and recreational water. Reportable enteric diseases in Ontario include: amebiasis; botulism; brucellosis; *Campylobacter* enteritis; cholera; cryptosporidiosis; cyclosporiasis; food poisoning, all causes; giardiasis; hepatitis A; listeriosis; paralytic shellfish poisoning; paratyphoid fever; salmonellosis; shigellosis; trichinosis; typhoid fever; verotoxin-producing *Escherichia coli* (VTEC) infection; and yersiniosis. We included probable cases along with confirmed cases for all enteric diseases with the exception of listeriosis, paratyphoid fever and typhoid from 2009 onward. This enabled comparison to previous years because the case definitions changed in 2009.

**Figure 2: All enteric diseases incidence rates, Durham Region and Ontario, 1999 to 2018**

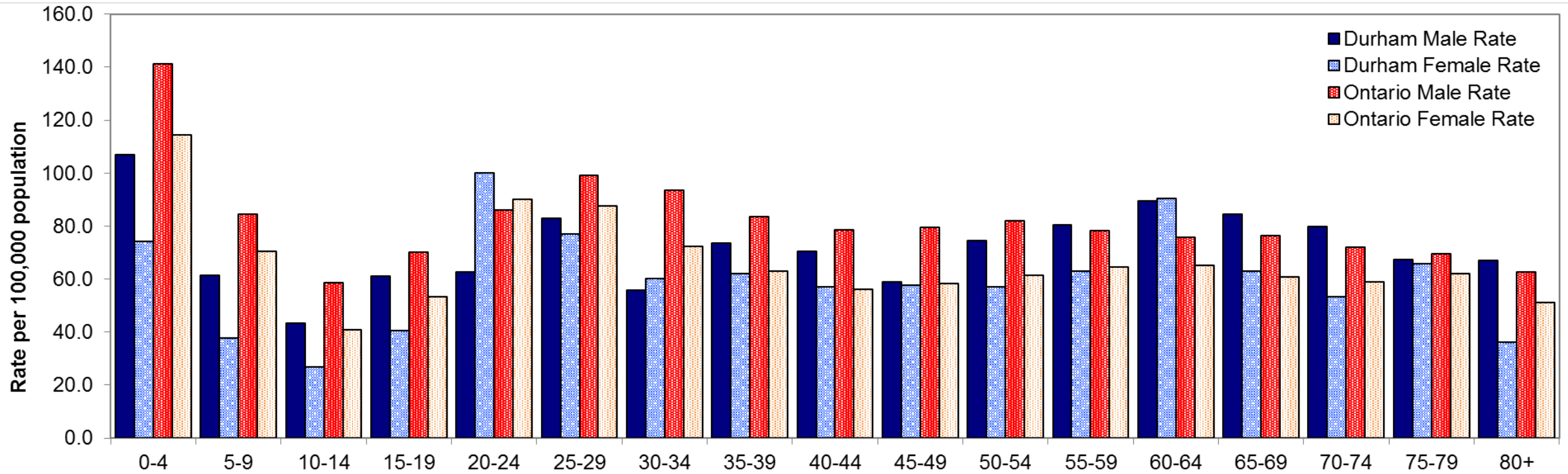


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	51.1	73.3	76.8	85.5	72.9	69.3	64.8	66.7	78.1	68.0	64.2	59.8	65.7	76.3	73.1	77.7	69.6	77.8	69.0	61.4
<b>Durham Female Rate</b>	48.0	60.7	70.3	81.5	59.8	62.3	60.4	66.8	61.9	55.9	54.8	60.3	61.8	65.0	69.1	59.9	55.6	67.7	58.5	60.3
<b>Ontario Male Rate</b>	100.0	117.1	110.6	106.8	91.0	88.7	97.6	90.1	96.0	91.4	81.0	86.3	83.0	87.9	85.2	86.4	82.6	85.1	80.2	80.7
<b>Ontario Female Rate</b>	85.6	104.3	88.7	90.6	73.6	71.6	78.6	74.3	75.7	73.9	66.1	68.1	66.5	72.4	67.3	66.7	66.2	68.4	65.0	67.3
<b>Durham Male Cases</b>	128	188	201	228	199	193	184	193	229	202	193	182	202	238	231	248	225	255	229	207
<b>Durham Female Cases</b>	122	158	187	221	166	177	175	197	186	171	170	190	197	210	226	198	186	229	200	209
<b>Durham Total Cases</b>	250	346	388	449	365	370	359	390	415	374	363	372	399	448	458	446	412	484	430	418

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Rates of enteric diseases have remained relatively stable since 2003 in both Durham Region and Ontario. Rates were higher in males than females in most years.

**Figure 3: All enteric diseases age-specific incidence rates, Durham Region and Ontario, 2014 to 2018 combined**



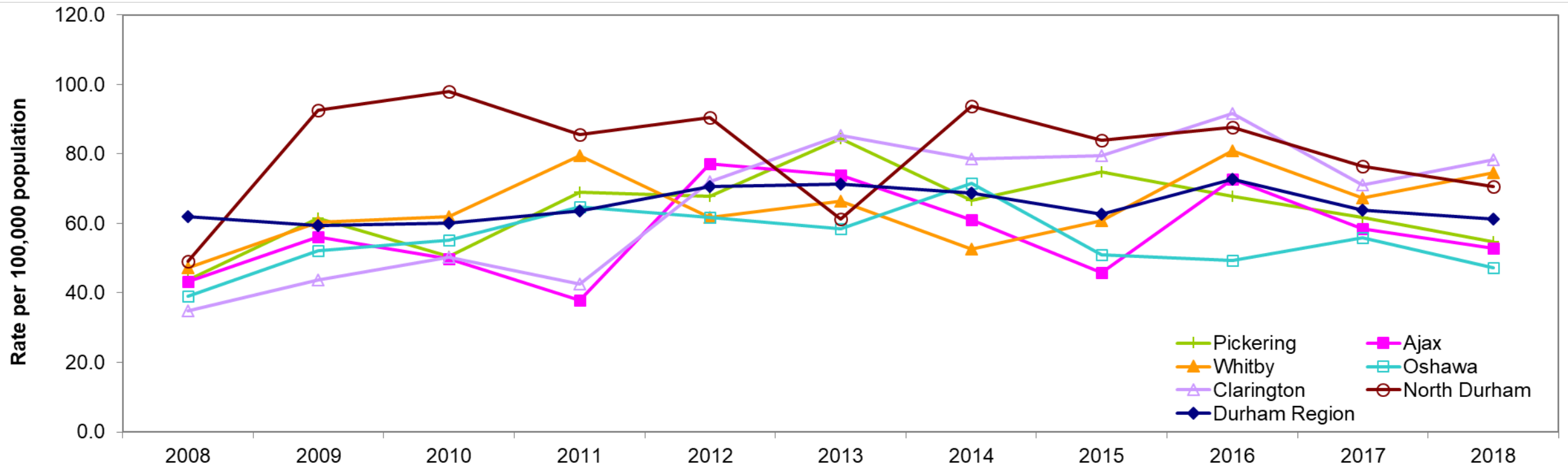
Rates and Cases	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+
<b>Durham Male Rate</b>	107.0	61.3	43.3	61.0	62.7	82.8	55.8	73.5	70.6	58.8	74.4	80.5	89.4	84.4	79.9	67.3	67.1
<b>Durham Female Rate</b>	74.2	37.8	26.8	40.4	100.1	77.1	60.3	62.1	57.0	57.7	57.1	62.9	90.5	63.0	53.2	65.8	36.3
<b>Ontario Male Rate</b>	141.1	84.4	58.6	70.0	86.1	99.2	93.4	83.5	78.4	79.4	81.9	78.2	75.7	76.3	72.1	69.6	62.7
<b>Ontario Female Rate</b>	114.4	70.4	40.9	53.3	90.0	87.5	72.4	63.0	56.1	58.4	61.5	64.5	65.0	60.9	59.0	62.0	51.3
<b>Durham Male Cases</b>	100	62	45	70	76	88	58	77	78	69	101	99	84	63	43	24	30
<b>Durham Female Cases</b>	67	37	27	44	110	77	65	71	67	71	80	78	90	52	32	29	26
<b>Durham Total Cases</b>	167	99	72	114	186	165	123	148	145	140	181	177	174	115	75	53	56

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2014 to 2018, extracted by Durham Region Health Department, July 2019; iPHIS, Ontario, 2014 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2014 to 2018), Ontario Ministry of Health, Accessed July 2019.

Many enteric illnesses occur more frequently in infants and young children compared to adults. Rates were higher among males than females in most age groups. Durham Region rates were lower than Ontario rates in most age groups.



Figure 4: All enteric diseases incidence rates, Durham Region by municipality, 2008 to 2018

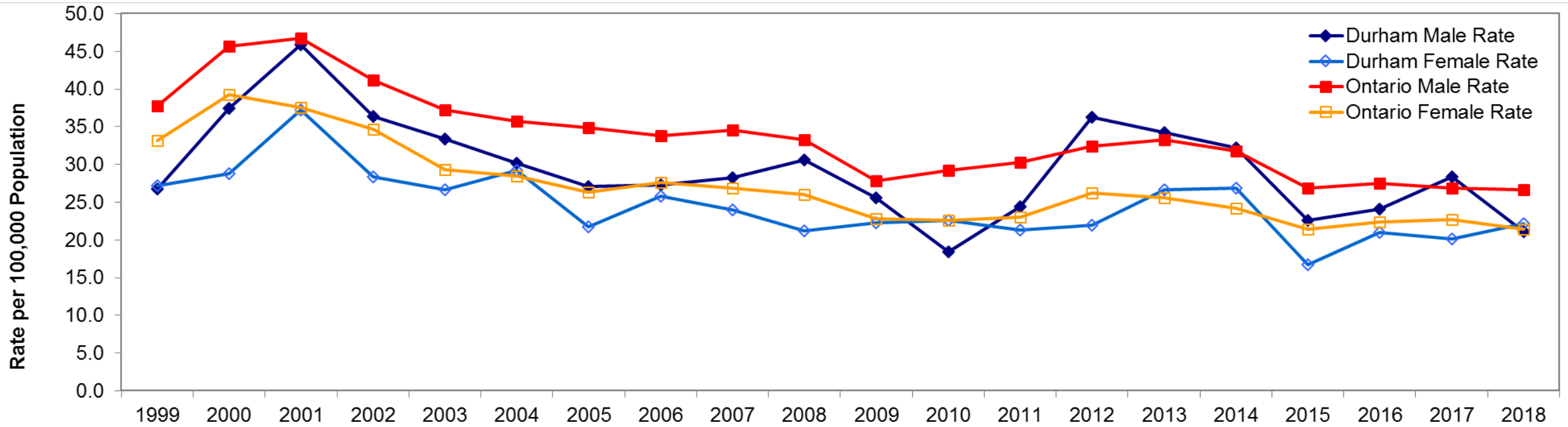


Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	40	56	46	63	62	78	62	70	64	59	53
Ajax	45	60	55	43	89	87	73	56	90	73	67
Whitby	57	74	77	100	79	86	69	80	107	90	101
Oshawa	58	78	84	100	96	92	114	82	81	93	80
Clarington	29	37	43	37	64	77	72	74	87	69	77
North Durham	27	51	54	47	50	34	52	47	49	43	40
Durham Region	374	363	372	399	448	458	446	412	484	430	418

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

In most years, the rate of enteric illness was higher in North Durham (Brock, Scugog and Uxbridge combined) than in Durham Region as a whole and was higher in Clarington since 2013. All other municipalities have rates similar to Durham Region as a whole.

Figure 5: *Campylobacter* enteritis incidence rates, Durham Region and Ontario, 1999 to 2018

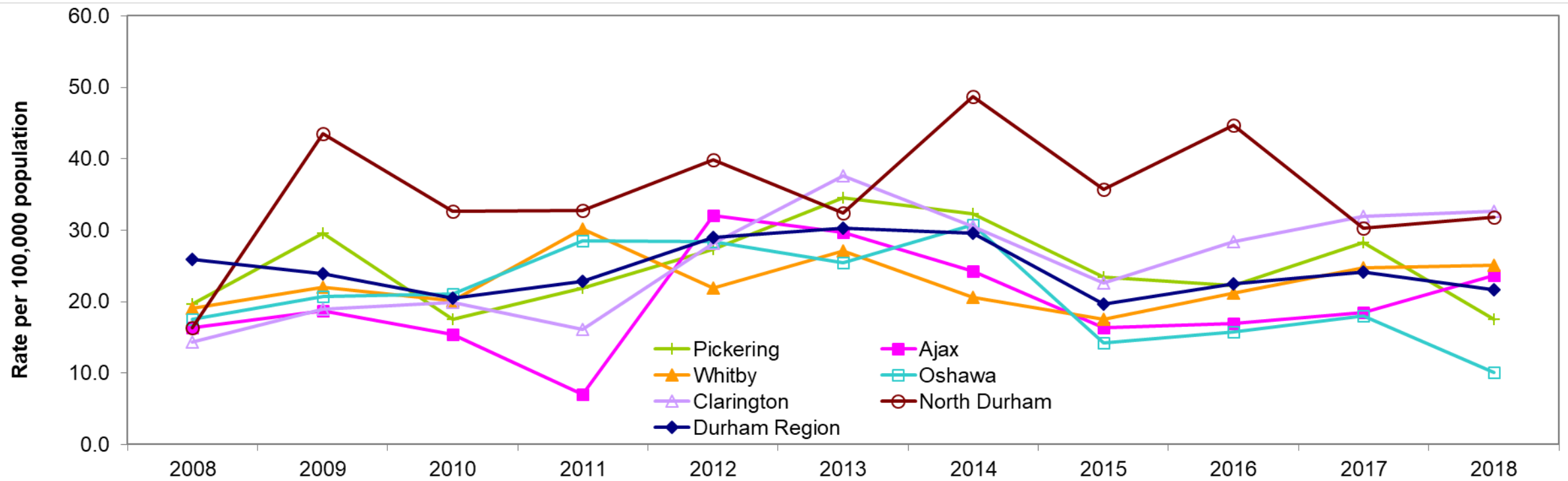


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Durham Male Rate	26.7	37.4	45.9	36.4	33.3	30.2	27.1	27.3	28.3	30.6	25.6	18.4	24.4	36.2	34.2	32.3	22.6	24.1	28.3	21.1
Durham Female Rate	27.1	28.8	37.2	28.4	26.7	29.2	21.8	25.8	24.0	21.3	22.3	22.5	21.3	22.0	26.6	26.9	16.7	21.0	20.2	22.2
Ontario Male Rate	37.8	45.6	46.7	41.2	37.2	35.8	34.9	33.8	34.6	33.3	27.8	29.3	30.3	32.5	33.3	31.8	26.9	27.5	26.8	26.6
Ontario Female Rate	33.2	39.2	37.5	34.6	29.3	28.5	26.3	27.6	26.9	26.0	22.8	22.6	23.1	26.2	25.6	24.2	21.5	22.4	22.7	21.4
Durham Male Cases	67	96	120	97	91	84	77	79	83	91	77	56	75	113	108	103	73	79	94	71
Durham Female Cases	69	75	99	77	74	83	63	76	72	65	69	71	68	71	87	89	56	71	69	77
Durham Total Cases	136	171	219	174	165	167	140	155	155	156	146	127	143	184	195	192	129	150	163	148

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

*Campylobacter* enteritis is one of the leading causes of enteric disease in Ontario and occurs primarily in the summer months (5). We included probable cases of *Campylobacter* enteritis along with confirmed cases from 2009 onward. This enabled comparison to previous years because the case definition changed in 2009. Rates of *Campylobacter* enteritis decreased in both Durham Region and Ontario in recent years.

