

# HIV Infection

## Chapter 11

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Project for an Ontario Women's Health Evidence-Based Report

# A Tool for Monitoring and Improvement

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The **P**roject for an **O**ntario **W**omen's Health **E**vidence-Based **R**eport (**POWER**) is designed to serve as a tool to help policymakers and providers to improve the health of and reduce inequities among the women of Ontario

# Overarching Objectives

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- Use of performance measurement and reporting
  - as a mechanism for knowledge translation
  - as a tool to drive equity in health care
- Provide evidence for use by a diverse group of stakeholders for use to improve women's (and men's) health in the province

# Ontario Women's Health Equity Report

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## Volume 1

- Burden of Illness
- Cancer
- Depression
- Cardiovascular disease (CVD)
- Access to Health Care

## Volume 2

- Musculoskeletal Conditions (arthritis, osteoporosis)
- Reproductive and Gynaecological Health
- Diabetes
- HIV Infection
- Populations at Risk

## Conclusions and Policy Implications

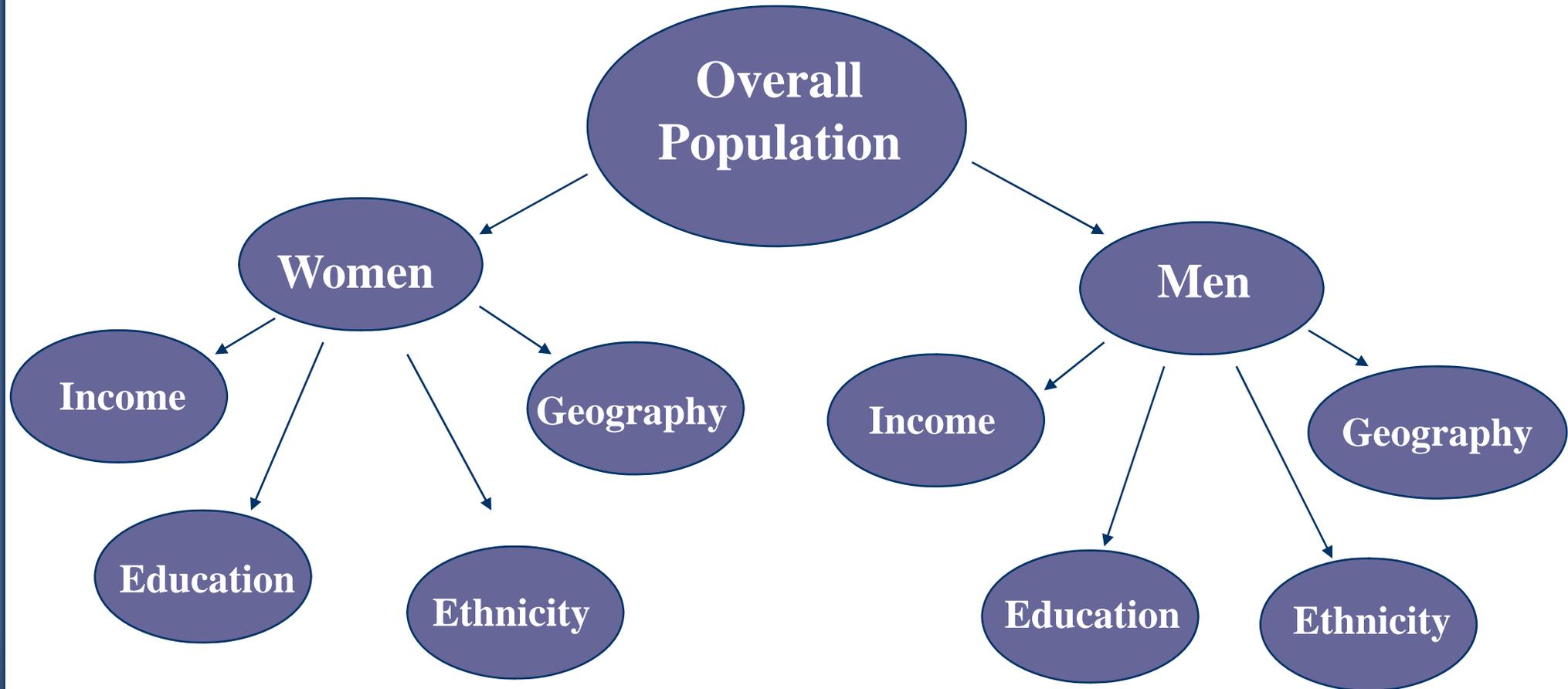
## Web-based reporting

# Community-Engaged Research

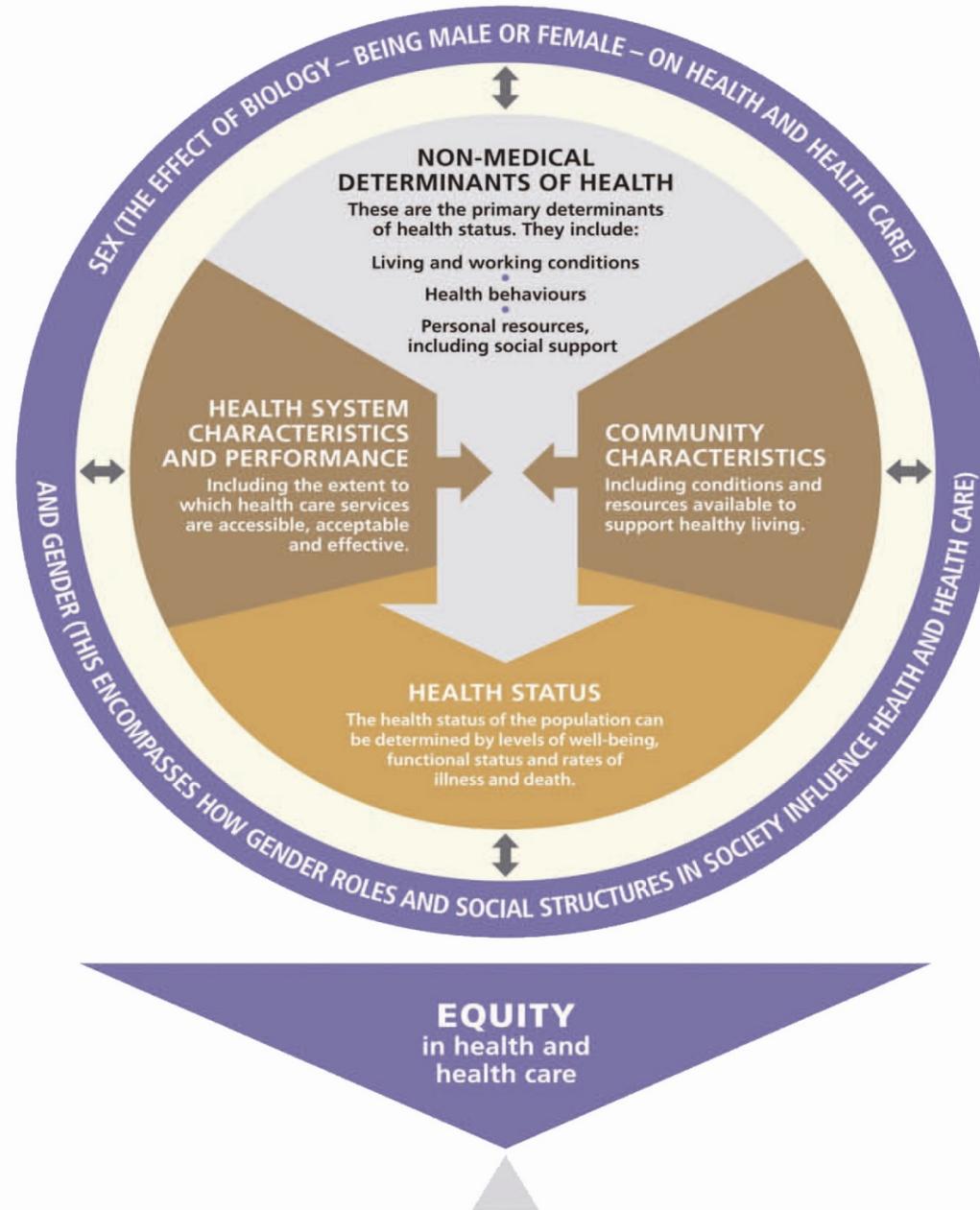
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- POWER Study Roundtables
  - Inform indicator selection and Interpretation
  - Increase uptake of findings
- Consumers: representatives of community based organizations and associations
- Providers: clinicians, hospitals, community health centres (CHCs)
- Policymakers: government, regional health authorities, public health, health data agencies

# Assessing Equity



# POWER Study Gender and Equity Health Indicator Framework



# Methods

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- Systematic review of peer-reviewed and grey literature to identify previously validated indicators across the continuum of care
- A content specific technical expert panel used a modified Delphi process to select a comprehensive set of indicators for reporting
- Indicators were measured using multiple secondary data sources
- Indicators were first stratified by sex and then by socioeconomic, demographic, geographic and exposure category variables as data sources allowed
- Results were presented to a second stakeholder panel to discuss findings, interpretation and messages

# HIV indicators

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## Section A – Incidence, Prevalence and Risk behaviours

- Modelled HIV prevalence
- Modelled HIV incidence
- Reported AIDS cases
- Condom use at last sexual encounter
- Injection risk behaviours among Ontario injection drug users (IDU)

## Section B – Community Services for HIV

- Estimates of service funding for community-based HIV services
- Community based HIV services and utilization in Ontario

# HIV indicators

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## Section C – Clinical Care

- Prenatal HIV screening
- Interventions to prevent vertical transmission of HIV in pregnant, HIV-positive women
- Health-related quality of life among adults living with HIV
- Symptom burden among adults living with HIV
- Time to first viral load – access to testing
- Two or more viral load tests within 12 months – quality of care
- Viral load below quantification among adults living with HIV

