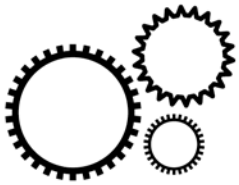

Alberta Sexually Transmitted Infections and HIV

2020

Alberta

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Foreword

Sexually transmitted infections (STIs) are an important cause of morbidity in Alberta. Surveillance of STIs in Alberta, in some instances, has been ongoing since the early 1920s and provides essential information for policy and decision-making. The requirements for reporting communicable diseases, including Sexually Transmitted and Blood-Borne Infections (STBBIs), are mandated by the *Communicable Diseases Regulation* [1] under the *Public Health Act* [2]. Notifiable diseases are reportable within 48 hours via Sexually Transmitted Infection Centralized Services (STICS) to the STI Medical Director.

The "Sexually Transmitted Infections and HIV in Alberta: Annual Report" provides a high-level overview of four notifiable STBBIs: chlamydia (including lymphogranuloma venereum (LGV)), gonorrhea, HIV, and infectious syphilis (please refer to the Alberta Health webpage for a complete list of notifiable diseases [3]). Focus is placed on examining counts and rates of STBBIs for the current year within the context of previous years and Alberta Health Services (AHS) Zones. As such, the report is organized into six profiles, starting with the entire province and followed by each of AHS' five zones (South, Calgary, Central, Edmonton, and North). This is intended to provide greater insight and comparison between geographic regions. Visit the following link for more details on each health zone: https://www.albertahealthservices.ca/zones/zones.aspx.

For this edition, an additional insert on congenital syphilis has been included (please refer to the annex).

Data collected under the surveillance program is compiled, summarized, and presented on the Interactive Health Data Application (IHDA): http://www.ahw.gov.ab.ca/IHDA_Retrieval/.

Acronyms

AHS: Alberta Health Services
HIV: Human Immunodeficiency Virus
IDU: Intravenous Drug Use
IHDA: Interactive Health Data Application
LGV: Lymphogranuloma Venereum
MSM: Men who have Sex with Men
PNN: Partner Notification Nurse
PrEP: Pre-Exposure Prophylaxis
SRH: Sexual and Reproductive Health
STI: Sexually Transmitted Infection
STBBI: Sexually Transmitted and Blood-Borne Infection

Acknowledgments

This report was prepared in partnership and in collaboration with public health and laboratory experts from:

- Alberta Health
- Alberta Health Services (AHS)
- Alberta Precision Laboratory

Considerations for Interpreting Surveillance Data

Efforts are taken to ensure surveillance and laboratory data collected by Alberta Health and AHS are accurate and complete; however, interpreting surveillance data is complex. Although observed trends may be indicative of a true increase or decrease in STI/HIV cases and rates, several influencing factors should be considered:

- Changes in surveillance and data collection methods (e.g. improved contact tracing, electronic reporting, and screening programs to detect cases).
- Changes in social behaviors, attitudes, and stigma (e.g. social media, Chemsex, and public health awareness campaigns). [4]–[6]
- New diagnostic tools and increased testing/screening (e.g. Nucleic acid amplification tests are more sensitive than previous methods). [7]
- STIs can increase HIV infectiousness and susceptibility. [8]
- Compared to women, men are more likely to experience symptoms and present for testing when infected with some STIs. [9], [10]
- In general, women of reproductive age groups are more likely to be screened for STI/HIV.
- Depending upon the site of infection, male to female transmission for some STIs is more efficient and occurs at a higher rate than female to male transmission. [11], [12]
- Compared to men, women are more biologically susceptible to certain STIs (e.g. chlamydia) due to structural characteristics of their genital epithelium. [10]
- Select populations, including under-housed or transient, may have barriers that influence their access to care.
- Rates of infection calculated from small case numbers must be interpreted with caution (e.g. some denominations of HIV examined at health zone level).

Specific health initiatives, and/or changes to laboratory testing practices that may influence trends seen in this report include (please refer to prior annual reports for previous initiatives) [13], [14]:

- Global shortage of gonorrhea/chlamydia test swabs from APTIMA.
- Effects of the COVID-19 pandemic and associated restrictions on service capacity, testing, and general access to care:
  - Appointment-based service model.
  - Reduced capacity of ambulatory in-person care.
  - Staff deployments.
- Increased nucleic acid amplification testing on placental tissue to increase congenital syphilis detection.
- Incentive testing for hard-to-reach populations. [15]

1. Alberta Profile

Case Counts

A total of 21,702 STI/HIV cases were reported in 2020:

- Chlamydia: 14,110 cases, a decrease of 22.5 per cent (n = 4,096) compared to 2019.
- Gonorrhea: 4,893 cases, a decrease of 8.3 per cent (n = 440) compared to 2019.
- HIV: 190 cases, a decrease of 24.9 per cent (n = 63) compared to 2019.
- Infectious syphilis: 2,509 cases, an increase of 9.0 per cent (n = 207) compared to 2019.

Rate of Reported Cases

- Chlamydia: 319.1 cases per 100,000 population, a decrease of 23.6 per cent compared to 2019.
- Gonorrhea: 110.7 cases per 100,000 population, a decrease of 9.5 per cent compared to 2019.
- HIV: 4.3 cases per 100,000 population, a decrease of 25.9 per cent compared to 2019.
- Infectious syphilis: 56.7 cases per 100,000 population, an increase of 7.5 per cent compared to 2019.

Gender and Age

- Chlamydia cases: 58.9 per cent were female, of which 59.7 per cent were 15-24 years old.
- Gonorrhea cases: 57.2 per cent were male, of which 37.5 per cent were 20-29 years old.
- HIV cases: 33.7 per cent were female, of which 45.3 per cent were 25-39 years old.
- Infectious syphilis cases: 56.5 per cent were male, of which 36.0 per cent were 30-39 years old.

HIV Exposure Categories

In 2020, 38.4 per cent (n = 48) of male cases, were attributed to the exposure category “MSM”, whereas 59.4 per cent of female cases (n = 38) were attributed to the exposure category “Heterosexual Exposure”.

Spatial Distribution

The highest gonorrhea rates among AHS Zones were North Zone (147 cases per 100,000 population) and Edmonton Zone (144.8 cases per 100,000 population). The highest infectious syphilis rates among AHS Zones were North Zone (125.4 cases per 100,000 population) and Edmonton Zone (85.2 cases per 100,000 population).

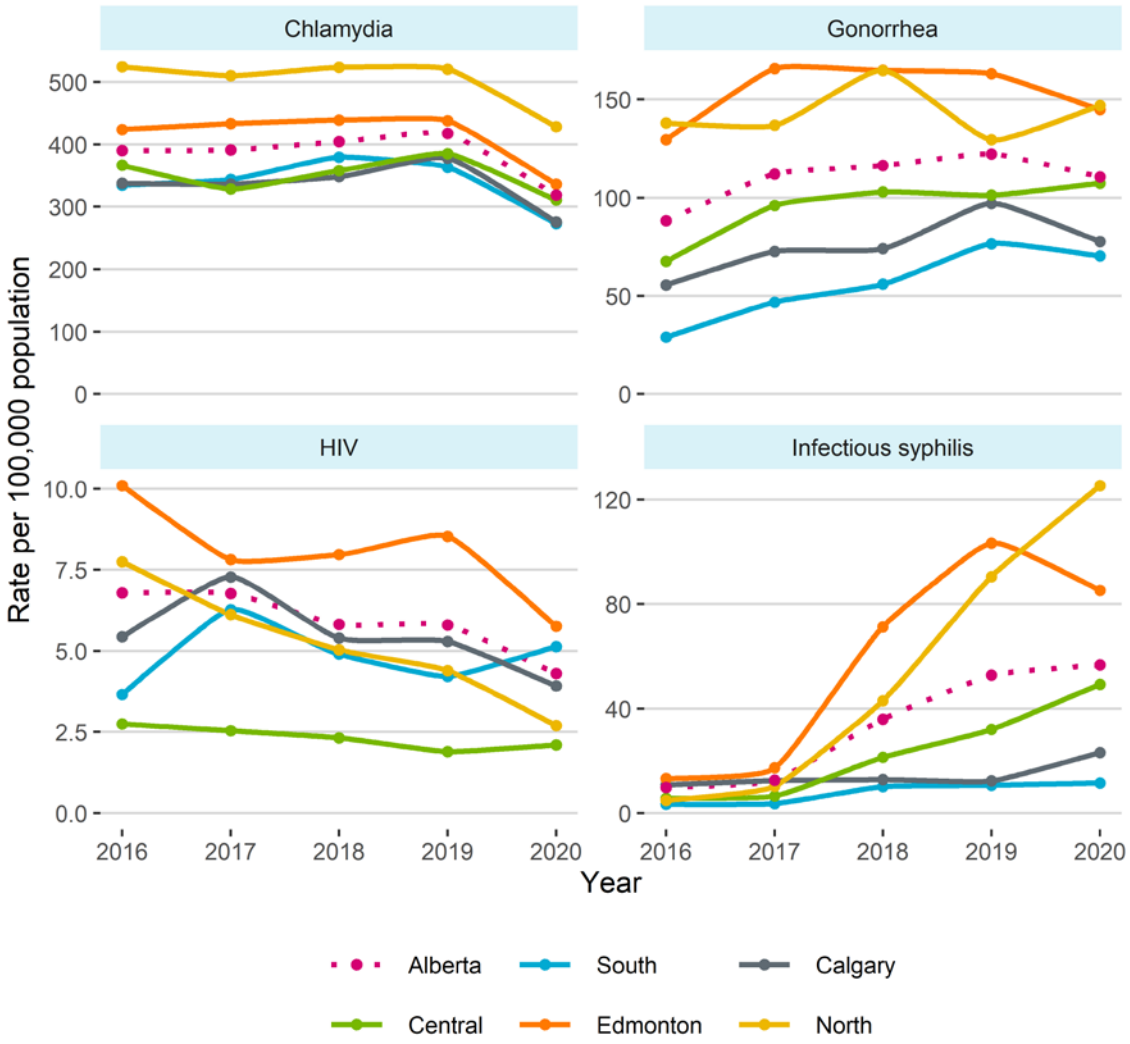


Figure 1. Rates of reported STIs/HIV for Alberta and AHS Zones, 2016 to 2020.

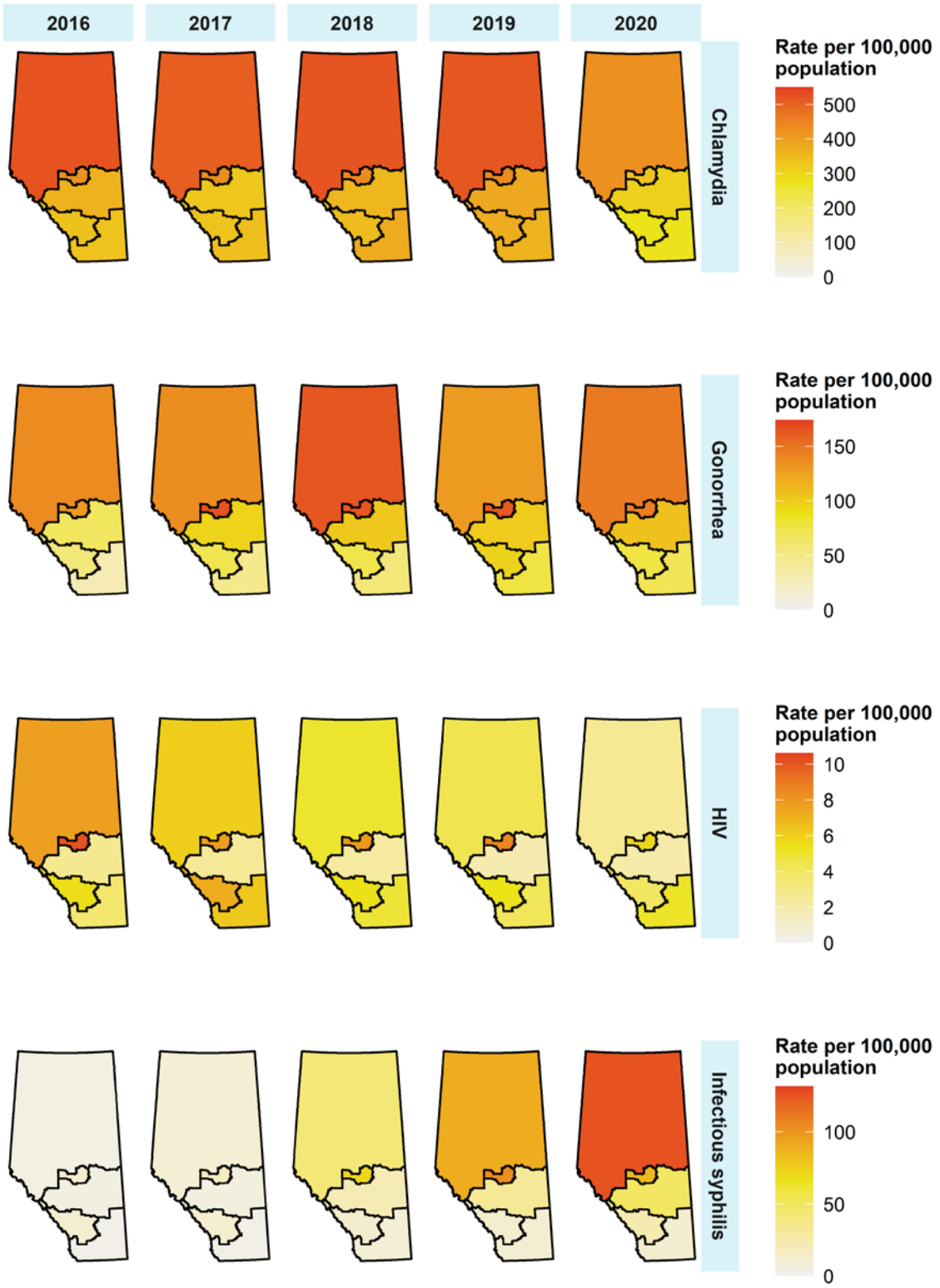


Figure 2. Rates of reported STIs/HIV by AHS Zones, 2016 to 2020. For more information on AHS Zones, please visit: https://www.albertahealthservices.ca/zones/zones.aspx.