Figure 6: *Campylobacter* enteritis incidence rates, Durham Region by municipality, 2008 to 2018

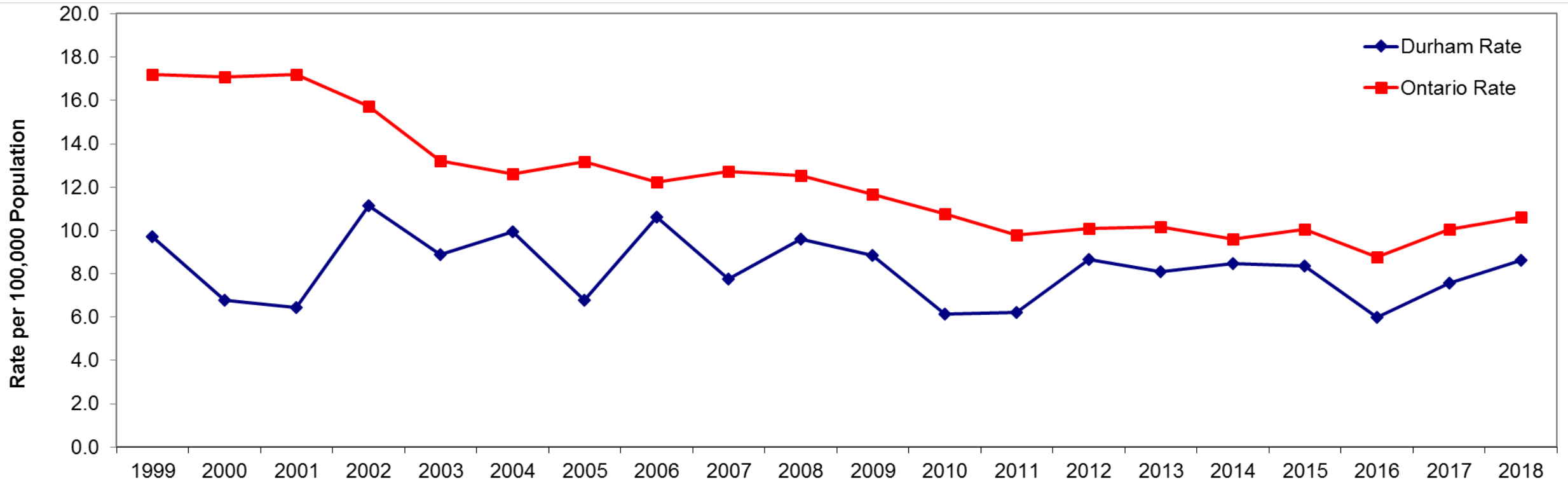


Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	18	27	16	20	25	32	30	22	21	27	17
Ajax	17	20	17	8	37	35	29	20	21	23	30
Whitby	23	27	25	38	28	35	27	23	28	33	34
Oshawa	26	31	32	44	44	40	49	23	26	30	17
Clarington	12	16	17	14	25	34	28	21	27	31	32
North Durham	9	24	18	18	22	18	27	20	25	17	18
Durham Region	156	146	127	143	184	195	192	129	150	163	148

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

We included probable cases of *Campylobacter* enteritis along with confirmed cases from 2009 onward. This enabled comparison to previous years because the case definition changed in 2009. Rates of *Campylobacter* enteritis were higher in the northern Durham Region municipalities (Brock, Scugog and Uxbridge combined) in most years, while all other municipalities have rates similar to Durham Region as a whole.

**Figure 7: Giardiasis incidence rates, Durham Region and Ontario, 1999 to 2018**

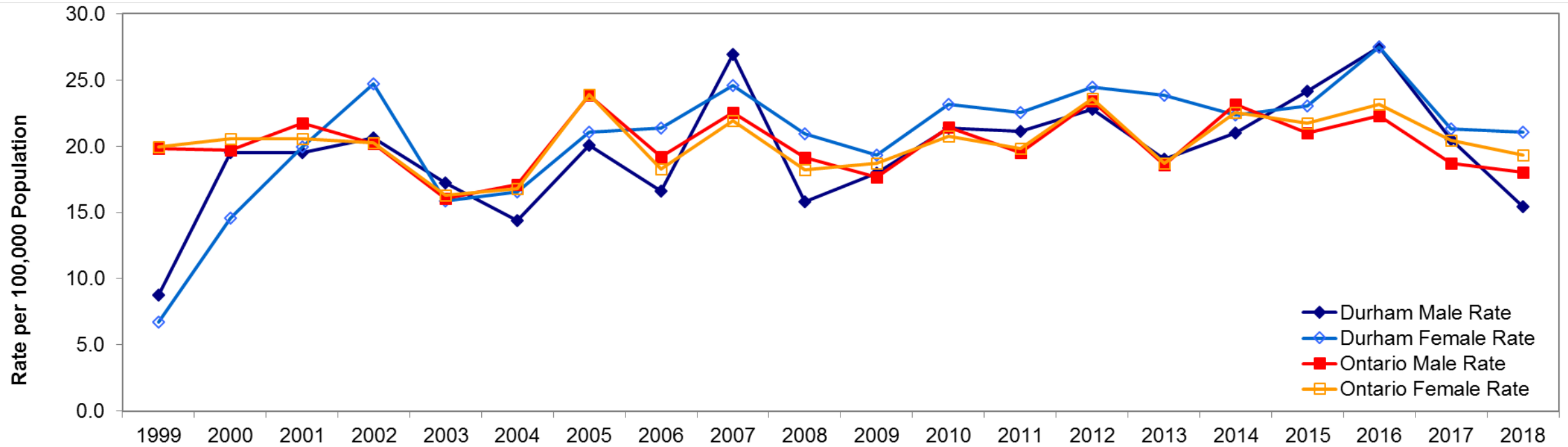


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	9.7	6.8	6.4	11.2	8.9	10.0	6.8	10.6	7.7	9.6	8.8	6.1	6.2	8.7	8.1	8.5	8.4	6.0	7.6	8.6
<b>Ontario Rate</b>	17.2	17.1	17.2	15.7	13.2	12.6	13.2	12.2	12.7	12.6	11.7	10.8	9.8	10.1	10.2	9.6	10.1	8.8	10.0	10.6
<b>Durham Male Cases</b>	24	15	16	29	31	34	19	29	32	34	29	23	23	31	23	41	38	23	32	40
<b>Durham Female Cases</b>	25	20	18	31	18	22	20	33	14	24	25	15	16	24	29	14	17	17	19	19
<b>Durham Total Cases</b>	49	35	34	60	49	56	39	62	46	58	54	38	39	55	52	55	55	40	51	59

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Giardiasis is common in Ontario, especially in institutions and child care centres where children are not yet toilet trained (5). We included probable cases of giardiasis along with confirmed cases from 2009 onward. This enabled comparison to previous years because the case definition changed in 2009. Due to small numbers, we combined male and female cases to create more stable rates. Rates of giardiasis were relatively stable between 2012 and 2015 in both Durham Region and Ontario but have increased since 2016.

**Figure 8: Salmonellosis incidence rates, Durham Region and Ontario, 1999 to 2018**

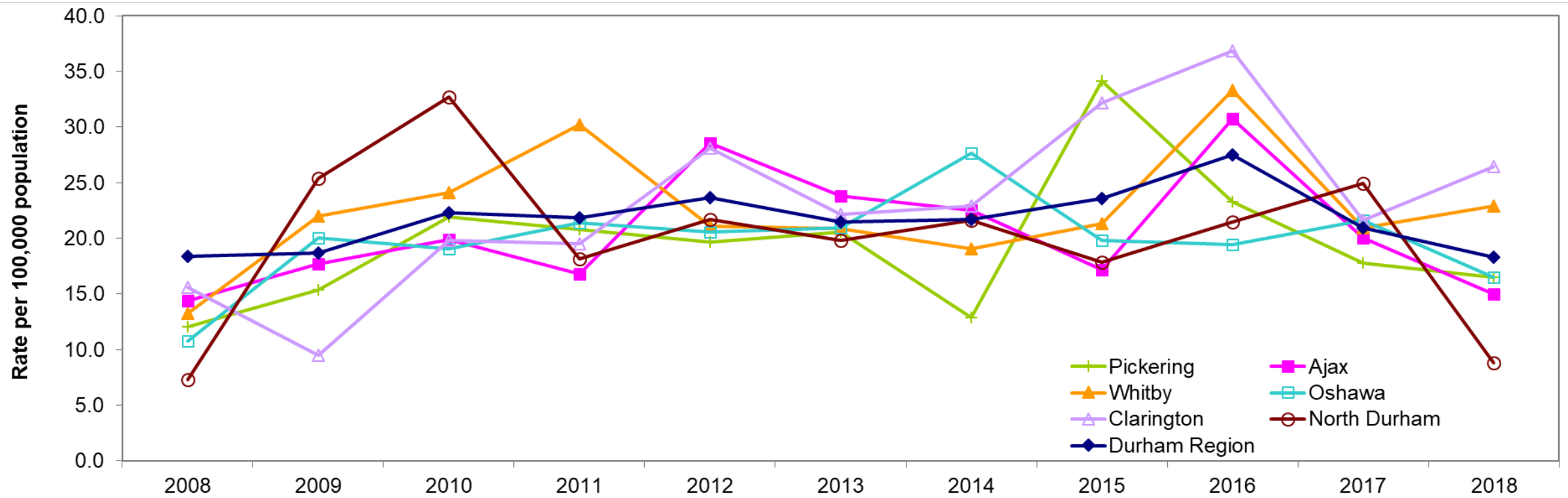


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	8.8	19.5	19.5	20.6	17.2	14.4	20.1	16.6	26.9	15.8	18.0	21.4	21.1	22.8	19.0	21.0	24.1	27.5	20.5	15.4
<b>Durham Female Rate</b>	6.7	14.6	19.9	24.7	15.8	16.6	21.1	21.4	24.6	20.9	19.4	23.2	22.6	24.5	23.9	22.4	23.0	27.5	21.3	21.1
<b>Ontario Male Rate</b>	19.9	19.7	21.8	20.2	16.1	17.1	23.9	19.2	22.5	19.2	17.7	21.4	19.5	23.4	18.6	23.2	21.0	22.3	18.7	18.1
<b>Ontario Female Rate</b>	20.0	20.5	20.6	20.2	16.3	16.8	23.9	18.3	22.0	18.2	18.7	20.8	19.8	23.6	18.7	22.6	21.7	23.2	20.4	19.3
<b>Durham Male Cases</b>	22	50	51	55	47	40	57	48	79	47	54	65	65	71	60	67	78	90	68	52
<b>Durham Female Cases</b>	17	38	53	67	44	47	61	63	74	64	60	73	72	79	78	74	77	93	73	73
<b>Durham Total Cases</b>	39	88	104	122	91	87	118	111	153	111	114	138	137	150	138	141	155	183	141	125

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Salmonellosis is the second most common enteric infection in Ontario but experts estimate that only one percent of all infections are ever clinically recognized (5). We included probable cases of salmonellosis along with confirmed cases from 2009 onward. This enabled comparison to previous years because the case definition changed in 2009. Rates of salmonellosis increased between 2003 and 2016 in both Durham Region and Ontario but have decreased since then.

**Figure 9: Salmonellosis incidence rates, Durham Region by municipality, 2008 to 2018**



Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	11	14	20	19	18	19	12	32	22	17	16
Ajax	15	19	22	19	33	28	27	21	38	25	19
Whitby	16	27	30	38	27	27	25	28	44	28	31
Oshawa	16	30	29	33	32	33	44	32	32	36	28
Clarington	13	8	17	17	25	20	21	30	35	21	26
North Durham	4	14	18	10	12	11	12	10	12	14	5
<b>Durham Region</b>	<b>111</b>	<b>114</b>	<b>138</b>	<b>137</b>	<b>150</b>	<b>138</b>	<b>141</b>	<b>155</b>	<b>183</b>	<b>141</b>	<b>125</b>

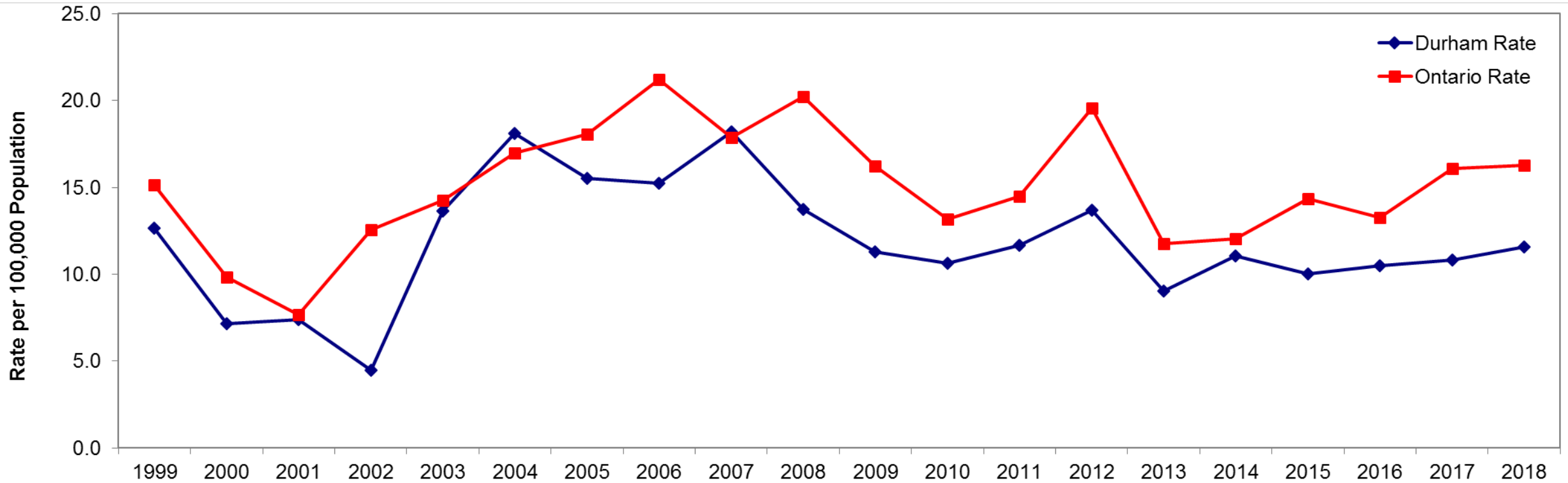
Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

We included probable cases of salmonellosis along with confirmed cases from 2009 onward. This enabled comparison to previous years because the case definition changed in 2009. In most years, the rate of salmonellosis is similar in the Durham Region municipalities to Durham Region as a whole.