## Section D – HIV Outcomes

- HIV admissions
- Length of stay for HIV admissions
- HIV-related mortality

# Key Findings

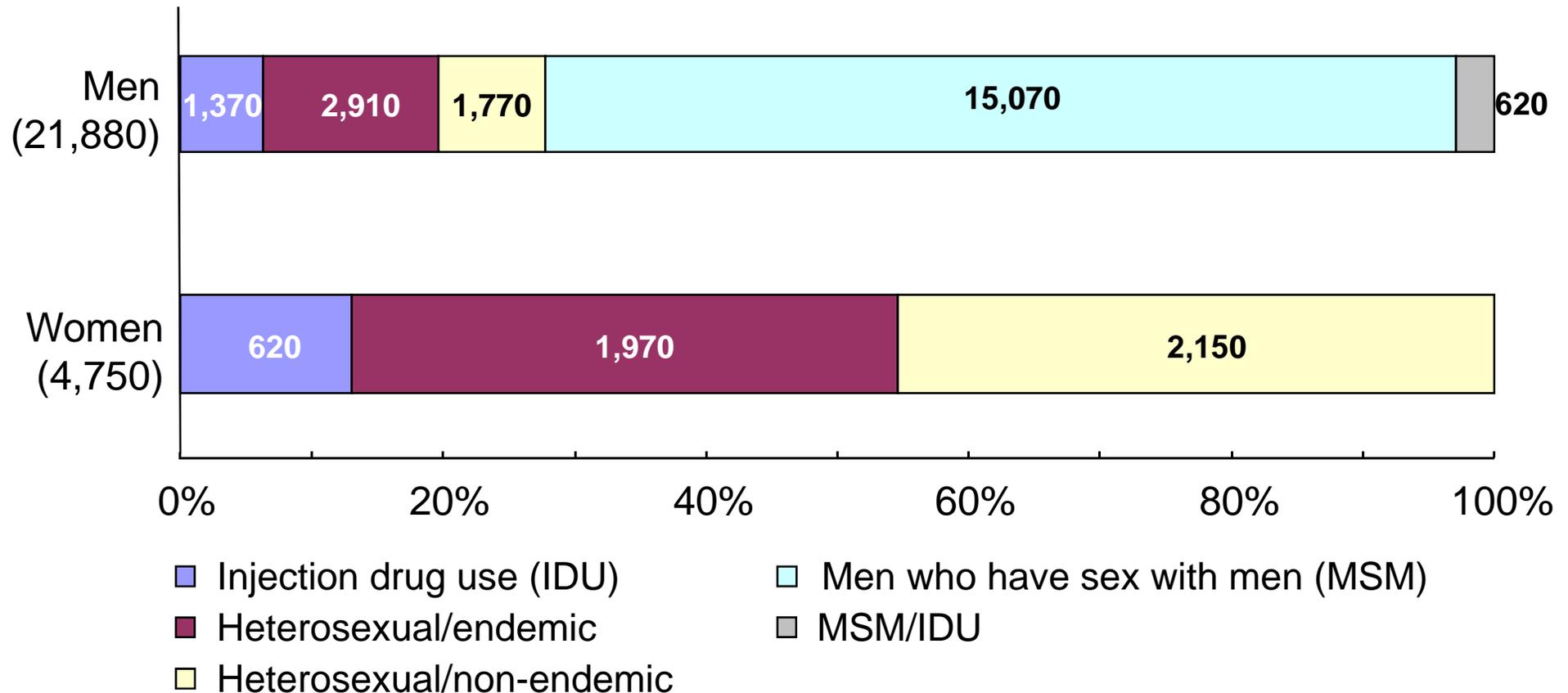
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- Over 4,700 women are living with HIV in Ontario, most of whom acquired HIV through sexual contact
- Women who immigrated from a country where HIV is endemic account for more than half of all new infections among women
- Women who inject drugs report riskier injection behaviours than men
- Over 90% of known HIV-positive pregnant women received antiretrovirals during pregnancy
- Women reported higher symptom burden than men.
- About one out of five HIV-positive individuals in Ontario did not undergo guideline-concordant viral load testing
- HIV admissions were most common among people living in low-income neighbourhoods
- The highest mortality rate among women and men was experienced by those born in sub-Saharan Africa

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# Section A: Incidence, Prevalence and Risk Behaviours

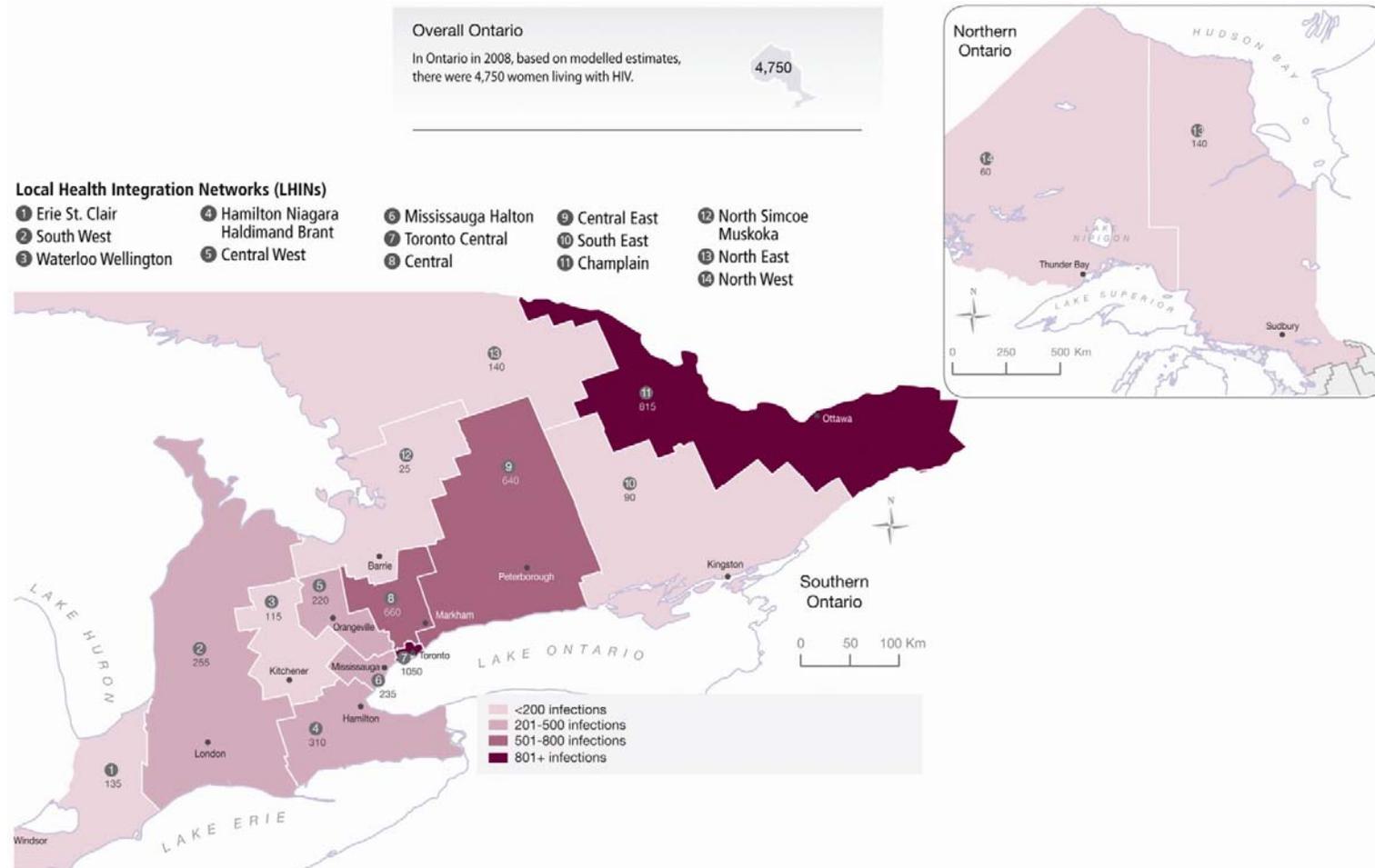
# Modelled number and percentage of HIV infections, by sex and exposure category, in Ontario, 2008



**DATA SOURCES:** Model prepared by the Ontario HIV Epidemiologic Monitoring Unit, University of Toronto incorporating data from the HIV Laboratory Public Health Laboratory, Ontario Agency for Health Protection and Promotion; Laboratory Enhancement Program, Public Health Division, Ministry of Health and Long-Term Care; Vital Statistics, Ontario Registrar General; Statistics Canada 2006 Census

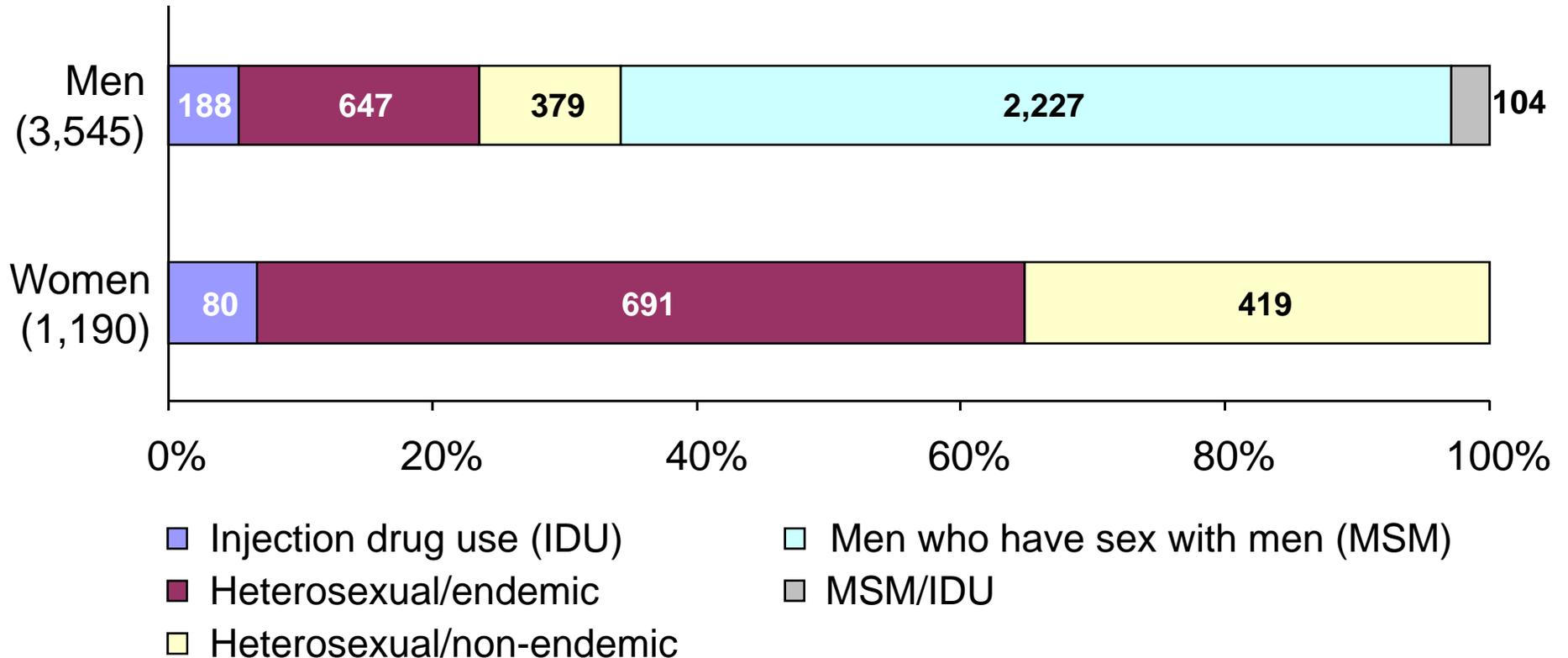
**NOTE:** Exposure is classified according to a mutually exclusive hierarchy which assigns each case to the exposure category (one only) which most likely represents the source of infection.