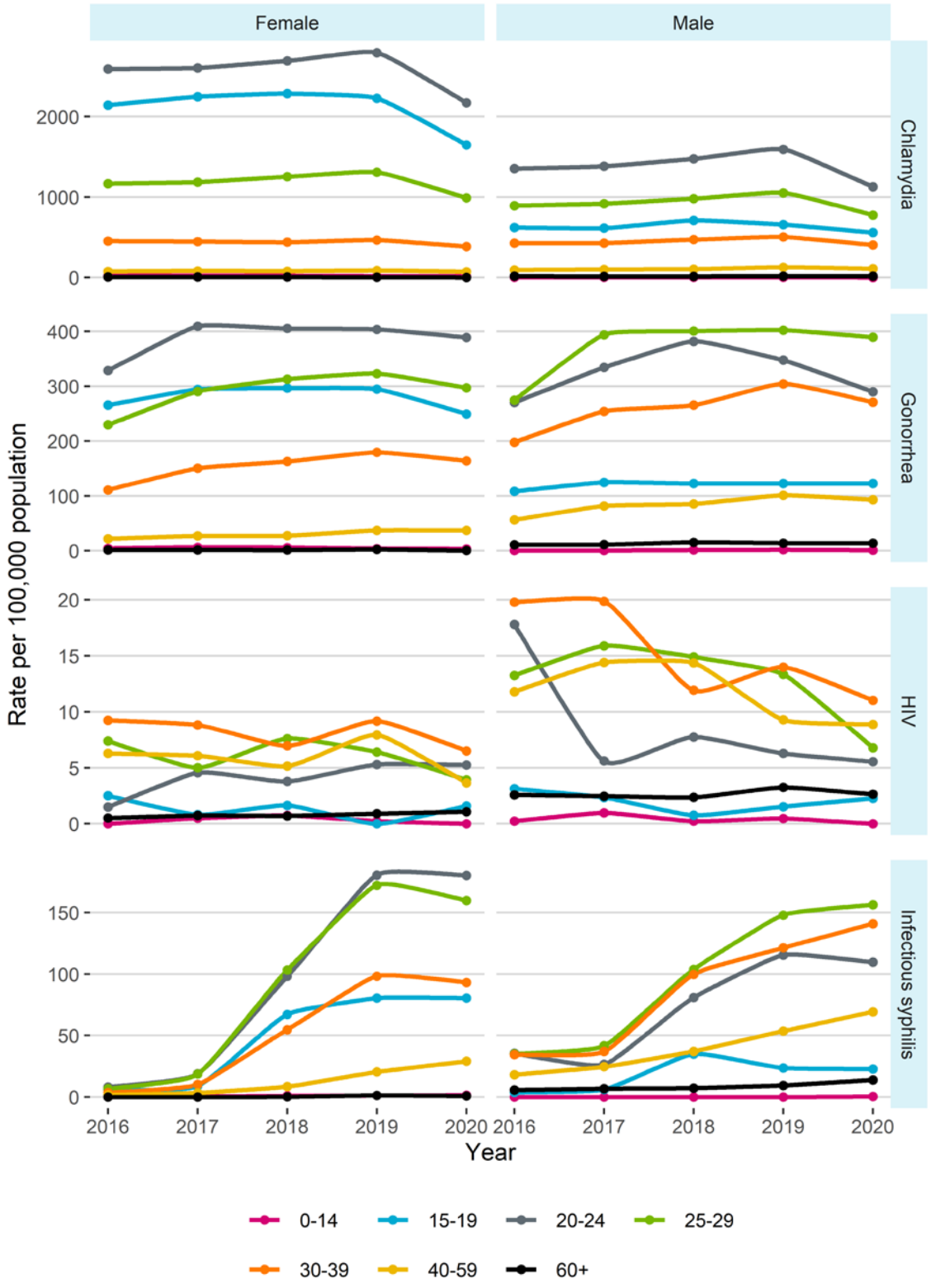


Figure 3. STI/HIV rates by age and gender in Alberta, 2016 to 2020.

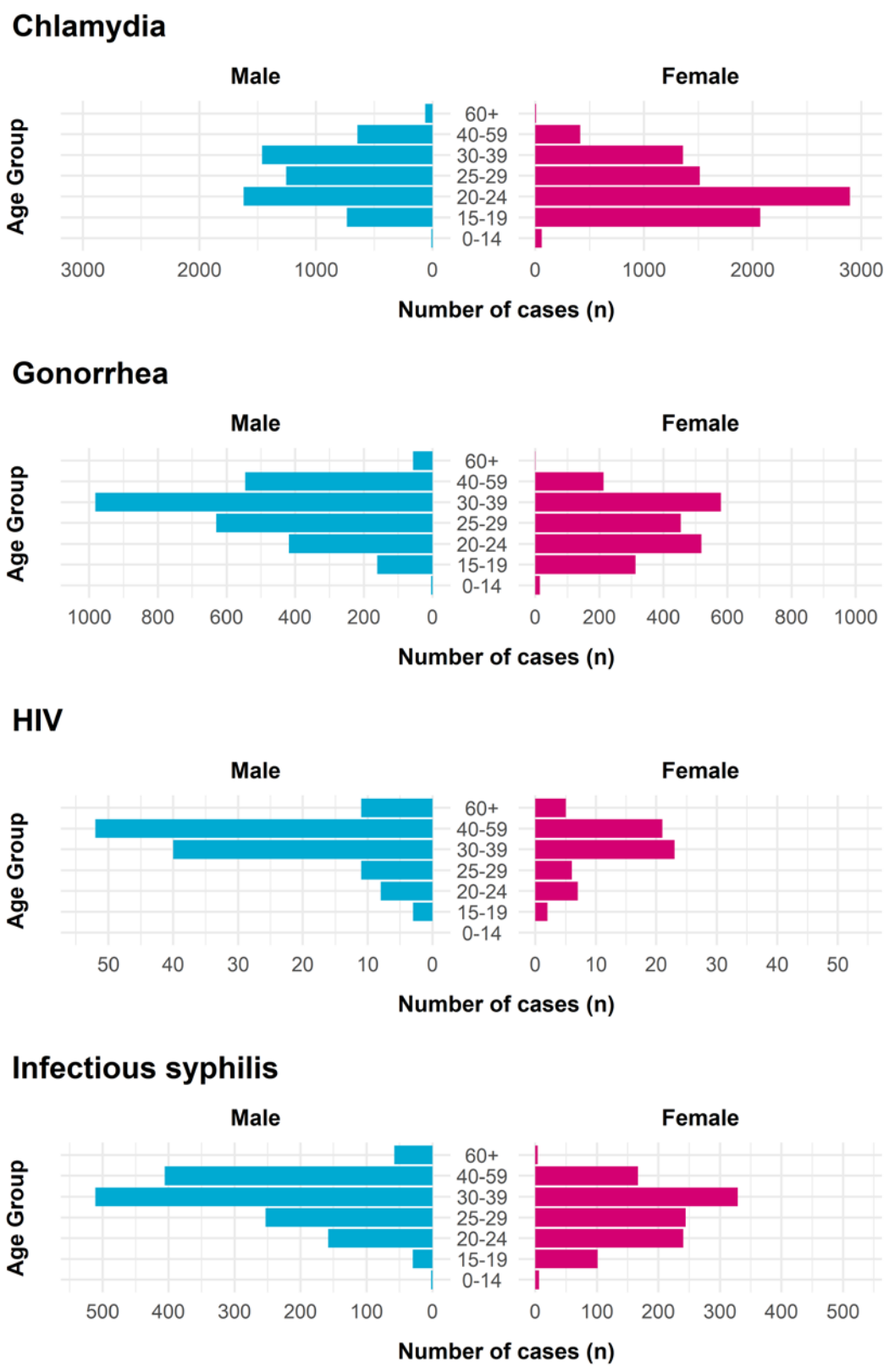


Figure 4. STI/HIV cases by age and gender in Alberta, 2020.

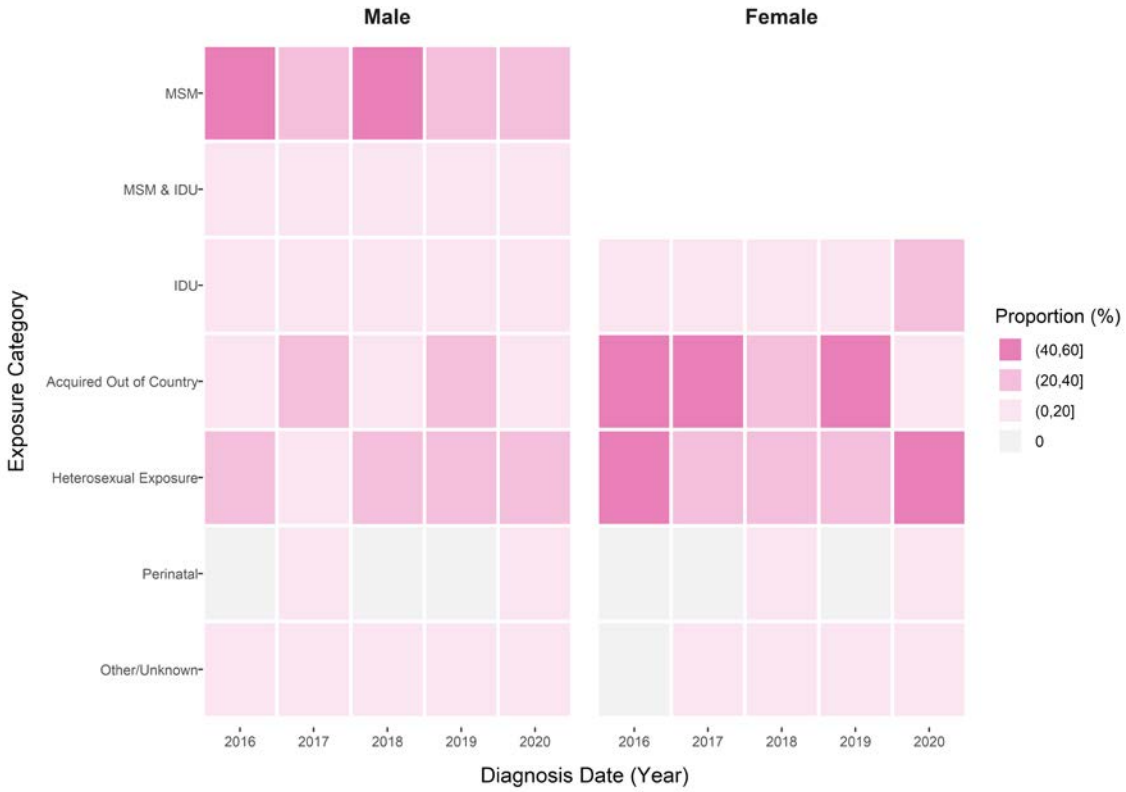


Figure 5. Proportion of HIV infections attributed to respective exposure categories in Alberta, 2016 to 2020. Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

2. South Zone Profile

Case Counts

A total of 1,122 STI/HIV cases were reported in 2020:

- Chlamydia: 851 cases, a decrease of 24.0 per cent (n = 269) compared to 2019.
- Gonorrhea: 219 cases, a decrease of 7.2 per cent (n = 17) compared to 2019.
- HIV: 16 cases, an increase of 23.1 per cent (n = 3) compared to 2019.
- Infectious syphilis: 36 cases, an increase of 9.1 per cent (n = 3) compared to 2019.