## Vaccine preventable diseases

Vaccine preventable diseases (VPDs) are infectious diseases that can be prevented by routine vaccinations, mostly given during childhood. Reportable VPDs include: diphtheria; *Haemophilus influenzae* disease, all types, invasive; hepatitis A; hepatitis B; measles; meningococcal disease, invasive; mumps; pertussis; poliomyelitis, acute; rabies (human); rubella; rubella, congenital syndrome; *Streptococcus pneumoniae*, invasive (invasive pneumococcal disease); and tetanus. Prior to May 1, 2018 only *Haemophilus influenzae* disease caused by serotype b was reportable and now all serotypes are reportable. For this report, we included probable cases of invasive pneumococcal disease, measles, mumps, pertussis and rubella along with confirmed cases from 2009 onward. This enabled comparison to previous years because the case definitions changed in 2009.

Figure 10: All vaccine preventable diseases incidence rates, Durham Region and Ontario, 1999 to 2018



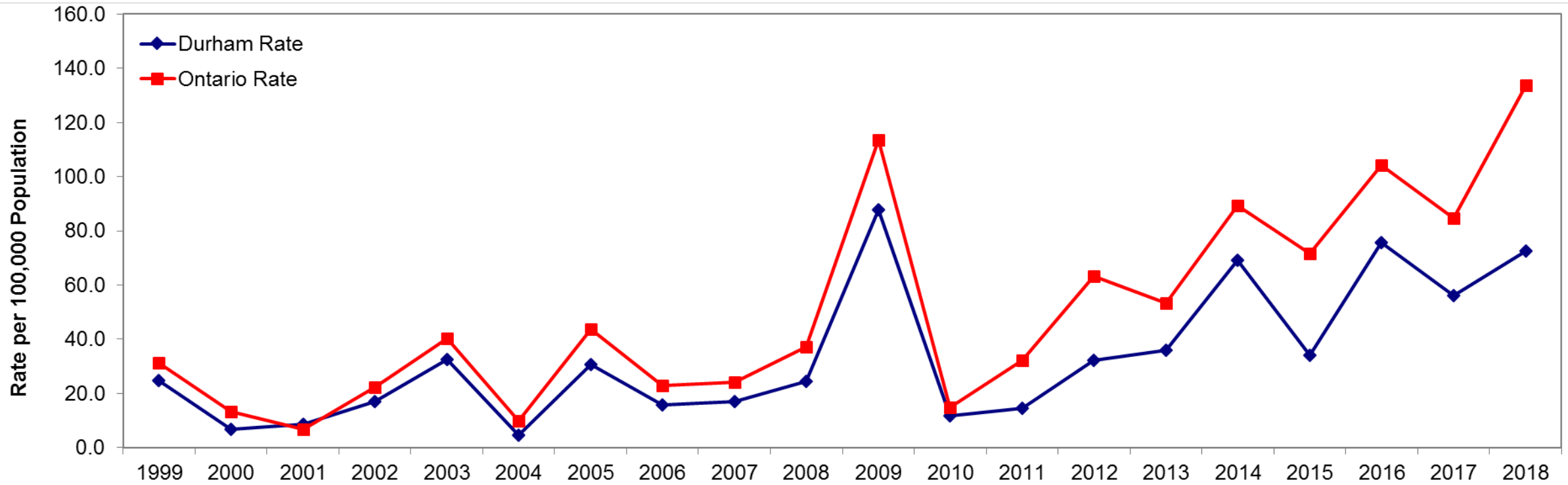
Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	12.7	7.2	7.4	4.5	13.6	18.1	15.5	15.2	18.2	13.8	11.3	10.7	11.7	13.7	9.0	11.1	10.0	10.5	10.8	11.6
<b>Ontario Rate</b>	15.2	9.9	7.7	12.6	14.2	17.0	18.1	21.2	17.9	20.2	16.2	13.2	14.5	19.6	11.8	12.0	14.4	13.3	16.1	16.3
<b>Durham Male Cases</b>	25	19	17	10	44	40	41	48	64	44	36	29	40	44	35	42	29	29	38	41
<b>Durham Female Cases</b>	39	18	22	14	31	62	48	41	44	39	33	37	33	43	23	30	37	41	35	38
<b>Durham Total Cases</b>	64	37	39	24	75	102	89	89	108	83	69	66	73	87	58	72	66	70	73	79

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

The grouping of all vaccine preventable diseases excludes influenza, due to the sporadic nature of cases, and chickenpox (varicella) due to underreporting issues. Due to small numbers, we combined male and female cases to create more stable rates. Vaccine preventable disease rates have increased in both Durham Region and Ontario since 2013.



**Figure 11: Influenza incidence rates, Durham Region and Ontario, 1999 to 2018**

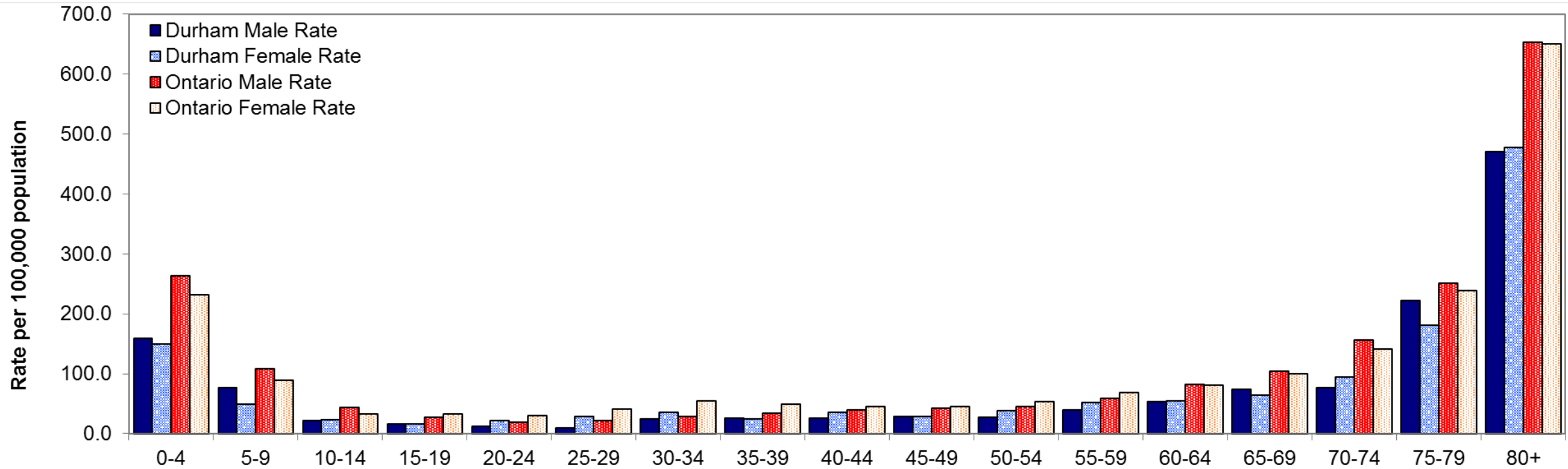


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	24.8	6.6	8.5	17.1	32.5	4.6	30.7	15.6	17.0	24.4	87.8	11.6	14.4	32.1	35.8	69.2	34.1	75.5	56.2	72.7
<b>Ontario Rate</b>	31.2	13.3	6.6	22.4	40.4	9.9	43.8	23.0	24.1	37.1	113.5	14.9	32.1	63.4	53.3	89.3	71.7	104.1	84.7	133.7
<b>Durham Male Cases</b>	63	17	23	46	89	16	88	56	53	73	265	32	47	96	121	202	93	232	165	236
<b>Durham Female Cases</b>	62	17	22	46	90	10	87	35	48	74	270	40	43	108	109	248	131	271	214	261
<b>Durham Total Cases</b>	125	34	45	92	179	26	176	91	101	147	536	72	90	204	230	450	224	503	379	497

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Influenza is an acute respiratory illness. In Canada, the influenza season usually runs from November to April. Due to small numbers, we combined male and female cases to create more stable rates. The large number of cases for Ontario and Durham Region in 2009 was due to the H1N1 Pandemic. In addition, recent influenza seasons have also had large numbers of influenza cases. Influenza rates fluctuate from year to year but in general follow the same pattern in Durham Region and Ontario. We provide a summary of influenza activity for each influenza season on the [Influenza \(Flu\)](#) page at durham.ca.

Figure 12: Influenza age-specific incidence rates, Durham Region and Ontario, 2014 to 2018 combined

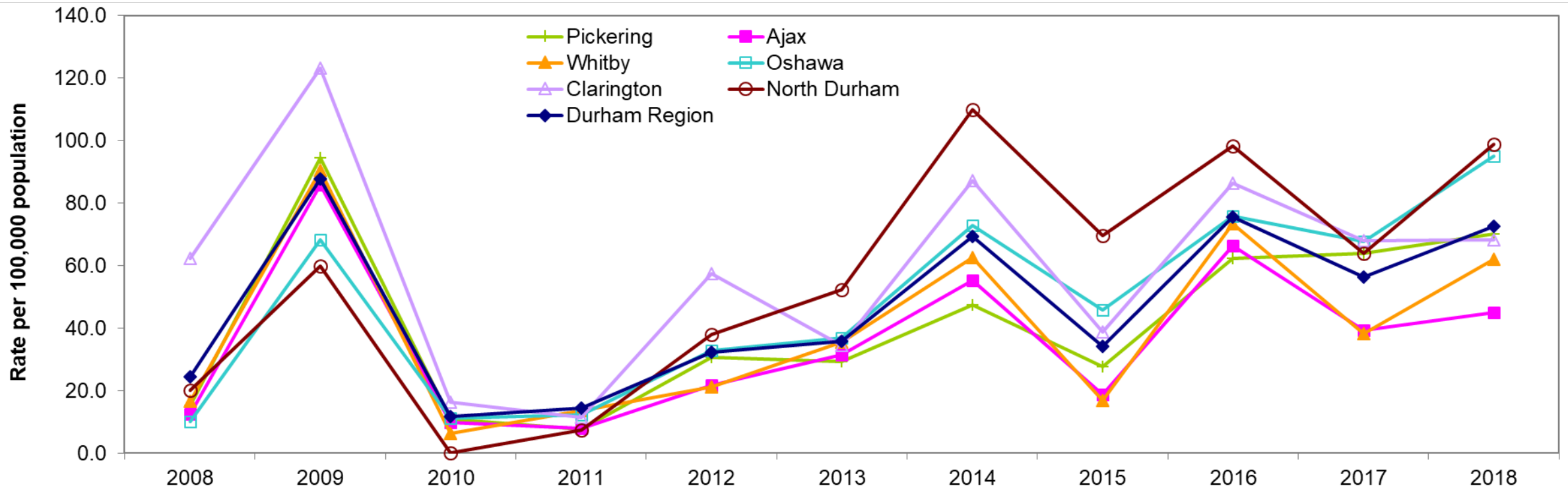


Rates and Cases	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+
<b>Durham Male Rate</b>	158.4	77.1	22.1	16.6	12.4	9.4	24.0	25.8	25.3	28.1	28.0	39.8	53.2	73.7	76.2	221.7	469.9
<b>Durham Female Rate</b>	149.6	49.1	23.8	16.5	21.8	28.1	35.2	24.5	35.7	29.2	38.6	51.6	54.3	64.2	94.8	181.5	477.5
<b>Ontario Male Rate</b>	262.9	108.1	43.3	28.0	19.5	22.1	29.1	34.5	39.0	41.9	45.6	58.7	82.1	104.3	156.7	250.5	653.2
<b>Ontario Female Rate</b>	231.4	89.4	33.2	33.1	29.6	40.9	55.1	49.4	45.3	44.8	54.0	68.3	81.2	99.8	141.3	238.5	650.0
<b>Durham Male Cases</b>	148	78	23	19	15	10	25	27	28	33	38	49	50	55	41	79	210
<b>Durham Female Cases</b>	135	48	24	18	24	28	38	28	42	36	54	64	54	53	57	80	342
<b>Durham Total Cases</b>	283	126	47	37	39	38	63	55	70	69	92	113	104	108	98	159	552

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2014 to 2018, extracted by Durham Region Health Department, July 2019; iPHIS, Ontario, 2014 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2014 to 2018), Ontario Ministry of Health, Accessed July 2019.

In general, older adults and young children have higher incidence rates of influenza.

**Figure 13: Influenza incidence rates, Durham Region by municipality, 2008 to 2018**

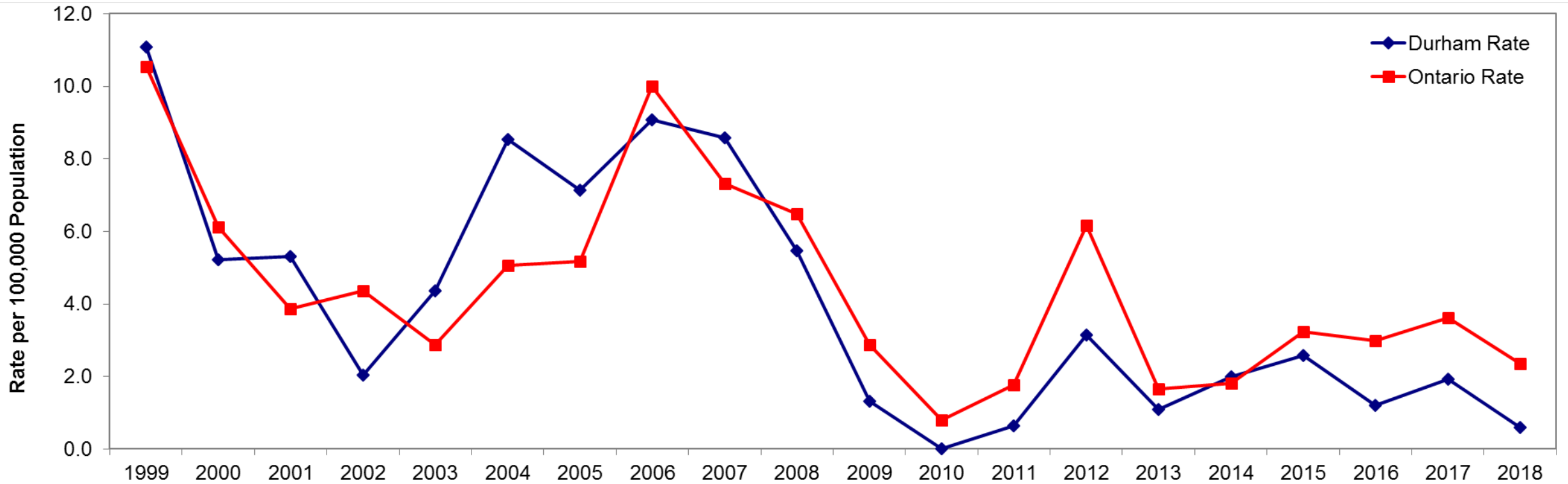


Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	14	86	10	7	28	27	44	26	59	61	68
Ajax	13	92	11	9	25	37	66	23	82	49	57
Whitby	20	111	8	17	27	46	82	22	97	51	84
Oshawa	15	102	17	19	51	58	116	74	125	113	161
Clarington	52	104	14	10	51	31	80	36	82	66	67
North Durham	11	33	0	4	21	29	61	39	55	36	56
Durham Region	147	536	72	90	204	230	450	224	503	379	497

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of influenza was higher in Clarington in some years and higher in North Durham (Brock, Scugog and Uxbridge combined) since 2013. All other municipalities have rates similar to Durham Region as a whole.

