

Sex and the City

Public Health WORKS,

January 17, 2006

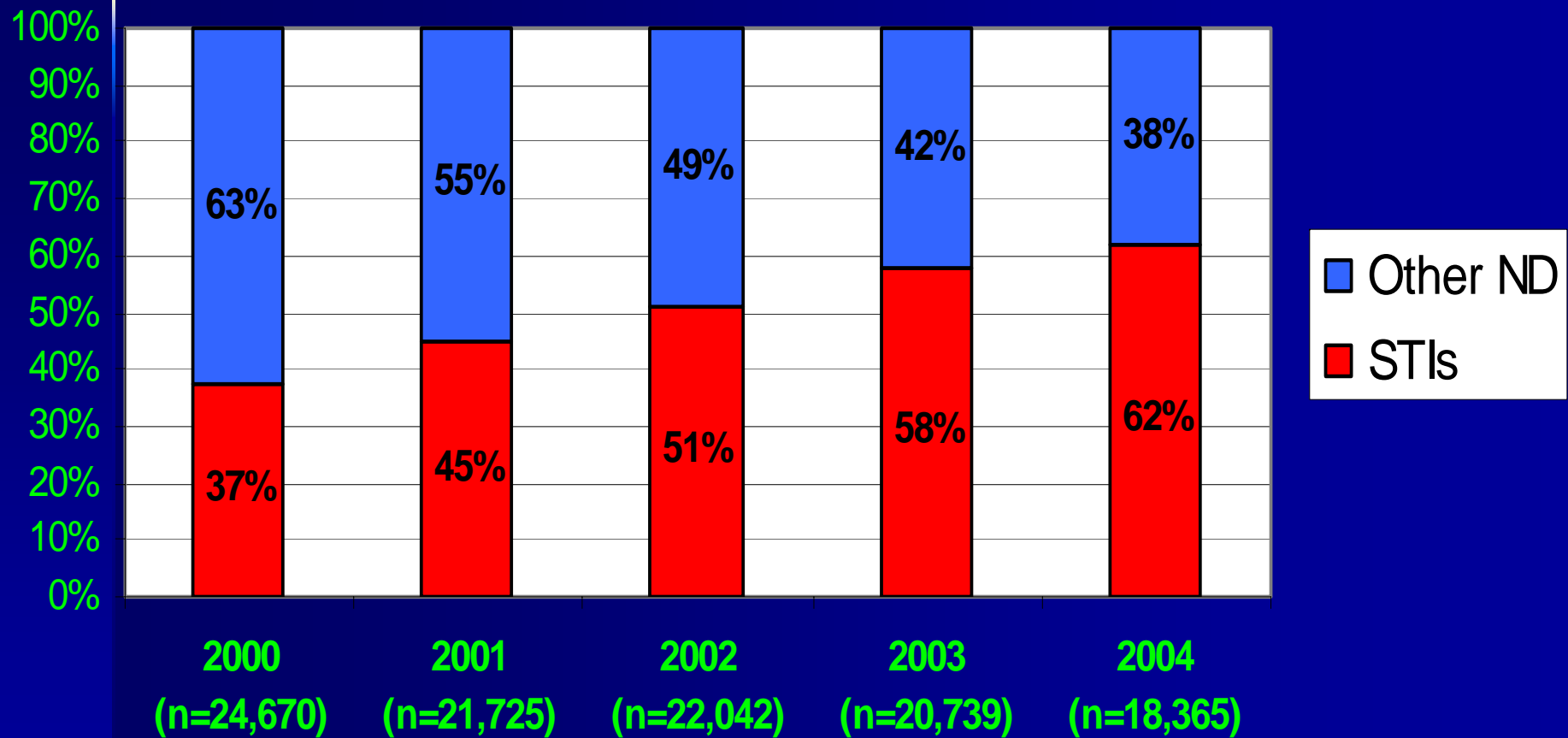
Ami Singh, BMBS, MSc, FRCPC
Infectious Diseases Medical
Consultant, AHW
Medical Director, CH STD Centre

Which city? *Edmonton...*

Some facts about *Edmonton...*

- We have the largest shopping mall in North America
- Edmonton's hockey team better than Calgary's
- We have a river (but no mountains)
- "one of Canada's best kept secrets"
- "booming economy"
- It would appear that people are having sex outside of mutually monogamous relationships...

Proportion of Reported STIs* and Other Notifiable Diseases** in Alberta



* Includes gonorrhea, chlamydia, syphilis, NGU, MPC and LGV

** Includes all notifiable diseases reported in Alberta

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, May 5, 2005

STIs in Alberta

- Central surveillance and coordination of STI programs
- Case management, partner notification, carried out a regional level
- 3 STD clinics in Alberta – Edmonton, Calgary and Fort McMurray – STD nurse specialists first line care providers – report 20-25% of all reportable STIs

Chlamydia

*Most common
reportable
communicable
disease in Alberta*

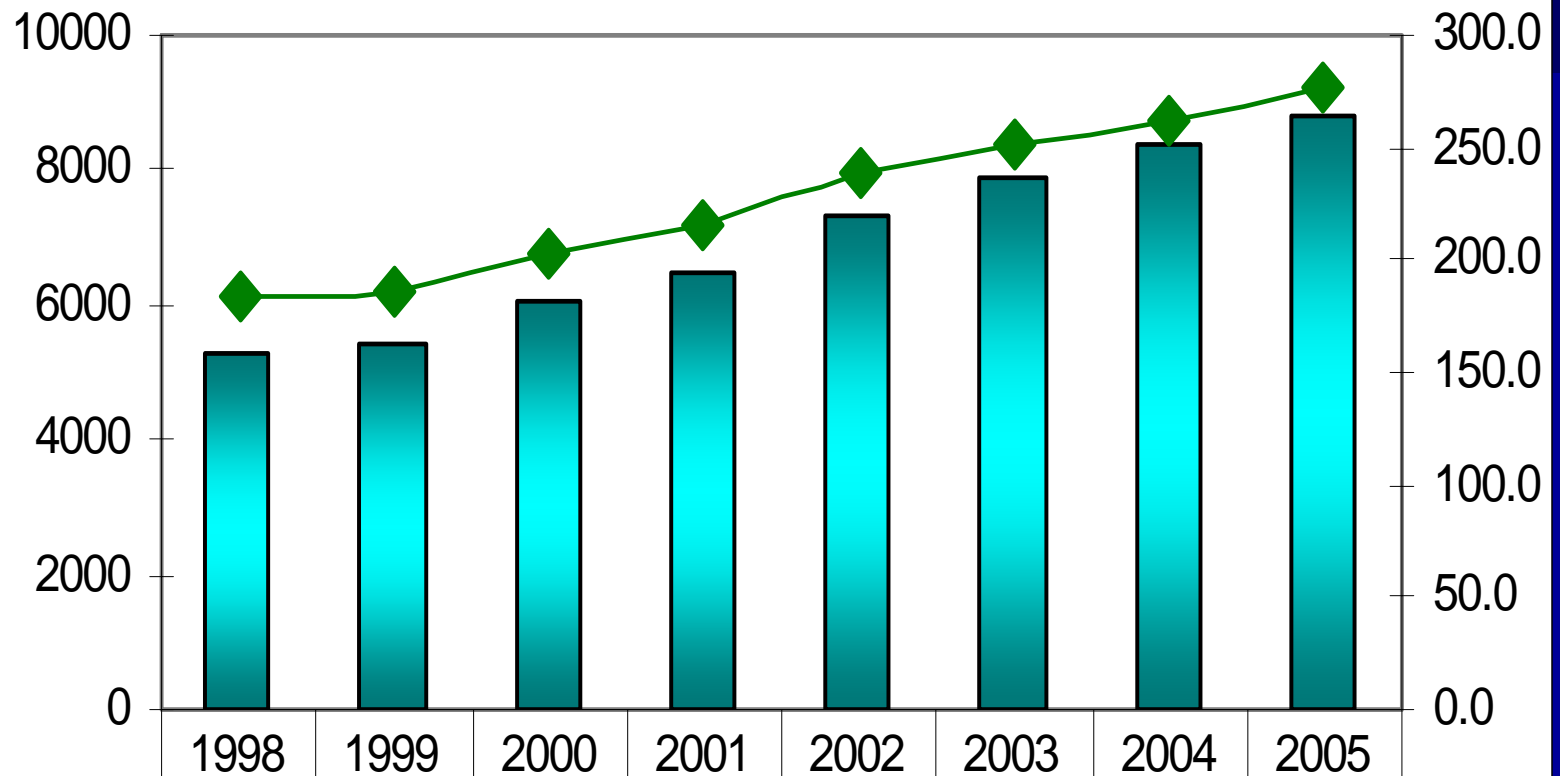
Reported Genital Chlamydia Rates in Alberta & Canada 1992 - 2004





NOTE: National rates for 2003 and 2004 are preliminary (Source: Sexual Health and Sexually Transmitted Infections Section, Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada 2004; <http://www.phac-aspc.gc.ca/std-mts/stdcases/casmts/index.html>)

Source: Disease Control & Prevention, Alberta Health and Wellness, May 5, 2005; Health Canada. Population and Public Health, Aug/2003.

Number of Cases and Crude Rate of Chlamydia Cases in Alberta by Year of Diagnosis.

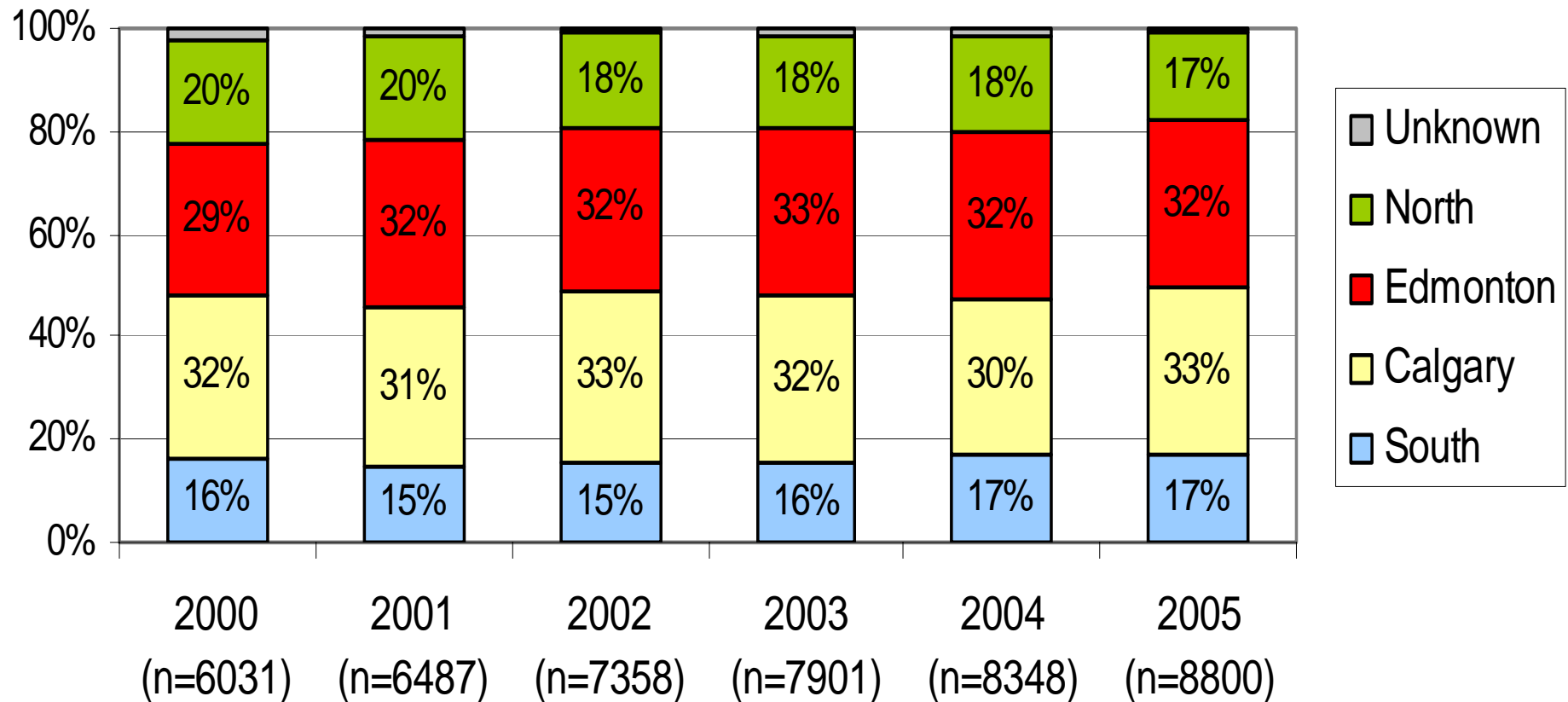


 Number of Cases	5253	5420	6031	6487	7358	7901	8348	8800
 Rate per 100,000	184.1	185.4	203.2	214.6	238.4	252.1	262.6	276.8

Impact of type of diagnostic testing on rising chlamydia rates

- Molecular diagnostic tests (MDT) introduced in Alberta in 1997
- MDT more sensitive than previous tests
- Increasing availability of urine testing, especially for men
- Multiple labs providing STI testing in Alberta
 - Number of lab tests increasing over time but so is percentage positivity

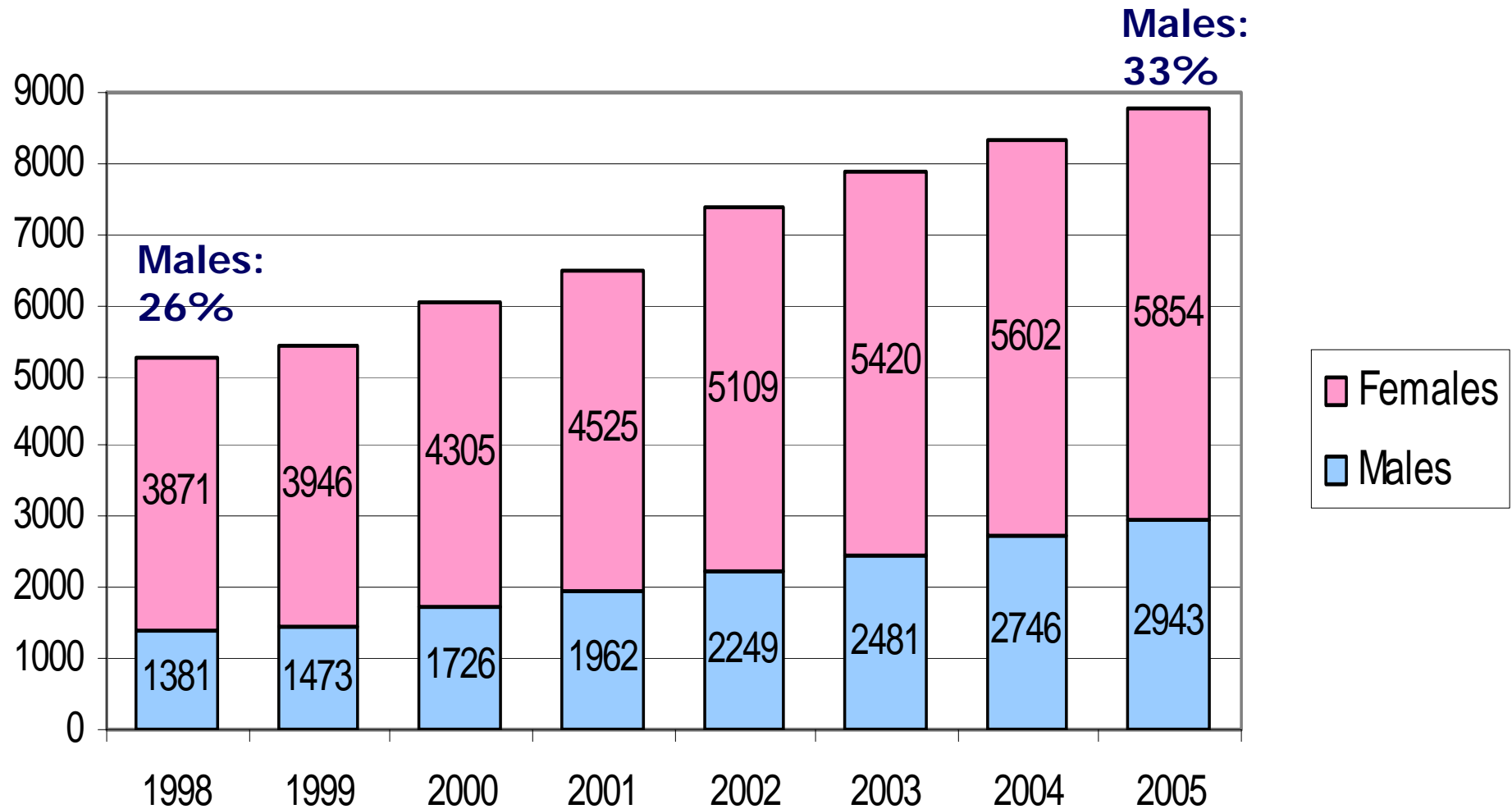
Chlamydia Cases in Alberta by Provincial Region and Year of Diagnosis