Rate of Reported Cases

- Chlamydia: 273.2 cases per 100,000 population, a decrease of 24.8 per cent compared to 2019.
- Gonorrhea: 70.3 cases per 100,000 population, a decrease of 8.2 per cent compared to 2019.
- HIV: 5.1 cases per 100,000 population, an increase of 21.8 per cent compared to 2019.
- Infectious syphilis: 11.6 cases per 100,000 population, an increase of 7.9 per cent compared to 2019.

Gender and Age

- Chlamydia cases: 62.2 per cent were female, of which 65.0 per cent were 15-24 years old.
- Gonorrhea cases: 50.2 per cent were male, of which 48.2 per cent were 20-29 years old.
- HIV cases: 33.7 per cent were female, of which 45.3 per cent were 25-39 years old.
- Infectious syphilis cases: 55.6 per cent were female, of which 70.0 per cent were 20-29 years old.

HIV Exposure Categories

In 2020, 40 per cent (n = 4) of male cases, were attributed to the exposure category “Heterosexual Exposure”, whereas 66.7 per cent of female cases (n = 4) were attributed to the exposure category “IDU”.

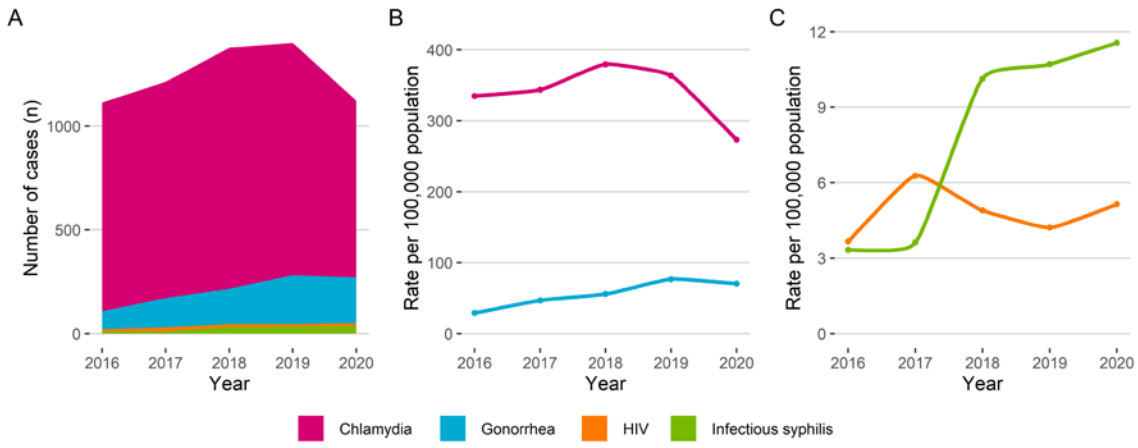


Figure 6. Counts and rates of STIs/HIV in South Zone, 2016 to 2020. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

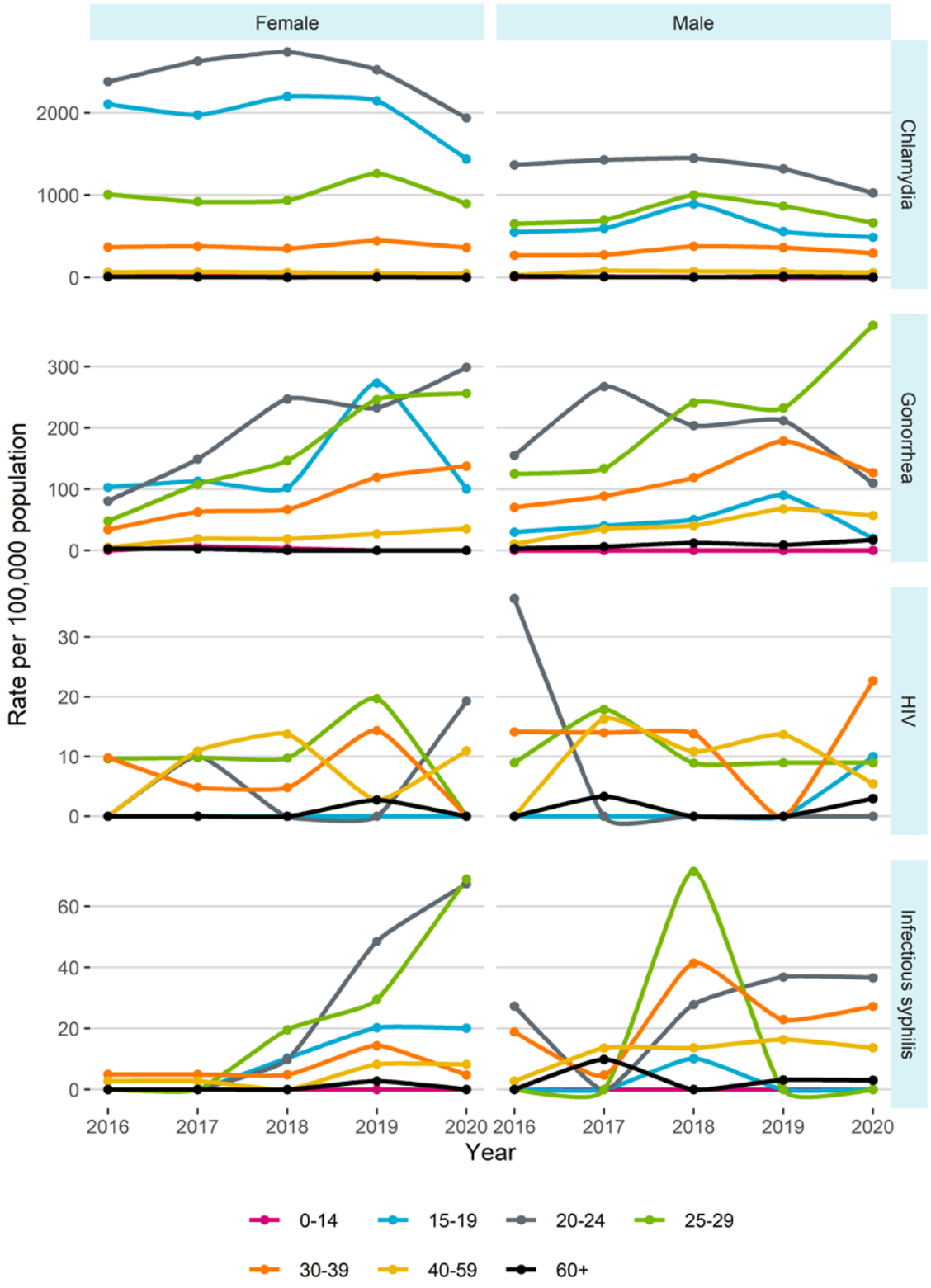


Figure 7. STI/HIV rates by age and gender in South Zone, 2016 to 2020.

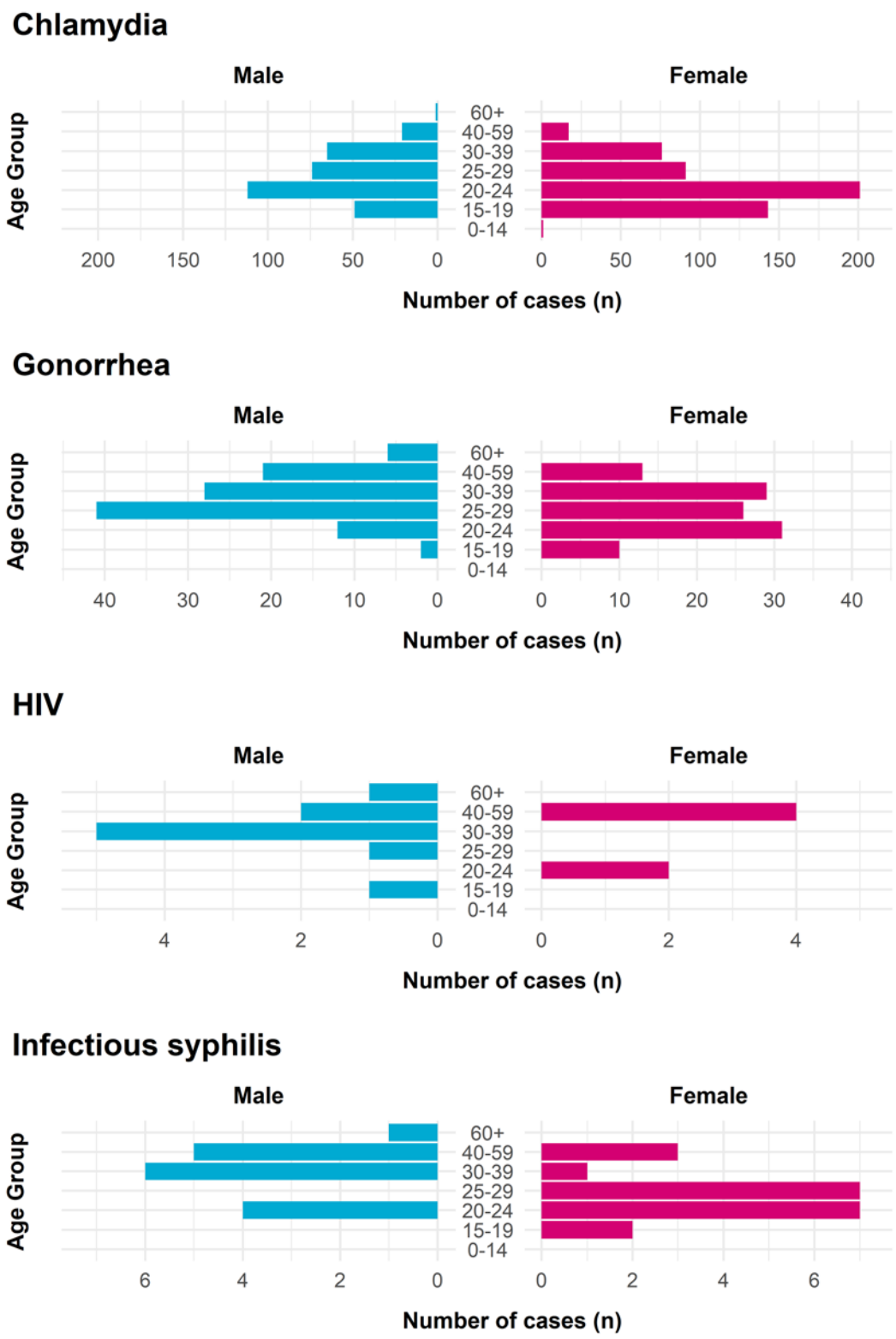


Figure 8. STI/HIV cases by age and gender in South Zone, 2020.