**Figure 14: Pertussis incidence rates, Durham Region and Ontario, 1999 to 2018**

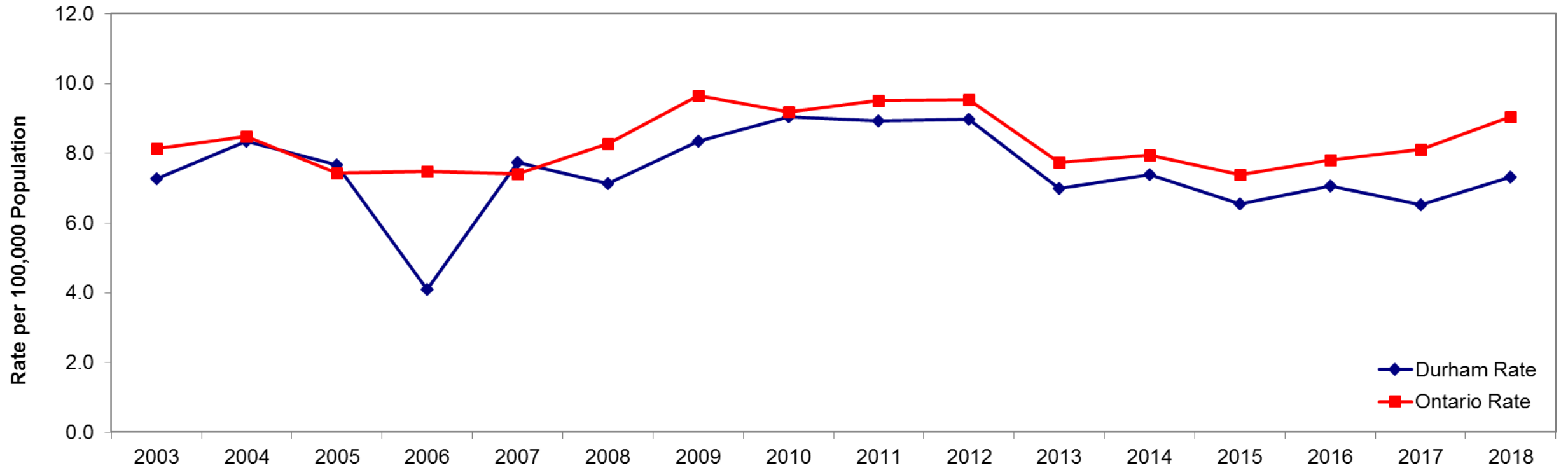


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	11.1	5.2	5.3	2.0	4.4	8.5	7.1	9.1	8.6	5.5	1.3	0.0	0.6	3.2	1.1	2.0	2.6	1.2	1.9	0.6
<b>Ontario Rate</b>	10.6	6.1	3.9	4.4	2.9	5.1	5.2	10.0	7.3	6.5	2.9	0.8	1.8	6.2	1.6	1.8	3.2	3.0	3.6	2.3
<b>Durham Male Cases</b>	22	12	10	3	15	14	17	27	27	17	3	0	4	5	4	6	5	2	7	0
<b>Durham Female Cases</b>	34	15	18	8	9	34	24	26	24	16	5	0	0	15	3	7	12	6	6	4
<b>Durham Total Cases</b>	56	27	28	11	24	48	41	53	51	33	8	0	4	20	7	13	17	8	13	4

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Pertussis, or whooping cough, is an acute bacterial infection. Violent coughing, which may include a high-pitched inspiratory whoop, is the most well-known symptom (5). Due to small numbers, we combined male and female cases to create more stable rates. Rates of pertussis have fluctuated over time in both Durham Region and Ontario, showing a similar pattern in most years.

Figure 15: Invasive pneumococcal disease incidence rates, Durham Region and Ontario, 2003 to 2018



Rates and Cases	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	7.3	8.4	7.7	4.1	7.7	7.1	8.4	9.0	8.9	9.0	7.0	7.4	6.5	7.1	6.5	7.3
<b>Ontario Rate</b>	8.1	8.5	7.4	7.5	7.4	8.3	9.7	9.2	9.5	9.5	7.7	8.0	7.4	7.8	8.1	9.0
<b>Durham Male Cases</b>	26	23	24	12	30	22	27	25	29	35	26	29	20	19	25	29
<b>Durham Female Cases</b>	14	24	20	12	16	21	24	31	27	22	19	19	23	28	19	21
<b>Durham Total Cases</b>	40	47	44	24	46	43	51	56	56	57	45	48	43	47	44	50

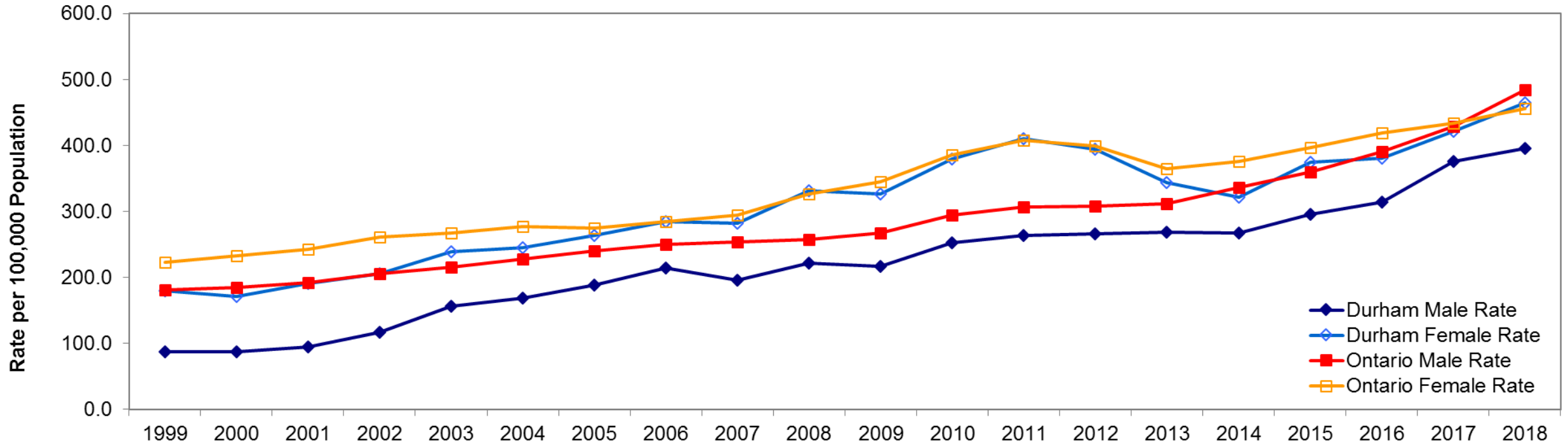
Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2003 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 2003 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2003 to 2018), Ontario Ministry of Health, Accessed July 2019.

The bacterium *Streptococcus pneumoniae* causes invasive pneumococcal disease (IPD). This disease can cause serious illnesses such as pneumonia, blood infection, and meningitis (5). Ontario added the pneumococcal conjugate vaccine to their routine immunization schedule in 2005 (6). Due to small numbers, we combined male and female cases to create more stable rates. We excluded data prior to 2003 due to inconsistent reporting. Rates in Ontario have increased slightly since 2015 but have remained relatively stable in Durham Region.

## **Sexually transmitted and blood-borne infections**

Sexually transmitted infections and blood-borne infections are passed mainly from person-to-person through sexual contact, needle use, blood transfusion, and from mother to infant during pregnancy and delivery (7). Reportable sexually transmitted and blood-borne infections in Ontario include: chlamydial infections; gonorrhea; group B streptococcal disease, neonatal; hepatitis B; hepatitis C; human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS); ophthalmia neonatorum; and syphilis. HIV data is not available for Ontario prior to 2005 so only AIDS data is included in all sexually transmitted and blood-borne Infection totals for those years.

Figure 16: All sexually transmitted and blood-borne infections incidence rates, Durham Region and Ontario, 1999 to 2018

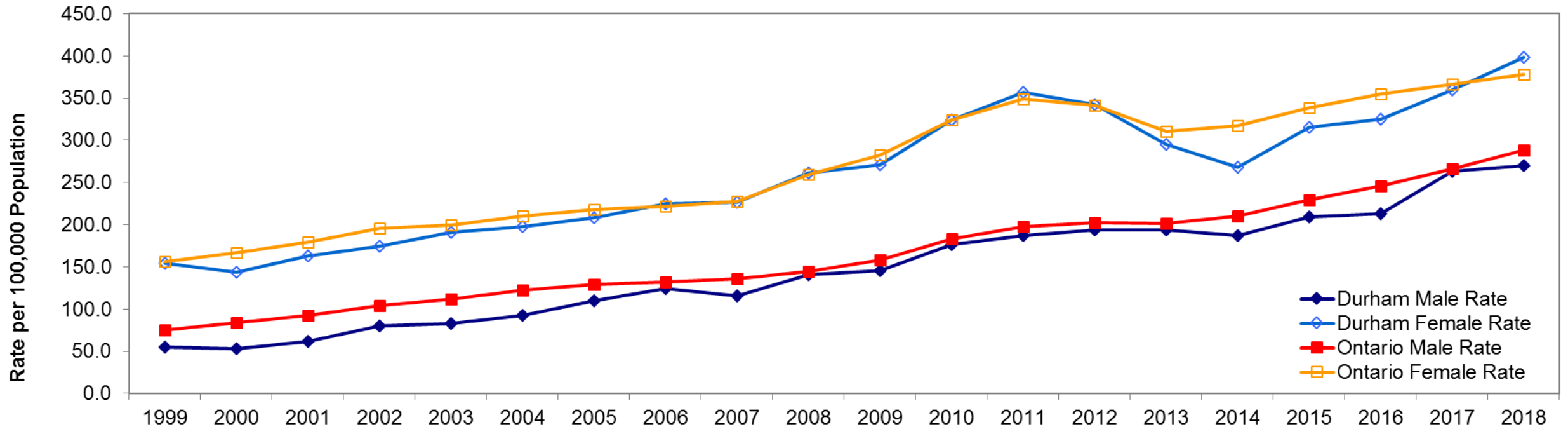


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	87.8	87.7	94.4	116.6	156.1	168.3	189.0	214.7	196.4	221.4	217.0	252.9	263.3	266.5	269.2	267.5	295.2	314.1	375.3	395.9
<b>Durham Female Rate</b>	180.2	171.4	190.7	206.0	238.4	244.7	263.2	284.4	281.7	331.5	326.4	379.2	410.7	394.5	344.0	322.1	374.5	381.1	421.7	465.1
<b>Ontario Male Rate</b>	181.3	185.2	191.8	205.5	215.9	227.9	240.4	249.8	253.4	257.2	267.5	294.0	306.4	308.3	311.5	336.4	360.3	390.5	429.4	484.8
<b>Ontario Female Rate</b>	223.4	232.7	242.6	261.4	267.5	277.1	275.1	284.9	294.9	326.7	344.8	385.3	408.1	398.8	364.9	376.2	397.0	419.0	433.3	455.6
<b>Durham Male Cases</b>	220	225	247	311	426	469	537	621	576	658	652	770	810	831	850	854	954	1,029	1,246	1,334
<b>Durham Female Cases</b>	458	446	507	559	662	695	762	839	847	1,014	1,012	1,194	1,310	1,274	1,125	1,065	1,252	1,289	1,443	1,612
<b>Durham Total Cases</b>	678	671	754	870	1,088	1,165	1,299	1,462	1,424	1,673	1,664	1,964	2,123	2,106	1,975	1,919	2,207	2,318	2,690	2,948

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rates of sexually transmitted and blood-borne infections have been increasing in Durham Region and Ontario since 1999. There was a decrease in rates between 2011 and 2013 in Durham Region and Ontario females; however, rates have been increasing again since.

Figure 17: Chlamydia incidence rates, Durham Region and Ontario, 1999 to 2018



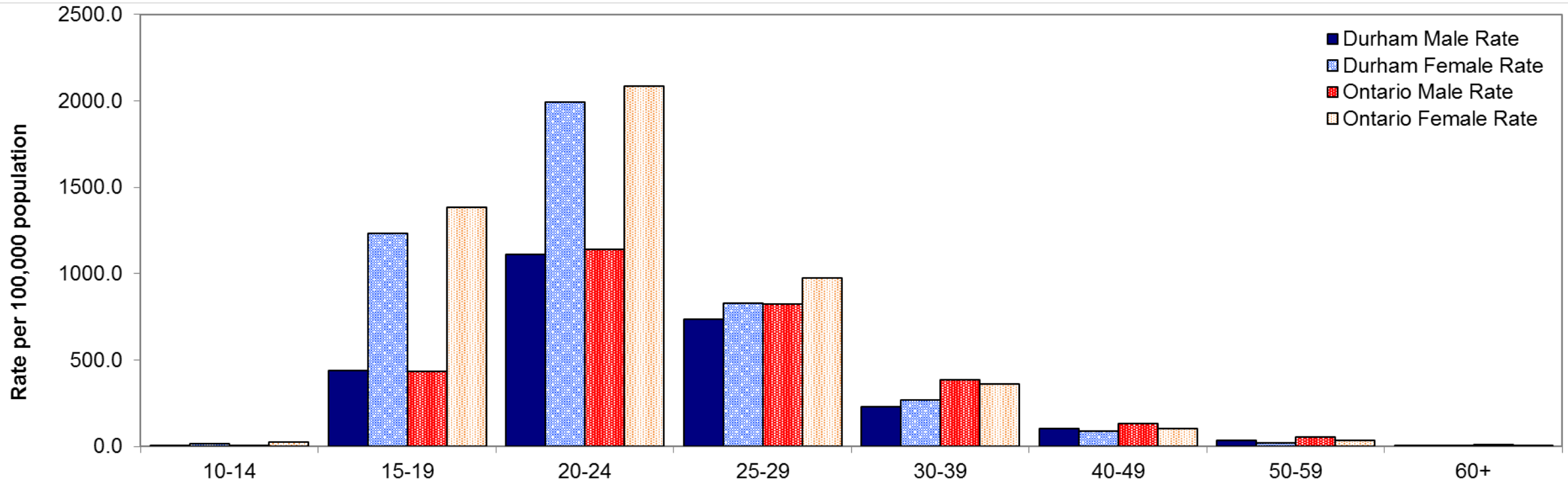
Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	54.7	53.4	61.5	79.8	83.2	92.2	109.5	124.8	115.6	141.0	145.8	176.1	186.9	194.0	194.1	187.3	209.2	213.4	263.0	270.0
<b>Durham Female Rate</b>	154.2	143.3	162.8	174.3	190.5	197.6	208.6	224.4	226.2	260.9	271.0	323.9	356.8	342.8	294.8	268.3	315.8	324.7	360.1	398.1
<b>Ontario Male Rate</b>	74.8	83.4	92.3	104.5	111.9	122.0	129.7	131.6	135.8	145.0	158.1	183.2	197.4	202.6	201.1	209.9	229.2	246.4	265.9	288.1
<b>Ontario Female Rate</b>	156.6	166.7	179.1	195.9	199.8	210.0	218.4	221.5	228.0	259.9	283.0	324.4	348.7	341.1	310.6	317.1	338.6	354.9	366.6	378.2
<b>Durham Male Cases</b>	137	137	161	213	227	257	311	361	339	419	438	536	575	605	613	598	676	699	873	910
<b>Durham Female Cases</b>	392	373	433	473	529	561	604	662	680	798	840	1,020	1,138	1,107	964	887	1,056	1,098	1,232	1,380
<b>Durham Total Cases</b>	529	510	594	686	756	818	915	1,024	1,019	1,218	1,278	1,556	1,714	1,712	1,577	1,485	1,732	1,797	2,105	2,292

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Chlamydia infection is frequently asymptomatic (5). In Ontario, chlamydia is the most commonly reported sexually transmitted infection. The rate is higher among females and increased between 1999 and 2011. The rates decreased between 2011 and 2013 in both Durham Region and Ontario females and levelled off among Durham Region males; however, rates have increased again since 2014 in both Durham Region and Ontario males and females.