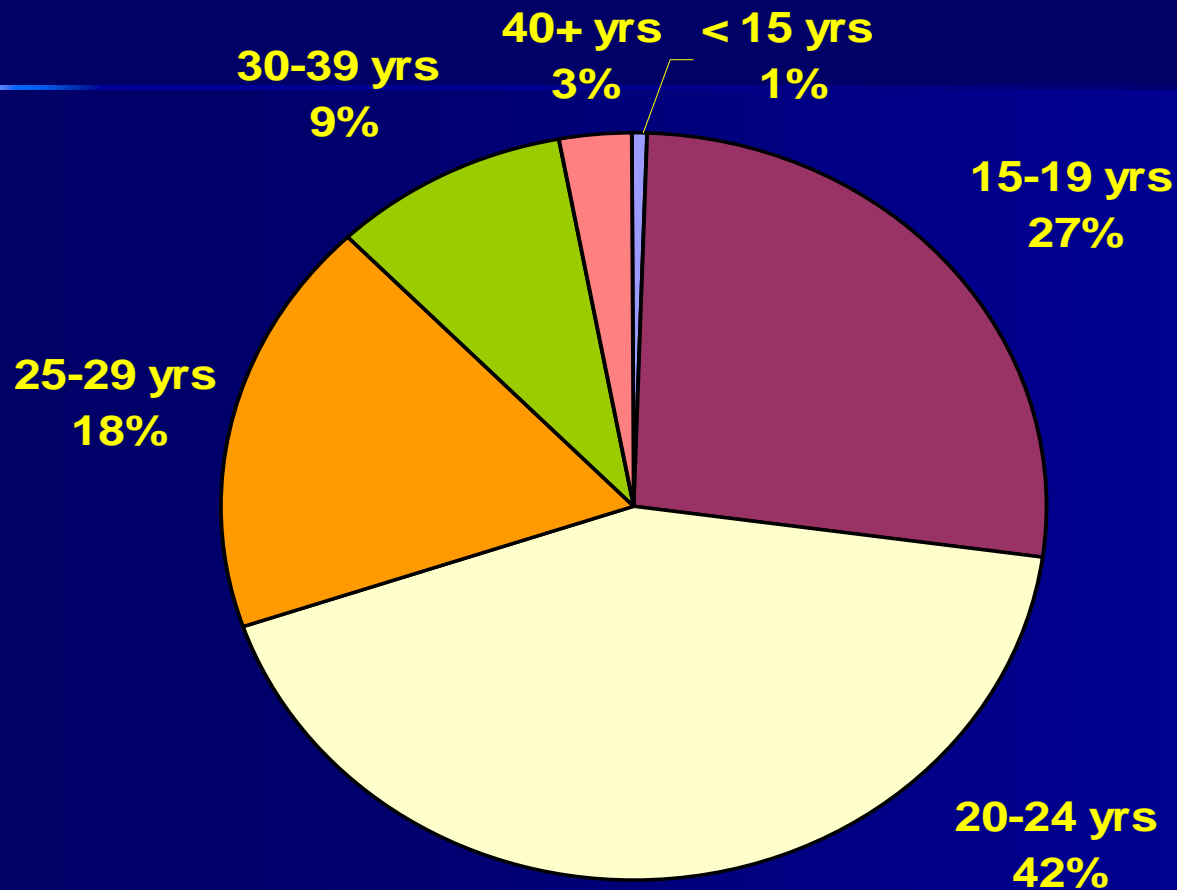
North refers to the East Central RHA, Aspen RHA, Peace Country RHA and Northern Lights RHA. Edmonton refers to the Capital Health Region. Calgary refers to the Calgary Health Region. South refers Chinook RHA, Palliser RHA and David Thompson RHA.

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan 10, 2006

Gender Distribution of Chlamydia Cases in Alberta by Year of Diagnosis.



Age Distribution of Chlamydia Cases: Alberta, 2000-2005

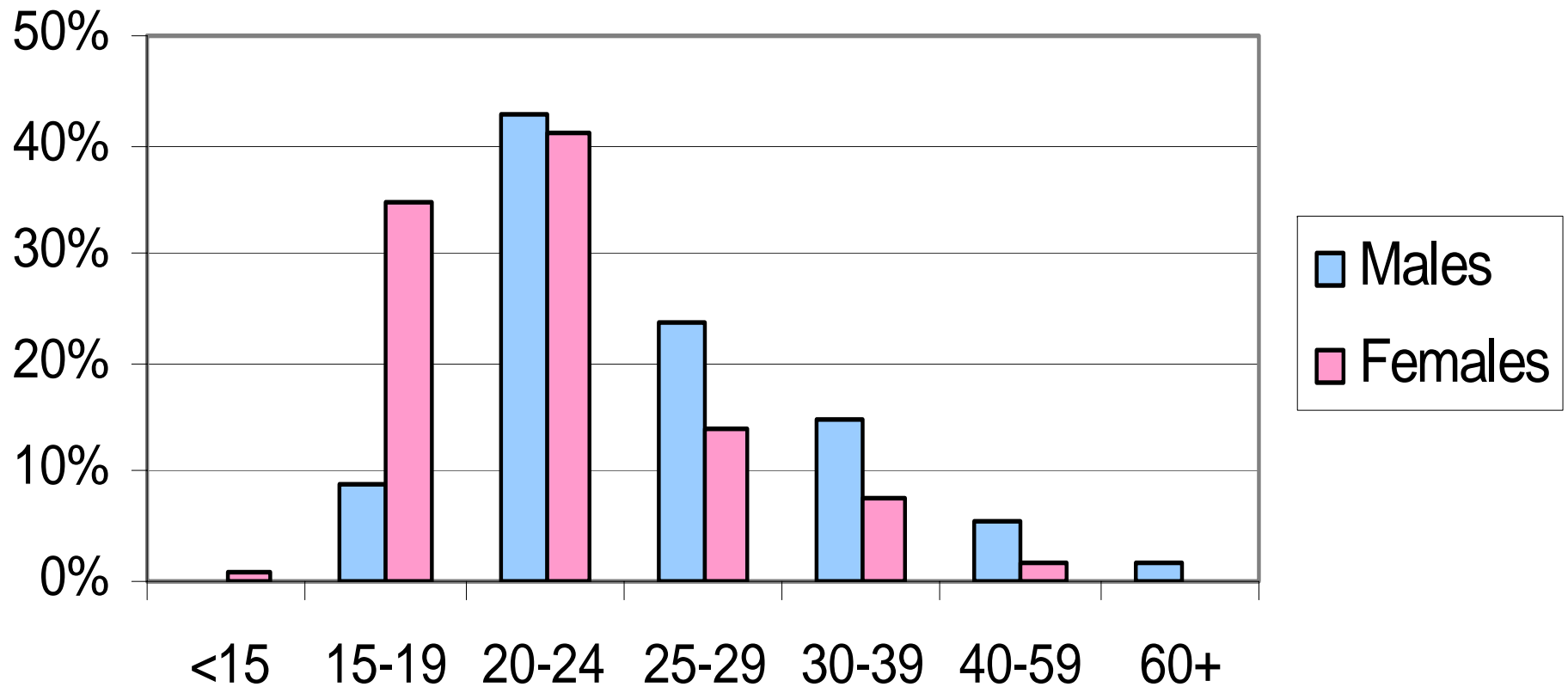


~70% of cases are below the age of 24 years

NOTE: Three chlamydia cases have unknown age

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan 10, 2006

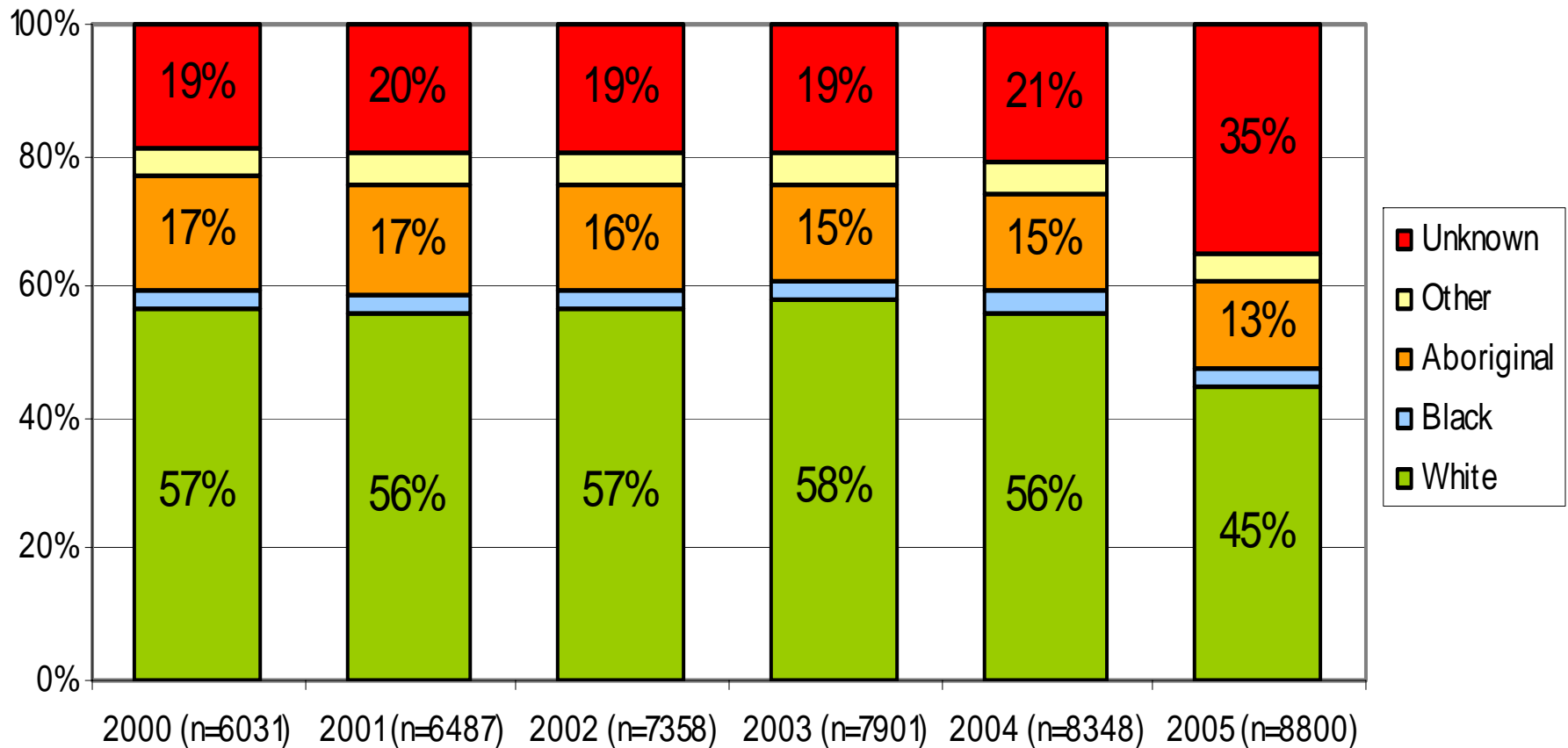
Gender-Specific Age Distribution of Chlamydia Cases in Alberta, 2005