# Modelled number of HIV infections among women, by Local Health Integration Network (LHIN), in Ontario, 2008



**DATA SOURCES:** Model prepared by the Ontario HIV Epidemiologic Monitoring Unit, University of Toronto incorporating data from the HIV Laboratory Public Health Laboratory, Ontario Agency for Health Protection and Promotion; Laboratory Enhancement Program, Public Health Division, Ministry of Health and Long-Term Care; Vital Statistics, Ontario Registrar General; Statistics Canada 2006 Census

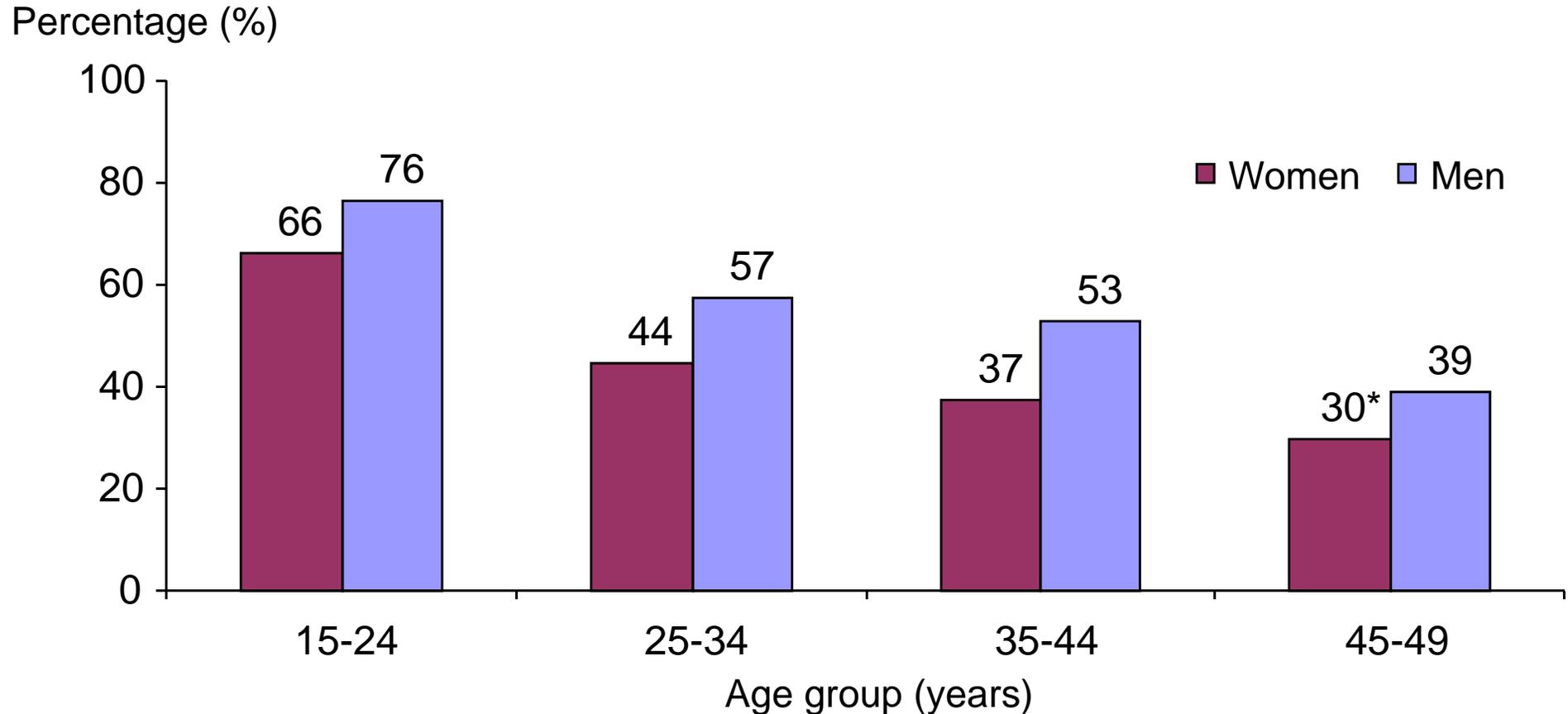
# Modelled number and percentage of new HIV infections attributable to exposure categories, by sex, in Ontario, 2006-2008



**DATA SOURCES:** Model prepared by the Ontario HIV Epidemiologic Monitoring Unit, University of Toronto incorporating data from the HIV Laboratory Public Health Laboratory, Ontario Agency for Health Protection and Promotion; Laboratory Enhancement Program; Public Health Division, Ministry of Health and Long-Term Care; Vital Statistics, Ontario Registrar General; Statistics Canada 2006 Census

**NOTE:** Exposure is classified according to a mutually exclusive hierarchy which assigns each case to the exposure category (one only) which most likely represents the source of infection.

# Percentage of sexually active^ Ontarians aged 15-49 who reported using a condom at their last sexual encounter, by sex and age group, in Ontario, 2005 and 2007

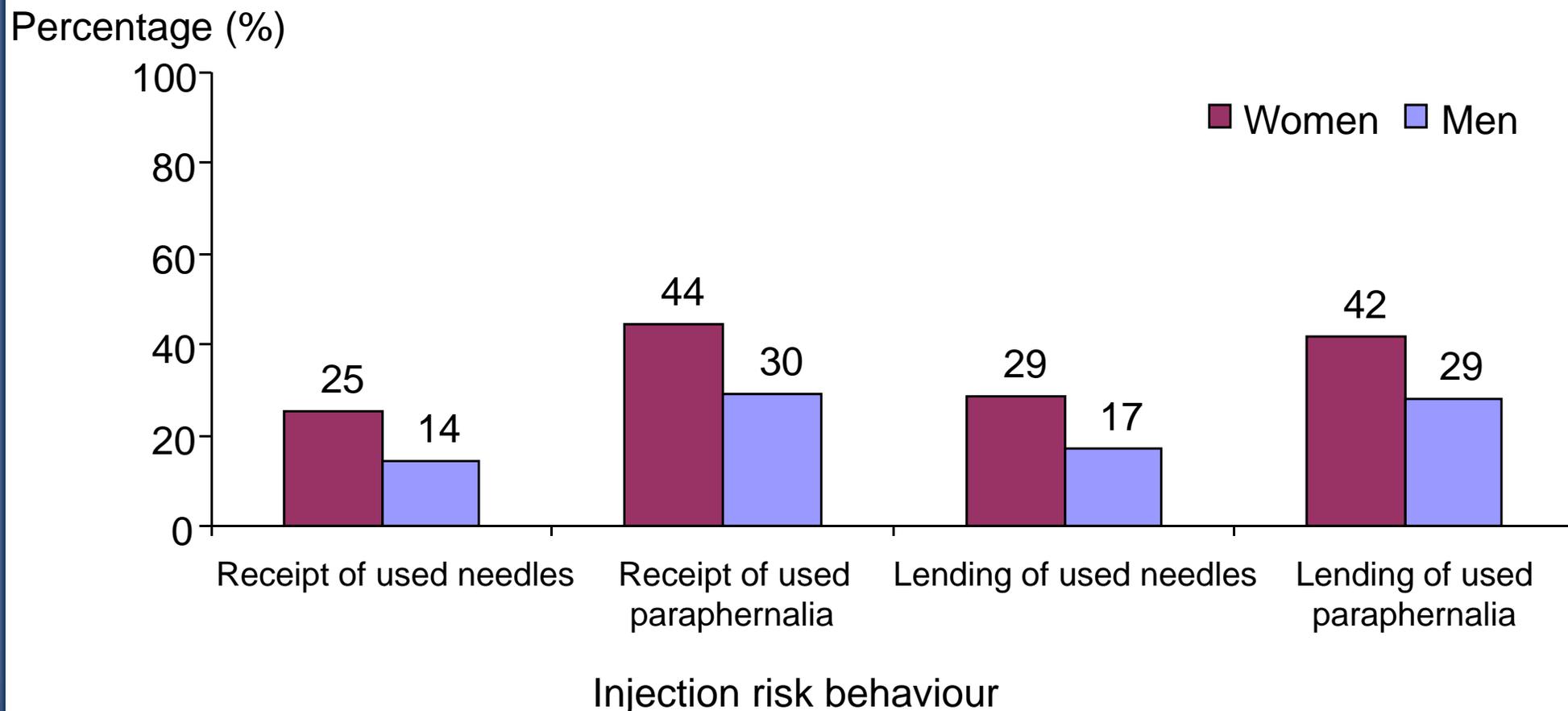


**DATA SOURCE:** Canadian Community Health Survey (CCHS), 2005 (Cycle 3.1) and 2007

\* Interpret with caution due to high sampling variability

^ "Sexually active" refers to those who reported being sexually active within the last twelve months and having more than one sexual partner during this period

# Percentage of injection drug users who reported risky injection behaviours, by sex and type of behaviour, in Ontario, 2006-2008