**Figure 18: Chlamydia age-specific incidence rates, Durham Region and Ontario, 2014 to 2018 combined**

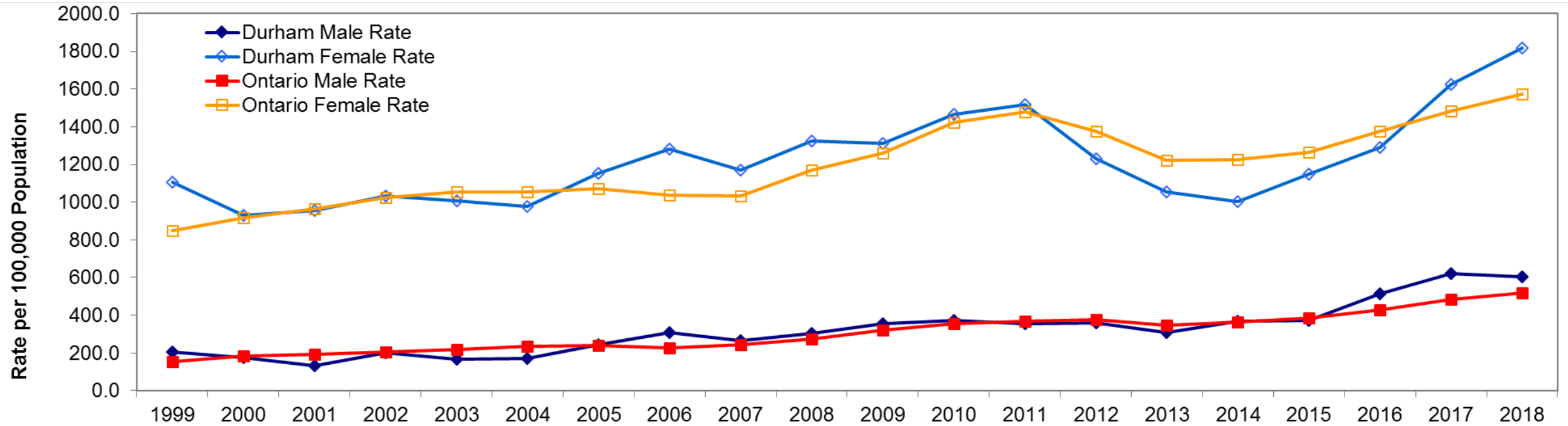


Rates and Cases	10-14	15-19	20-24	25-29	30-39	40-49	50-59	60+
<b>Durham Male Rate</b>	4.8	438.4	1110.8	734.9	229.8	100.5	35.2	7.3
<b>Durham Female Rate</b>	13.9	1233.3	1992.9	826.6	270.1	86.4	17.8	2.5
<b>Ontario Male Rate</b>	1.8	433.7	1140.5	821.7	383.7	133.3	52.4	10.1
<b>Ontario Female Rate</b>	23.8	1383.3	2086.4	973.1	360.3	104.0	33.8	4.2
<b>Durham Male Cases</b>	5	503	1,347	781	480	229	91	22
<b>Durham Female Cases</b>	14	1,342	2,191	825	600	208	47	9
<b>Durham Total Cases</b>	19	1,845	3,538	1,606	1,080	437	138	31

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2014 to 2018, extracted by Durham Region Health Department, July 2019; iPHIS, Ontario, 2014 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2014 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of chlamydia was higher among females in most age groups. Reported rates were highest among youth and young adults aged 15 to 29. In this report, we excluded rates among those aged less than 10 due to small counts.

**Figure 19: Chlamydia incidence rates in youth aged 15 to 19, Durham Region and Ontario, 1999 to 2018**

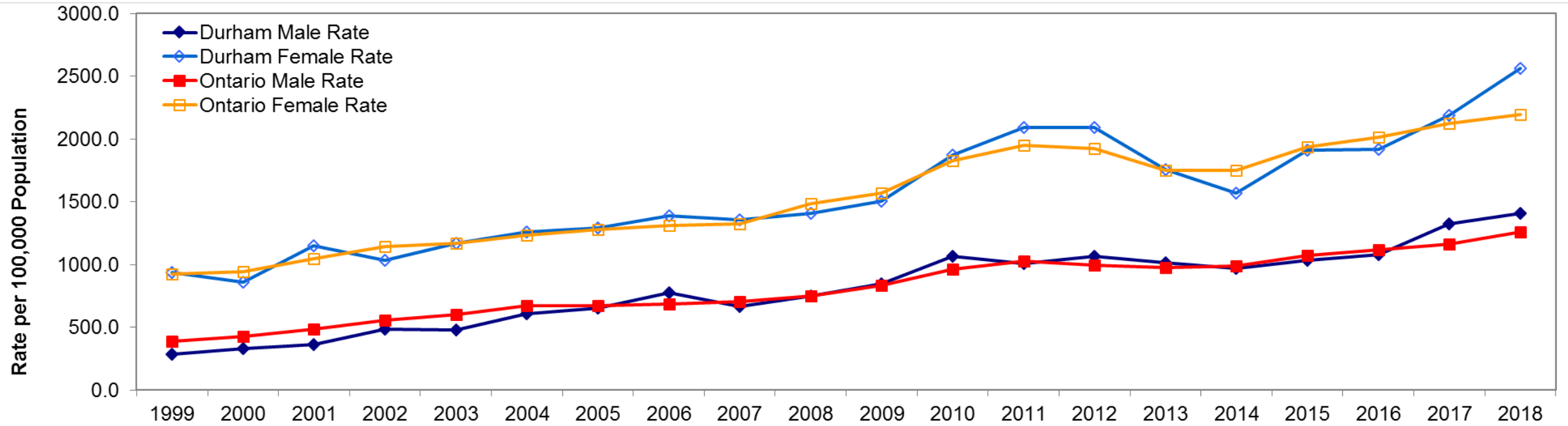


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	206.1	174.3	131.8	201.4	167.5	170.7	245.4	309.7	264.8	304.3	357.3	370.8	357.0	359.9	309.3	367.0	371.1	514.9	622.2	604.0
<b>Durham Female Rate</b>	1106	928.6	957.3	1034	1006	978.2	1152	1282	1172	1323	1313	1468	1516	1230	1056	1005	1150	1290	1626	1819
<b>Ontario Male Rate</b>	154.5	184.9	192.3	205.4	219.3	234.0	241.4	228.5	245.6	272.8	319.4	353.4	370.3	379.0	345.7	362.1	383.9	427.4	484.0	517.4
<b>Ontario Female Rate</b>	849.1	916.1	963.9	1023	1055	1055	1073	1036	1032	1172	1259	1424	1478	1374	1220	1226	1264	1376	1484	1574
<b>Durham Male Cases</b>	37	33	26	41	35	37	55	72	63	74	88	92	89	89	75	87	86	116	139	136
<b>Durham Female Cases</b>	192	169	181	200	199	200	246	286	268	311	313	350	361	288	242	225	252	277	346	390
<b>Durham Total Cases</b>	229	202	207	241	234	237	301	358	331	386	401	442	450	377	317	312	338	393	485	526

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

The chlamydia rate is higher among females aged 15 to 19 than males in the same age group and increased between 1999 and 2011 in Durham Region and Ontario. Rates decreased between 2011 and 2013 in both Durham Region and Ontario females in this age group and levelled off among males; however, since 2014, rates have begun to increase again in both Durham Region and Ontario males and females.

**Figure 20: Chlamydia incidence rates in young adults aged 20 to 24, Durham Region and Ontario, 1999 to 2018**

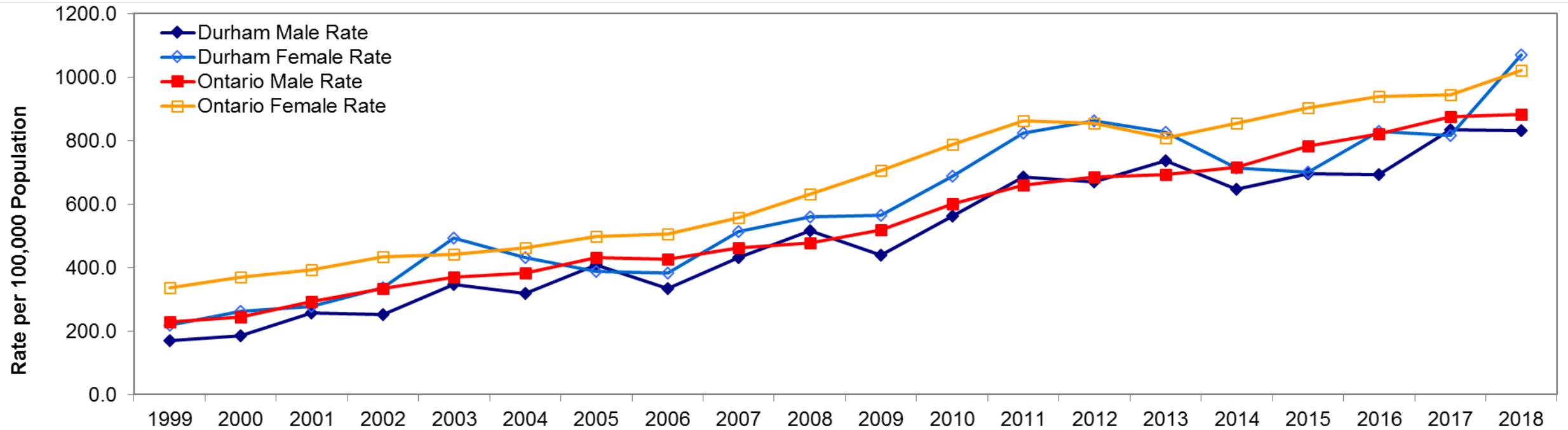


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	286.4	329.4	366.0	485.3	480.7	610.0	657.2	777.7	669.6	749.3	845.9	1066	1009	1067	1016	972.4	1037	1082	1326	1409
<b>Durham Female Rate</b>	939.5	860.6	1152	1034	1169	1261	1291	1390	1355	1408	1508	1872	2095	2090	1761	1568	1914	1916	2193	2567
<b>Ontario Male Rate</b>	388.9	427.4	484.7	554.0	602.5	672.0	671.2	684.9	707.2	754.0	834.1	965.7	1028	995.6	976.4	992.7	1072	1120	1162	1259
<b>Ontario Female Rate</b>	924.8	944.9	1047	1147	1169	1232	1277	1310	1326	1488	1573	1826	1953	1929	1748	1752	1937	2018	2123	2194
<b>Durham Male Cases</b>	45	53	61	84	87	113	127	155	136	153	176	227	221	246	244	239	258	272	334	348
<b>Durham Female Cases</b>	136	128	179	168	199	223	235	259	260	274	299	383	442	459	403	368	452	454	514	572
<b>Durham Total Cases</b>	181	181	240	252	286	336	362	415	396	427	475	610	663	705	647	607	710	726	848	921

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

The chlamydia rate is higher among females aged 20 to 24 than males in the same age group and increased between 1997 and 2011 in Durham Region and Ontario. Rates decreased between 2011 and 2013 in both Durham Region and Ontario females in this age group and levelled off among males; however, since 2014, rates have begun to increase again among both Durham Region and Ontario males and females.

Figure 21: Chlamydia incidence rates in young adults aged 25 to 29, Durham Region and Ontario, 1999 to 2018

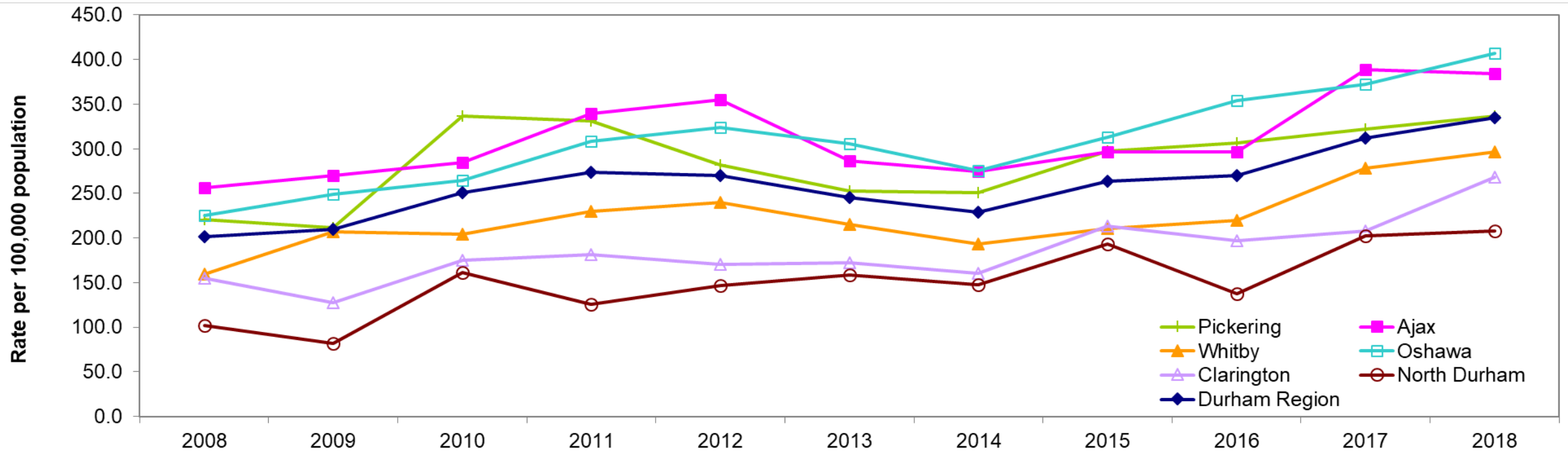


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	169.8	185.6	258.6	251.9	346.5	318.4	410.1	334.0	431.4	516.8	440.6	562.9	685.8	671.2	736.0	647.7	695.6	693.8	835.6	831.2
<b>Durham Female Rate</b>	219.8	262.9	278.4	338.4	494.5	433.0	388.5	382.1	514.7	560.4	564.1	688.5	824.1	862.7	826.7	714.7	700.9	830.5	816.3	1071
<b>Ontario Male Rate</b>	228.8	245.1	293.7	334.2	371.2	384.2	431.6	426.6	462.7	477.6	518.4	600.4	660.7	685.0	693.3	716.5	782.9	820.7	876.5	883.6
<b>Ontario Female Rate</b>	336.2	370.9	394.2	435.2	442.9	462.5	498.6	506.7	557.5	632.2	705.6	789.4	862.8	855.1	810.0	855.0	903.0	939.6	945.4	1022
<b>Durham Male Cases</b>	26	29	41	40	56	53	69	57	75	91	78	103	128	129	145	133	149	156	199	191
<b>Durham Female Cases</b>	34	41	43	53	79	71	65	65	90	101	104	129	156	166	162	144	147	183	189	223
<b>Durham Total Cases</b>	60	70	84	93	135	124	134	122	165	192	182	232	285	295	307	277	296	339	388	415

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

The chlamydia rate is higher among females aged 25 to 29 than males in the same age group and increased between 1999 and 2011 in Durham Region and Ontario. Rates decreased between 2012 and 2014 in Durham Region females and between 2013 and 2014 in Durham Region males; however, rates have been increasing since 2014 among Durham Region and Ontario males and females in this age group.