NOTE: One male case is not included in above graph due to unknown age

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan10, 2006

Chlamydia Cases in Alberta by Ethnicity and Year of Diagnosis

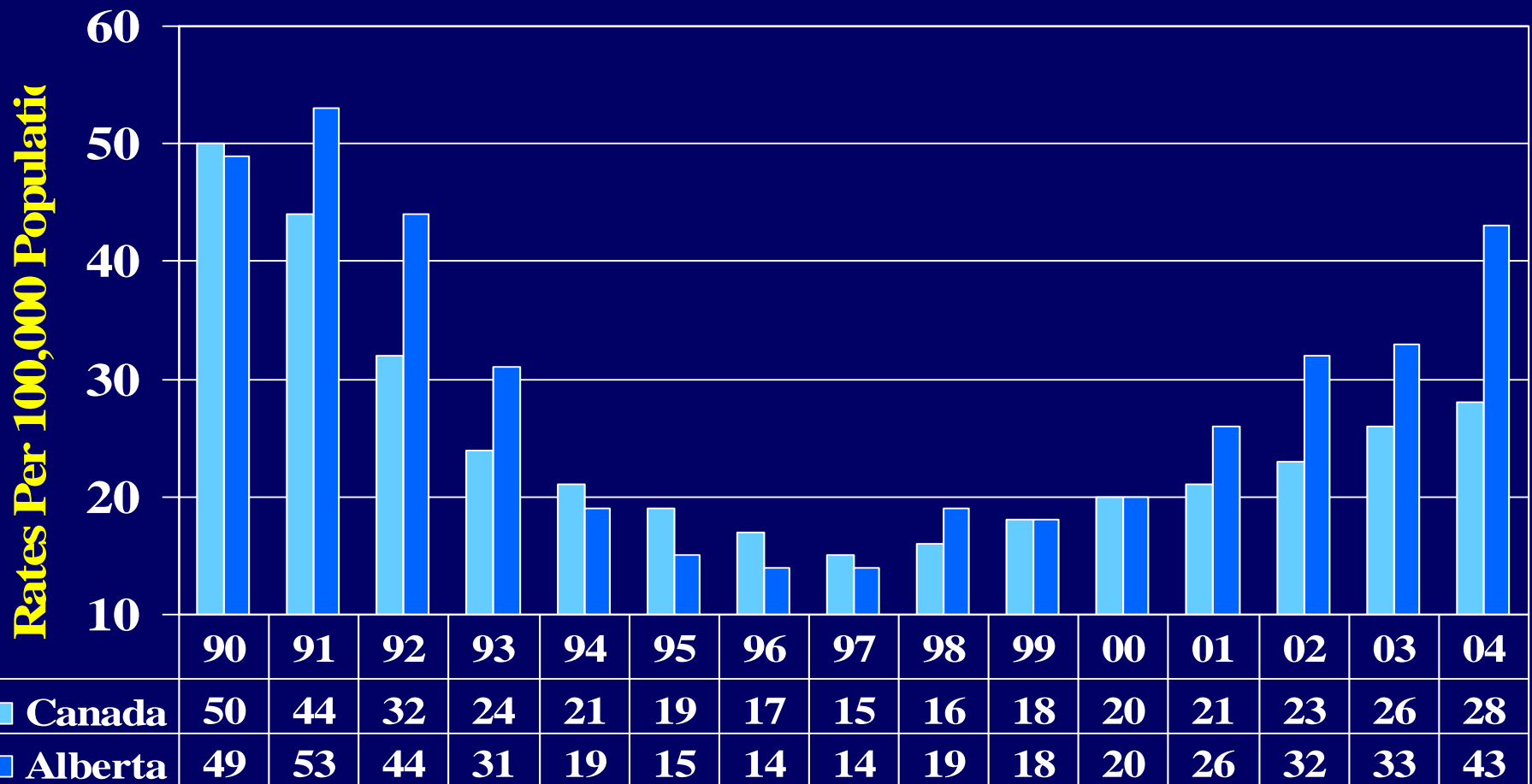


* **Aboriginal includes North American Indian and Metis populations**

•Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan10, 2006

Gonorrhoea

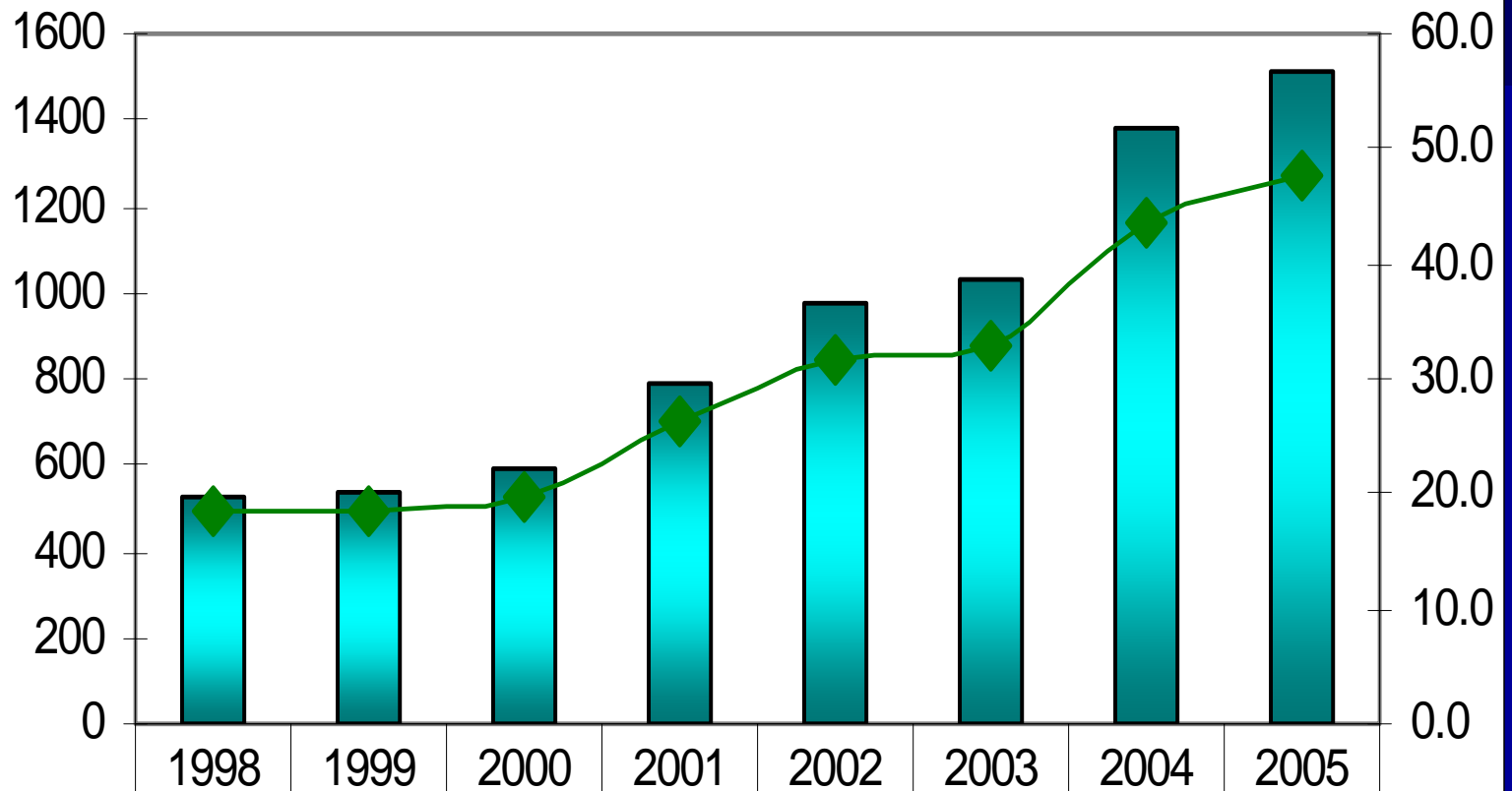
Reported Gonorrhoea Rates in Alberta & Canada 1990-2004





NOTE: National rates for 2003 and 2004 are preliminary. (Source: Sexual Health and Sexually Transmitted Infections Section, Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada 2004; <http://www.phac-aspc.gc.ca/std-mts/stdcases/casmts/index.html>)

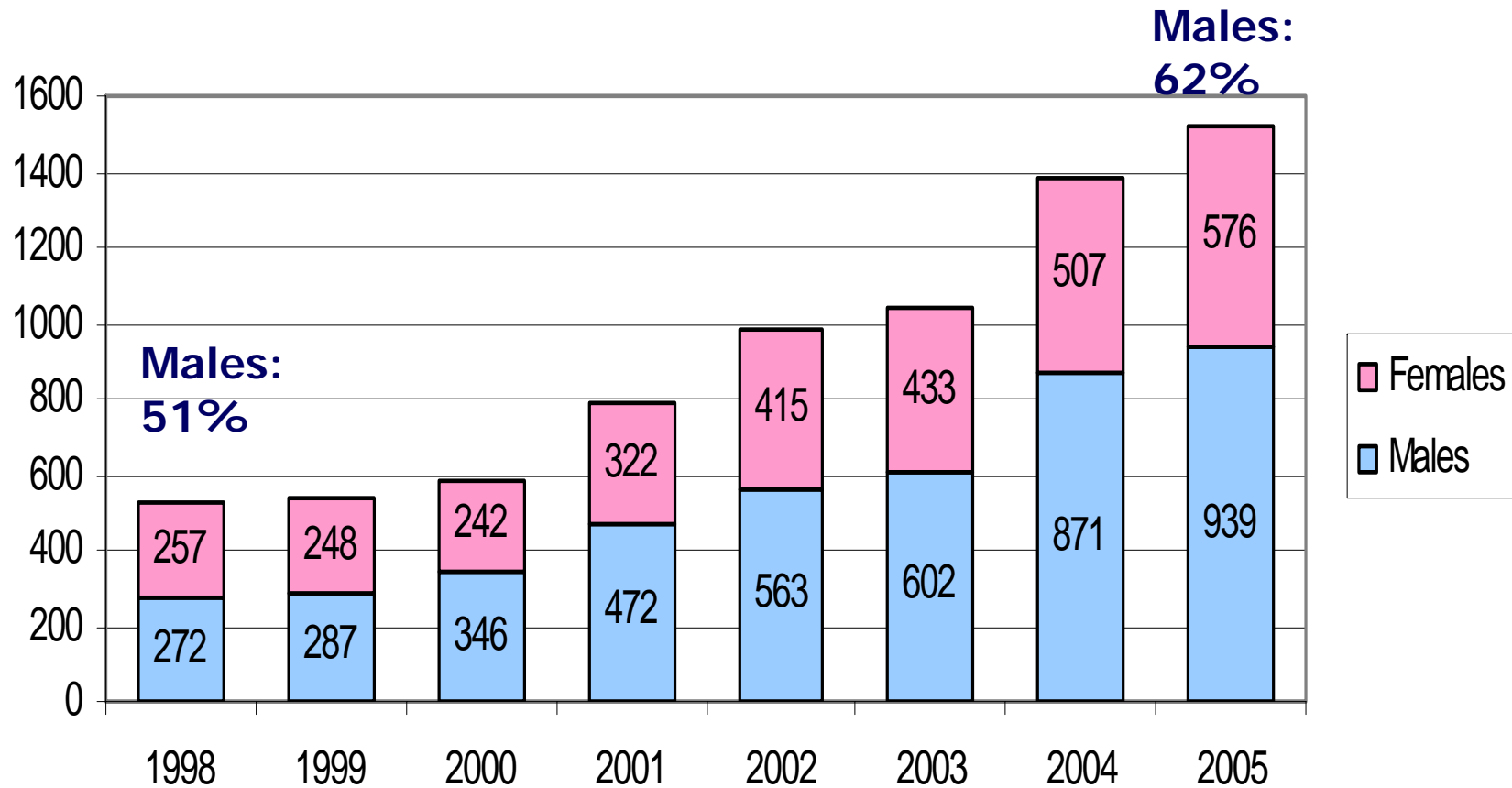
Source: Disease Control & Prevention, Alberta Health and Wellness, May 5, 2005; Health Canada. Population and Public Health Branch August 8, 2003.

Number of Cases and Crude Rate of Gonorrhoea Cases in Alberta by Year of Diagnosis



 Number of Cases	529	537	588	794	978	1035	1379	1515
 Rate per 100,000	18.5	18.4	19.8	26.3	31.7	33.0	43.4	47.7

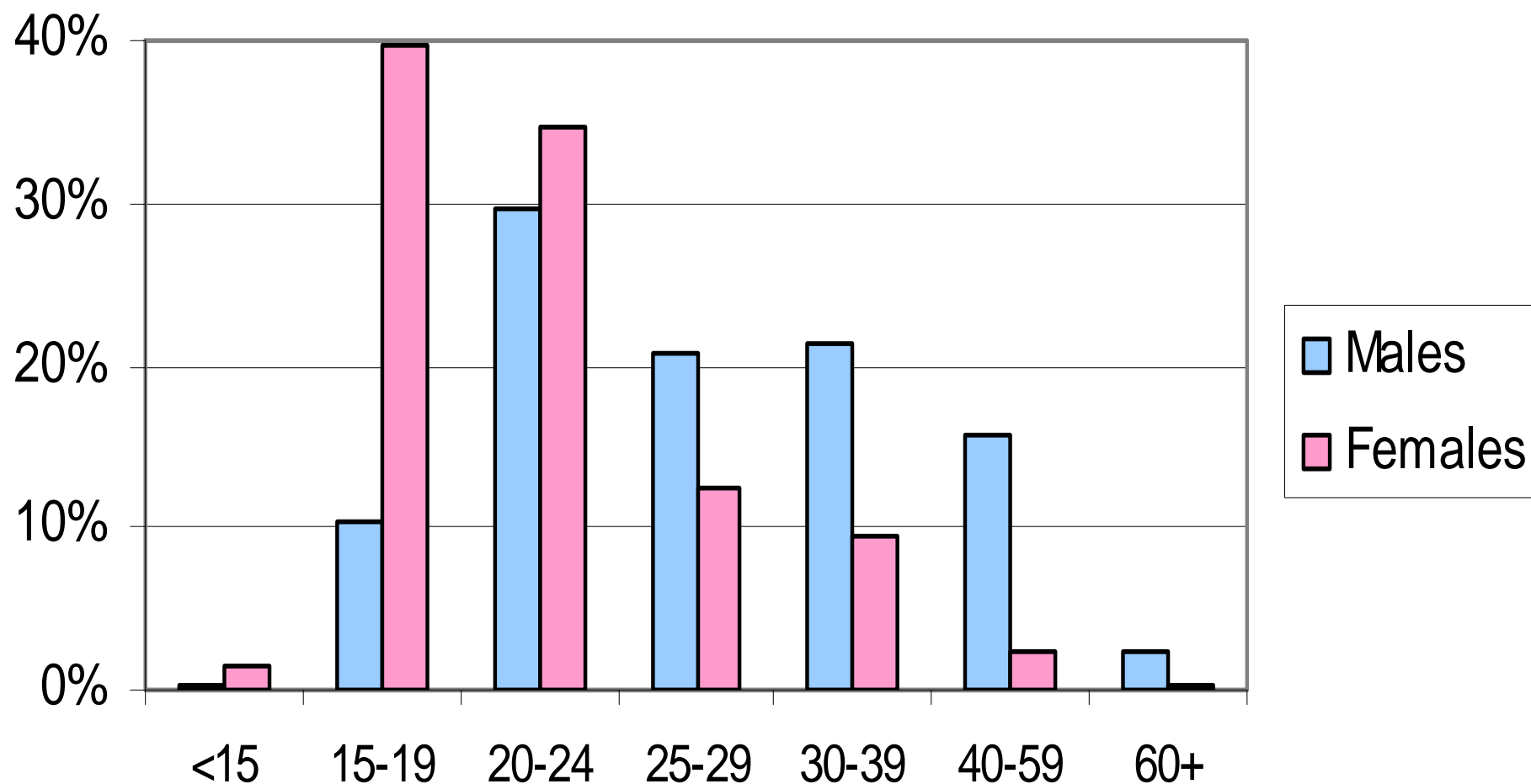
Gender Distribution of Gonorrhoea Cases in Alberta by Year of Diagnosis.



NOTE: Gender is missing for one case in 2004

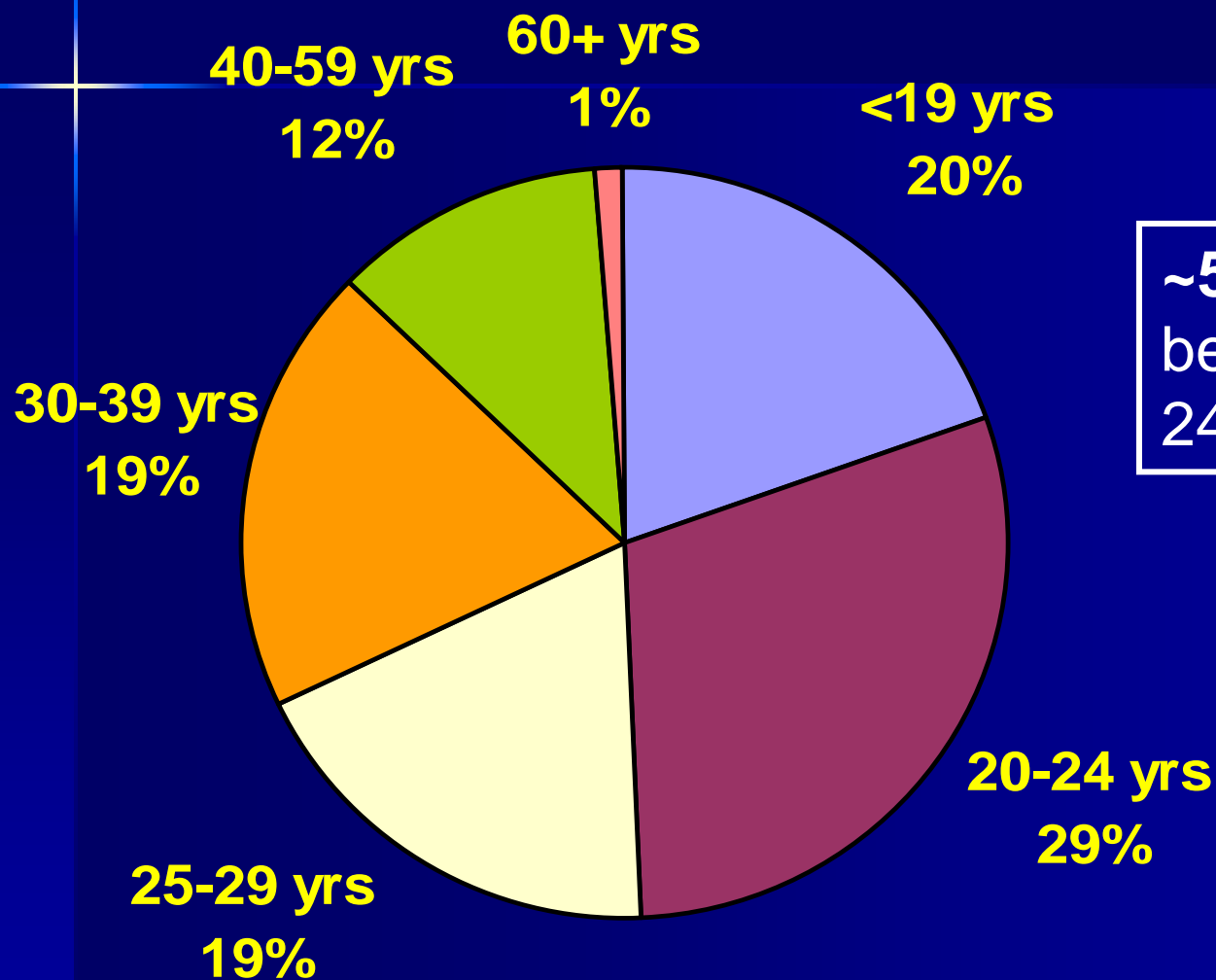
Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan 10, 2006