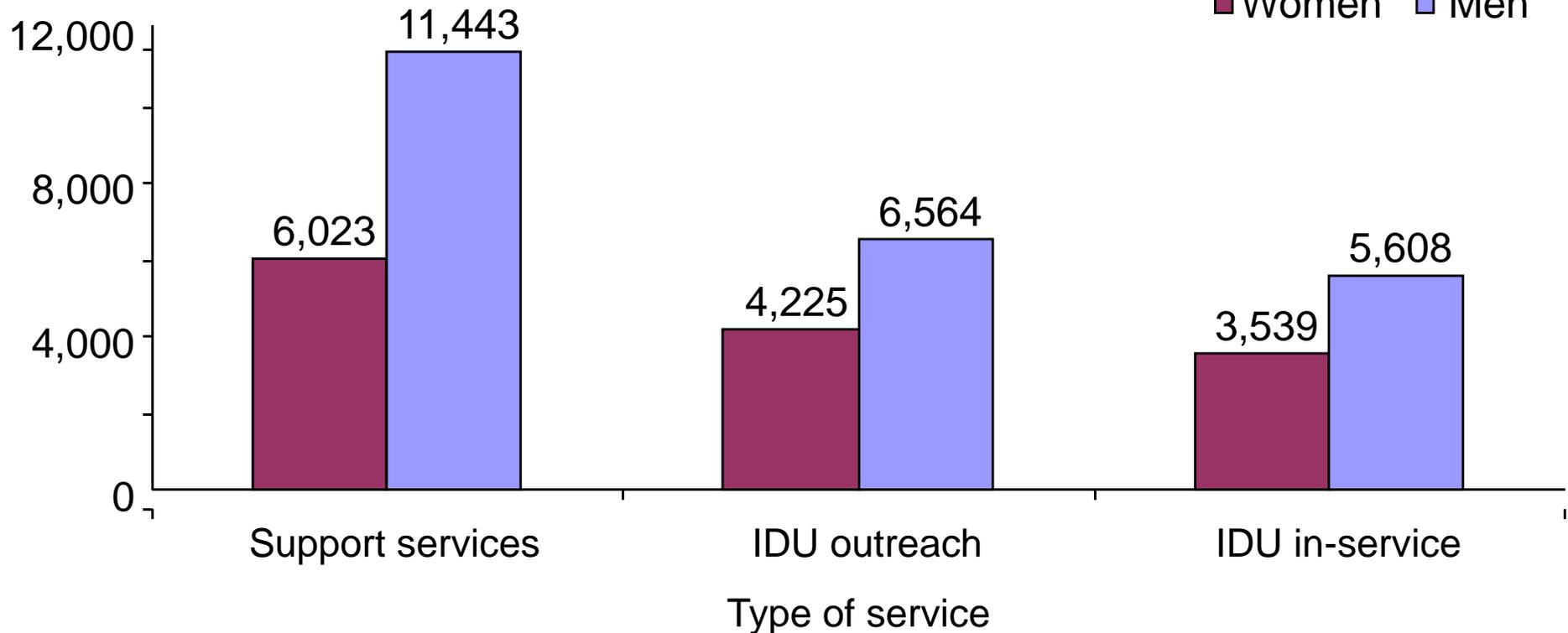
**DATA SOURCE:** Enhanced Surveillance of Risk Behaviours among Injecting Drug Users in Canada (I-Track); phase 2 – Ontario sites (Toronto, Sudbury, Thunder Bay, Kingston and Ottawa)

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## **Section B: Community Services for HIV**

# Number of individuals who used different types of community-based HIV services funded by the AIDS Bureau and the AIDS Community Action Plan (ACAP), by sex, in Ontario, first half of 2008/09 fiscal year<sup>^</sup>

Number of people served



**DATA SOURCE:** Ontario Community-based HIV and AIDS Reporting Tool (OCHART)

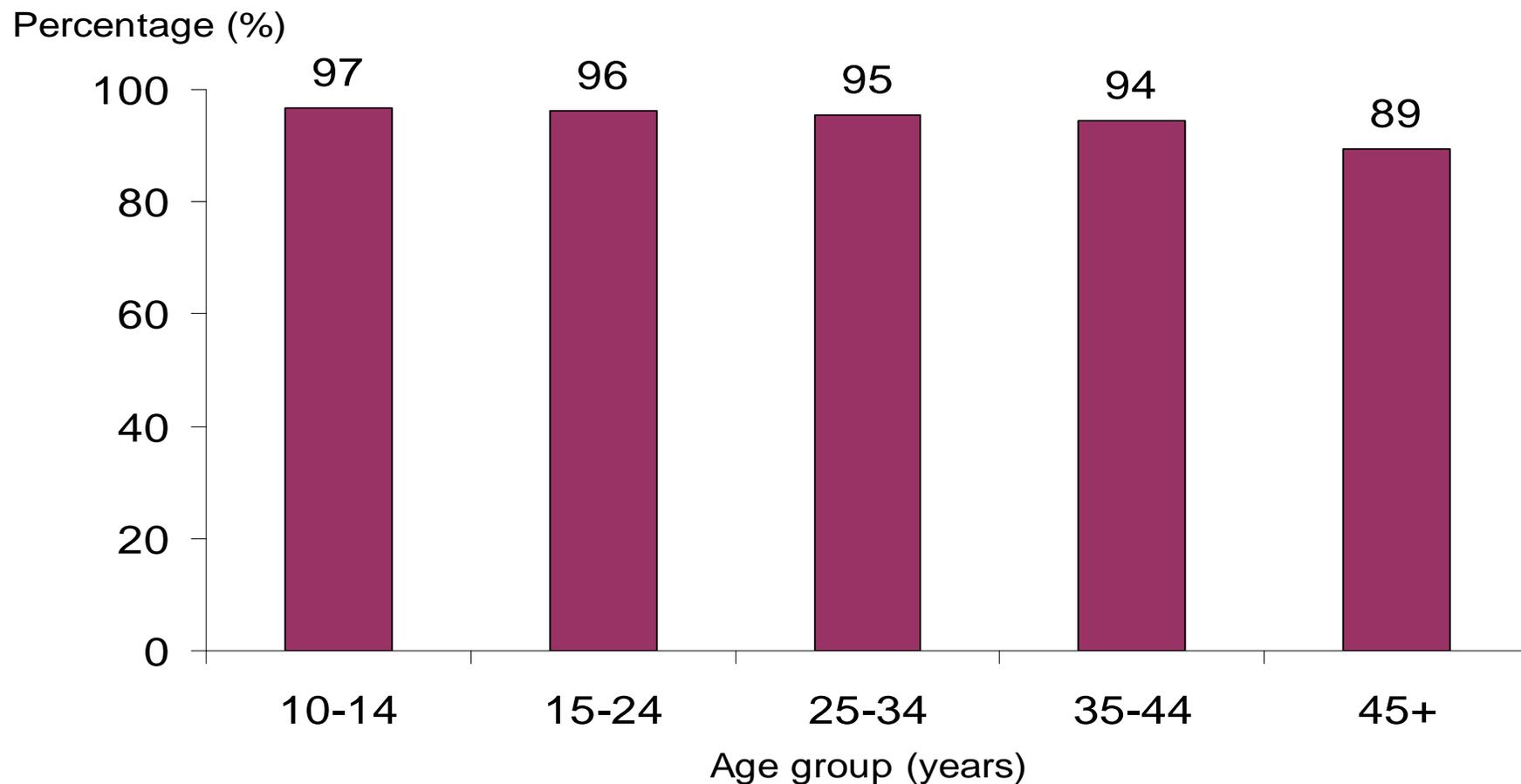
**NOTE:** IDU = injection drug user

<sup>^</sup> OCHART utilization data reporting is divided into half-year periods; data from the first half year (H1) are reported

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## Section C: Clinical Care

# Percentage of pregnant women who underwent prenatal HIV screening, by age group, in Ontario, 2009

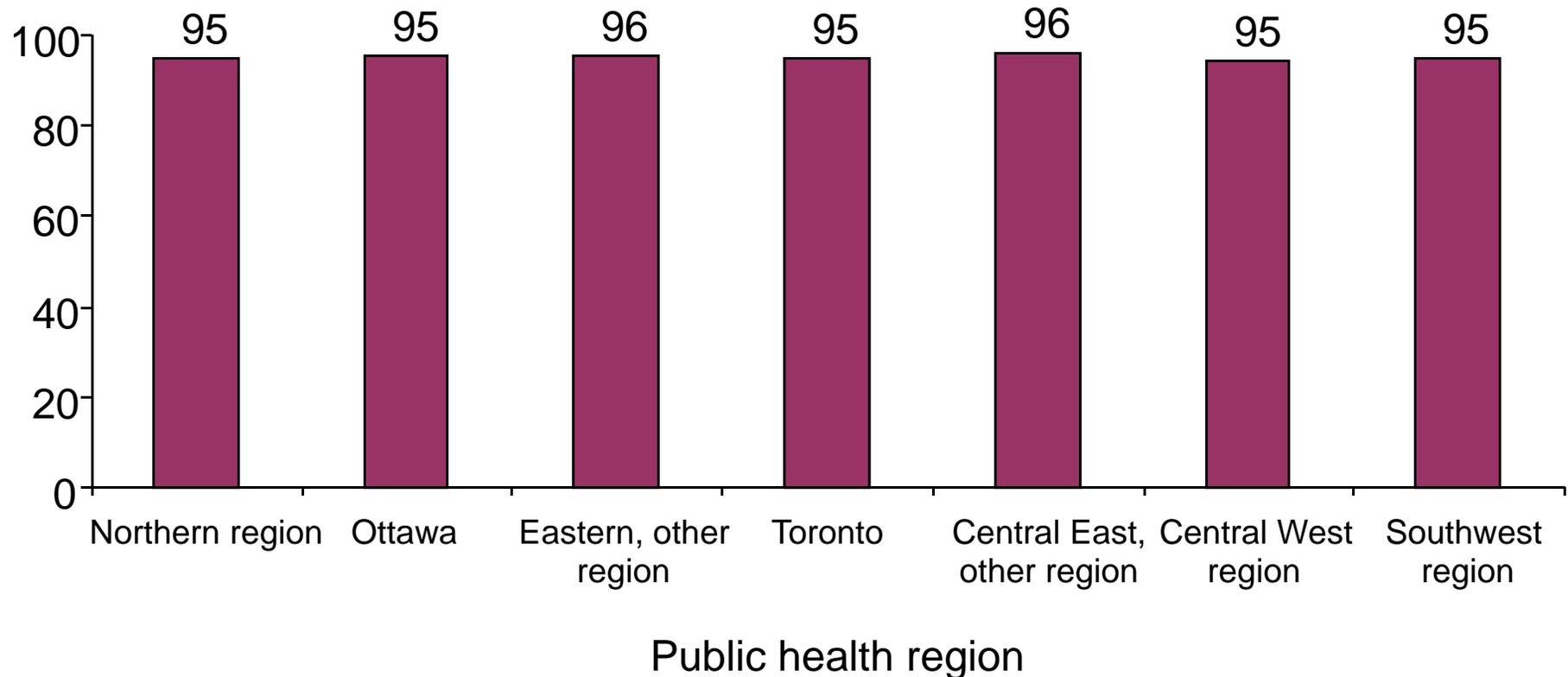


**DATA SOURCES:** Ontario HIV Epidemiologic Monitoring Unit, using Ontario prenatal HIV testing and diagnostic databases, HIV Laboratory, Public Health Laboratory, Ontario Agency for Health Protection and Promotion (OAHPP)

**NOTE:** The denominator for this indicator is the number of pregnancies during the calendar year (n=144,370), identified through prenatal screening data from the Public Health Laboratory.