Figure 22: Chlamydia incidence rates, Durham Region by municipality, 2008 to 2018

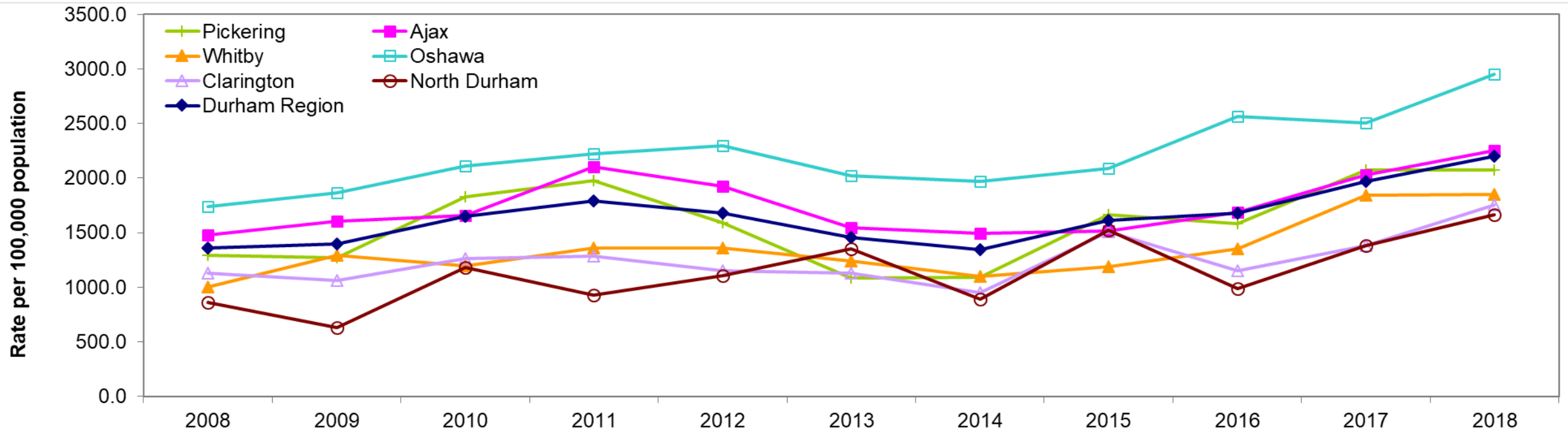


Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	202	193	307	302	258	234	233	279	290	308	327
Ajax	267	289	315	385	410	337	329	362	367	486	488
Whitby	192	254	254	289	307	278	253	277	291	372	401
Oshawa	335	373	403	476	503	481	439	505	583	621	690
Clarington	129	108	150	158	152	156	147	199	187	202	263
North Durham	56	45	89	69	81	88	82	108	77	114	118
Durham Region	1,218	1,278	1,556	1,714	1,712	1,577	1,485	1,732	1,797	2,105	2,292

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of chlamydia is higher most years in Pickering, Ajax, and Oshawa than Durham Region as a whole. The rate is lower in Whitby, Clarington, and the northern municipalities (Brock, Scugog and Uxbridge combined). Most municipalities showed a similar pattern as Durham Region, they increased to 2011 or 2012, decreased to 2014 then have increased since.

Figure 23: Chlamydia incidence rates in females aged 15 to 24, Durham Region by municipality, 2008 to 2018

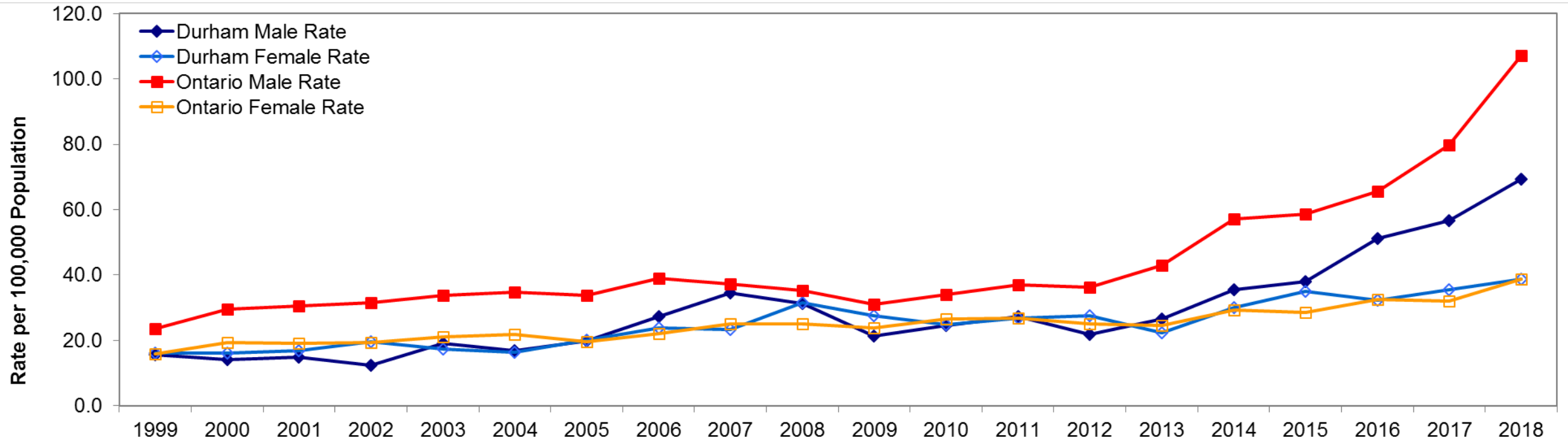


Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	92	90	129	138	110	74	73	109	101	133	133
Ajax	117	131	139	181	166	134	130	132	146	176	196
Whitby	83	110	104	121	121	110	98	105	119	162	163
Oshawa	179	193	221	234	238	208	201	211	261	256	303
Clarington	64	62	76	79	71	70	59	93	71	86	109
North Durham	33	24	44	34	40	48	31	52	33	46	55
Durham Region	585	612	733	803	747	645	593	704	731	860	962

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of chlamydia among females aged 15 to 24 is consistently higher in Oshawa than Durham Region as a whole. The rate is lower than Durham Region in Whitby, Clarington, and the northern municipalities (Brock, Scugog and Uxbridge combined) and similar in Ajax and Pickering. Oshawa, Whitby and Ajax showed a similar pattern as Durham Region, rates increased to 2011, decreased to 2014 then have increased since. This increase is greatest in Oshawa. Rates increased between 2014 and 2015 in North Durham, Pickering and Clarington but then decreased between 2015 and 2016.

**Figure 24: Gonorrhoea incidence rates, Durham Region and Ontario, 1999 to 2018**

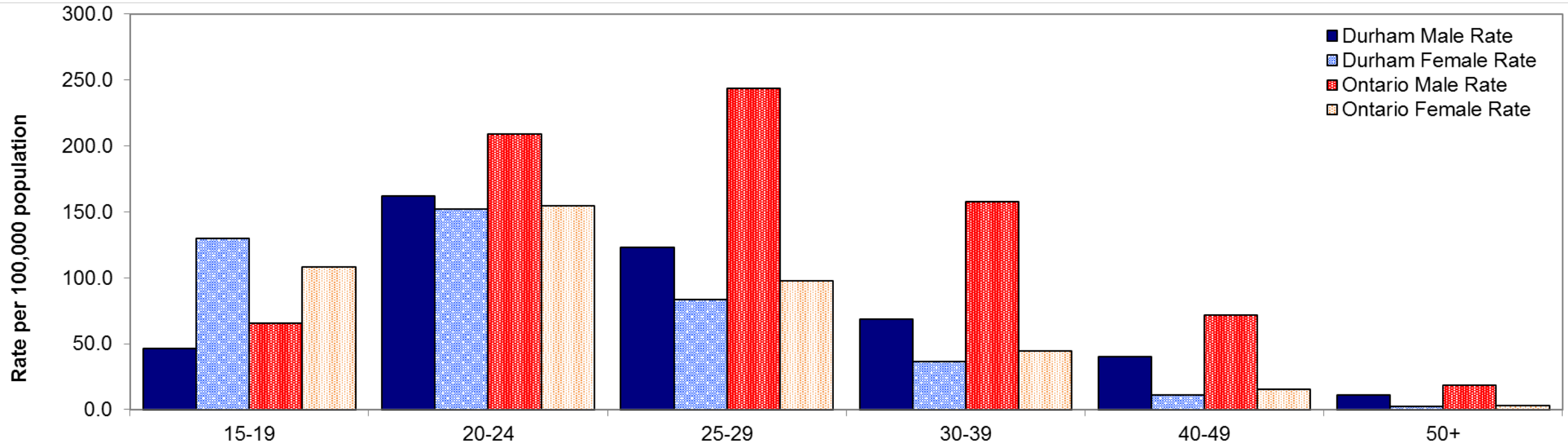


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	15.6	14.0	14.9	12.4	19.1	16.9	19.7	27.3	34.4	31.3	21.3	24.6	27.3	21.8	26.6	35.4	38.1	51.3	56.6	69.4
<b>Durham Female Rate</b>	16.1	16.1	16.9	19.5	17.3	16.2	20.0	23.7	23.3	31.4	27.4	24.8	26.6	27.6	22.3	29.9	35.0	32.2	35.4	38.7
<b>Ontario Male Rate</b>	23.5	29.4	30.5	31.4	33.7	34.7	33.7	38.9	37.3	35.3	31.0	34.1	36.9	36.3	42.9	57.0	58.5	65.5	79.7	107.1
<b>Ontario Female Rate</b>	15.9	19.3	19.0	19.4	21.0	21.8	19.7	22.1	25.0	24.9	23.7	26.5	26.7	25.1	24.5	29.3	28.5	32.6	32.0	38.7
<b>Durham Male Cases</b>	39	36	39	33	52	47	56	79	101	93	64	75	84	68	84	113	123	168	188	234
<b>Durham Female Cases</b>	41	42	45	53	48	46	58	70	70	96	85	78	85	89	73	99	117	109	121	134
<b>Durham Total Cases</b>	80	78	84	86	100	93	114	149	172	189	149	153	170	157	157	212	240	277	310	368

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Like chlamydia, gonorrhoea infections are frequently asymptomatic (5). In Ontario, gonorrhoea is a commonly reported sexually transmitted infection. In Ontario and Durham Region, rates of gonorrhoea are higher among males compared to females. Rates of gonorrhoea increased in both Durham Region and Ontario from 1999 to 2006. Rates remained relatively stable between 2006 and 2012 and began to increase again after 2013, especially among males.

**Figure 25: Gonorrhoea age-specific incidence rates, Durham Region and Ontario, 2014 to 2018 combined**



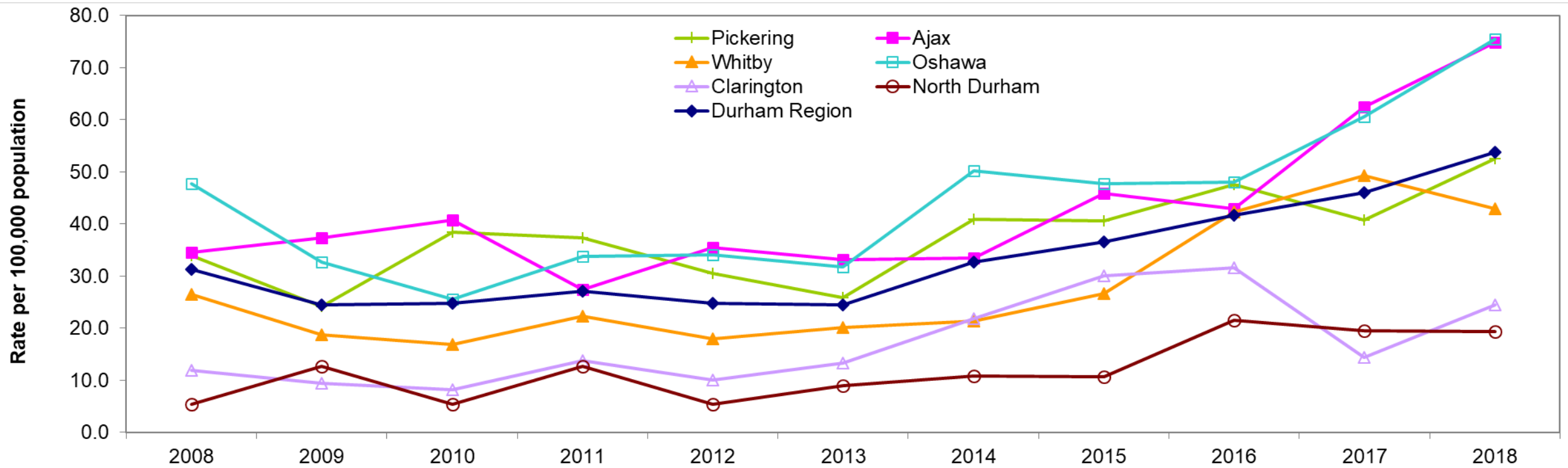
Rates and Cases	15-19	20-24	25-29	30-39	40-49	50+
<b>Durham Male Rate</b>	46.2	161.6	123.3	68.5	40.4	10.9
<b>Durham Female Rate</b>	129.6	151.9	83.2	36.5	11.2	2.6
<b>Ontario Male Rate</b>	65.3	209.1	243.8	157.5	72.0	18.5
<b>Ontario Female Rate</b>	108.1	154.8	97.9	44.5	15.4	2.8
<b>Durham Male Cases</b>	53	196	131	143	92	61
<b>Durham Female Cases</b>	141	167	83	81	27	16
<b>Durham Total Cases</b>	194	363	214	224	119	77

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2014 to 2018, extracted by Durham Region Health Department, July 2019; iPHIS, Ontario, 2014 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2014 to 2018), Ontario Ministry of Health, Accessed July 2019.

Reported rates of gonorrhoea are highest among young adults aged 20 to 24 and among females aged 15 to 19 in both Durham Region and Ontario and also among Ontario males aged 25 to 39. Rates are higher in Ontario males than Durham Region males for all age groups. Rates are similar in Ontario and Durham Region females 20 and older but are higher among Durham Region females 15-19. For this report, we excluded rates among those aged 14 and younger due to small counts.