Gender-Specific Age Distribution of Gonorrhea Cases in Alberta, 2005



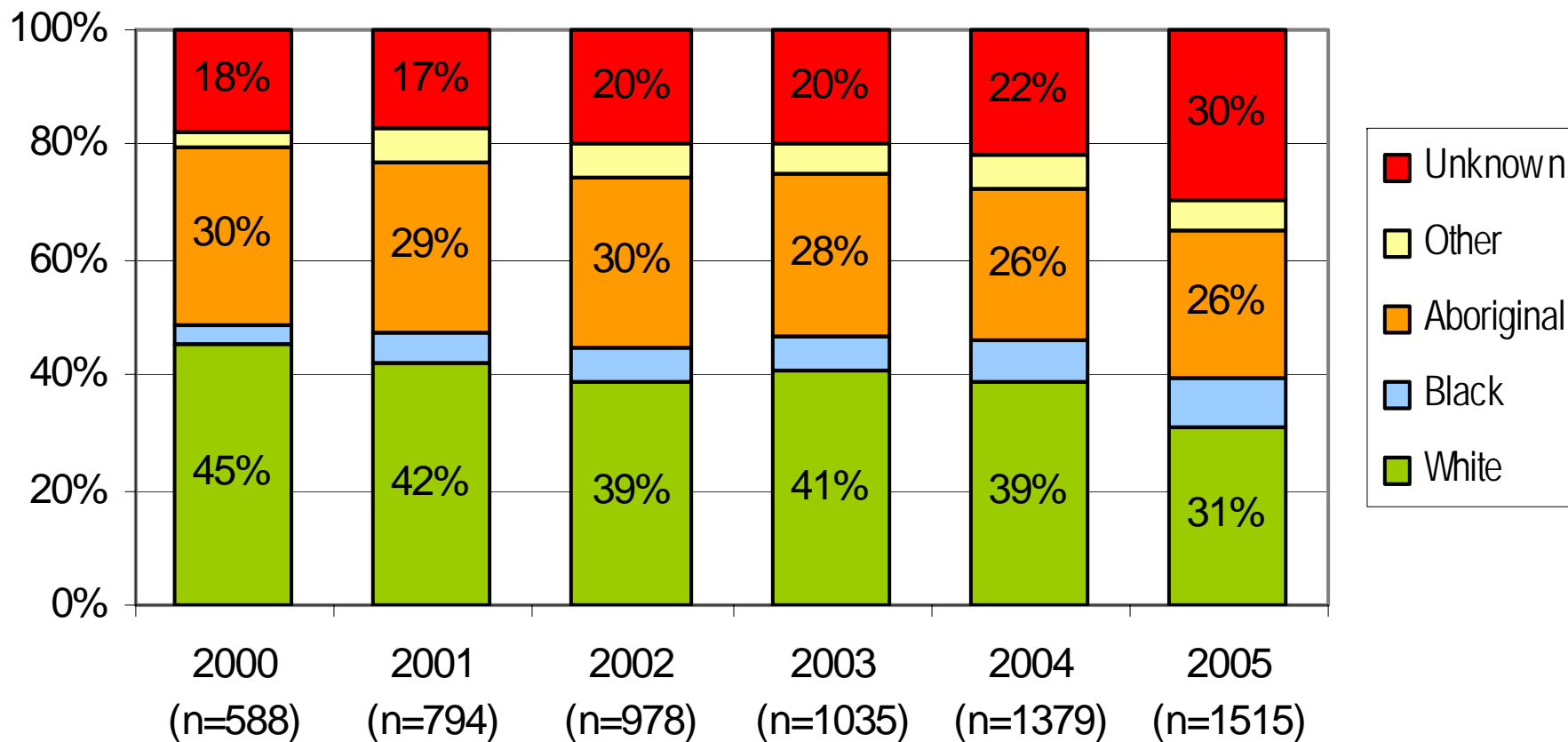
Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan10, 2006

Age Distribution of Gonorrhoea Cases in Alberta, 2000-2005



~50% of cases are below the age of 24 years

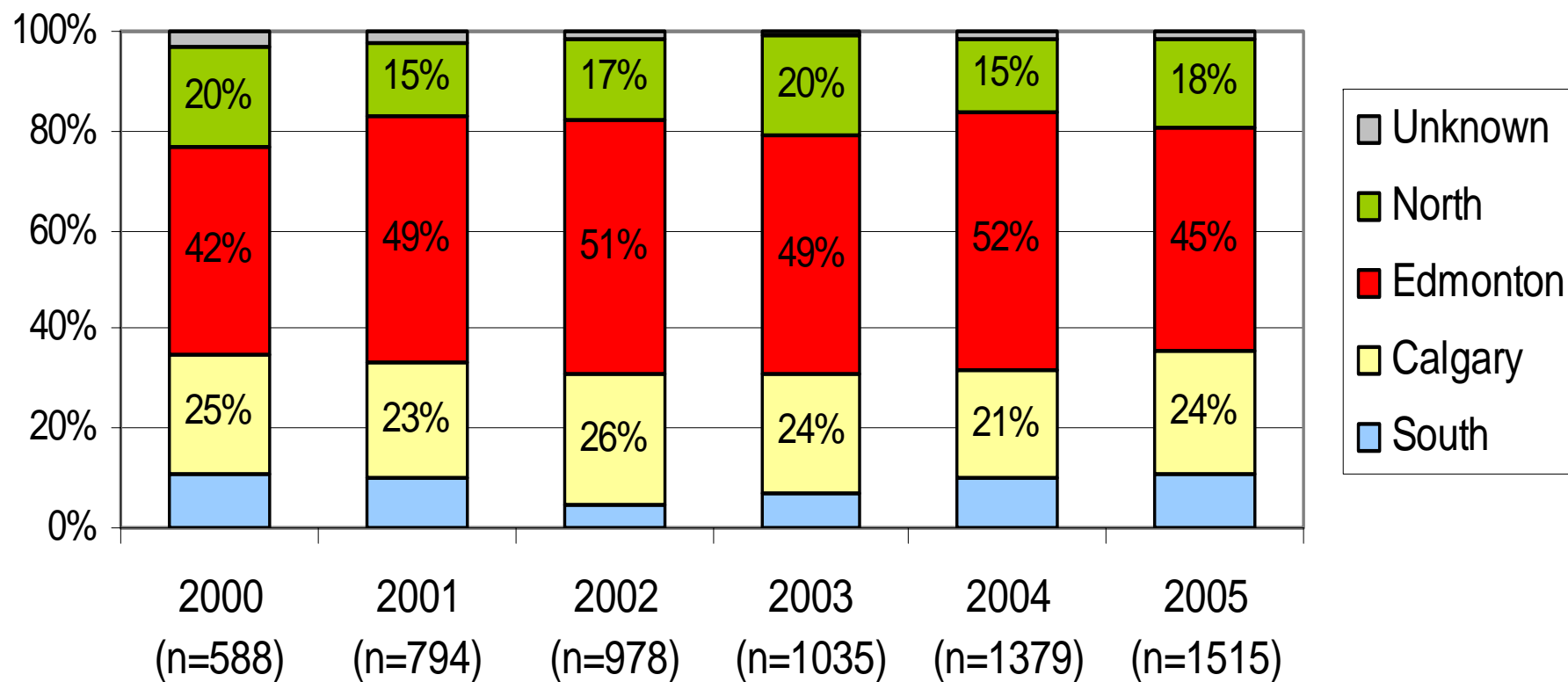
Gonorrhoea Cases in Alberta by Ethnicity and Year of Diagnosis



* **Aboriginal includes North American Indian and Metis populations**

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan10, 2006

Gonorrhoea Cases in Alberta by Provincial Region and Year of Diagnosis

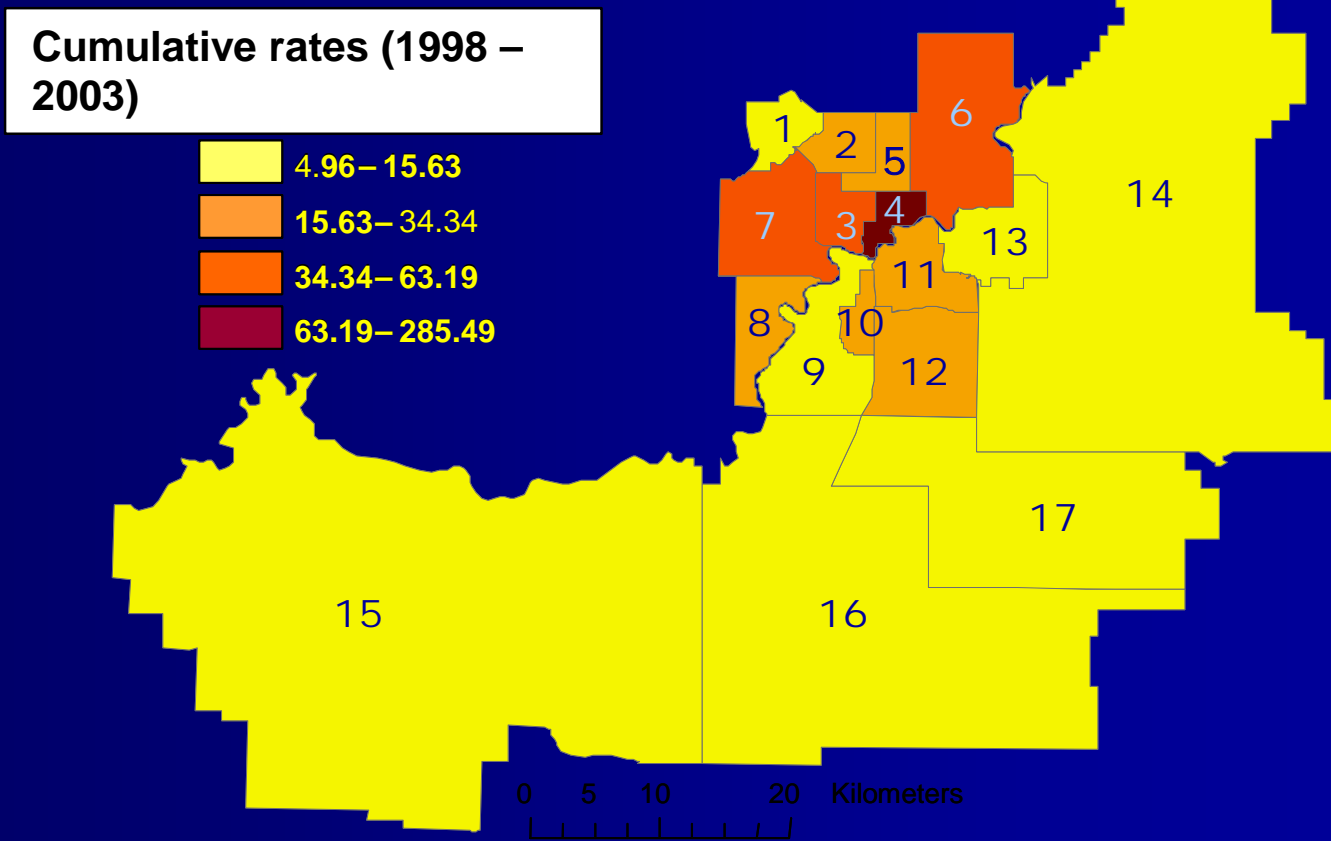


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Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan10, 2006

Cumulative age-sex standardized rates (per 100,000 population) of *N. gonorrhoea* diagnosed between January 1, 1998 and December 31, 2003 among residents of 17 sub-regions in the Capital Health Region.

Jayaraman et al, 2006



Cipro resistant gonorrhoea

Surveillance for antimicrobial resistance in gonorrhoea in Alberta (1)

- STD clinics in Edmonton and Calgary routinely do gonorrhoea culture
 - Specimens plated on site and incubated in CO₂ incubator
 - Test (and report) ~25% of all provincial cases of gonorrhoea each year
 - Study comparing gonorrhoea culture with pcr at Edmonton STD clinic showed that all specimens showed same result by culture and pcr¹

¹Singh et al, ISSTDR, 2003

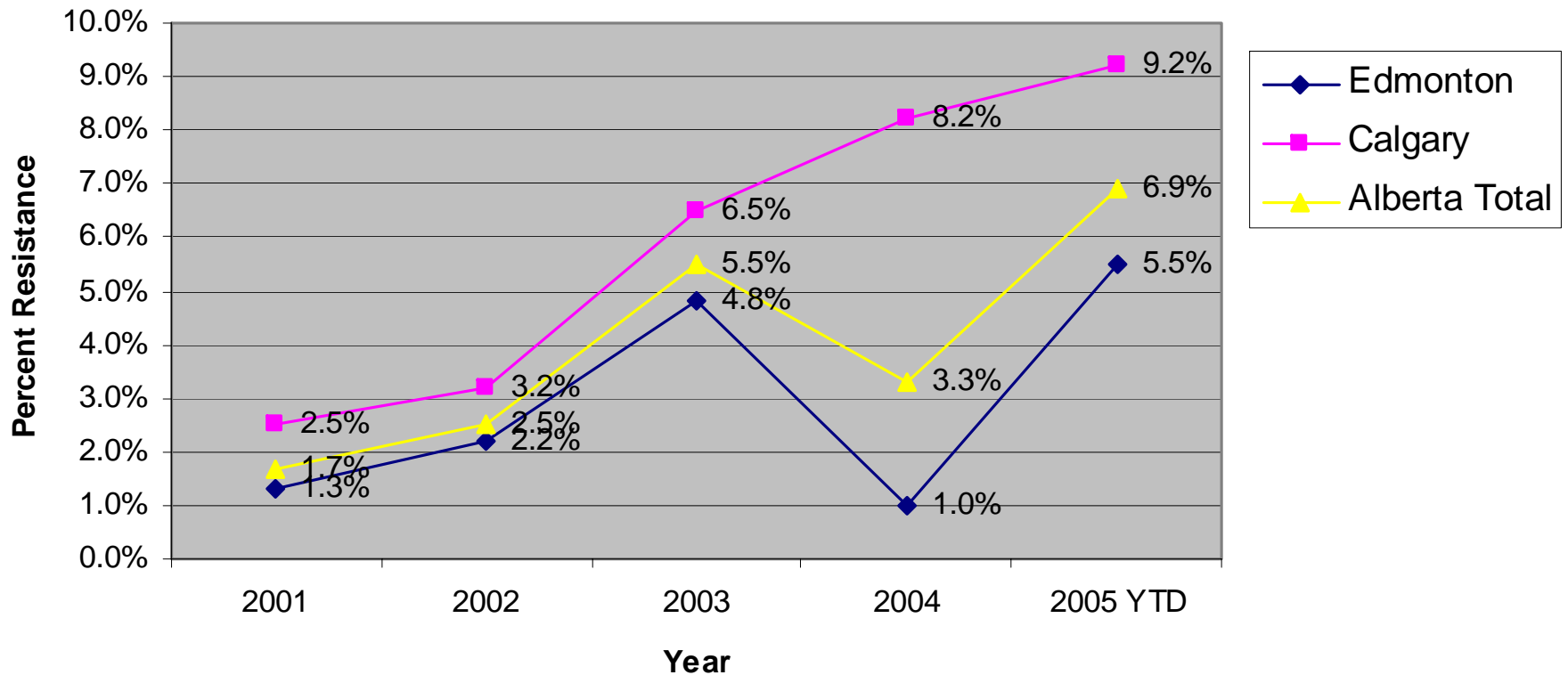
Surveillance for antimicrobial resistance in gonorrhoea in Alberta (2)

Current criteria for gonorrhoea culture:

- Sexual contact outside of Canada
- Treatment failure
- Sexual assault/abuse
- Men who have sex with men