# Percentage of pregnant women who underwent prenatal HIV screening, by public health region, in Ontario, 2009

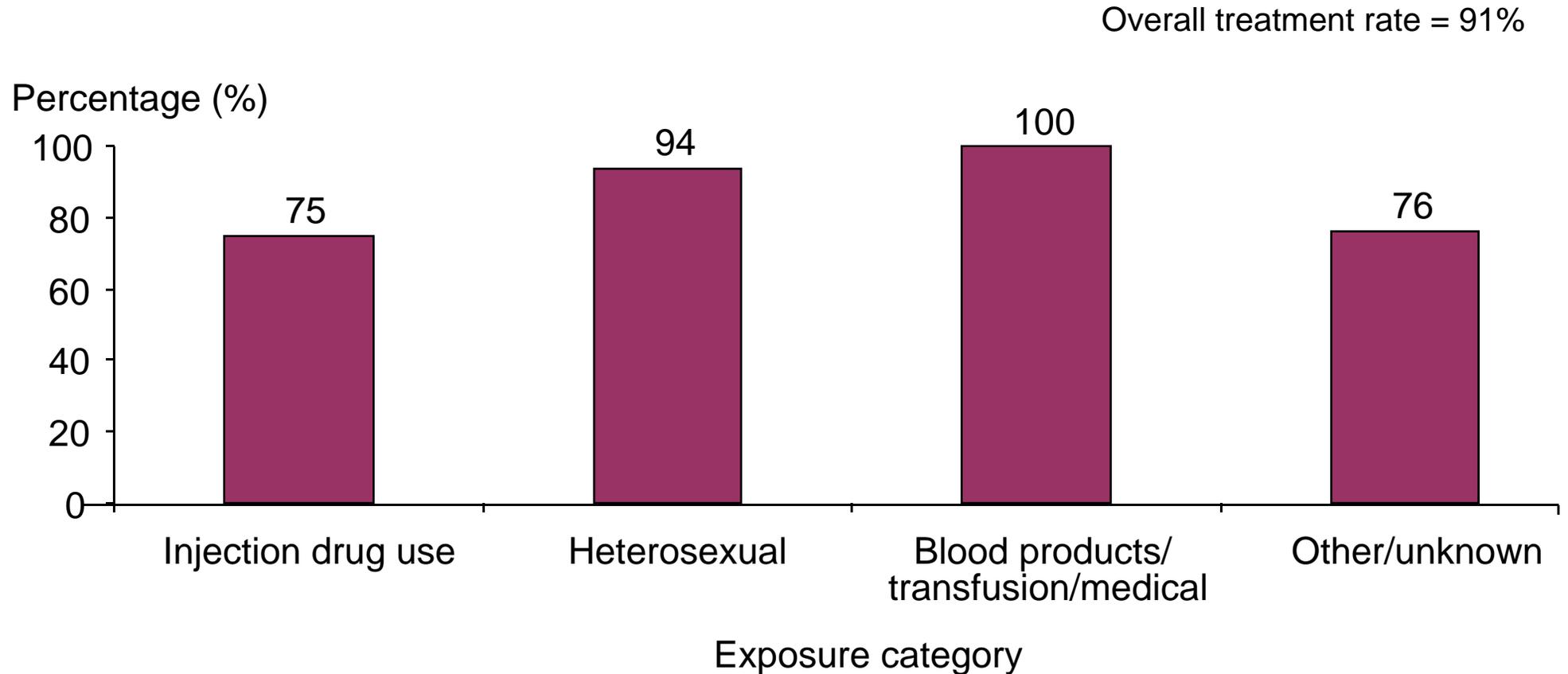
Percentage (%)



**DATA SOURCES:** Ontario HIV Epidemiologic Monitoring Unit, using Ontario prenatal HIV testing and diagnostic databases, HIV Laboratory, Public Health Laboratory, Ontario Agency for Health Protection and Promotion (OAHPP)

**NOTE:** The denominator for this indicator is the number of pregnancies during the calendar year (n=144,370), identified through prenatal screening data from the Public Health Laboratory.

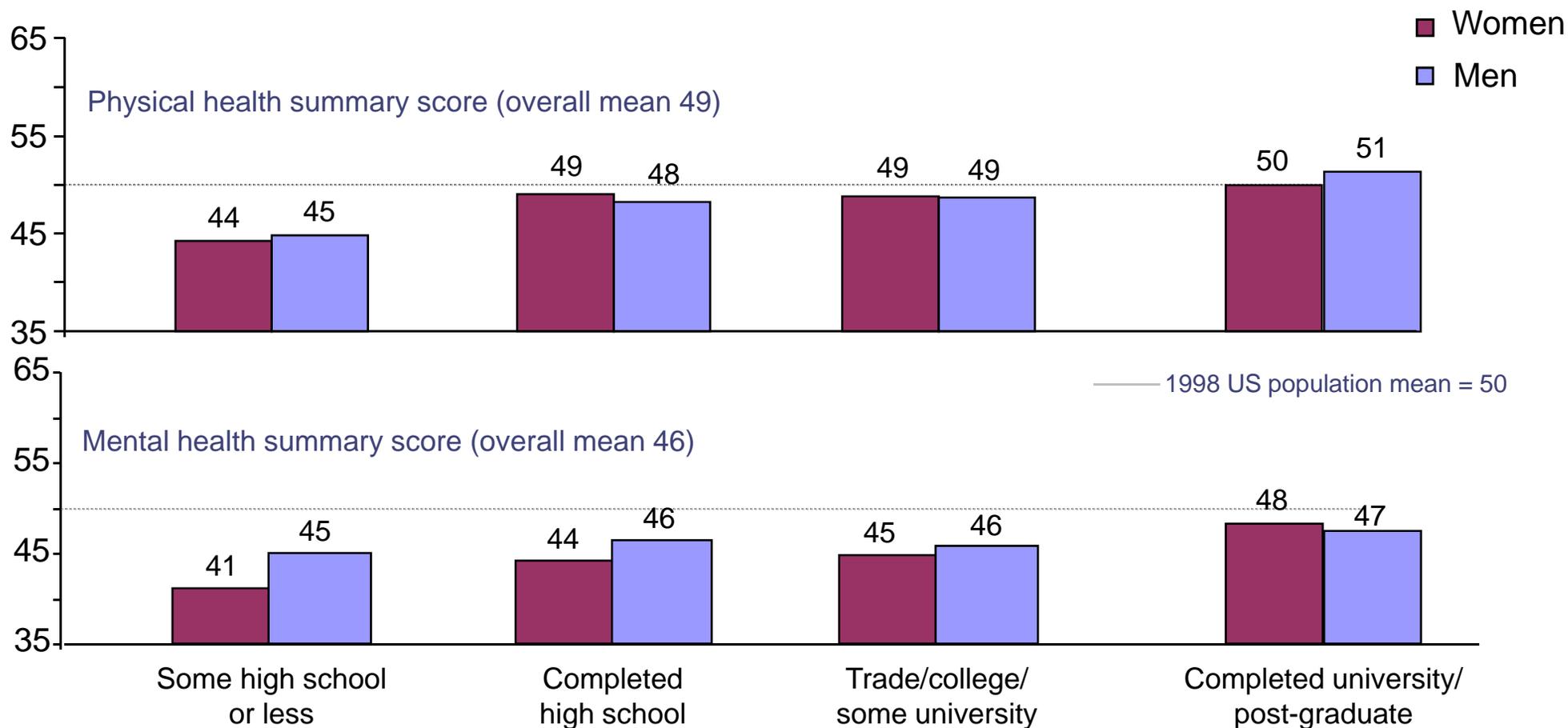
# Percentage of HIV-positive pregnant women who received antiretroviral therapy during pregnancy, by exposure category, in Ontario, 2005-2009



**DATA SOURCE:** Canadian Pediatric AIDS Research Group (CPARG), Canadian Perinatal HIV Surveillance Program

**NOTE:** Sample includes infants born to women who were known to be HIV-positive and who received care at a participating Ontario site