Figure 26: Gonorrhoea incidence rates, Durham Region by municipality, 2008 to 2018

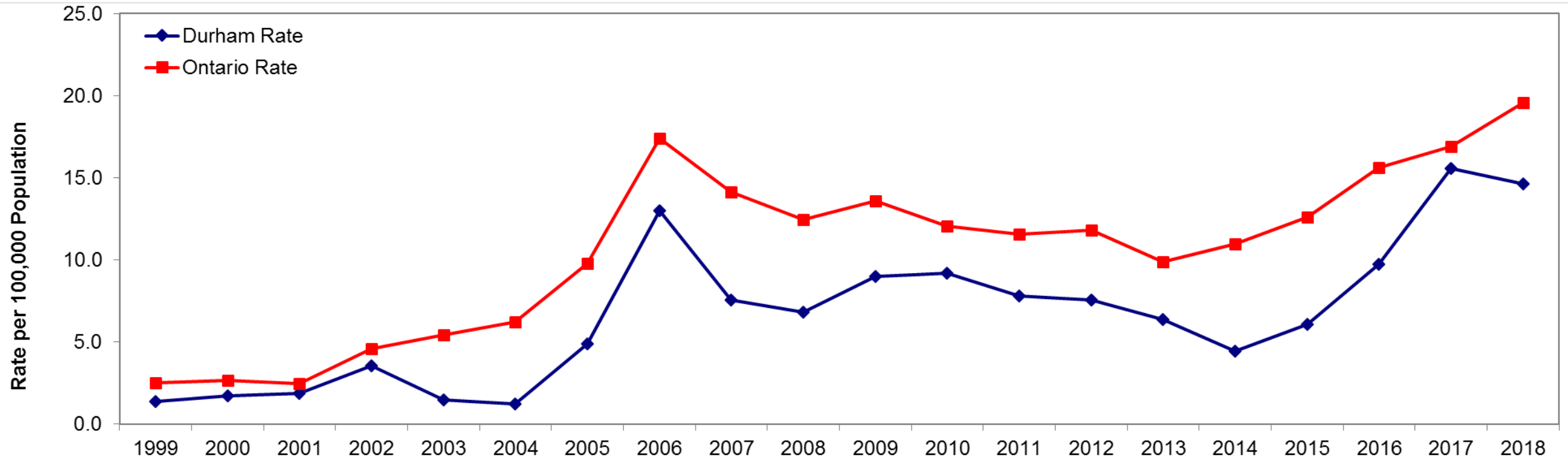


Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	31	22	35	34	28	24	38	38	45	39	51
Ajax	36	40	45	31	41	39	40	56	53	78	95
Whitby	32	23	21	28	23	26	28	35	56	66	58
Oshawa	71	49	39	52	53	50	80	77	79	101	128
Clarington	10	8	7	12	9	12	20	28	30	14	24
North Durham	3	7	3	7	3	5	6	6	12	11	11
Durham Region	189	149	153	170	157	157	212	240	277	310	368

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of gonorrhoea is higher most years in Pickering, Ajax, and Oshawa than Durham Region as a whole, and lower in Whitby, Clarington and the northern municipalities (Brock, Scugog and Uxbridge combined). Rates have been increasing since 2012 or 2013 in all municipalities.

**Figure 27: Syphilis incidence rates, Durham Region and Ontario, 1999 to 2018**

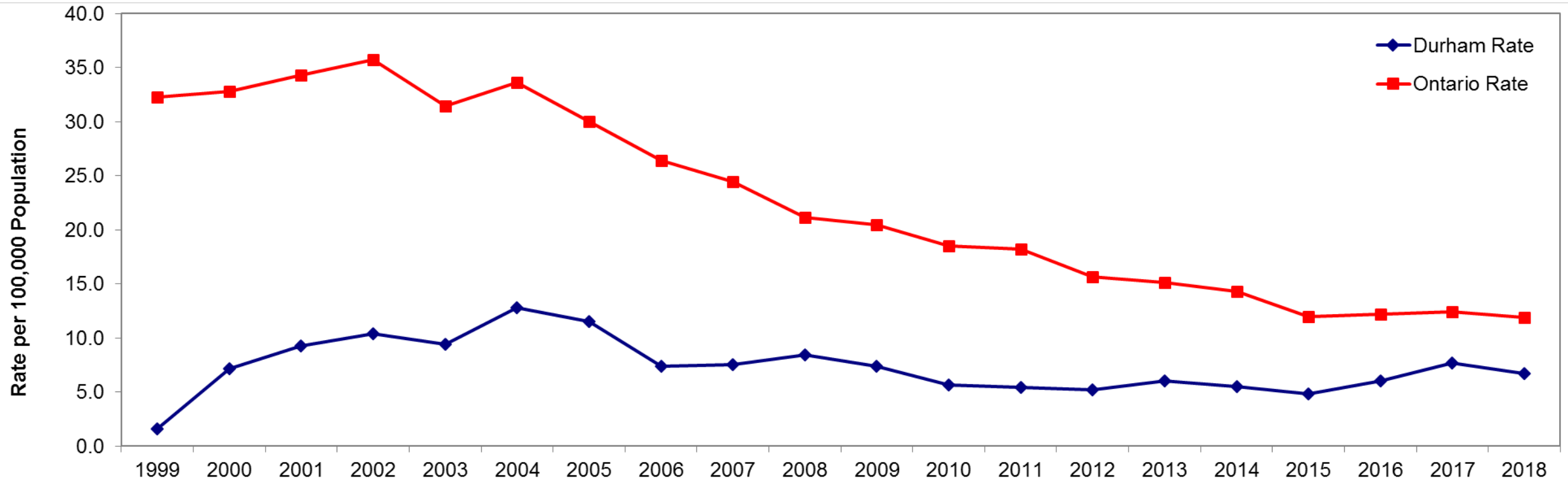


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	1.4	1.7	1.9	3.5	1.5	1.2	4.9	13.0	7.6	6.8	9.0	9.2	7.8	7.6	6.4	4.5	6.1	9.8	15.6	14.6
<b>Ontario Rate</b>	2.5	2.6	2.5	4.6	5.4	6.2	9.8	17.4	14.1	12.5	13.6	12.1	11.5	11.8	9.9	11.0	12.6	15.6	16.9	19.6
<b>Durham Male Cases</b>	0	2	3	4	2	3	2	5	4	5	12	21	13	20	14	12	18	35	62	63
<b>Durham Female Cases</b>	7	7	7	15	6	4	26	71	41	36	43	36	36	28	27	17	22	30	43	37
<b>Durham Total Cases</b>	7	9	10	19	8	7	28	76	45	41	55	57	49	48	41	29	40	65	105	100

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Syphilis is a serious sexually transmitted bacterial infection. Syphilis is infectious in the early stages including, primary, secondary, and early latent (5). The rate of syphilis in Ontario began to increase in 2001, especially among the population of men who have sex with men. Although rates decreased again between 2006 and 2013 in both Durham Region and Ontario, rates have increased since 2013 in Ontario and since 2014 in Durham Region. Due to small numbers, we combined male and female cases to create more stable rates.

**Figure 28: Chronic hepatitis B incidence rates, Durham Region and Ontario, 1999 to 2018**

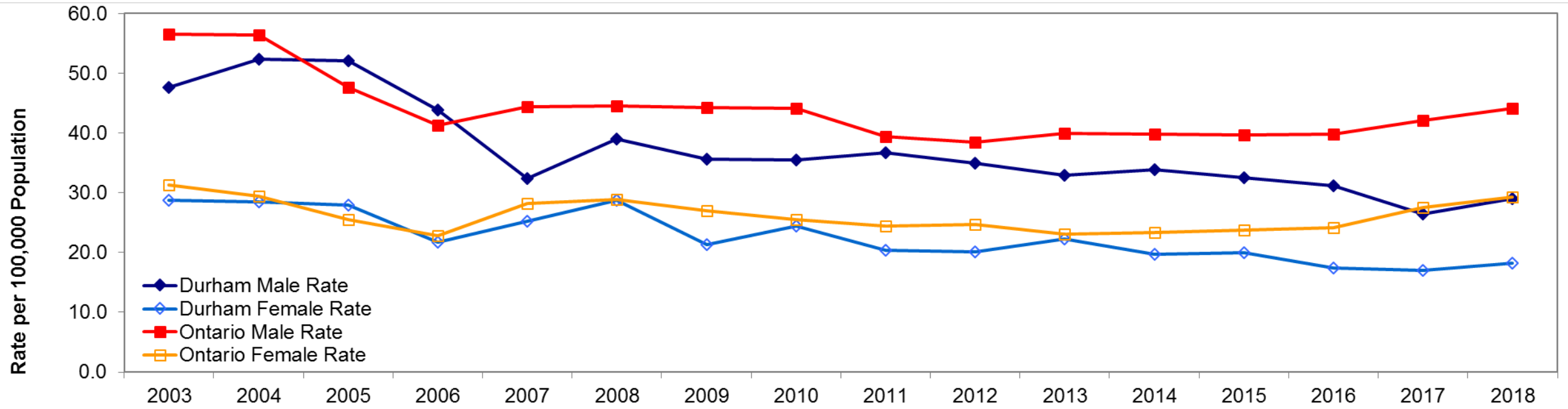


Rates and Cases	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Rate</b>	1.6	7.2	9.3	10.4	9.4	12.8	11.5	7.4	7.6	8.5	7.4	5.7	5.4	5.2	6.1	5.5	4.9	6.0	7.7	6.7
<b>Ontario Rate</b>	32.3	32.8	34.3	35.8	31.4	33.6	30.1	26.4	24.5	21.2	20.5	18.5	18.2	15.6	15.1	14.3	12.0	12.2	12.5	11.9
<b>Durham Male Cases</b>	6	24	33	34	34	39	37	26	28	31	31	16	27	17	22	24	17	28	31	25
<b>Durham Female Cases</b>	2	13	16	22	18	33	28	17	17	20	14	19	7	16	17	12	14	12	21	21
<b>Durham Total Cases</b>	8	37	49	56	52	72	66	43	45	51	45	35	34	33	39	36	32	40	52	46

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 1999 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 1999 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (1999 to 2018), Ontario Ministry of Health, Accessed July 2019.

Hepatitis is a disease of the liver most commonly caused by a virus. The hepatitis B virus can initially cause an acute infection that may not cause symptoms. A chronic infection occurs if the virus remains in the blood for more than six months (8). Rates of infection are decreasing over time for both Durham Region and Ontario. Due to small numbers, we combined male and female cases to create more stable rates.

**Figure 29: Hepatitis C incidence rates, Durham Region and Ontario, 2003 to 2018**

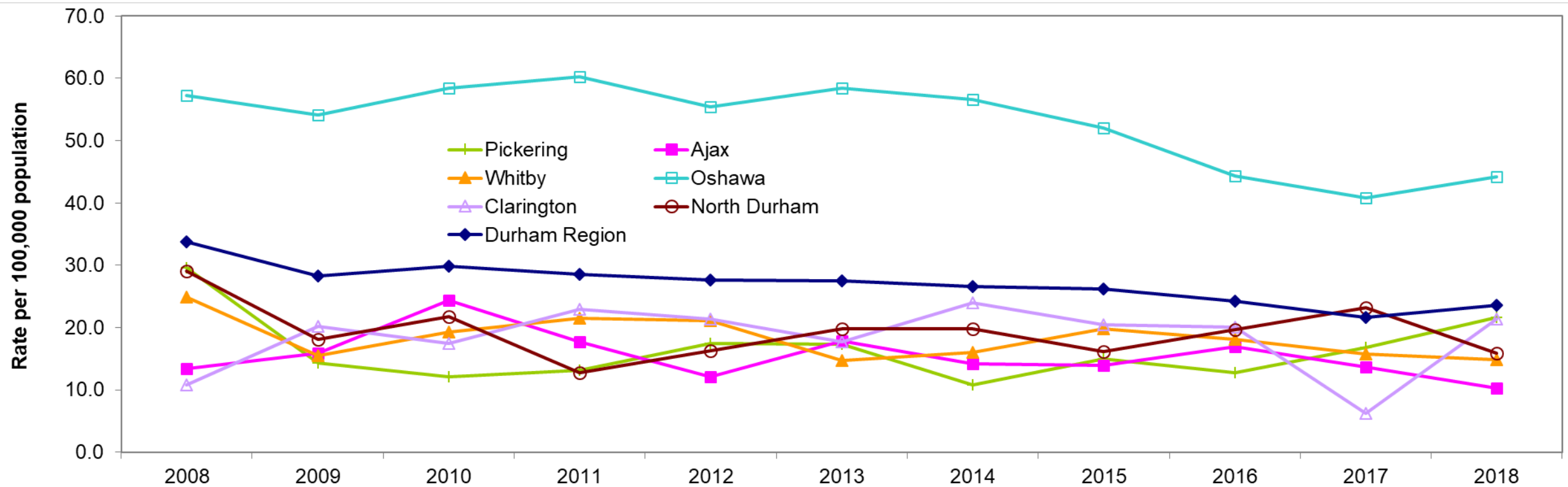


Rates and Cases	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	47.6	52.4	52.1	43.9	32.4	39.0	35.6	35.5	36.7	35.0	32.9	33.8	32.5	31.1	26.5	29.1
<b>Durham Female Rate</b>	28.8	28.5	28.0	21.7	25.3	28.8	21.3	24.5	20.4	20.1	22.3	19.7	20.0	17.4	17.0	18.2
<b>Ontario Male Rate</b>	56.6	56.4	47.6	41.3	44.4	44.6	44.2	44.1	39.5	38.5	39.9	39.9	39.7	39.8	42.1	44.1
<b>Ontario Female Rate</b>	31.3	29.4	25.5	22.8	28.2	28.9	27.1	25.5	24.5	24.7	23.1	23.3	23.7	24.1	27.5	29.4
<b>Durham Male Cases</b>	130	146	148	127	95	116	107	108	113	109	104	108	105	102	88	98
<b>Durham Female Cases</b>	80	81	81	64	76	88	66	77	65	65	73	65	67	59	58	63
<b>Durham Total Cases</b>	210	228	229	192	171	204	173	185	179	175	177	173	172	161	146	161

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2003 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 2003 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2003 to 2018), Ontario Ministry of Health, Accessed July 2019.

Hepatitis is a disease of the liver most commonly caused by a virus. Blood-to-blood contact, such as through shared needles, needle stick injuries or transfusions, is the primary way of passing on hepatitis C (5). Ontario requires reporting of hepatitis C more for prevalence than incidence. Public health receives reports for most cases some months or years following infection so higher or lower rates can be misleading. We excluded data prior to 2003 due to inconsistent reporting. Rates of hepatitis C have remained relatively stable in both Durham Region and Ontario since 2007 and are higher among males than females.