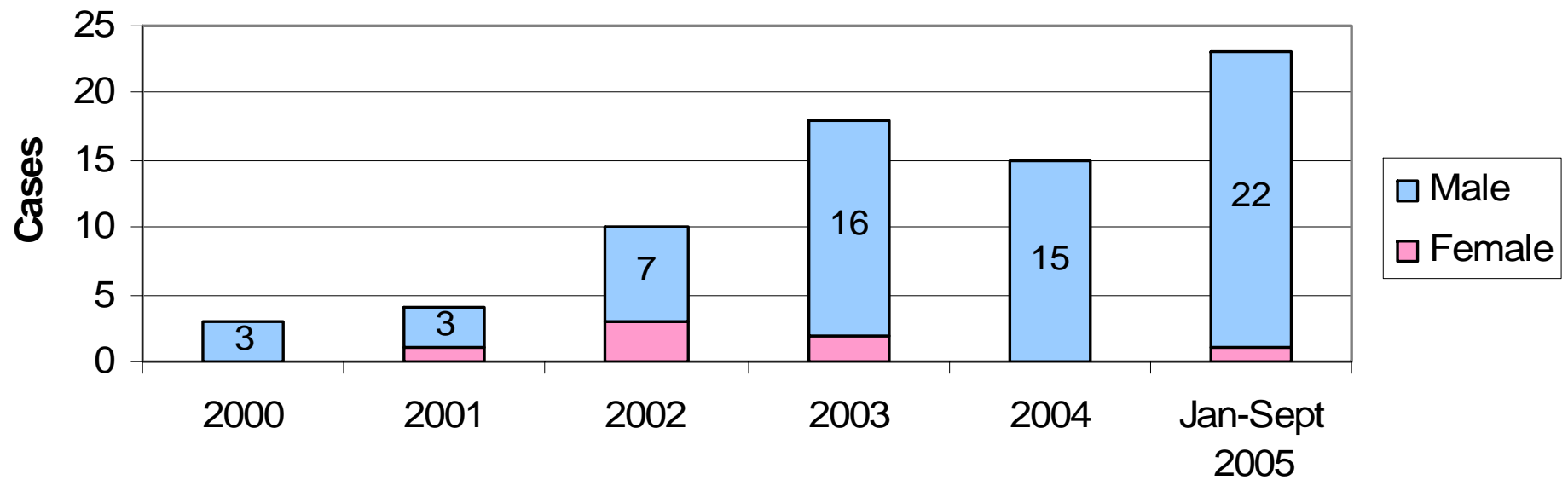
~ 30% of all gonorrhoea cases each year are processed by culture

Ciprofloxacin Resistance - Edmonton and Calgary Provlab Sites and Alberta Total for 2001-2005 (to Sept 30)



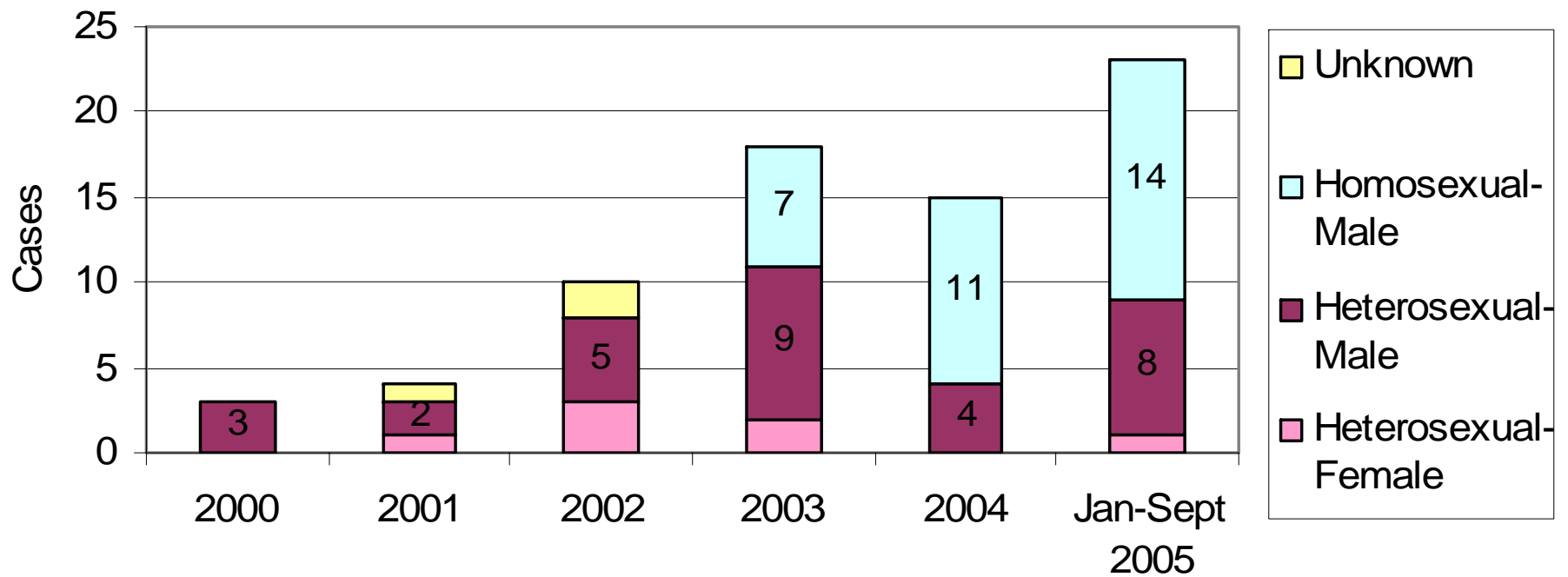
Source: M. Lovgren, Provincial Laboratory for Public Health (Alberta)

Gender Distribution of Ciprofloxacin-Resistant Gonorrhea Cases in Alberta: 2000-2005



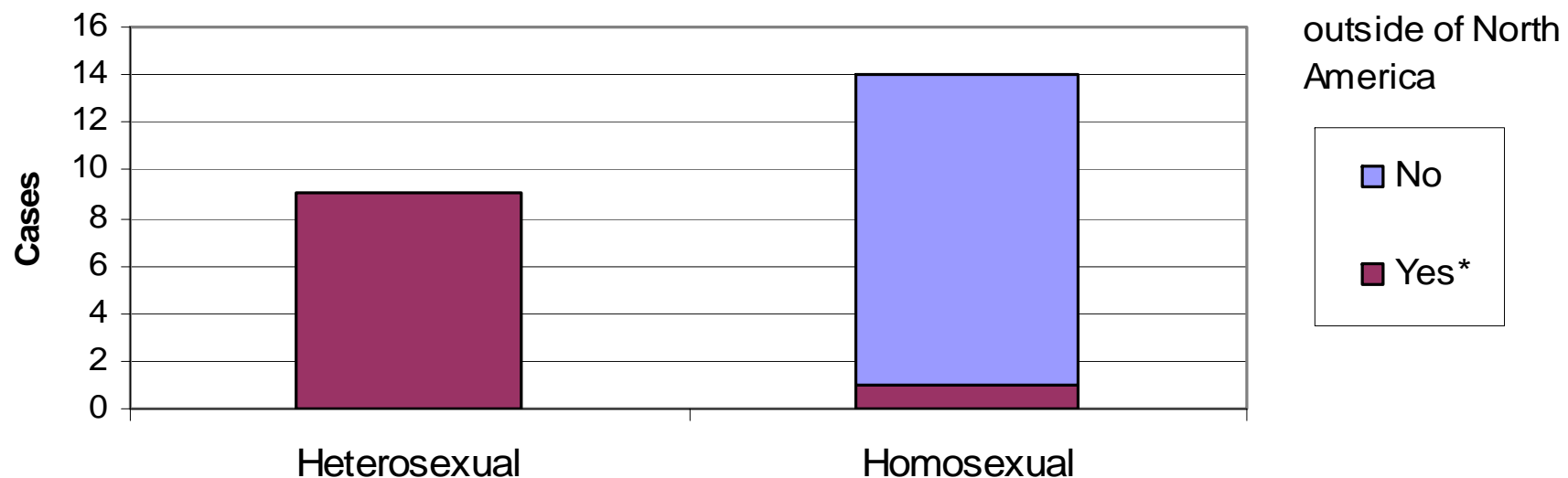
Source: Disease Control & Prevention Branch, Alberta Health and Wellness

Sexual Preference of Ciprofloxacin-Resistant Gonorrhoea Cases in Alberta: 2000-2005



Source: Disease Control & Prevention Branch, Alberta Health and Wellness

Sexual Activity Outside of North America by Sexual Preference: Alberta, Jan-Sept. 2005



NOTE: heterosexuals are all male, except for one female

Source: Disease Control & Prevention Branch, Alberta Health and Wellness

Summary:

All Cipro resistant gonorrhoea cases in Alberta in 2005 were in MSM or linked to travel outside of Alberta

Treatment guidelines for gonorrhoea in Alberta

- *Ciprofloxacin first line recommended agent since 1991*
- *No apparent rise in cipro resistance due to "antibiotic pressure"*

Effective November, 2005 the following individuals with uncomplicated gonorrhoea should not be treated with cipro¹

- men who have sex with men (MSM)
- those who have had sex while traveling outside of Alberta
- those who have sex with partners who have traveled outside of Alberta

¹Letter mailed out to physicians and other relevant clinics November 16, 2005

Other changes by provincial and regional STD services in response to cipro resistant cases (effective November 2004)

- Top priority investigation
- Verify correct treatment (Cefixime) was given and that client took it.
- **Enhanced surveillance:**
 - **case re-interviewed by STD partner notification nurse:**
 - **Did sexual contact take place outside of Alberta? Where and When and with Whom?**
 - **What is clients sexual preference?**
- Verify if sexual contacts were treated

Infectious syphilis

Primary syphilis : CHANCRE

Unprotected oral sex an important risk factor for transmission of syphilis

*15-40% of untreated patients
develop tertiary syphilis*

- **Neurosyphilis** –
most common
tertiary stage

Cardiovascular

¹Cooper R, IDSA, 2004: Review
of tertiary syphilis in
Alberta 1974-2004: 77 cases-
96% neurosyphilis, 4% CV

Gumma

Syphilis Treatment

Primary/secondary/ latent/cardio-vascular syphilis :

- intramuscular penicillin (benzathine penicillin G – special long acting preparation of penicillin)

Central nervous system syphilis :

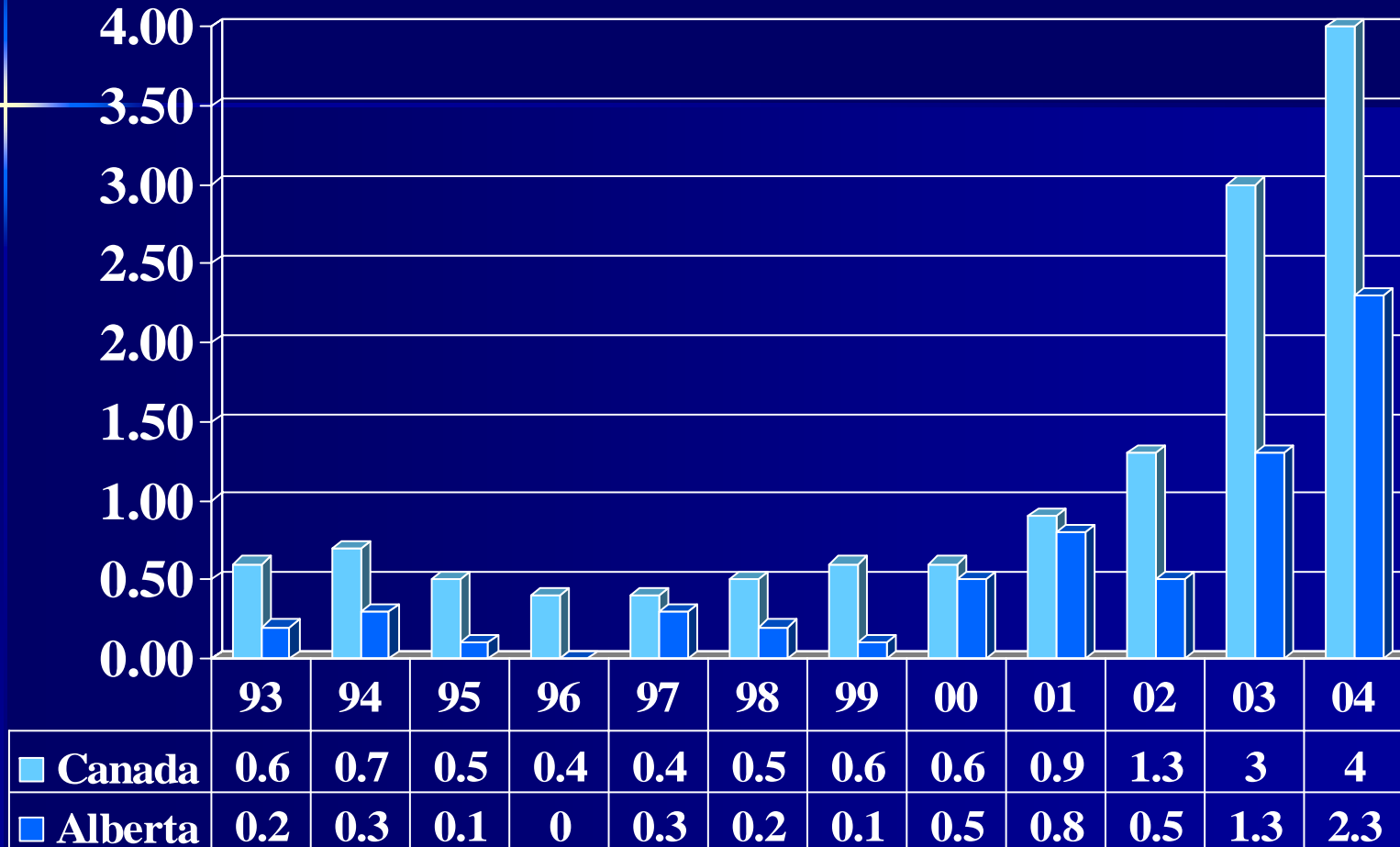
- intravenous penicillin

Penicillin alternatives :

- doxycycline/ceftriaxone

Reported Infectious Syphilis Rates in Alberta & Canada 1993 - 2004

Rates Per 100,000 Population

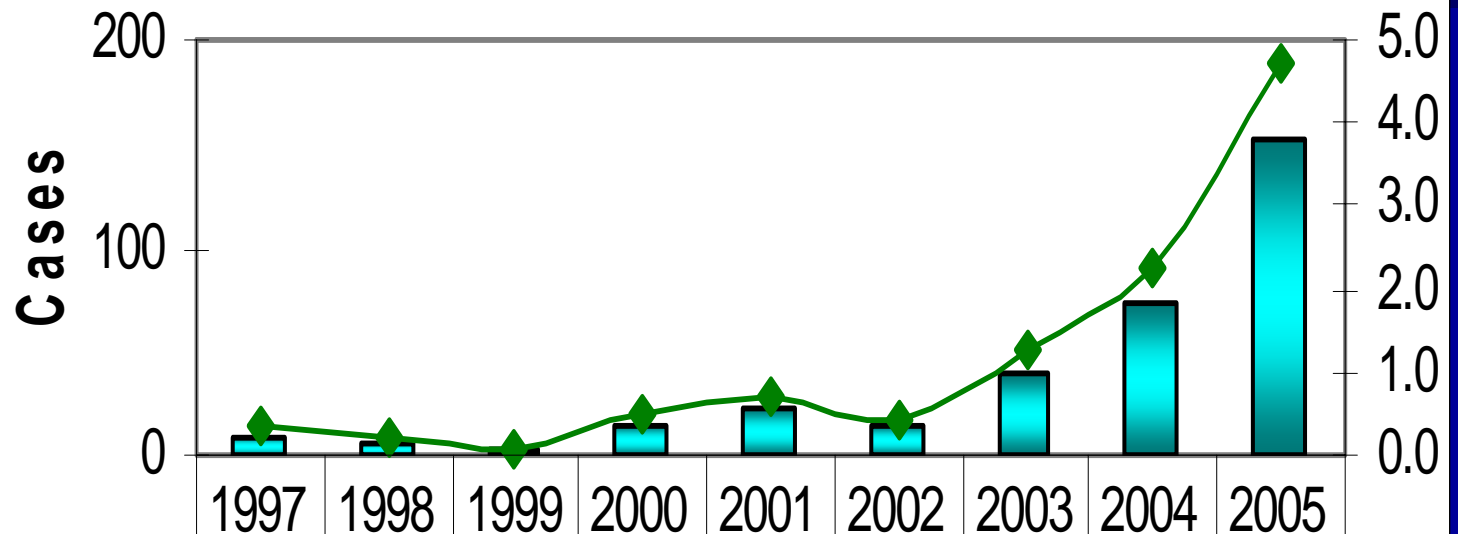




NOTE: National rates for 2003 and 2004 are preliminary (Source: Sexual Health and Sexually Transmitted Infections Section, Centre for Infectious Disease Prevention and Control, Public Health Agency of Canada 2004; <http://www.phac-aspc.gc.ca/std-mts/stdcases/casmts/index.html>)