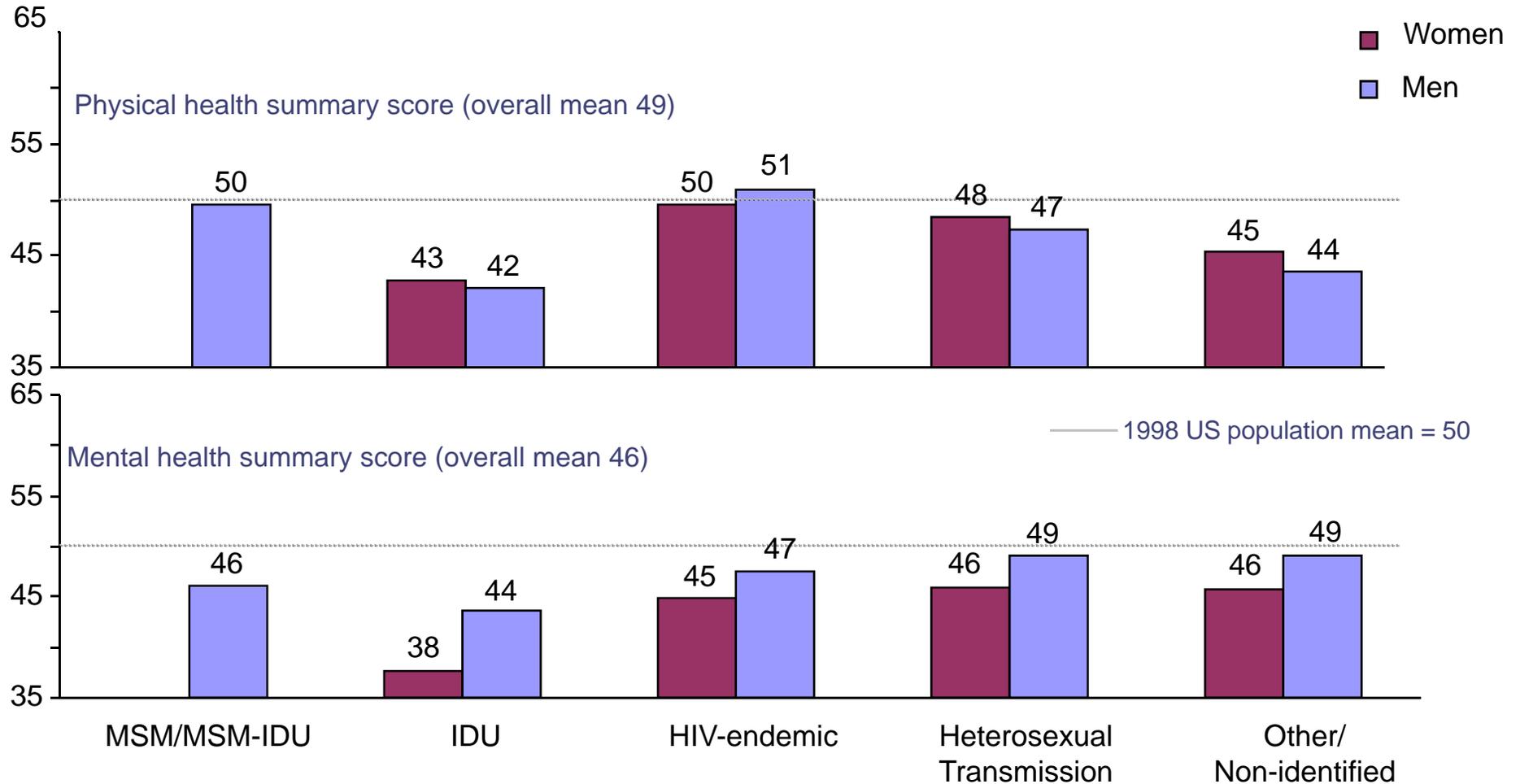
# Mean physical and mental health scores from the Medical Outcomes Survey among participants in the Ontario HIV Treatment Network Cohort Study, by sex and educational attainment, in Ontario



**DATA SOURCE:** Ontario HIV Treatment Network Cohort Study (OCS)

**NOTE:** Includes data from participants who completed their first interview between September 2007-March 2010 (464 women, 2533 men)

# Mean physical and mental health summary scores from the Medical Outcomes Survey among participants in the Ontario HIV Treatment Network Cohort Study, by sex and exposure category, in Ontario

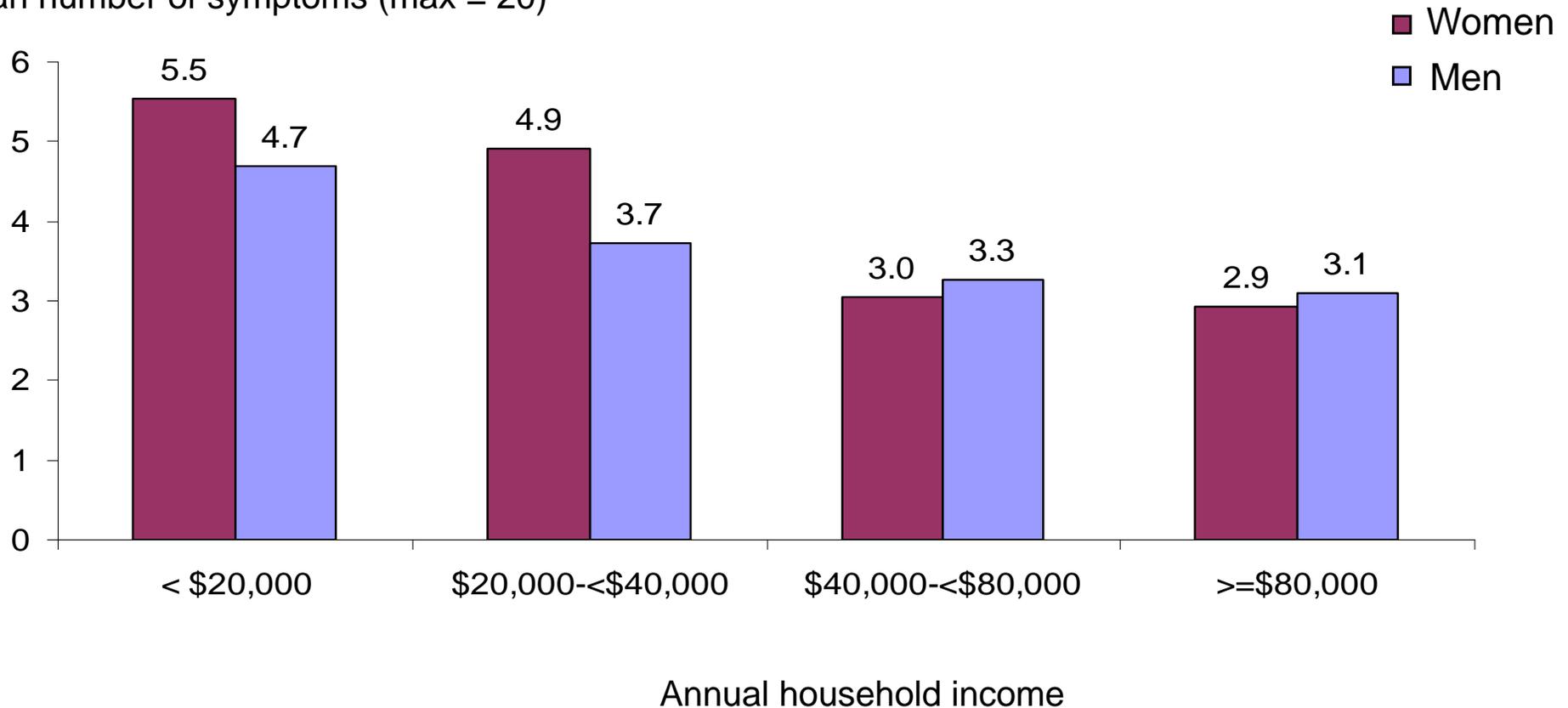


DATA SOURCE: Ontario HIV Treatment Network Cohort Study (OCS)

NOTE: Includes data from participants who completed their first interview between September 2007-March 2010 (464 women, 2533 men)

# Mean number of AIDS Clinical Trial Group symptoms that participants in the Ontario HIV Treatment Network Cohort Study indicated bothered them or bothered them a lot, by sex and annual household income, in Ontario

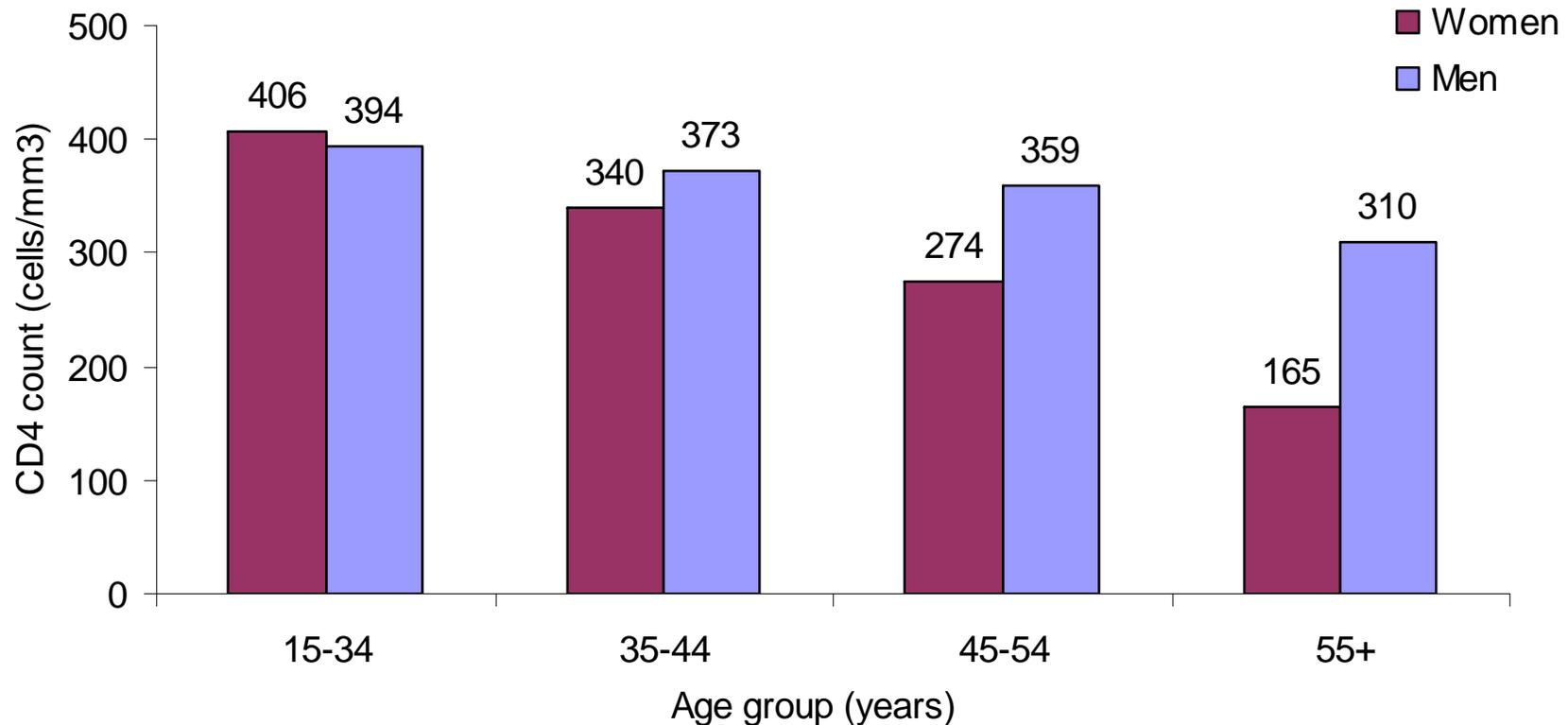
Mean number of symptoms (max = 20)



**DATA SOURCE:** Ontario HIV Treatment Network Cohort Study (OCS)

**NOTE:** Includes data from participants who completed an extended questionnaire between October, 2007 and March 2010 (205 women and 921 men)