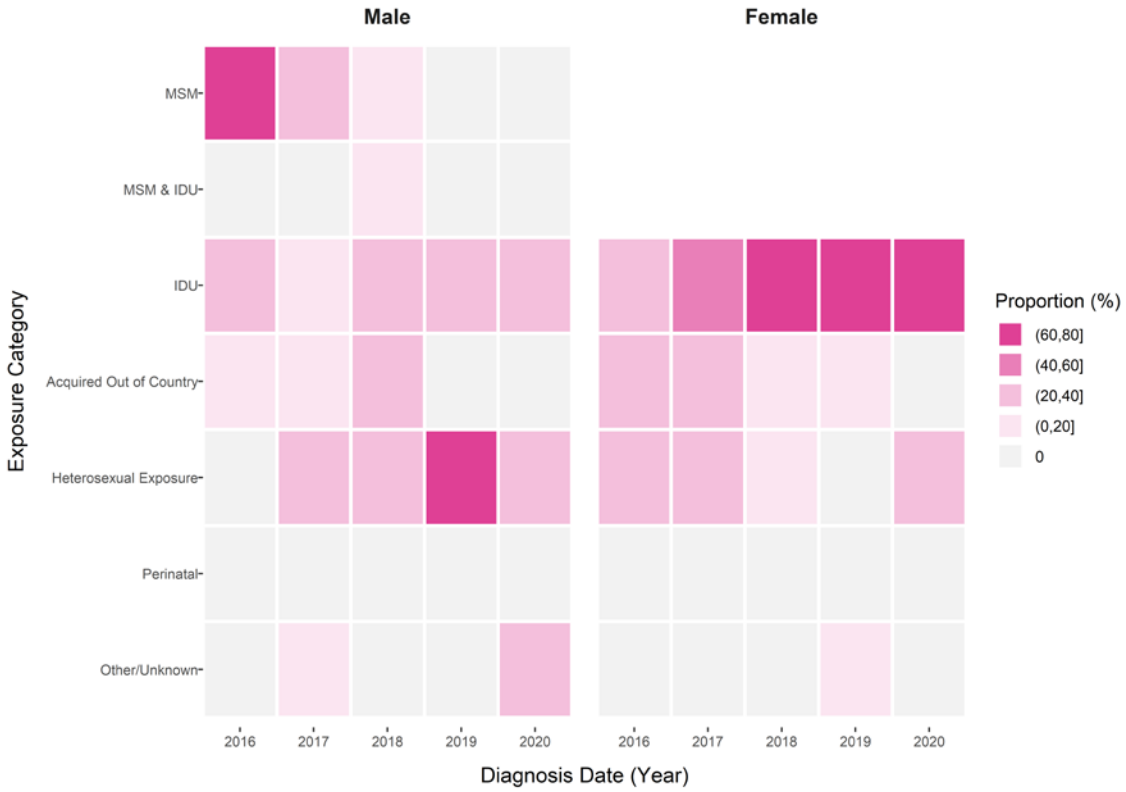


Figure 9. Proportion of HIV infections attributed to respective exposure categories in South Zone, 2016 to 2020. Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

3. Calgary Zone Profile

Case Counts

A total of 6,509 STI/HIV cases were reported in 2020:

- Chlamydia: 4,718 cases, a decrease of 25.8 per cent (n = 1,638) compared to 2019.
- Gonorrhea: 1,327 cases, a decrease of 18.7 per cent (n = 305) compared to 2019.
- HIV: 67 cases, a decrease of 24.7 per cent (n = 22) compared to 2019.
- Infectious syphilis: 397 cases, an increase of 91.8 per cent (n = 190) compared to 2019.

Rate of Reported Cases

- Chlamydia: 275.8 cases per 100,000 population, a decrease of 27.0 per cent compared to 2019.
- Gonorrhea: 77.6 cases per 100,000 population, a decrease of 20.1 per cent compared to 2019.
- HIV: 3.9 cases per 100,000 population, a decrease of 25.9 per cent compared to 2019.
- Infectious syphilis: 23.2 cases per 100,000 population, an increase of 88.5 per cent compared to 2019.

Gender and Age

- Chlamydia cases: 57.3 per cent were female, of which 58.7 per cent were 15-24 years old.
- Gonorrhea cases: 65.5 per cent were male, of which 35.8 per cent were 20-29 years old.
- HIV cases: 33.7 per cent were female, of which 45.3 per cent were 25-39 years old.
- Infectious syphilis cases: 72.5 per cent were male, of which 38.2 per cent were 30-39 years old.

HIV Exposure Categories

In 2020, 47.8 per cent (n = 22) of male cases, were attributed to the exposure category “MSM”, whereas 71.4 per cent of female cases (n = 15) were attributed to the exposure category “Heterosexual Exposure”.

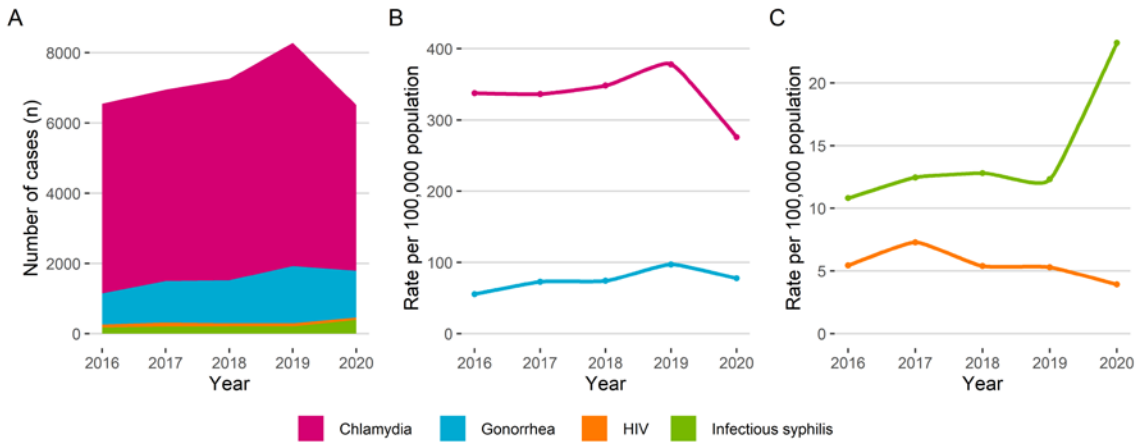


Figure 10. Counts and rates of STIs/HIV in Calgary Zone, 2016 to 2020. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

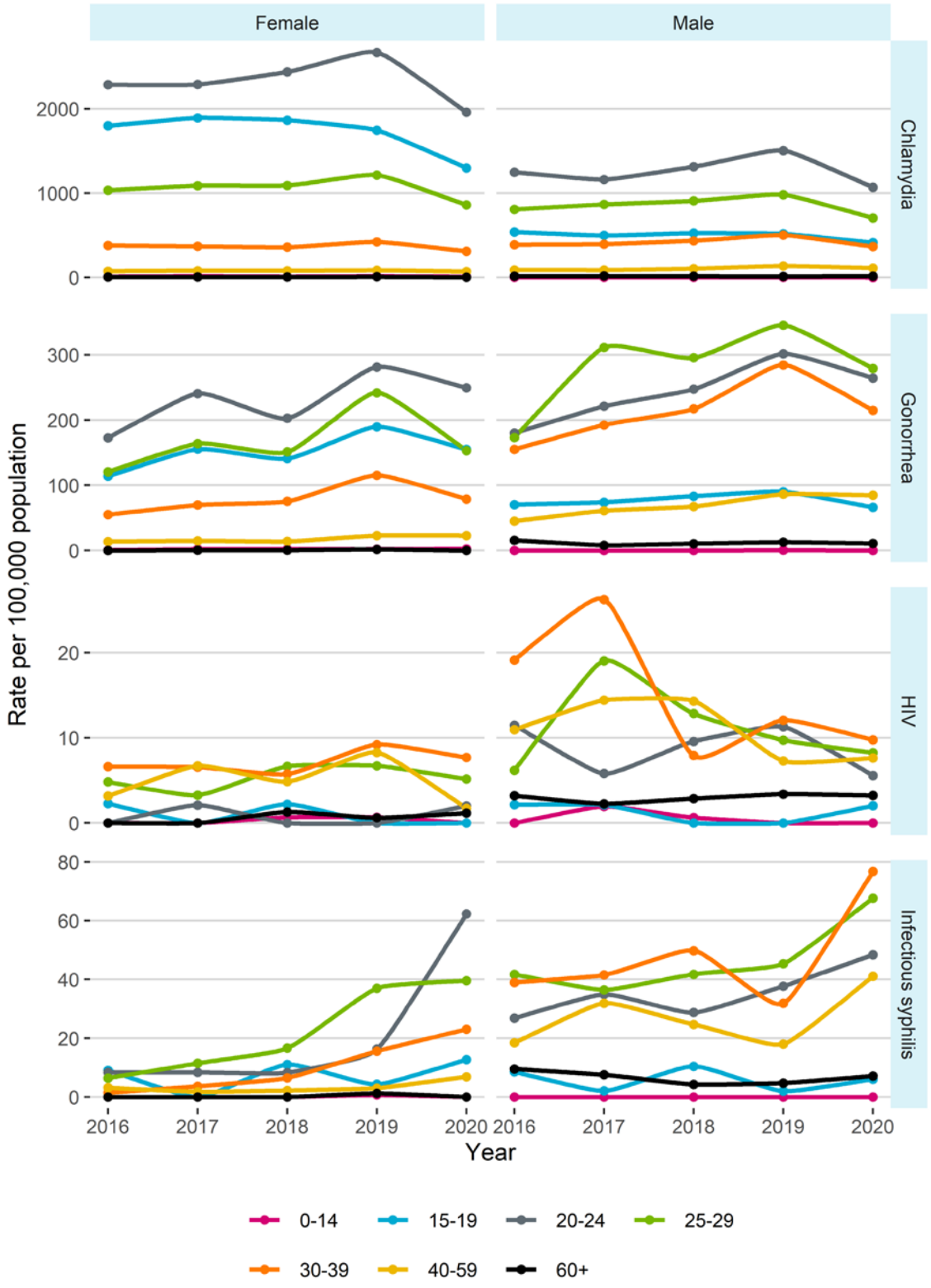


Figure 11. STI/HIV rates by age and gender in Calgary Zone, 2016 to 2020.

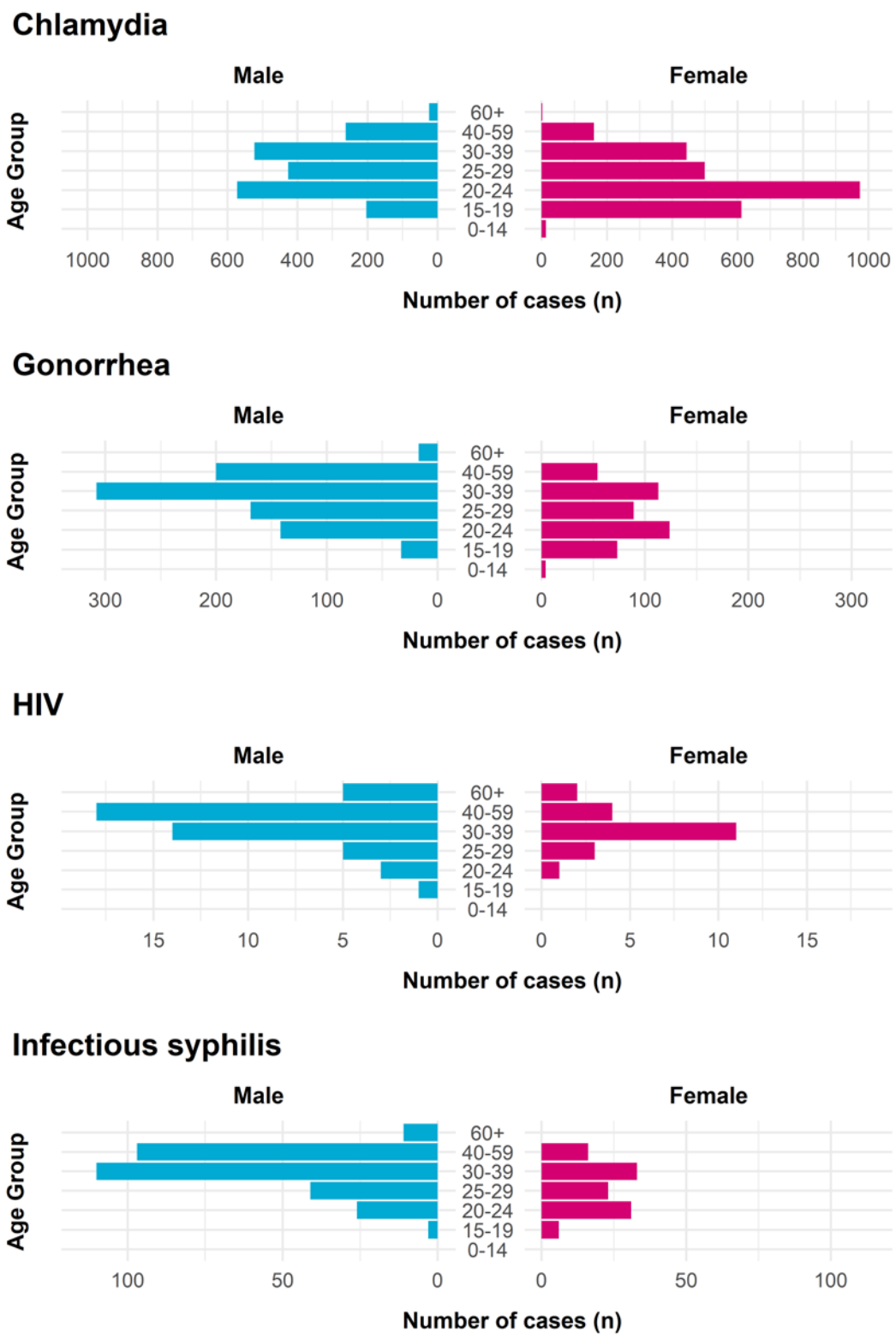


Figure 12. STI/HIV cases by age and gender in Calgary Zone, 2020.