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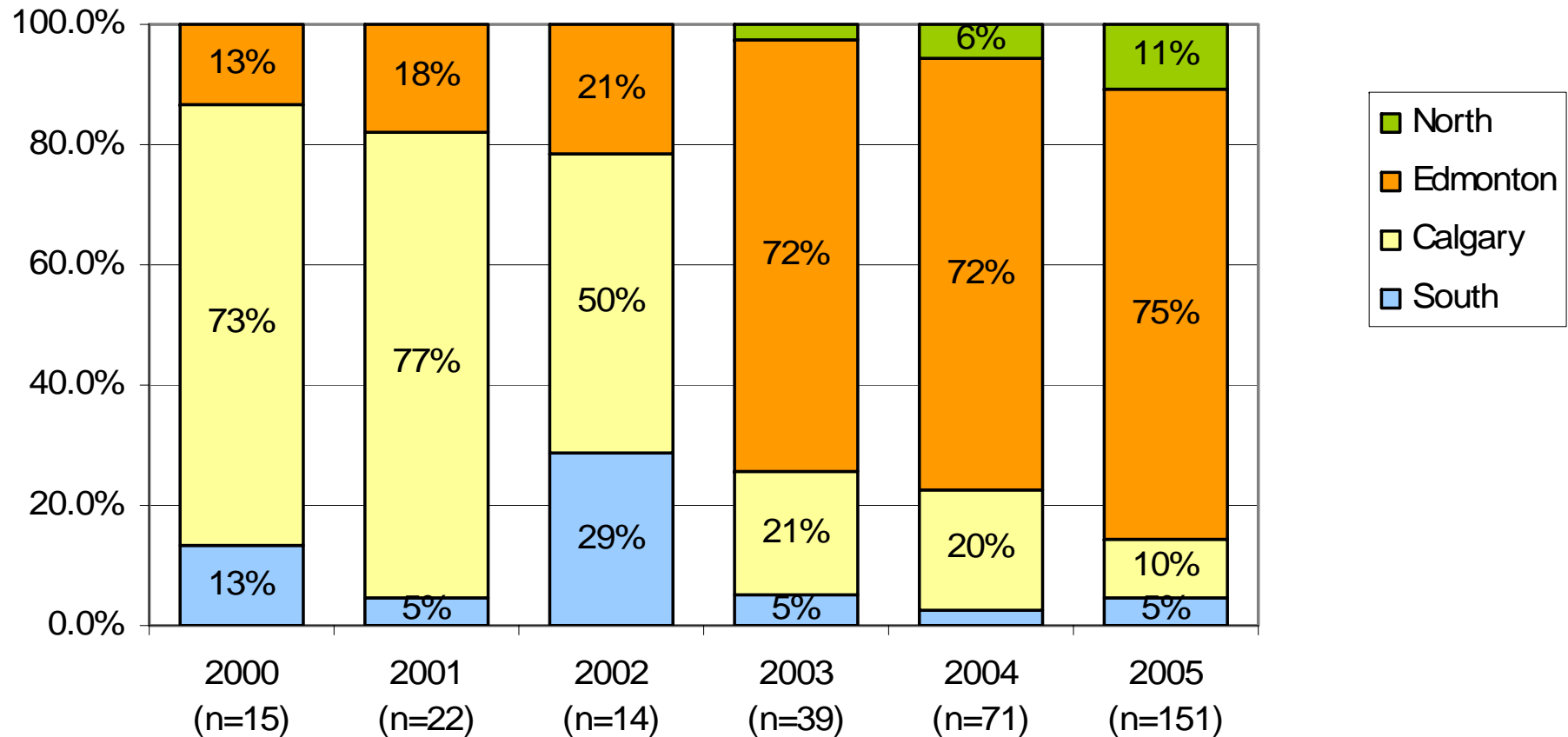
Infectious Syphilis in Alberta: 1997-2005

Number of Cases and Crude Rate by Year of Diagnosis



 Number of Cases	9	6	2	15	22	14	39	72	151
 Rate per 100,000	0.3	0.2	0.1	0.5	0.7	0.5	1.2	2.3	4.7

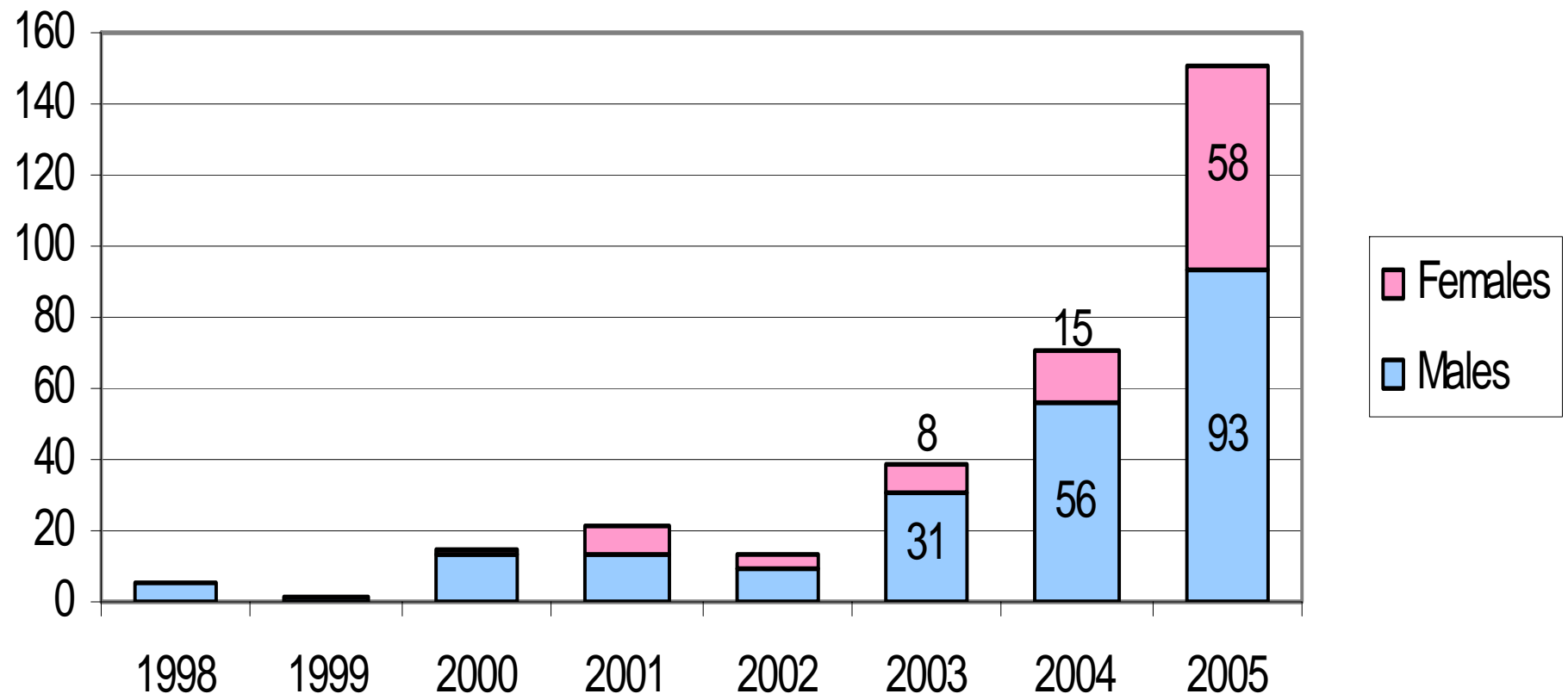
Proportion of Newly Reported Infectious Syphilis Cases in Alberta by Provincial Region and Year of Diagnosis.



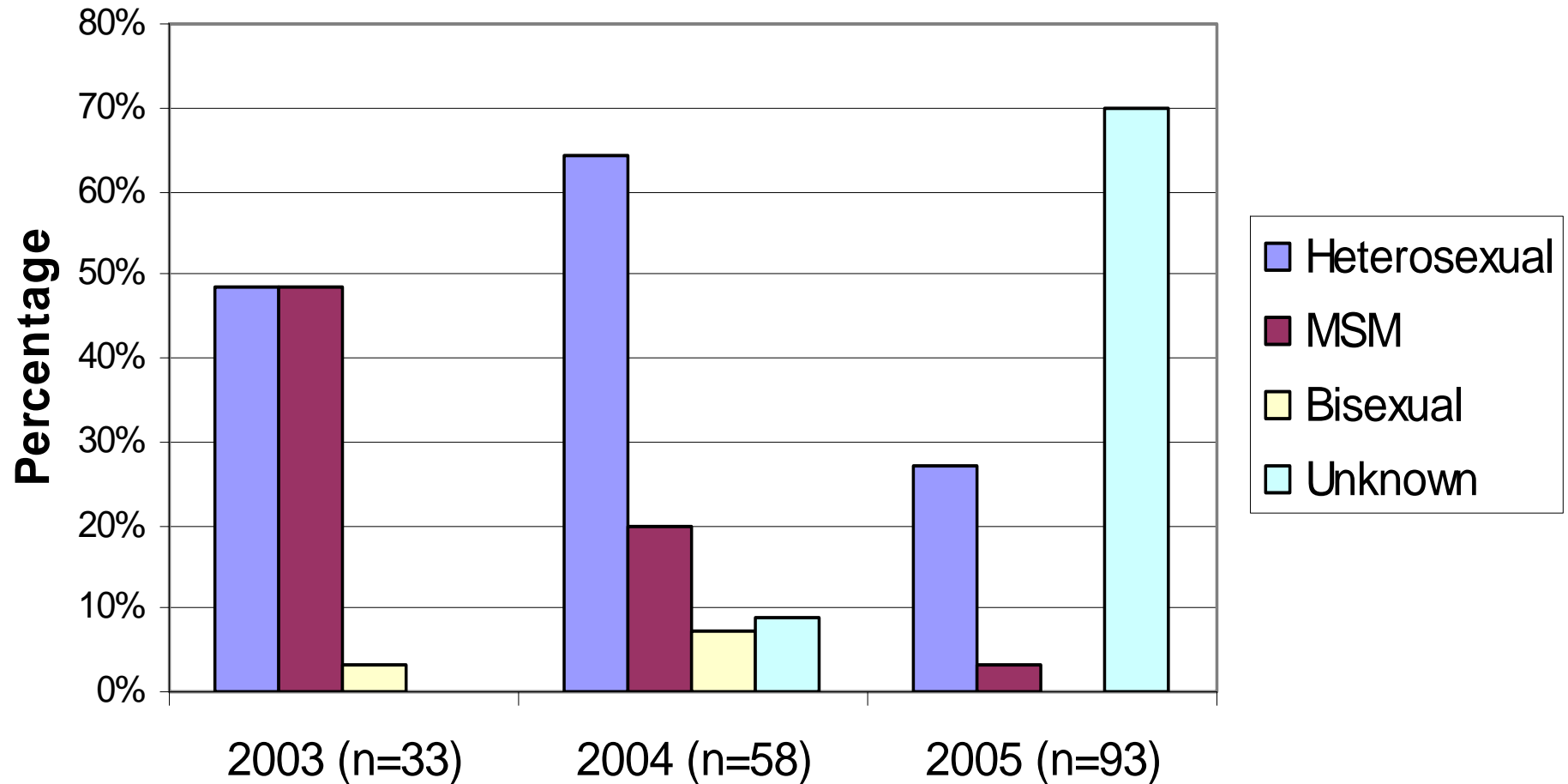
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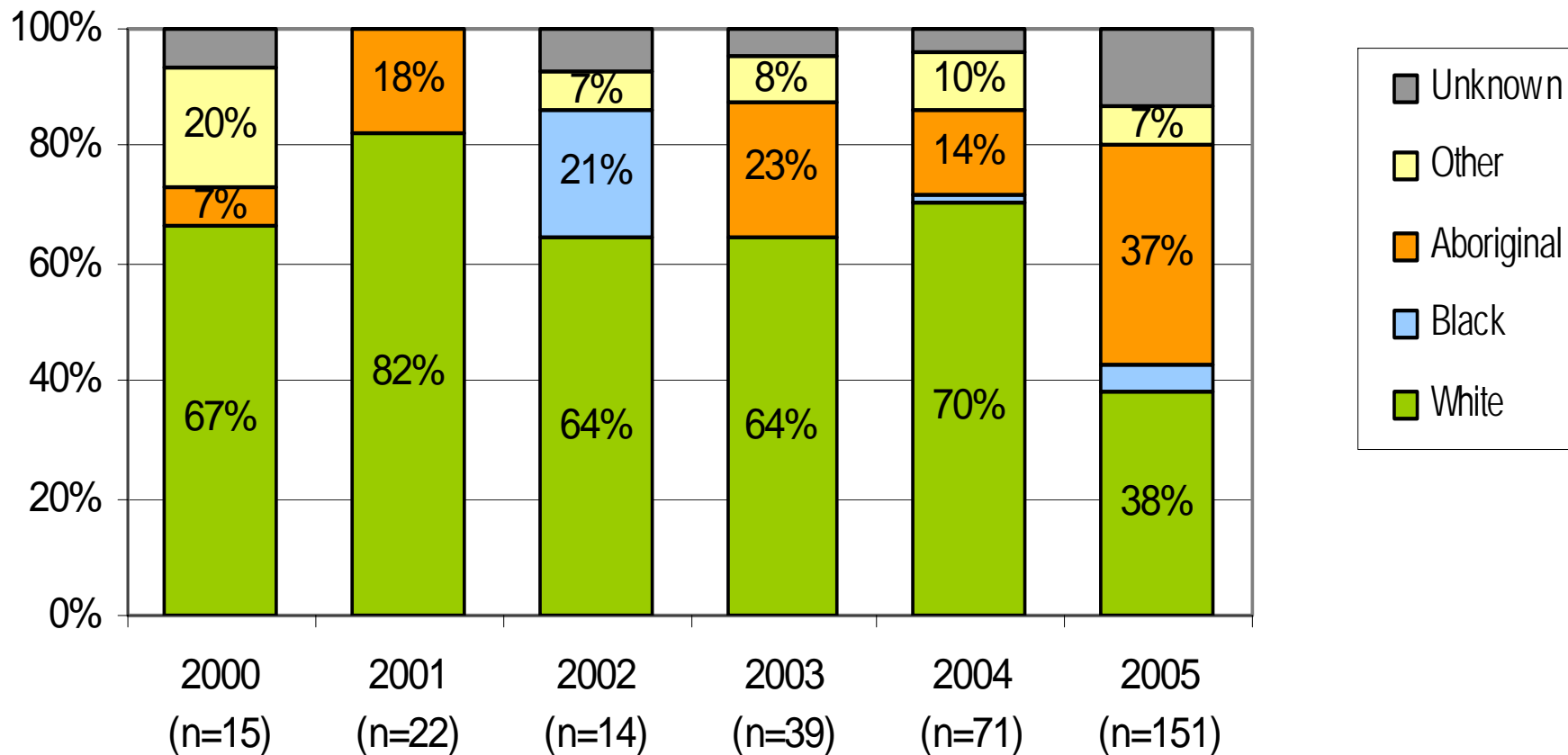
Gender Distribution of Infectious Syphilis Cases in Alberta by Year of Diagnosis