# Mean CD4 count when entering clinical care for Ontario HIV Treatment Network Cohort Study participants, by sex and age group, in Ontario

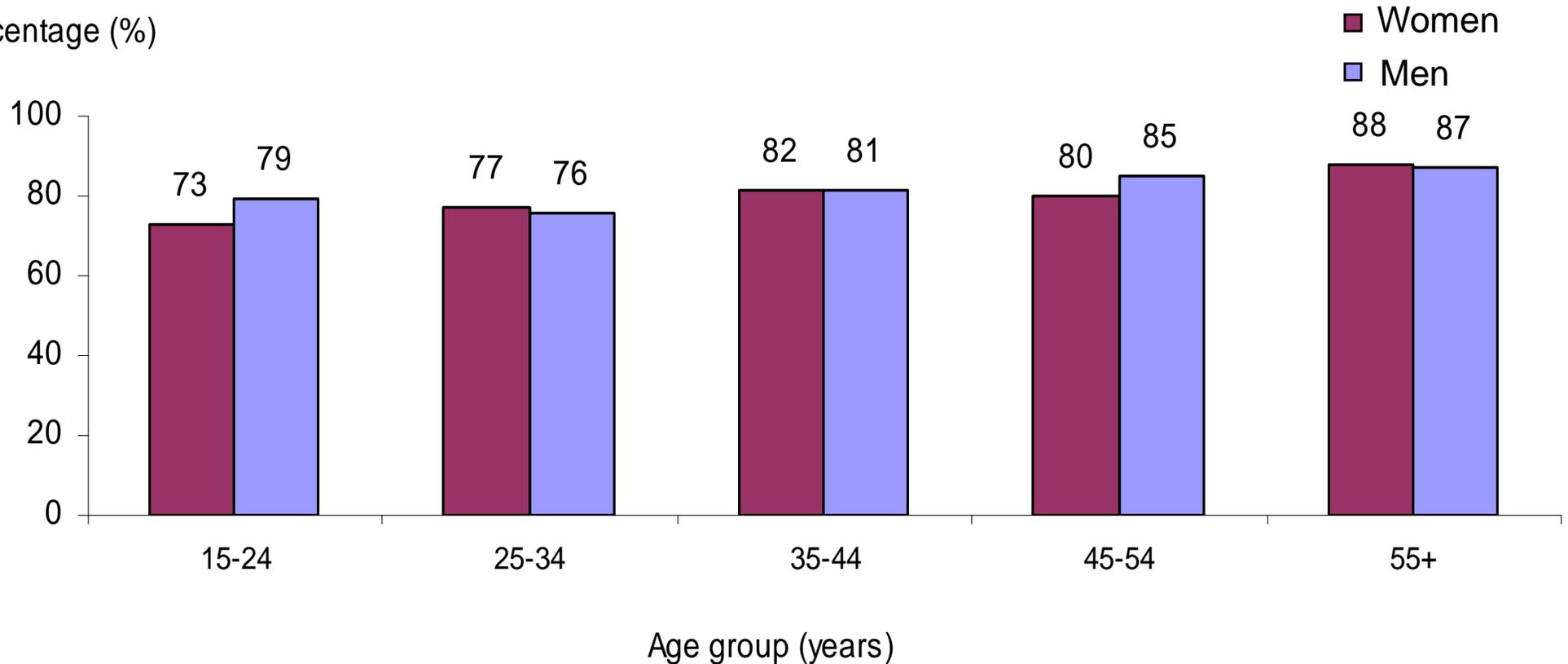


**DATA SOURCE:** Ontario HIV Treatment Network Cohort Study (OCS)

**NOTE:** Includes data from participants who completed an extended questionnaire between October, 2007 and March 2010. Data are from a retrospective chart review of patients who entered clinical care between 1985-2009 (463 women and 2,561 men)

# Percentage of HIV-positive adults in HIV care<sup>^</sup> who underwent two or more viral load tests within 2008, by sex and age group, in Ontario, 2008

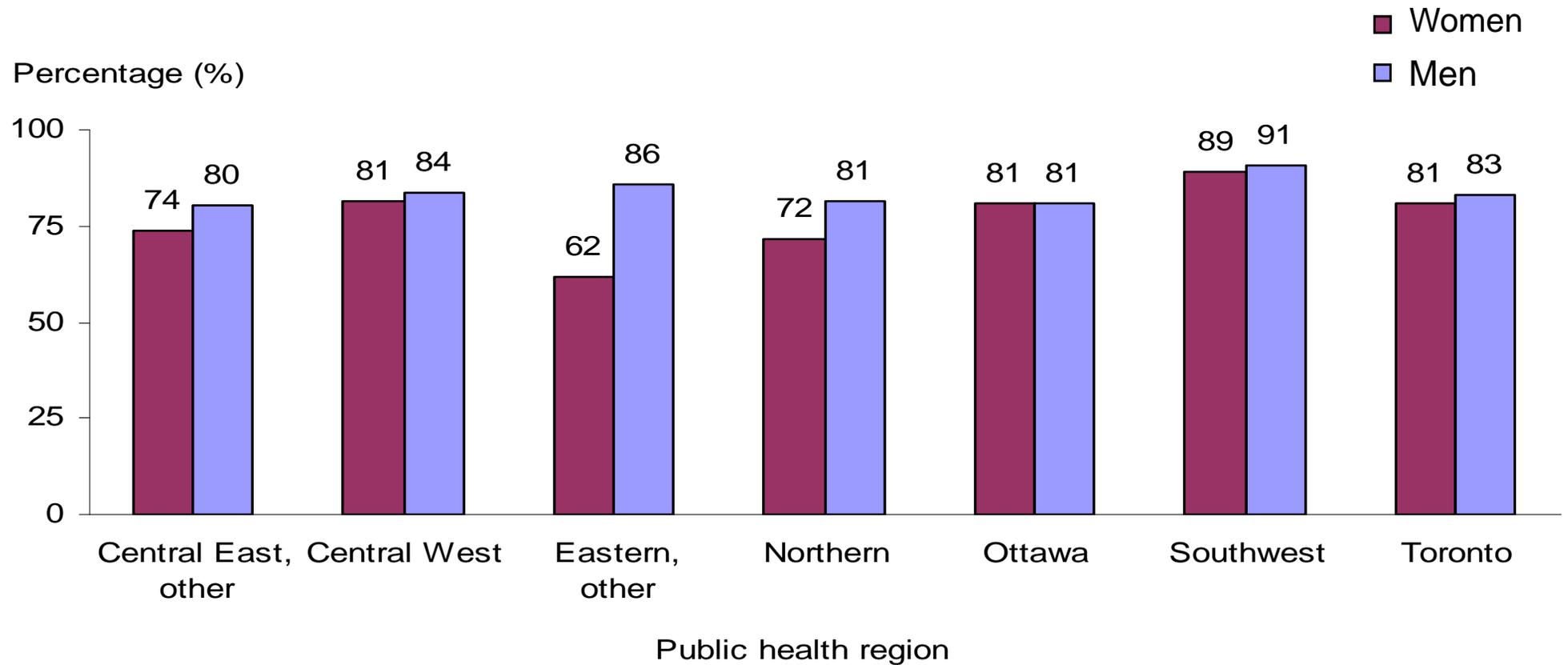
Percentage (%)



**DATA SOURCE:** Public Health Laboratory - HIV Laboratory, Ontario Agency for Health Protection and Promotion (OAHPP).  
Prepared by Ontario HIV Epidemiologic Monitoring Unit, University of Toronto

<sup>^</sup> HIV care was determined based on viral load use. All individuals had to have a viral load test in the latter half of 2007

# Percentage of HIV-positive adults in HIV care<sup>^</sup> who underwent two or more viral load tests, by sex and public health region, in Ontario, 2008



**DATA SOURCE:** Public Health Laboratory - HIV Laboratory, Ontario Agency for Health Protection and Promotion (OAHPP). Prepared by Ontario HIV Epidemiologic Monitoring Unit, University of Toronto

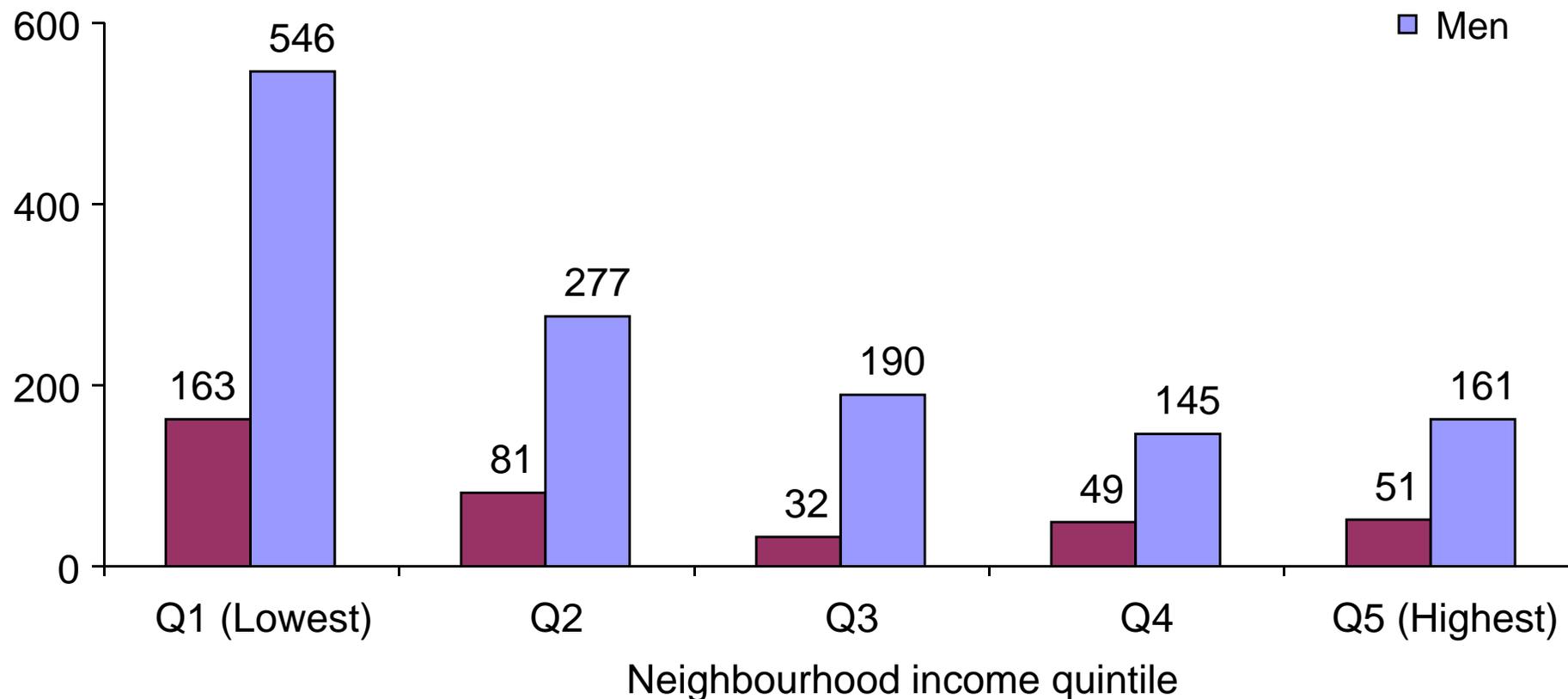
<sup>^</sup> HIV care determined based on viral load use. All individuals had to have a viral load test in the latter half of 2007 and at least one test in 2008