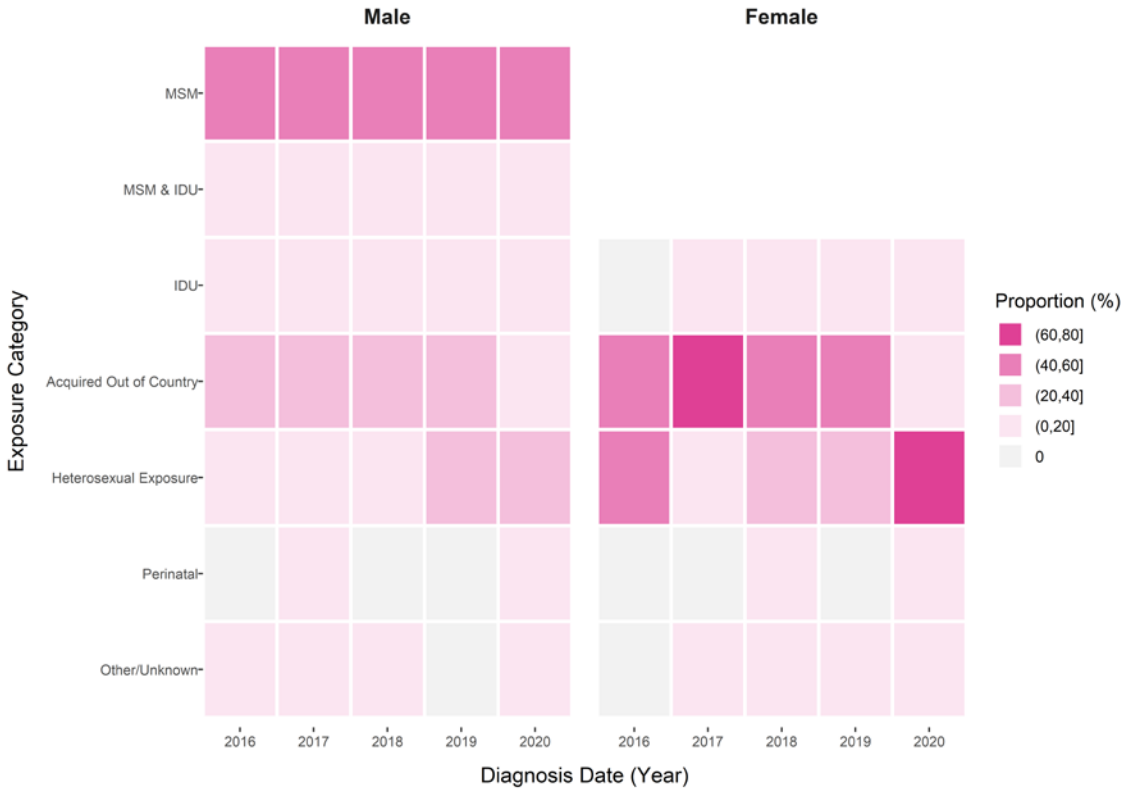


Figure 13. Proportion of HIV infections attributed to respective exposure categories in Calgary Zone, 2016 to 2020. Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

4. Central Zone Profile

Case Counts

A total of 2,239 STI/HIV cases were reported in 2020:

- Chlamydia: 1,482 cases, a decrease of 18.9 per cent (n = 345) compared to 2019.
- Gonorrhea: 512 cases, an increase of 6.4 per cent (n = 31) compared to 2019.
- HIV: 10 cases, an increase of 11.1 per cent (n = 1) compared to 2019.
- Infectious syphilis: 235 cases, an increase of 54.6 per cent (n = 83) compared to 2019.

Rate of Reported Cases

- Chlamydia: 310.9 cases per 100,000 population, a decrease of 19.2 per cent compared to 2019.
- Gonorrhea: 107.4 cases per 100,000 population, an increase of 6.0 per cent compared to 2019.
- HIV: 2.1 cases per 100,000 population, an increase of 10.5 per cent compared to 2019.
- Infectious syphilis: 49.3 cases per 100,000 population, an increase of 54.0 per cent compared to 2019.

Gender and Age

- Chlamydia cases: 60.1 per cent were female, of which 67.9 per cent were 15-24 years old.
- Gonorrhea cases: 52.1 per cent were male, of which 40.8 per cent were 20-29 years old.
- HIV cases: 33.7 per cent were female, of which 45.3 per cent were 25-39 years old.
- Infectious syphilis cases: 61.3 per cent were male, of which 35.4 per cent were 30-39 years old.

HIV Exposure Categories

In 2020, 40 per cent (n = 2) of male cases, were attributed to the exposure category “IDU”, whereas 80 per cent of female cases (n = 4) were attributed to the exposure category “Heterosexual Exposure”.

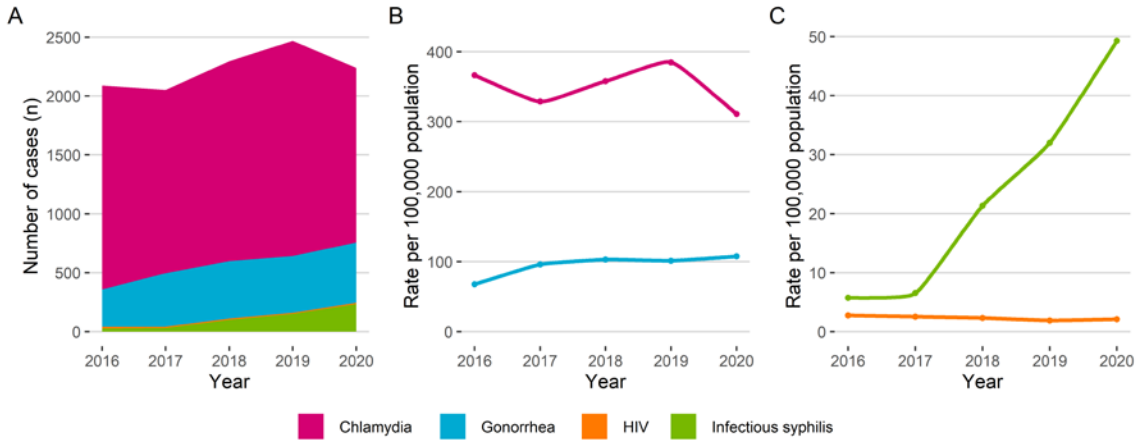


Figure 14. Counts and rates of STIs/HIV in Central Zone, 2016 to 2020. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

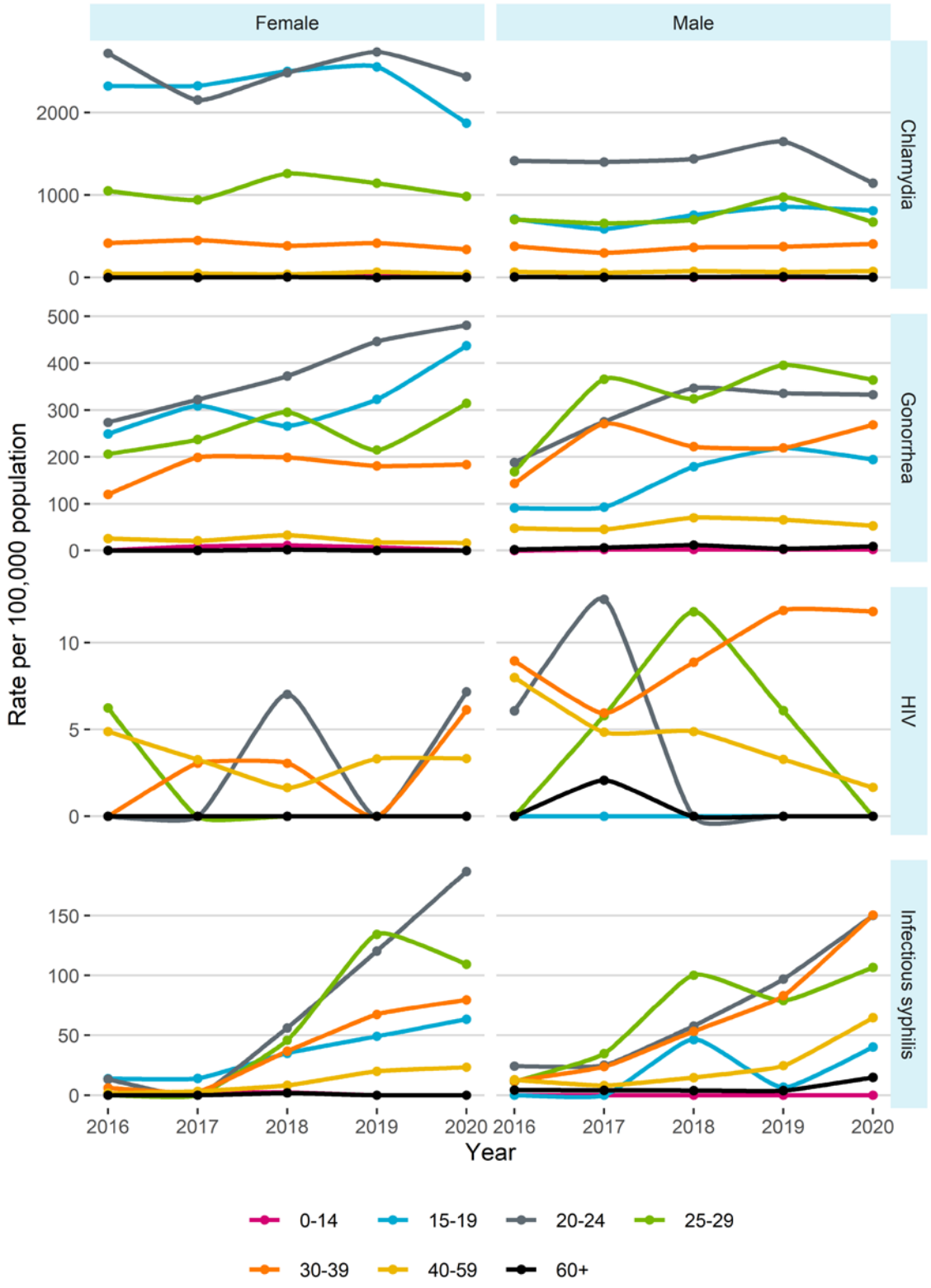


Figure 15. STI/HIV rates by age and gender in Central Zone, 2016 to 2020.