Male Infectious Syphilis Cases in Alberta by Sexual Preference, 2003-2005



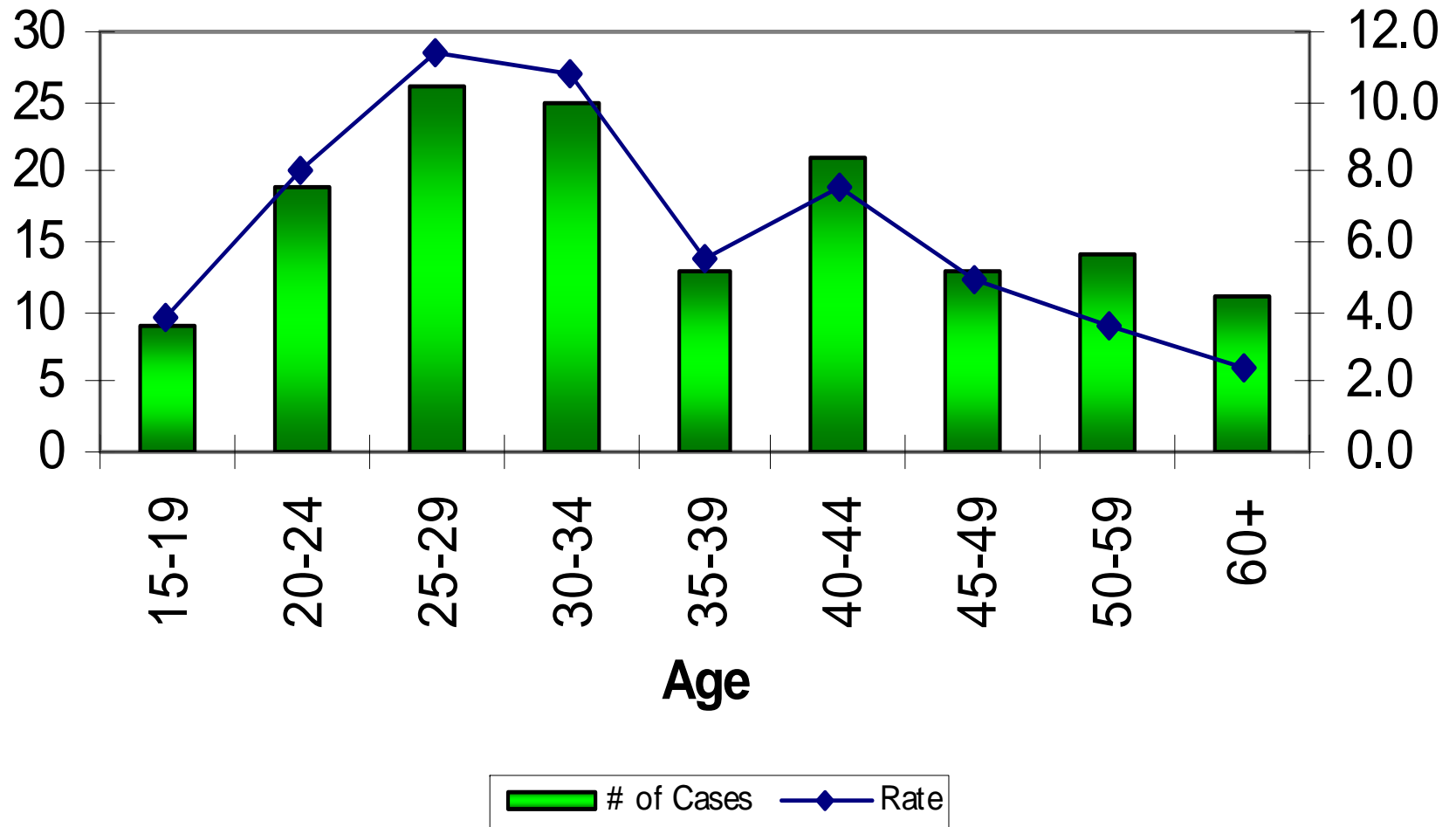
Proportion of Infectious Syphilis Cases in Alberta by Ethnicity and Year of Diagnosis



***Aboriginal includes North American Indian and Metis populations**

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan 10, 2006

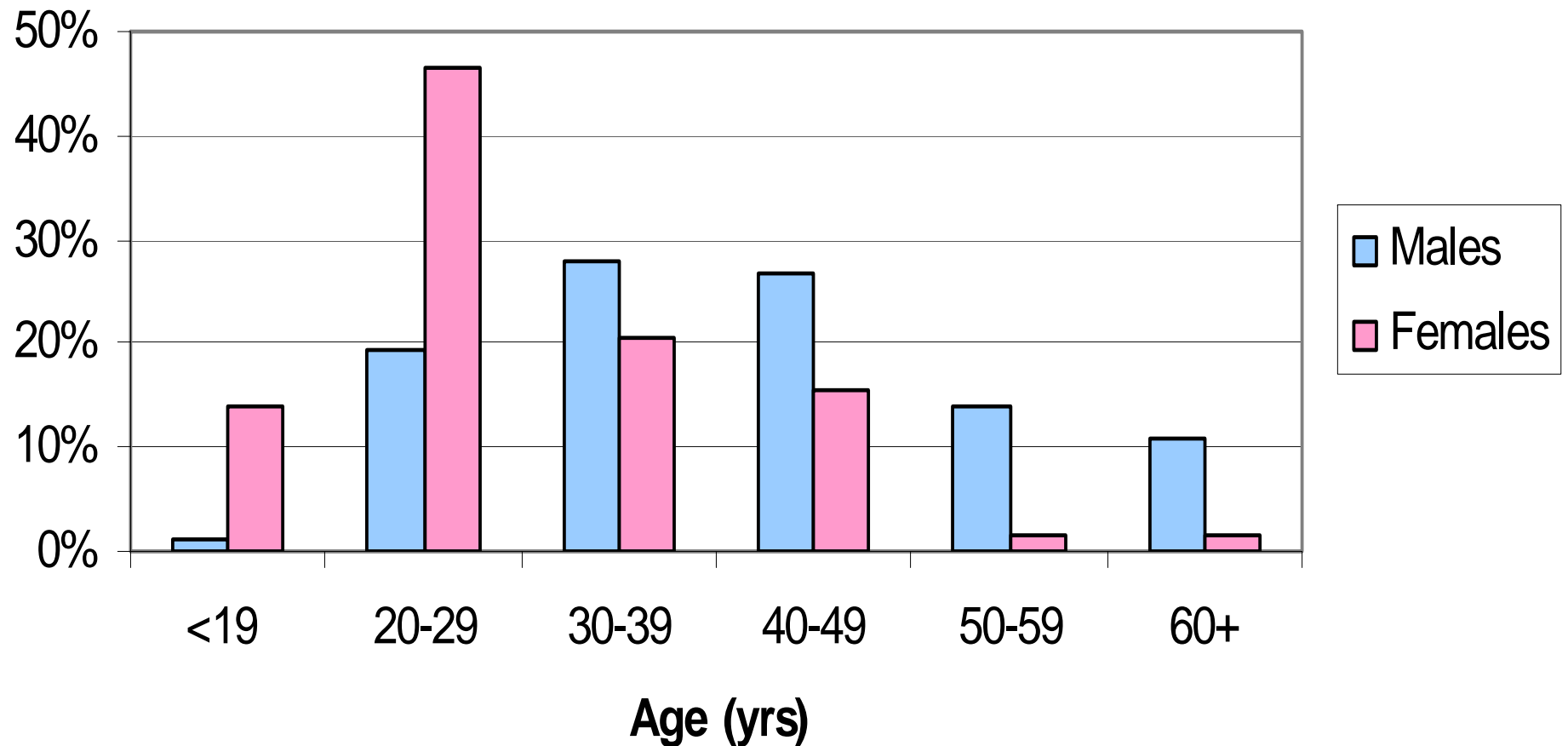
Age-Specific Counts and Rates* of Infectious Syphilis Cases in Alberta in 2005 (n=151)



* Rate per 100,000

Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan 10, 2006

Gender-Specific Age Distribution of Infectious Syphilis Cases in Alberta, 2005



Source: Disease Control & Prevention Branch, Alberta Health and Wellness, Jan 10, 2006

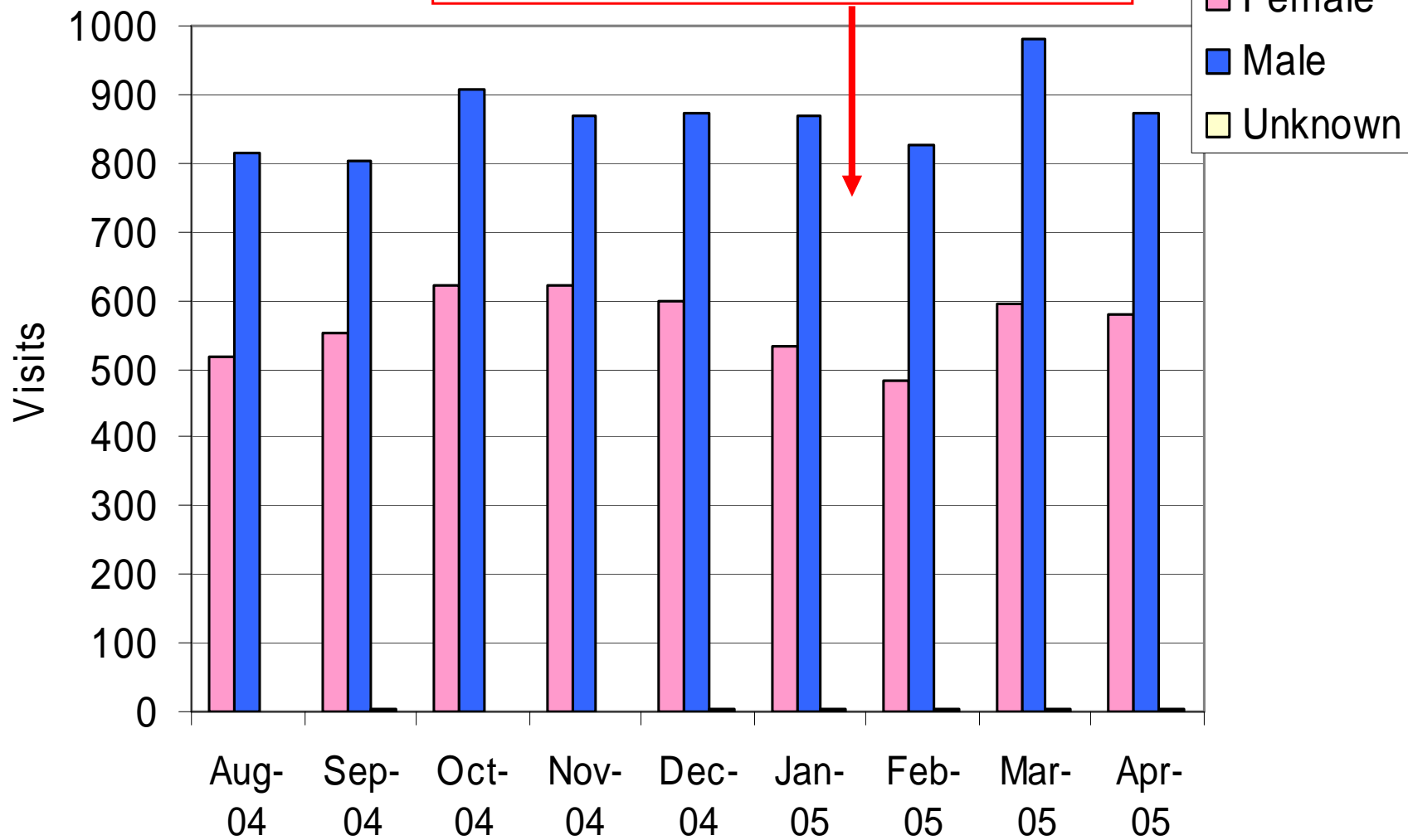
Interventions in syphilis outbreak

- Bicillin™ available in Alberta
- Case interviewing for contacts and treatment a priority for PN nurses
- Outreach – inner city, needle exchange van, Edmonton Remand centre, “John” school,
- Physician/clinic notifications
- Media announcements
- Last resort – public health warrants

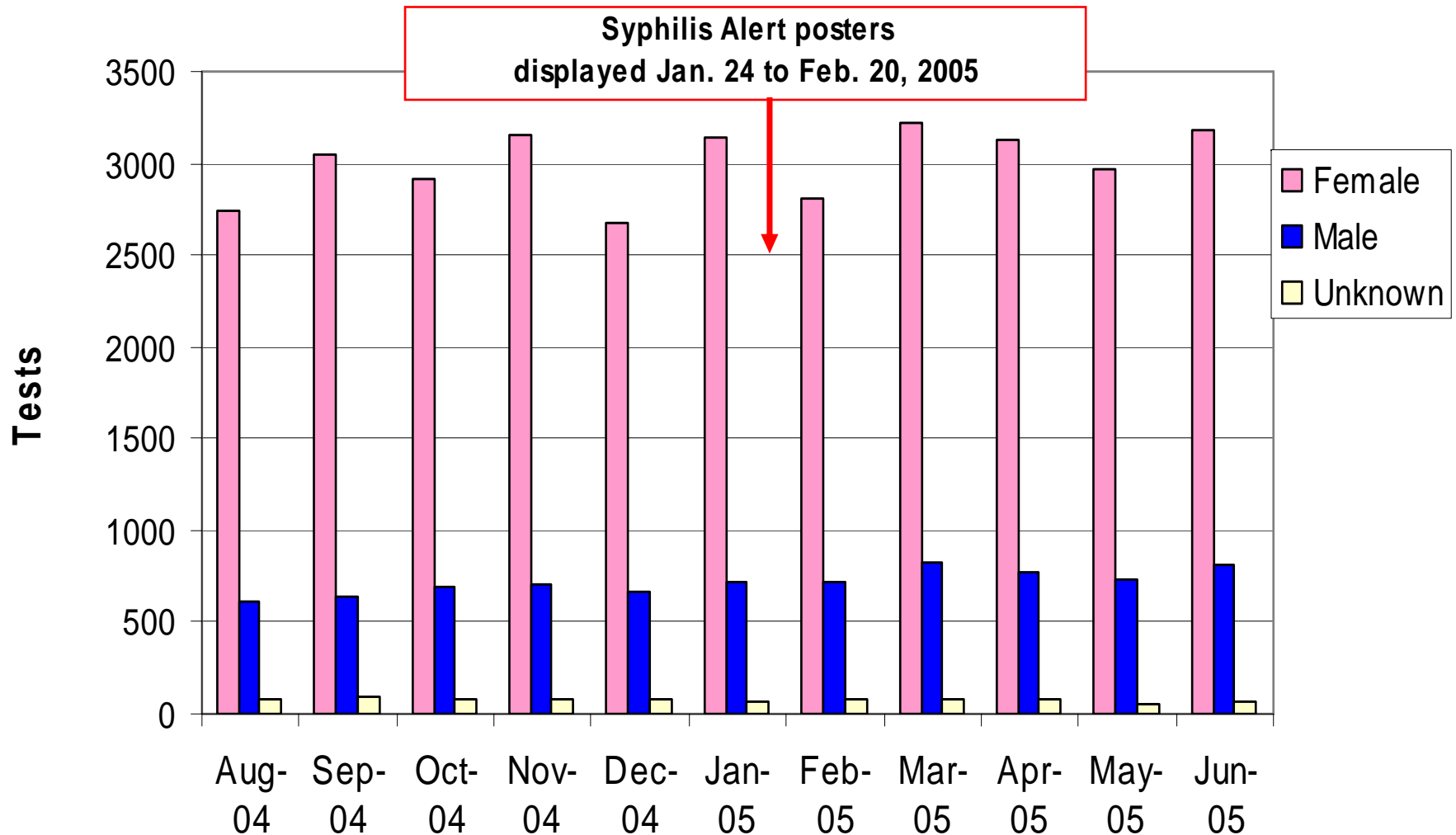
*Syphilis poster
campaign in
Edmonton
downtown bars
January –
February,
2005*

STD Clinic Visits in the CHA by Gender

Syphilis Alert posters displayed
Jan. 24 to Feb. 20, 2005



RPR Tests performed by the Northern Alberta ProvLab by Gender



* Statistically significant increase in the number of RPR tests among males in the 3-months pre- and post-poster display (i.e., Jan and Feb); $p=0.04$

Congenital syphilis in Alberta

- **Alberta has a prenatal screening program which routinely screens (with an RPR) all women accessing prenatal care for syphilis**
- 5 confirmed cases in 2005, 1 neonatal death
- All in Edmonton; 2 Caucasian, 3 First Nations
- 4 born to mothers with primary syphilis and 1 with secondary syphilis
- 4/5 not tested until in labour (no prenatal care); 1 tested before but not located despite PH warrant

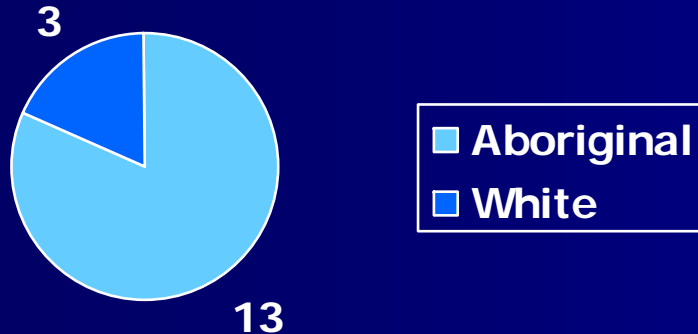
Impact of congenital syphilis

- **Risk of transmission of syphilis in pregnancy (Kassowitz's law) :**
 - 70-100% with primary
 - 40% with early latent syphilis
 - 10% for late latent syphilis
- **Adverse pregnancy outcome:** spontaneous abortion, still birth, premature delivery or perinatal death
- **Adverse outcome in neonate:** ranges from asymptomatic to multi-organ system involvement