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## Section D: HIV Outcomes

# Number of non-elective admissions for which HIV contributed significantly to length of stay, by sex and neighbourhood income quintile, in Ontario, 2004/05–2006/07

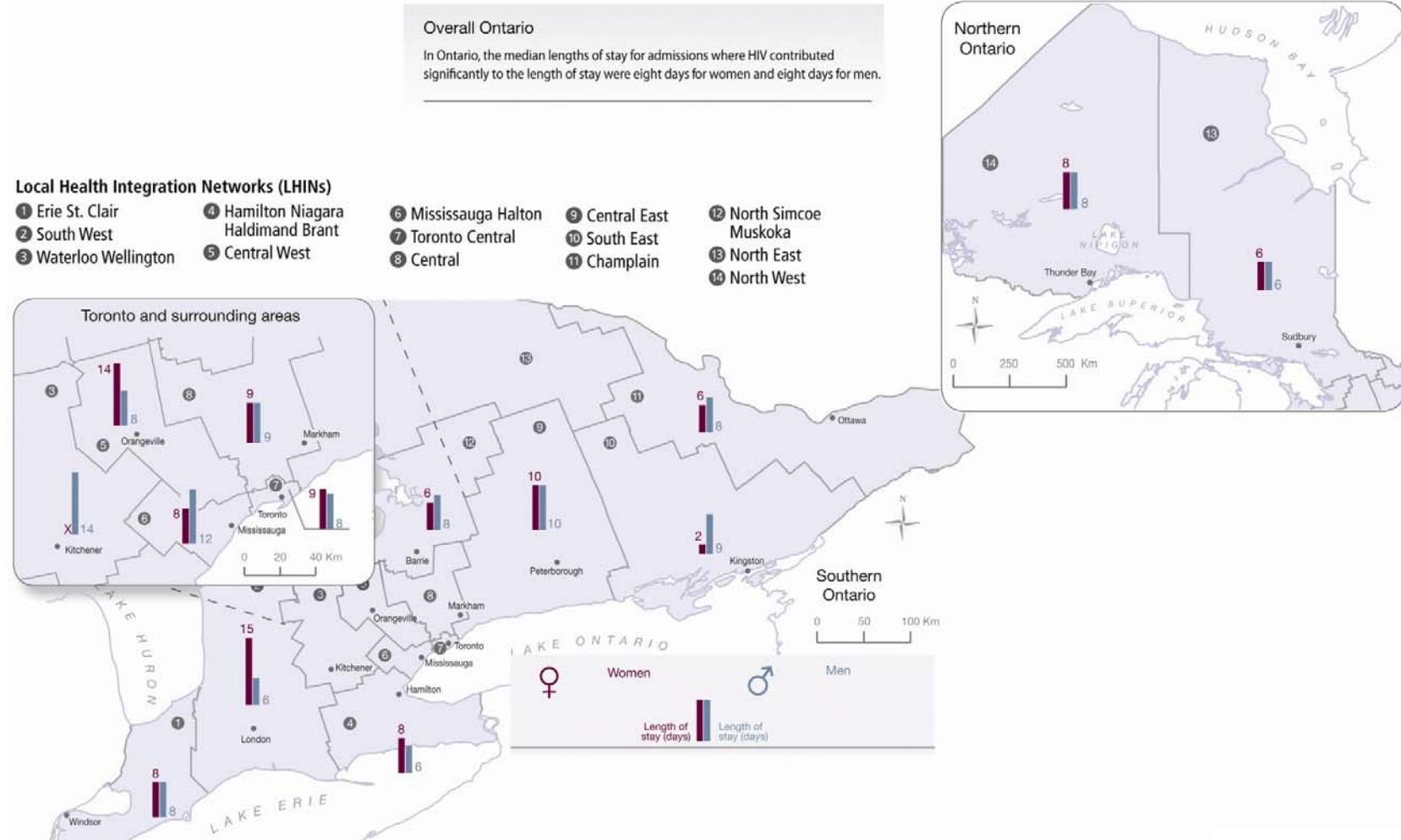
Number of admissions



**DATA SOURCES:** Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD); Statistics Canada 2006 Census

**NOTE:** Admissions related to childbirth were excluded

# Median length of stay for non-elective admissions for which HIV contributed significantly to length of stay, by sex and Local Health Integration Network (LHIN), in Ontario, 2004/05–2006/07

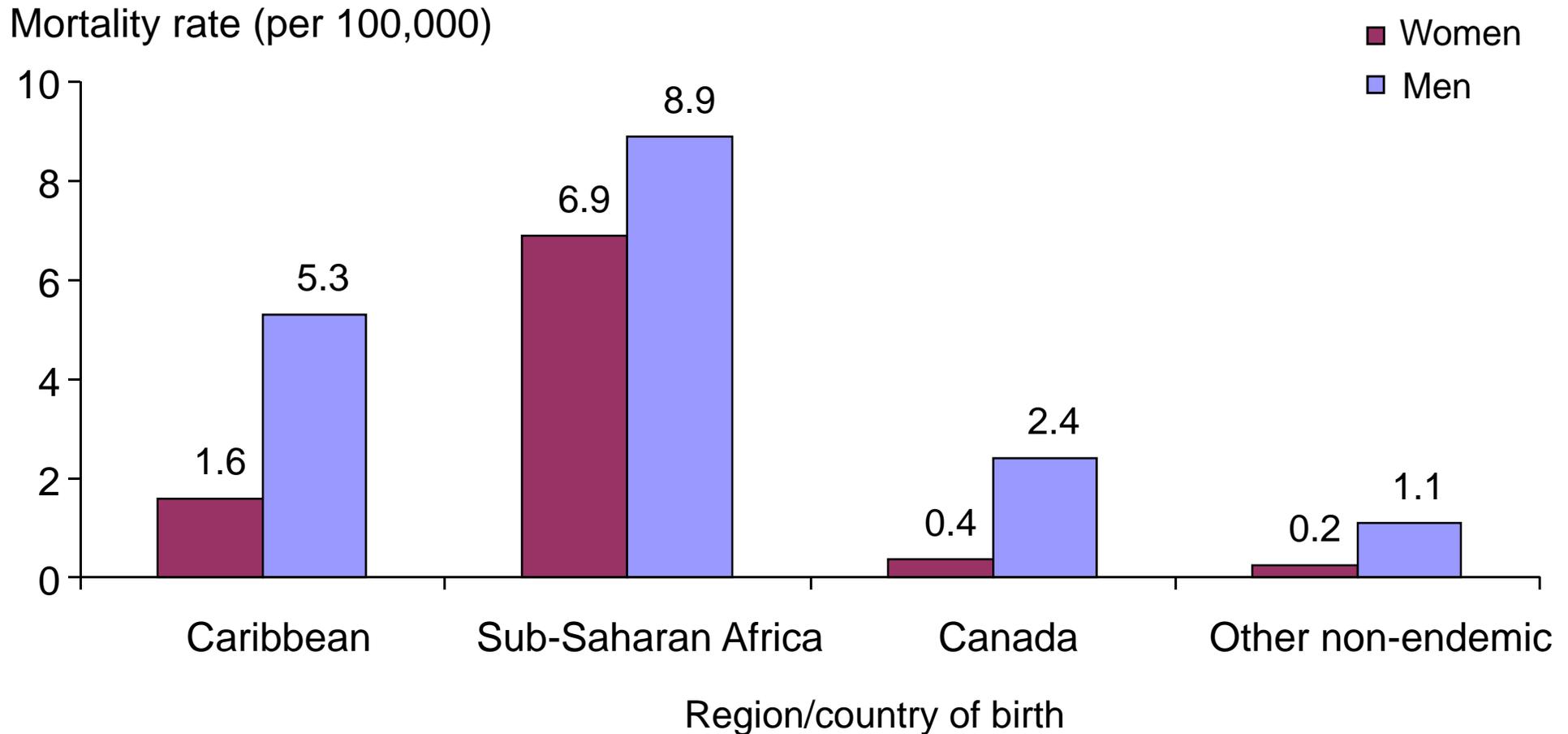


**DATA SOURCE:** Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD)

**NOTE:** Admissions related to childbirth were excluded

⊗ Data not shown due to small sample size.

# HIV-related mortality (per 100,000 population), by sex and region/country of birth, in Ontario, 2006



# Study Limitations

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- Modelled data has not been validated
- Risk behaviours based on self-report
- Community-based resource use does not allow precise quantification of the number of individuals using services
- OCS data might reflect selection biases
- We haven't assessed correlation of indicators or correlations between stratifying variables
- Indicators don't reflect clinical complexities and individual preferences
- Some indicators should be updated; for example, all cause mortality is more meaningful than HIV-specific mortality

# Key messages

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- More comprehensive data and better linkages are required
- Targeted prevention efforts are needed for some groups, including Aboriginal people and older women
- HIV testing in pregnancy is high but questions remain about women not receiving care and about the quality of consent
- Targeted interventions for women who inject drugs are needed
- Important gaps in access and quality of HIV care should be investigated
- Some people living with HIV experience many symptoms and reduced quality of life, particularly women, injection drug users and people with lower educational attainment

# For more information, please contact us:

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## The POWER Study

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*The POWER Study is a partnership between the Keenan Research Centre in the Li Ka Shing Knowledge Institute of St. Michael's Hospital and the Institute for Clinical Evaluative Sciences (ICES) in Toronto, Canada.*



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