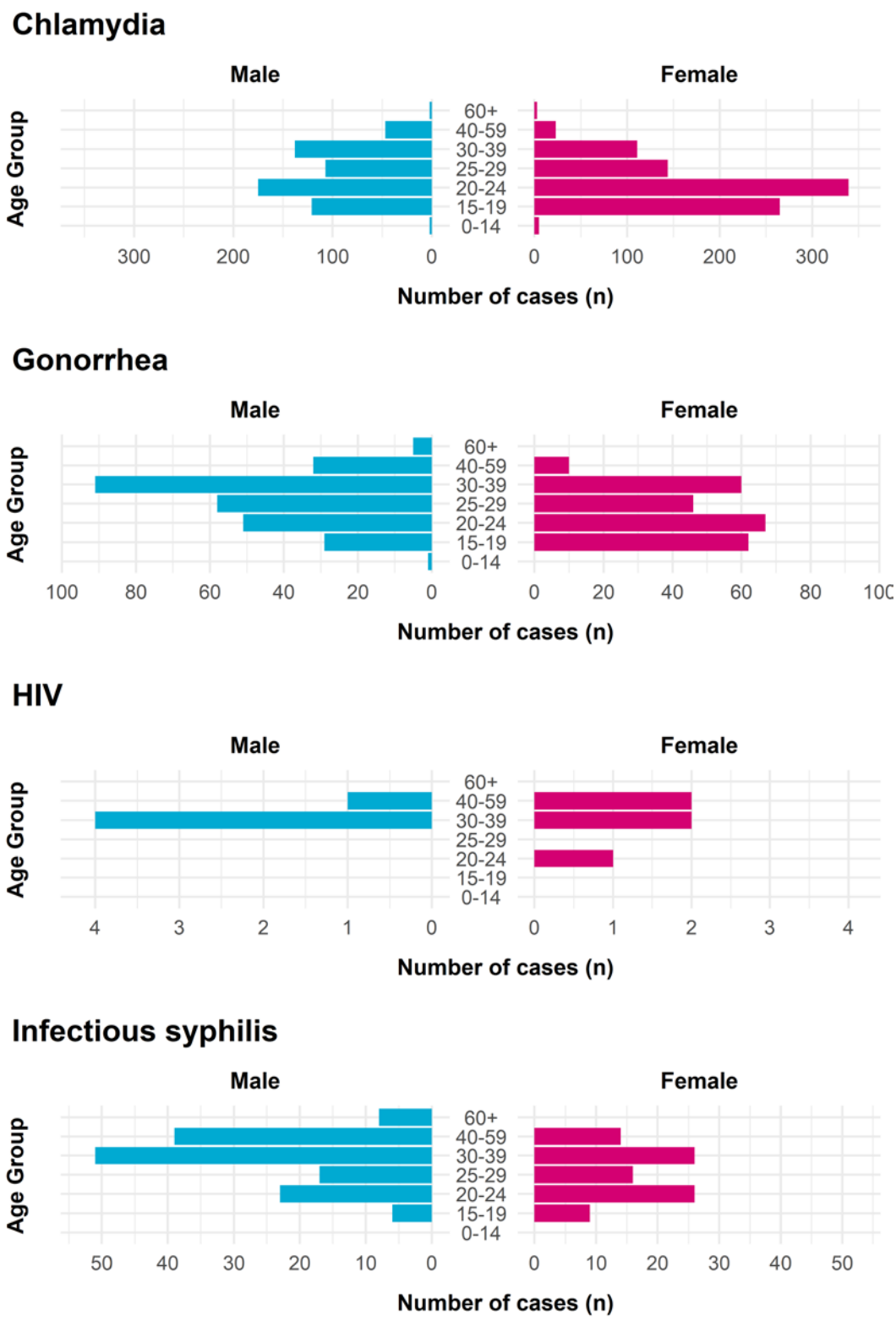


Figure 16. STI/HIV cases by age and gender in Central Zone, 2020.

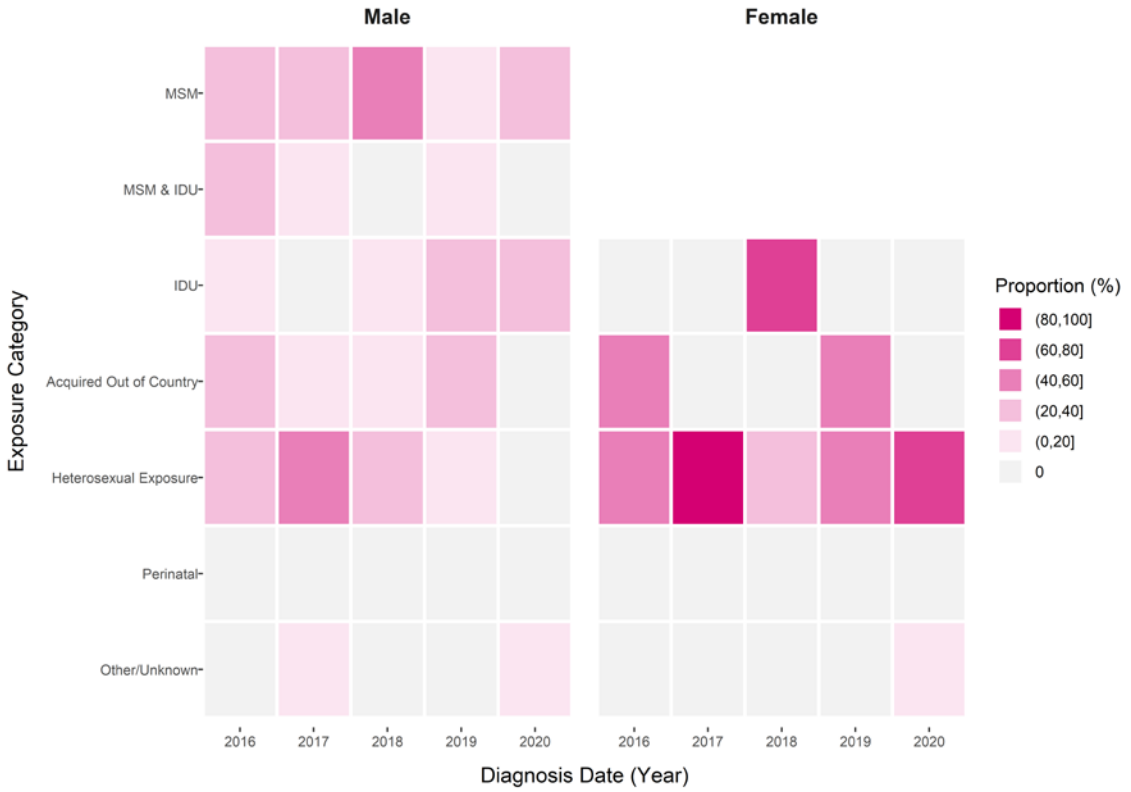


Figure 17. Proportion of HIV infections attributed to respective exposure categories in Central Zone, 2016 to 2020. Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

5. Edmonton Zone Profile

Case Counts

A total of 8,247 STI/HIV cases were reported in 2020:

- Chlamydia: 4,847 cases, a decrease of 22.0 per cent (n = 1,365) compared to 2019.
- Gonorrhea: 2,088 cases, a decrease of 9.8 per cent (n = 226) compared to 2019.
- HIV: 83 cases, a decrease of 31.4 per cent (n = 38) compared to 2019.
- Infectious syphilis: 1,229 cases, a decrease of 16.2 per cent (n = 237) compared to 2019.

Rate of Reported Cases

- Chlamydia: 336.1 cases per 100,000 population, a decrease of 23.2 per cent compared to 2019.
- Gonorrhea: 144.8 cases per 100,000 population, a decrease of 11.2 per cent compared to 2019.
- HIV: 5.8 cases per 100,000 population, a decrease of 32.5 per cent compared to 2019.
- Infectious syphilis: 85.2 cases per 100,000 population, a decrease of 17.5 per cent compared to 2019.

Gender and Age

- Chlamydia cases: 58.7 per cent were female, of which 57.5 per cent were 15-24 years old.
- Gonorrhea cases: 56.0 per cent were male, of which 36.3 per cent were 30-39 years old.
- HIV cases: 33.7 per cent were female, of which 45.3 per cent were 25-39 years old.
- Infectious syphilis cases: 55.0 per cent were male, of which 34.3 per cent were 30-39 years old.

HIV Exposure Categories

In 2020, 36.8 per cent (n = 21) of male cases, were attributed to the exposure category “Heterosexual Exposure”, whereas 44 per cent of female cases (n = 11) were attributed to the exposure category “Heterosexual Exposure”.

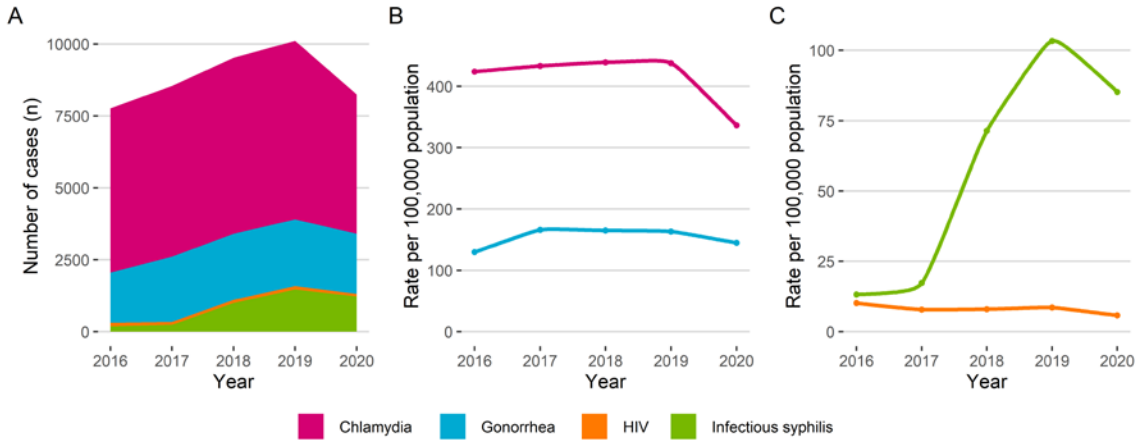


Figure 18. Counts and rates of STIs/HIV in Edmonton Zone, 2016 to 2020. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

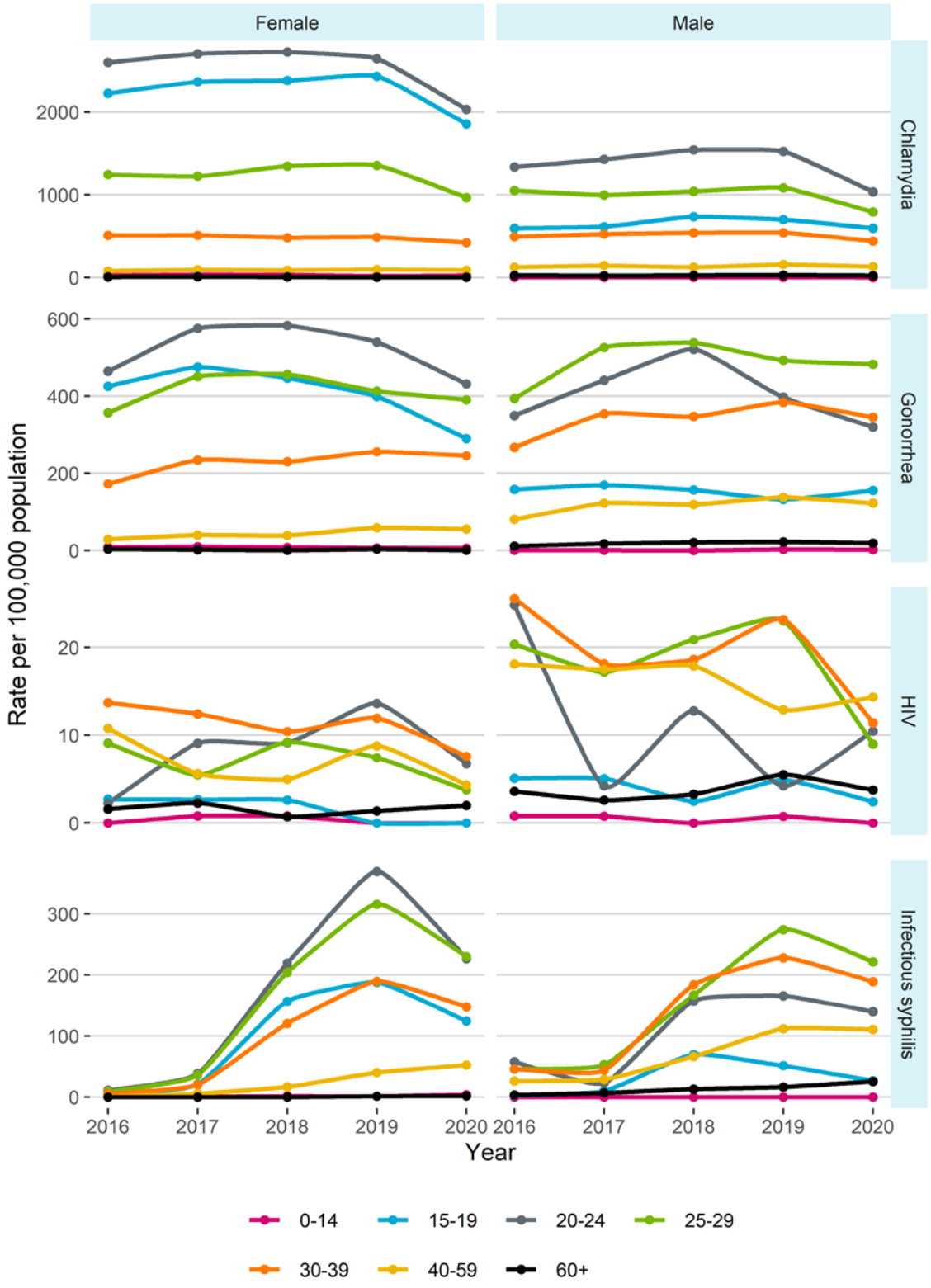


Figure 19. STI/HIV rates by age and gender in Edmonton Zone, 2016 to 2020.