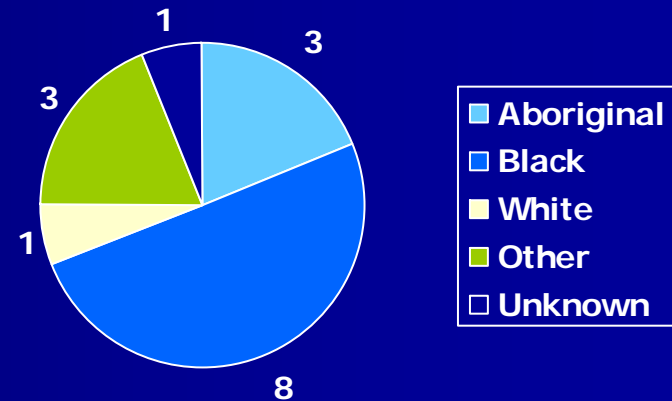
www.CDC.gov

Syphilis cases in pregnant women in Alberta by stage and ethnicity, Jan-Nov 2005

Infectious syphilis
N=16



Late stage syphilis¹
N=17

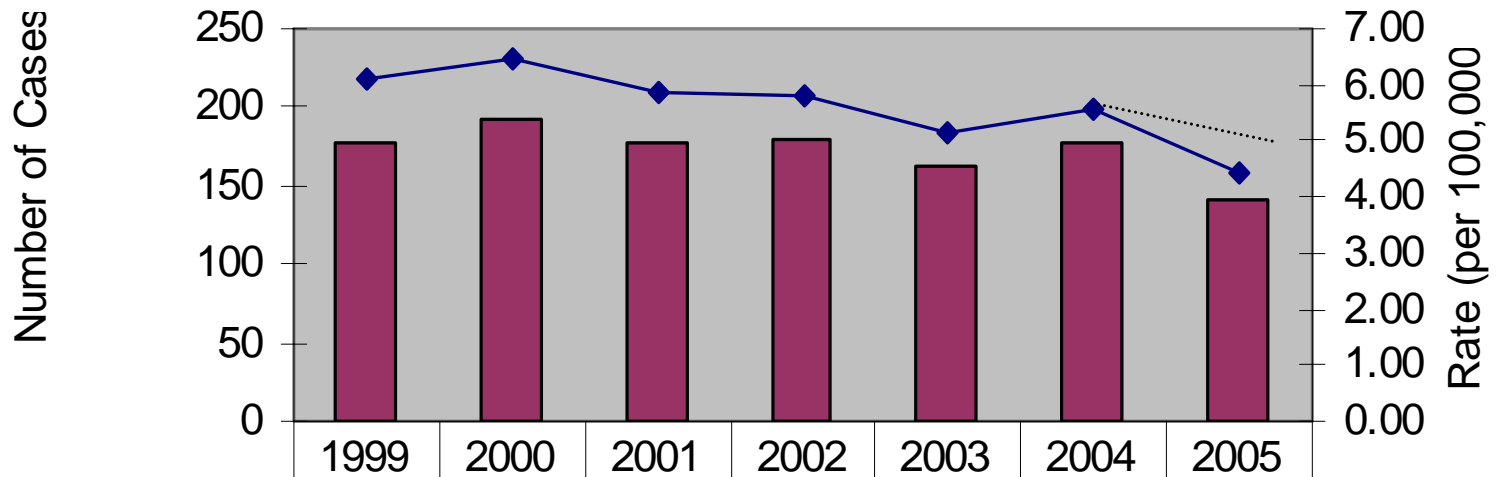


All except 4 in immigrant women-
Africa/Asia/Russia

Ongoing challenges with syphilis outbreak in Edmonton

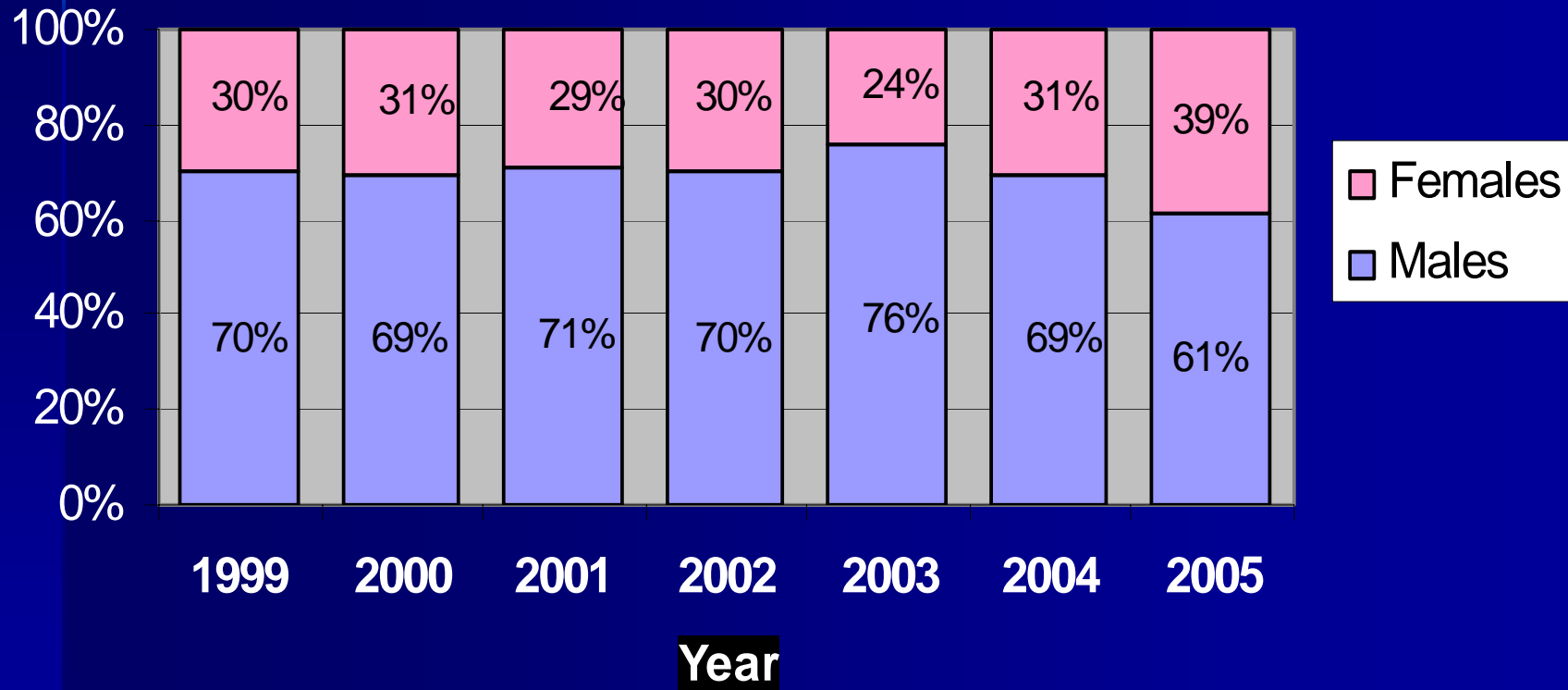
- Multiple casual or unknown partners making partner notification impossible
- Increasing spread among sex trade workers and partners
- Significant numbers of cases are HIV infected
- Difficult to locate clients
- Capital Health currently exploring "social networking"

Crude Rate & Number of Cases of HIV in Alberta by Year of Diagnosis, 1999-2005 (n=1206)



■ Number of Cases	178	192	177	180	162	177	140
◆ Rate (per 100,000)	6.09	6.47	5.86	5.83	5.17	5.57	4.40

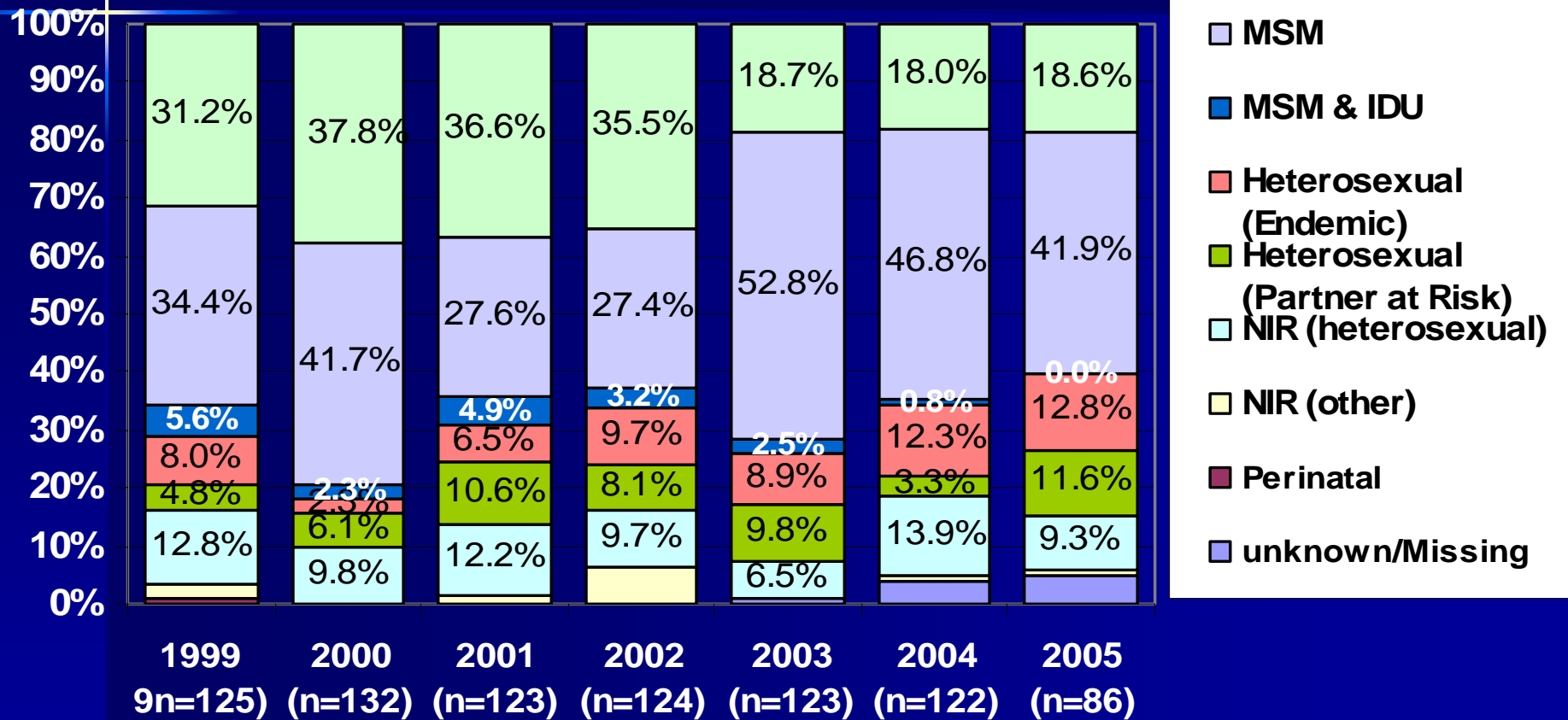
Gender Distribution of HIV Cases in Alberta by Year of Diagnosis, 1999 to 2005 (n=1206)



Data extracted 11 Jan 06

Source: Alberta Health & Wellness Disease Control and Prevention

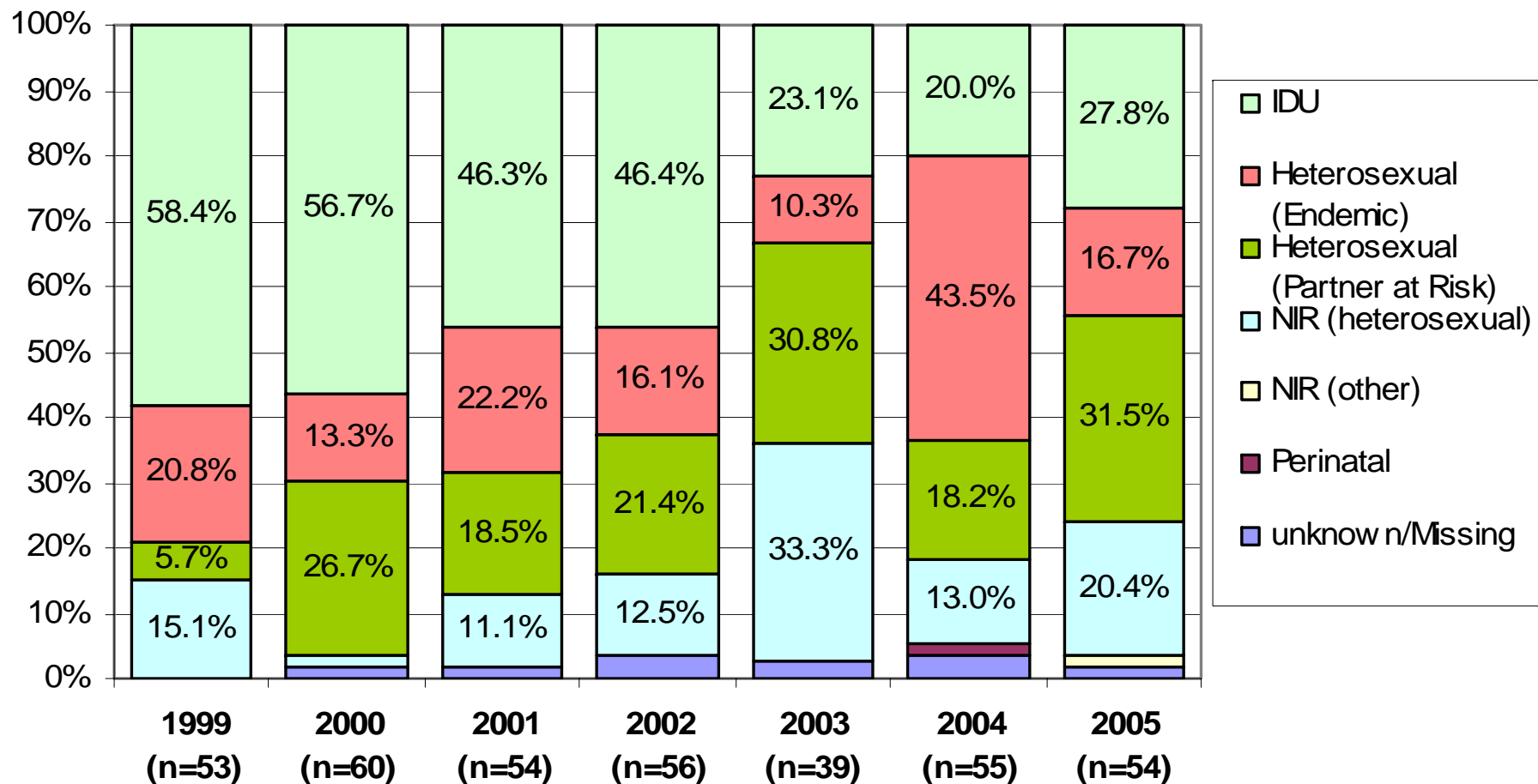
Proportion of HIV Cases in Alberta by Exposure Among Males, by Year of Diagnosis 1999-2005



Data extracted 11 Jan 06

Source: Alberta Health & Wellness Disease Control and Prevention

Proportion of HIV Cases in Alberta by Exposure, Among Females, by Year of Diagnosis (1999-2005)



Data extracted 11 Jan 06

Source: Alberta Health & Wellness Disease Control and Prevention

Preventing STI

Alberta Blood Borne Pathogens (BBPs)/Sexually Transmitted Infections (STIs) Strategy

- To be released this year
- Assigned a "Third Way" initiative
- We need to think "outside the box"

Conclusions

- STIs rising exponentially in Alberta; increasing proportion of HIV in Alberta is sexually transmitted
- "Safe sex" fatigue and "booming economy"
- Alberta BBP/STI strategy plans to address this important issue

Acknowledgements

Alberta Health and Wellness

- Kim Simmonds
- Elaine Benjamin
- Karen Sutherland
- Pamela Miller
- Shirin Ali
- Rosa Orleski

PHAC

- Sabrina Plitt
- Gaya Jayaraman

Questions?