Figure 30: Hepatitis C incidence rates, Durham Region by municipality, 2008 to 2018



Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	27	13	11	12	16	16	10	14	12	16	21
Ajax	14	17	27	20	14	21	17	17	21	17	13
Whitby	30	19	24	27	27	19	21	26	24	21	20
Oshawa	85	81	89	93	86	92	90	84	73	68	75
Clarington	9	17	15	20	19	16	22	19	19	6	21
North Durham	16	10	12	7	9	11	11	9	11	13	9
Durham Region	204	173	185	179	175	177	173	172	161	146	161

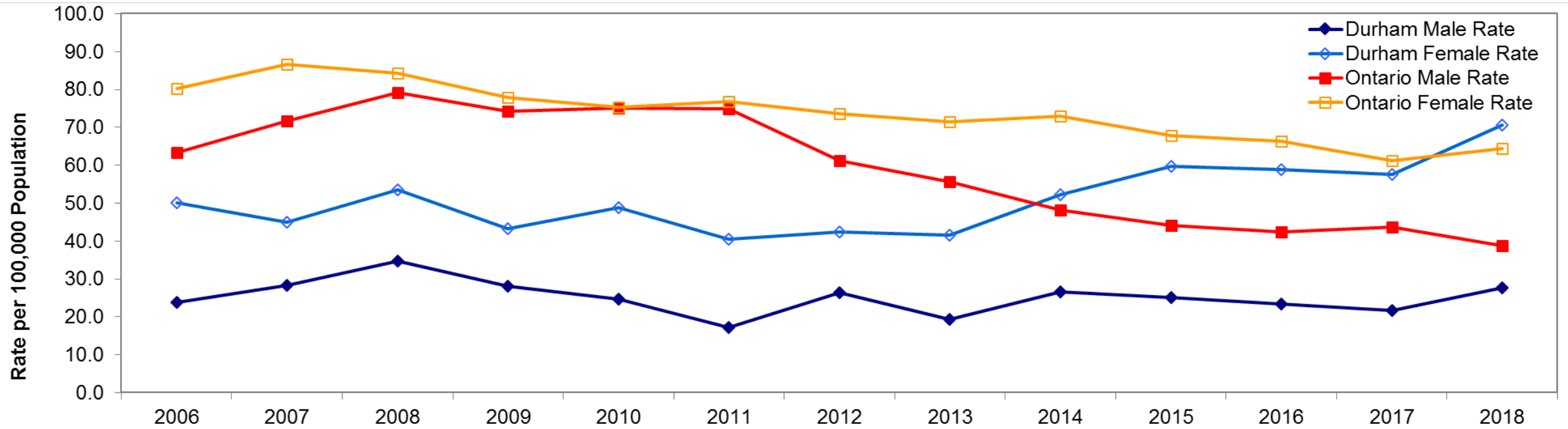
Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of hepatitis C infection is consistently higher in Oshawa than in other Durham Region municipalities, and higher than in Durham Region as a whole.

## **Tuberculosis**

Tuberculosis presents itself in two different forms: active disease and latent infection. The majority of individuals infected have latent infections and about 10% will eventually develop active disease (5). Appropriate completion of treatment for latent infection can considerably reduce the lifetime risk of developing active tuberculosis disease.

**Figure 31: Latent tuberculosis infection incidence rates, Durham Region and Ontario, 2006 to 2018**

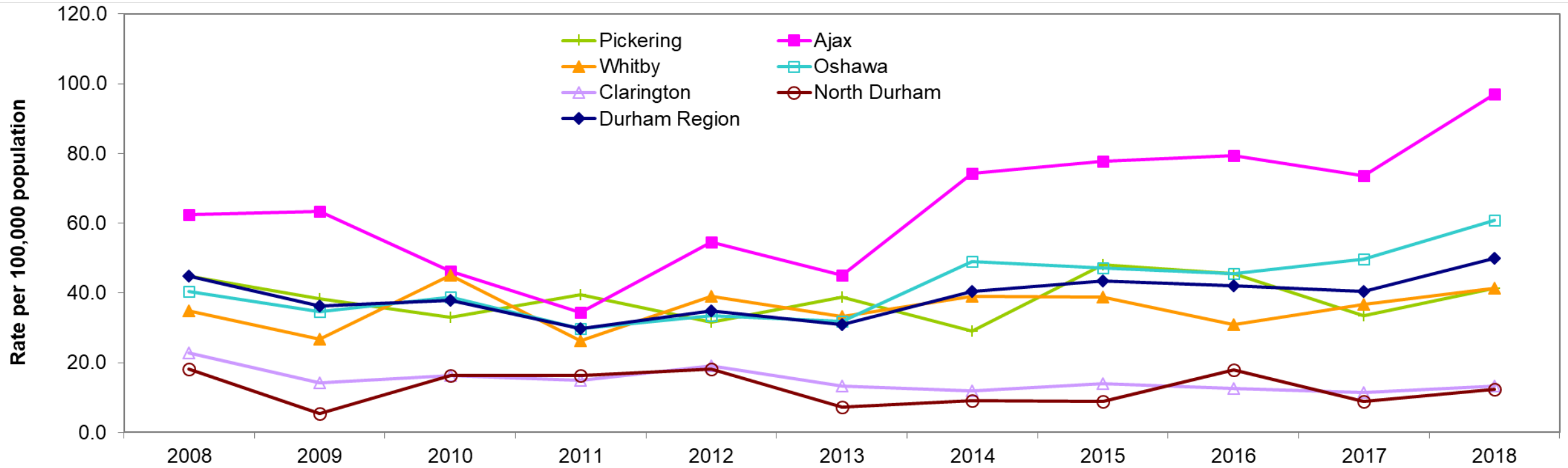


Rates and Cases	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Durham Male Rate</b>	23.7	28.3	34.7	28.1	24.8	17.2	26.3	19.3	26.6	25.1	23.4	21.6	27.7
<b>Durham Female Rate</b>	50.2	44.9	53.6	43.2	48.9	40.4	42.4	41.6	52.3	59.8	58.8	57.6	70.7
<b>Ontario Male Rate</b>	63.3	71.7	79.2	74.2	75.1	74.9	61.3	55.6	48.2	44.1	42.5	43.7	38.8
<b>Ontario Female Rate</b>	80.1	86.5	84.3	77.8	75.3	76.7	73.6	71.5	72.9	67.8	66.4	61.2	64.4
<b>Durham Male Cases</b>	70	85	106	87	78	55	85	63	88	84	79	74	96
<b>Durham Female Cases</b>	148	135	164	134	154	129	137	136	173	200	199	197	245
<b>Durham Total Cases</b>	218	220	270	221	234	186	222	199	263	285	280	273	342

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2006 to 2018, extracted by Durham Region Health Department July 2019; iPHIS, Ontario, 2006 to 2018, Public Health Ontario, Accessed July 2019; and Ontario Population Estimates/Projections (2006 to 2018), Ontario Ministry of Health, Accessed July 2019.

Latent tuberculosis infection rates have remained relatively stable in Durham Region males but have decreased among Ontario males since 2011. Rates have increased in Durham Region females since 2013 while they have decreased slightly in Ontario females. Latent tuberculosis infection rates are consistently higher among Durham Region females than males. Both male and female rates remained lower than Ontario rates until 2018 when the Durham female rate surpassed the Ontario female rate.

Figure 32: Latent tuberculosis infection incidence rates, Durham Region by municipality, 2008 to 2018



Cases by Municipality	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Pickering	41	35	30	36	29	36	27	45	43	32	40
Ajax	65	68	51	39	63	53	89	95	98	92	123
Whitby	42	33	56	33	50	43	51	51	41	49	56
Oshawa	60	52	59	46	52	50	78	76	75	83	103
Clarington	19	12	14	13	17	12	11	13	12	11	13
North Durham	10	3	9	9	10	4	5	5	10	5	7
Durham Region	270	221	234	186	222	199	263	285	280	273	342

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2008 to 2018, extracted by Durham Region Health Department July 2019; and Ontario Population Estimates/Projections (2008 to 2018), Ontario Ministry of Health, Accessed July 2019.

The rate of latent tuberculosis infection is consistently higher in Ajax than in Durham Region as a whole and the rate has increased since 2011. Rates are lower than Durham Region in Clarington and the northern municipalities (Brock, Scugog and Uxbridge combined). Pickering, Whitby and Oshawa have rates similar to Durham Region as a whole.



**Table 2: Number of confirmed cases of selected diseases of public health significance in Durham Region, 2002 to 2018 with comparison of 2018 to 5-year average**

Reportable Disease	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2013 to 2017 Average	2018 Compared to Average ^
Acute flaccid paralysis	-	-	-	-	-	-	-	-	-	-	-	-	1	0	0	0	1	0.3	Similar
Adverse events following immunization	-	-	-	-	12	41	27	85	41	54	48	64	77	80	109	134	93	92.8	Similar
Amebiasis *	13	13	20	7	6	10	10	13	21	15	13	19	24	20	23	23	9	21.8	LOWER
Blastomycosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-
Botulism *	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0.0	Similar
Brucellosis *	0	0	0	0	0	0	1	0	0	0	0	1	0	1	0	1	2	0.6	Similar
<i>Campylobacter</i> enteritis *	174	165	167	140	155	155	156	146	127	143	184	195	192	129	150	163	148	165.8	Similar
<i>Carbapenemase-prod enterobacteriaceae (CPE) – Colonization</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
<i>Carbapenemase-prod enterobacteriaceae (CPE) - Infection</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
Chlamydial infections	686	756	818	915	1,024	1,019	1,218	1,278	1,556	1,714	1,712	1,577	1,485	1,732	1,797	2,105	2,292	1739.2	HIGHER
Cholera	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.0	Similar
Creutzfeldt-Jakob disease, all types	0	0	0	0	0	0	2	0	1	0	1	2	0	0	0	0	2	0.4	Similar
Cryptosporidiosis *	6	12	6	10	15	12	8	4	10	8	9	6	10	14	15	5	17	10.0	Similar
Cyclosporiasis *	1	0	6	6	2	1	5	3	4	9	5	5	6	10	25	18	15	12.8	Similar
Encephalitis – primary, viral *	1	11	7	1	0	0	0	0	0	0	1	2	0	1	1	0	0	0.8	Similar
Encephalitis – unspecified *	1	2	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0.0	Similar
Encephalitis/meningitis *	5	8	8	7	7	12	7	4	11	12	0	0	0	0	1	2	0	0.6	Similar
Food poisoning, all causes *	0	0	0	1	0	0	2	1	6	18	4	8	0	1	1	0	6	2.0	Similar
Giardiasis *	60	49	56	39	62	46	58	54	38	39	55	52	55	55	40	51	59	50.6	Similar
Gonorrhoea	86	100	93	114	149	172	189	149	153	170	157	157	212	240	277	310	368	239.2	HIGHER
Group A streptococcal Disease, invasive	19	27	11	18	11	15	18	10	19	23	15	19	25	18	34	25	28	24.2	Similar

Reportable Disease	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2013 to 2017 Average	2018 Compared to Average ^
Group B streptococcal disease, neonatal	4	4	2	1	3	0	2	1	2	4	1	6	1	3	2	3	2	3.0	Similar
<i>Haemophilus influenzae</i> disease, all types, invasive **	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	9	-	Similar
Hemorrhagic fevers - other viral causes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	Similar
Hepatitis A *	7	9	4	3	5	2	2	3	6	3	4	3	2	1	6	6	5	3.6	Similar
Hepatitis B (acute)	2	1	1	0	5	5	1	0	0	2	1	1	5	2	3	5	6	3.2	Similar
Hepatitis B (chronic)	56	52	72	66	43	45	51	45	35	34	33	39	36	32	40	52	46	39.8	Similar
Hepatitis C	62	210	228	229	192	171	204	173	185	179	175	177	173	172	161	146	161	165.8	Similar
HIV/AIDS	10	9	15	9	13	12	17	8	10	7	12	16	14	18	13	16	19	15.4	Similar
Influenza	92	179	26	176	91	101	147	536	72	90	204	230	450	224	503	379	497	357.2	Similar
Legionellosis *	1	7	1	3	5	2	5	3	8	14	12	21	8	12	15	14	28	14.0	HIGHER
Leprosy	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0.0	Similar
Listeriosis	0	1	2	1	0	1	0	1	0	4	2	2	1	3	3	0	0	1.8	Similar
Lyme disease *	0	0	1	0	1	6	0	1	4	2	3	12	14	18	24	51	33	23.8	Similar
Measles *	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0.0	Similar
Meningitis - bacterial	2	0	2	0	0	0	0	0	0	1	1	3	4	0	1	1	1	1.8	Similar
Meningitis - other	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.2	Similar
Meningitis - viral	0	0	0	0	3	0	0	0	0	0	16	10	6	11	13	24	10	12.8	Similar
Meningococcal disease, invasive *	3	1	1	1	2	4	2	5	3	1	3	1	2	3	0	1	5	1.4	HIGHER
Mumps *	1	0	1	0	0	0	0	2	1	7	1	0	0	0	6	4	0	2.0	Similar
Paratyphoid fever	0	1	0	1	0	0	1	0	0	1	1	1	0	2	0	1	1	0.8	Similar
Pertussis (whooping cough) *	11	24	48	41	53	51	33	8	0	4	20	7	13	17	8	13	4	11.6	Similar
Q fever	0	1	0	1	0	1	0	1	0	1	3	1	5	4	1	1	0	2.4	Similar
Salmonellosis *	122	91	87	118	111	153	111	114	138	137	150	138	141	155	183	141	125	151.6	Similar
Shigellosis *	45	9	6	6	6	12	3	8	6	7	4	6	6	3	15	8	4	7.6	Similar
<i>Streptococcus pneumoniae</i> , invasive *	0	40	47	44	24	46	43	51	56	56	57	45	48	43	47	44	50	45.4	Similar
Syphilis, infectious	0	0	0	0	0	0	5	12	21	13	20	14	12	18	35	62	63	28.2	Similar
Syphilis, non-infectious	4	2	3	2	5	4	36	43	36	36	28	27	17	22	30	43	37	27.8	Similar
Tuberculosis - active cases	9	11	11	6	7	14	15	12	9	15	7	9	12	17	14	13	19	13.0	Similar

Reportable Disease	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2013 to 2017 Average	2018 Compared to Average ^
<b>Tuberculosis - latent infection</b>	-	-	5	100	218	220	270	221	234	186	222	199	263	285	280	273	342	260.0	<b>HIGHER</b>
<b>Tuberculosis - medical surveillance cases</b>	49	62	54	59	59	64	50	50	55	59	49	47	51	57	52	83	90	58.0	<b>HIGHER</b>
<b>Tularemia *</b>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	Similar
<b>Typhoid Fever</b>	2	0	0	1	0	2	5	0	0	3	3	3	3	0	3	4	3	2.6	Similar
<b>Verotoxin producing <i>E. coli</i> including haemolytic uraemic syndrome *</b>	11	7	8	18	12	13	9	8	11	8	8	13	1	8	13	1	9	7.2	Similar
<b>West Nile virus illness *</b>	3	0	0	0	0	1	1	0	1	2	8	3	0	2	2	3	5	2.0	Similar
<b>Yersiniosis *</b>	8	8	8	8	14	7	3	7	5	4	6	6	5	10	7	8	15	7.2	<b>HIGHER</b>

Data Source: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2002 to 2018, extracted by Durham Region Health Department, July 2019.

\* We included probable cases along with confirmed cases for these diseases from 2009 onward. This enabled comparison to previous years because the case definitions changed in 2009.

\*\* Prior to May 1, 2018 only *Haemophilus influenzae* disease caused by serotype b was reportable and now all serotypes are reportable.

^ **HIGHER** indicates higher than expected compared to 5-year average (2013-2017) plus two standard deviations; **LOWER** indicates lower than expected compared to 5-year average minus two standard deviations.

- indicates data not available.

Reportable diseases with no cases reported in Durham Region from 2002 onward include chancroid, diphtheria, Ebola virus disease, hantavirus pulmonary syndrome, Lassa fever, Marburg virus disease, paralytic shellfish poisoning, plague, acute poliomyelitis, psittacosis/ornithosis, human rabies, congenital rubella, rubella, Severe Acute Respiratory Syndrome (SARS), smallpox, tetanus, and trichinosis. For all other reportable diseases, we compared the number of cases in 2018 to the average number of cases for 2013 to 2017. There were more cases than expected in 2018 for chlamydia, gonorrhea, legionellosis, invasive meningococcal disease, latent tuberculosis infection, and yersiniosis. There were fewer cases than expected for amebiasis.

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