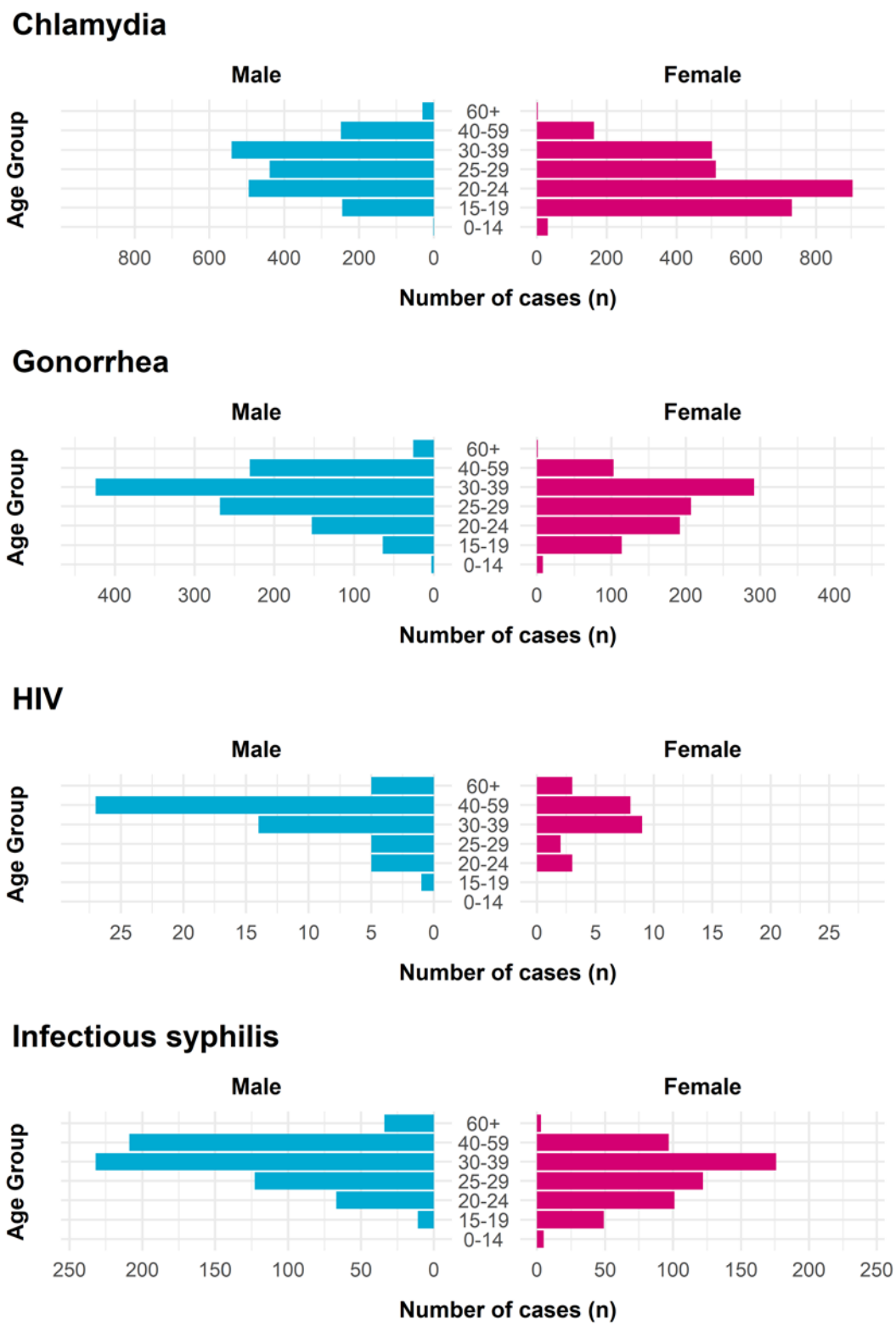


Figure 20. STI/HIV cases by age and gender in Edmonton Zone, 2020.

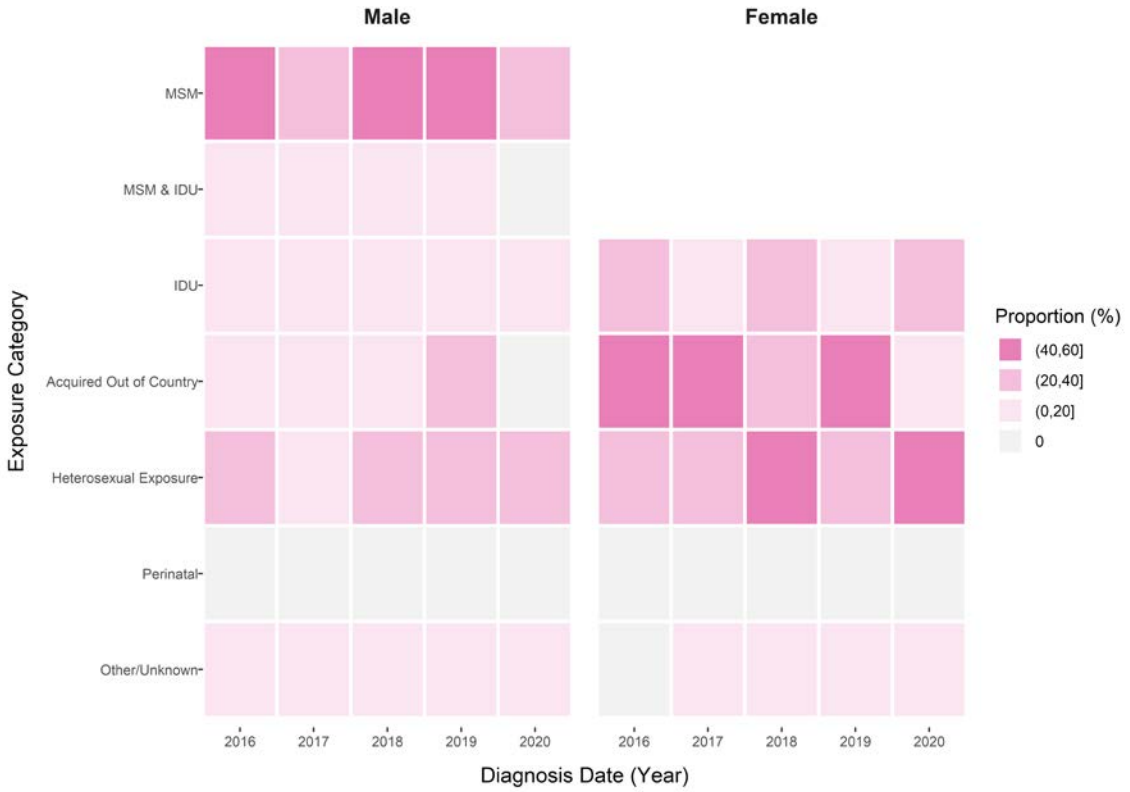


Figure 21. Proportion of HIV infections attributed to respective exposure categories in Edmonton Zone, 2016 to 2020. Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

6. North Zone Profile

Case Counts

A total of 3,383 STI/HIV cases were reported in 2020:

- Chlamydia: 2,060 cases, a decrease of 17.3 per cent (n = 431) compared to 2019.
- Gonorrhea: 707 cases, an increase of 14.0 per cent (n = 87) compared to 2019.
- HIV: 13 cases, a decrease of 38.1 per cent (n = 8) compared to 2019.
- Infectious syphilis: 603 cases, an increase of 39.3 per cent (n = 170) compared to 2019.

Rate of Reported Cases

- Chlamydia: 428.3 cases per 100,000 population, a decrease of 17.7 per cent compared to 2019.
- Gonorrhea: 147 cases per 100,000 population, an increase of 13.5 per cent compared to 2019.
- HIV: 2.7 cases per 100,000 population, a decrease of 38.5 per cent compared to 2019.
- Infectious syphilis: 125.4 cases per 100,000 population, an increase of 38.6 per cent compared to 2019.

Gender and Age

- Chlamydia cases: 61.4 per cent were female, of which 57.9 per cent were 15-24 years old.
- Gonorrhea cases: 51.1 per cent were male, of which 39.9 per cent were 20-29 years old.
- HIV cases: 33.7 per cent were female, of which 45.3 per cent were 25-39 years old.
- Infectious syphilis cases: 52.2 per cent were female, of which 47.3 per cent were 20-29 years old.

HIV Exposure Categories

In 2020, 50 per cent (n = 3) of male cases, were attributed to the exposure category “Heterosexual Exposure”, whereas 85.7 per cent of female cases (n = 6) were attributed to the exposure category “Heterosexual Exposure”.

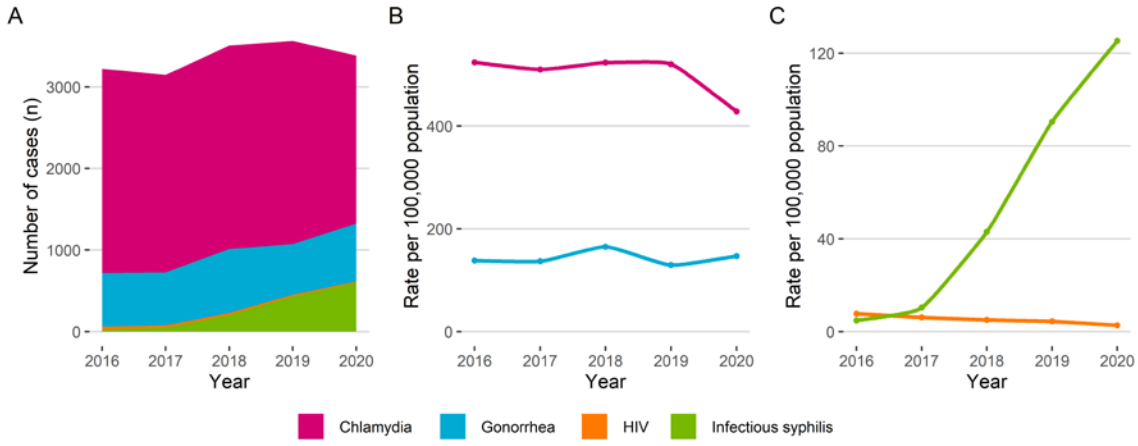


Figure 22. Counts and rates of STIs/HIV in North Zone, 2016 to 2020. (A) Counts per year grouped by infection type, (B) Rates per 100,000 population by year for chlamydia and gonorrhea, and (C) Rates per 100,000 population by year for HIV and infectious syphilis.

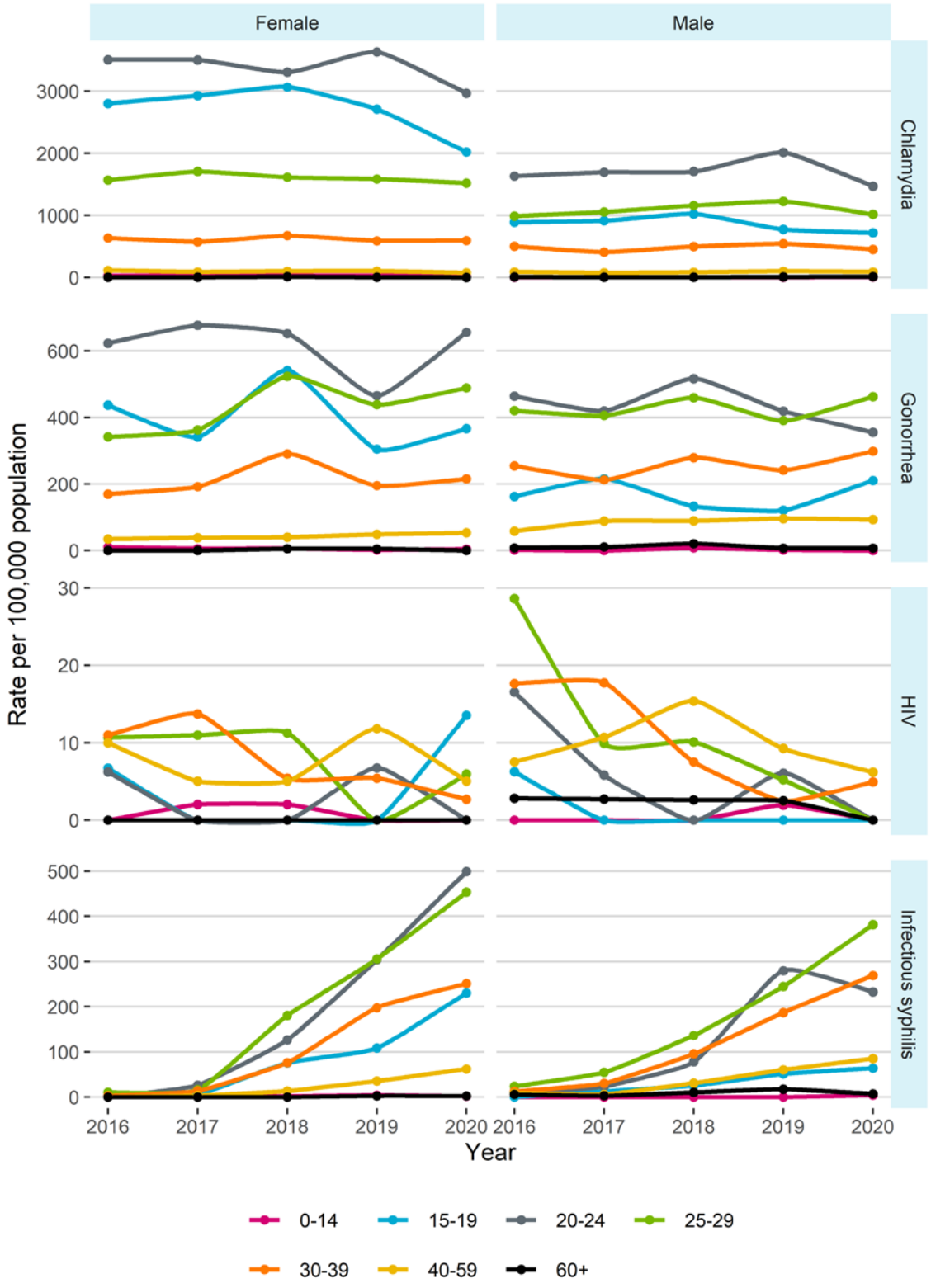


Figure 23. STI/HIV rates by age and gender in North Zone, 2016 to 2020.

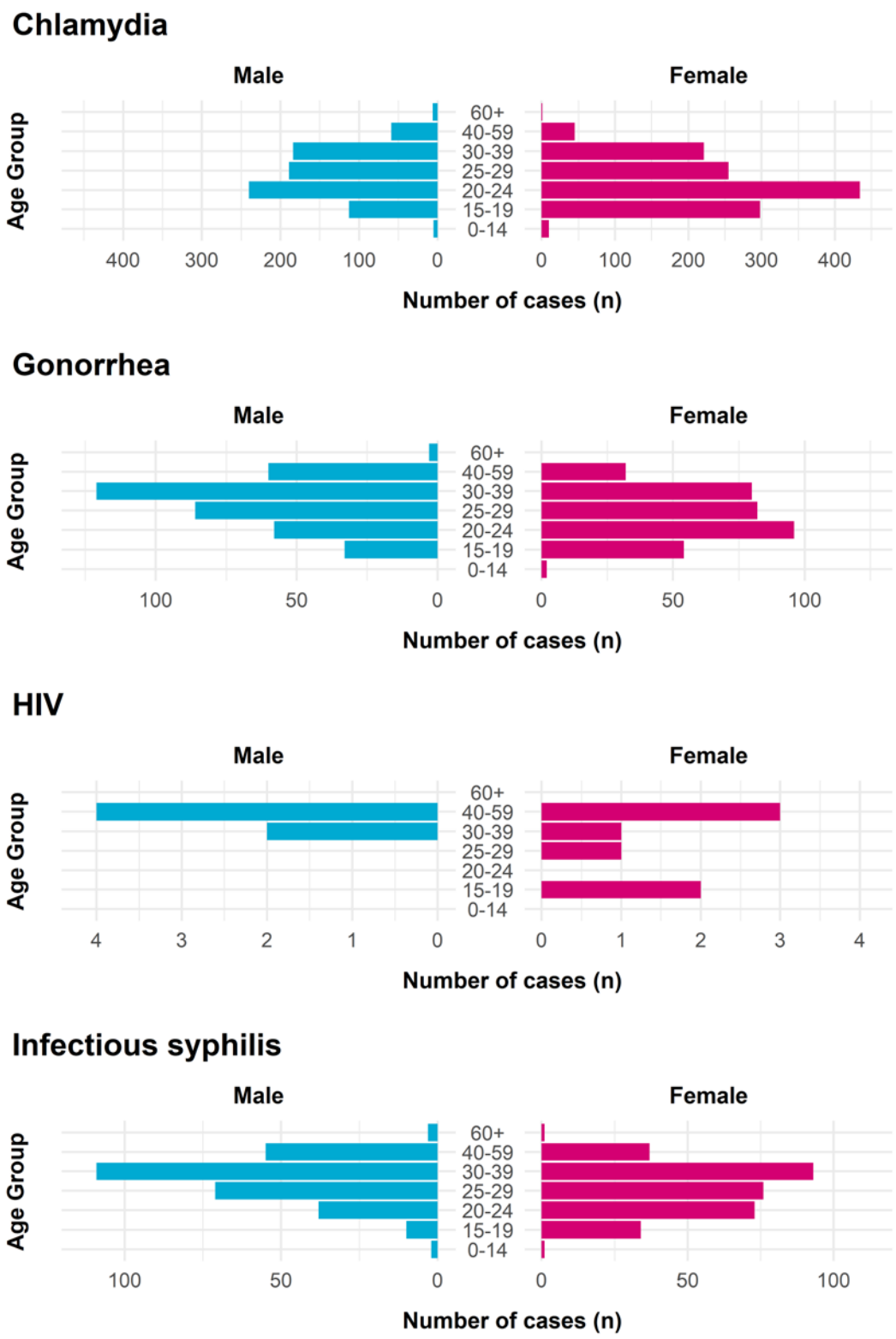


Figure 24. STI/HIV cases by age and gender in North Zone, 2020.

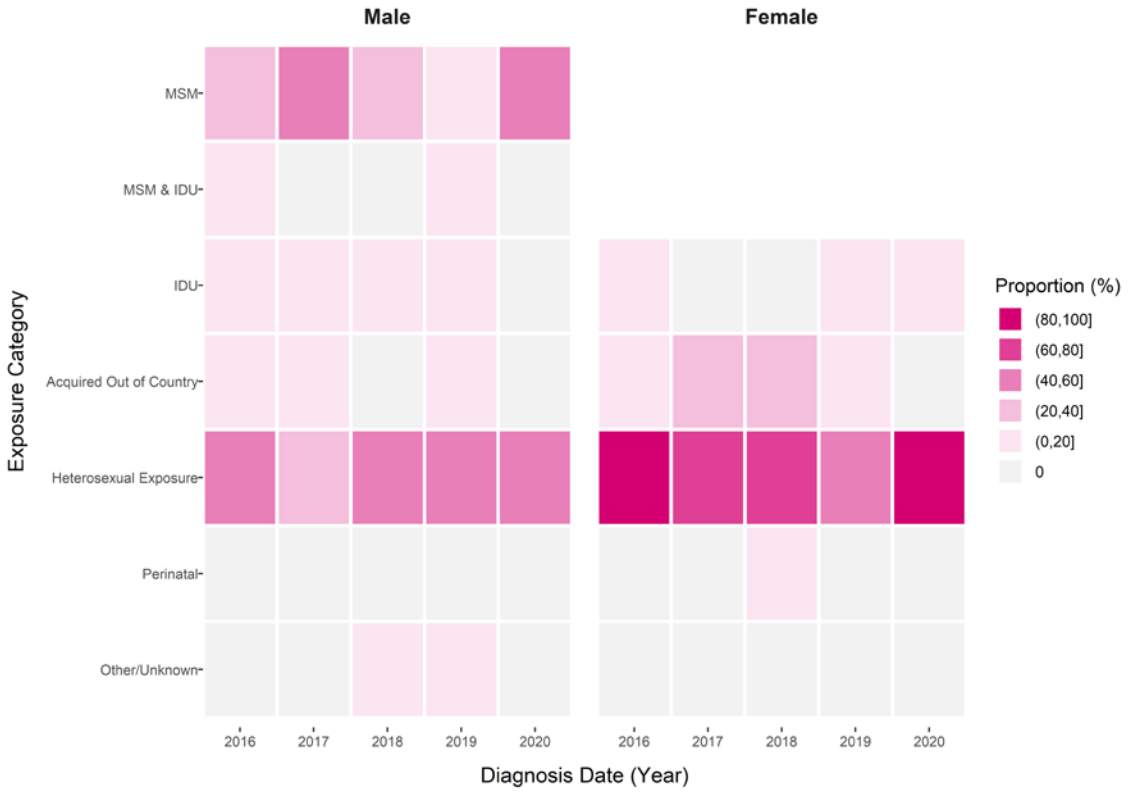
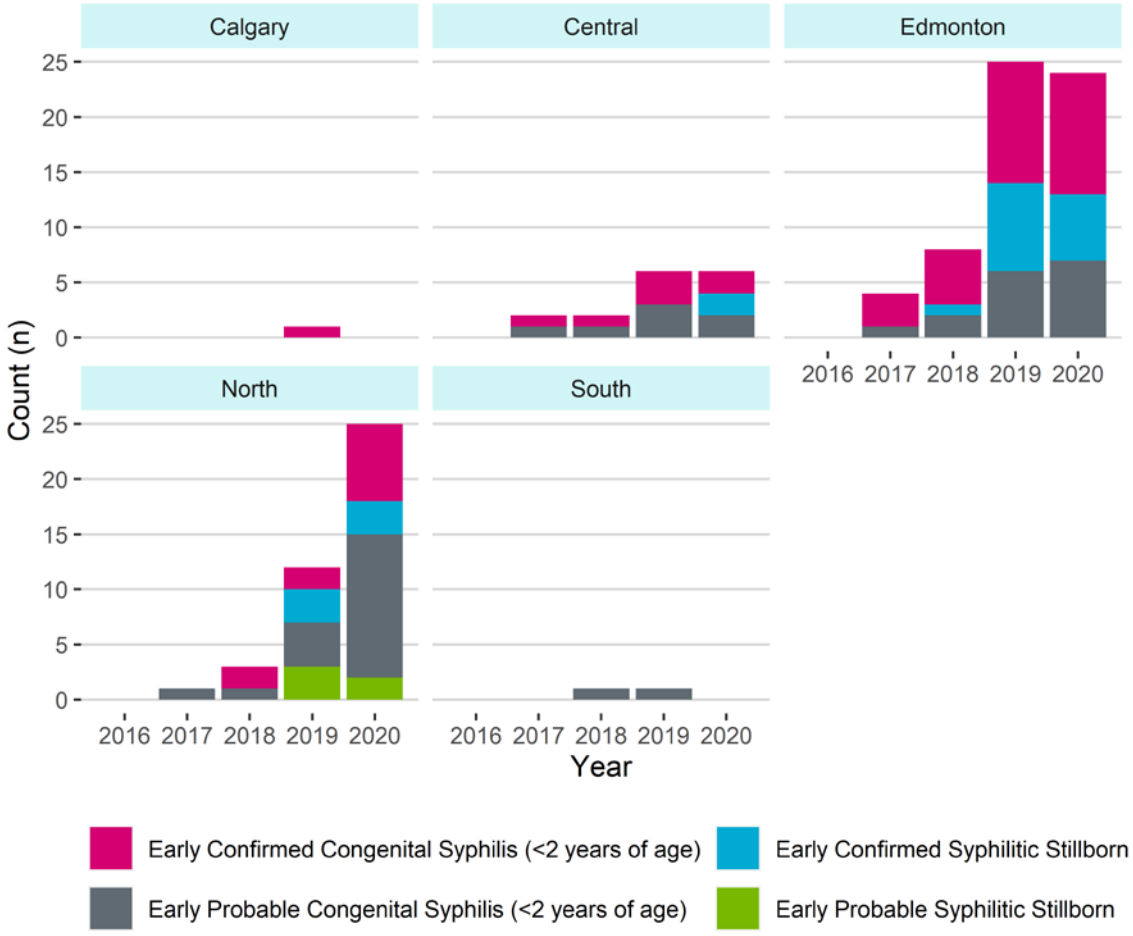


Figure 25. Proportion of HIV infections attributed to respective exposure categories in North Zone, 2016 to 2020. Assignment to exposure categories is determined hierarchically by the most probable route of acquiring HIV.

Annex: Congenital Syphilis in Alberta

With rising rates of infectious syphilis in Alberta, there has been increased efforts to monitor congenital syphilis. A total of 121 congenital syphilis cases have been diagnosed between 2016 and 2020, 28 of which were stillborn. Cases were diagnosed in 5 AHS Zones (South, Central, North, Edmonton, Calgary), with the majority (61 cases) in Edmonton Zone.



Annex Fig 1. Congenital Syphilis cases from 2016 to 2020 by AHS Zone.

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