

# The Changing Epidemiology of STIs in Canada

Thomas Wong, MD, MPH FRCPC





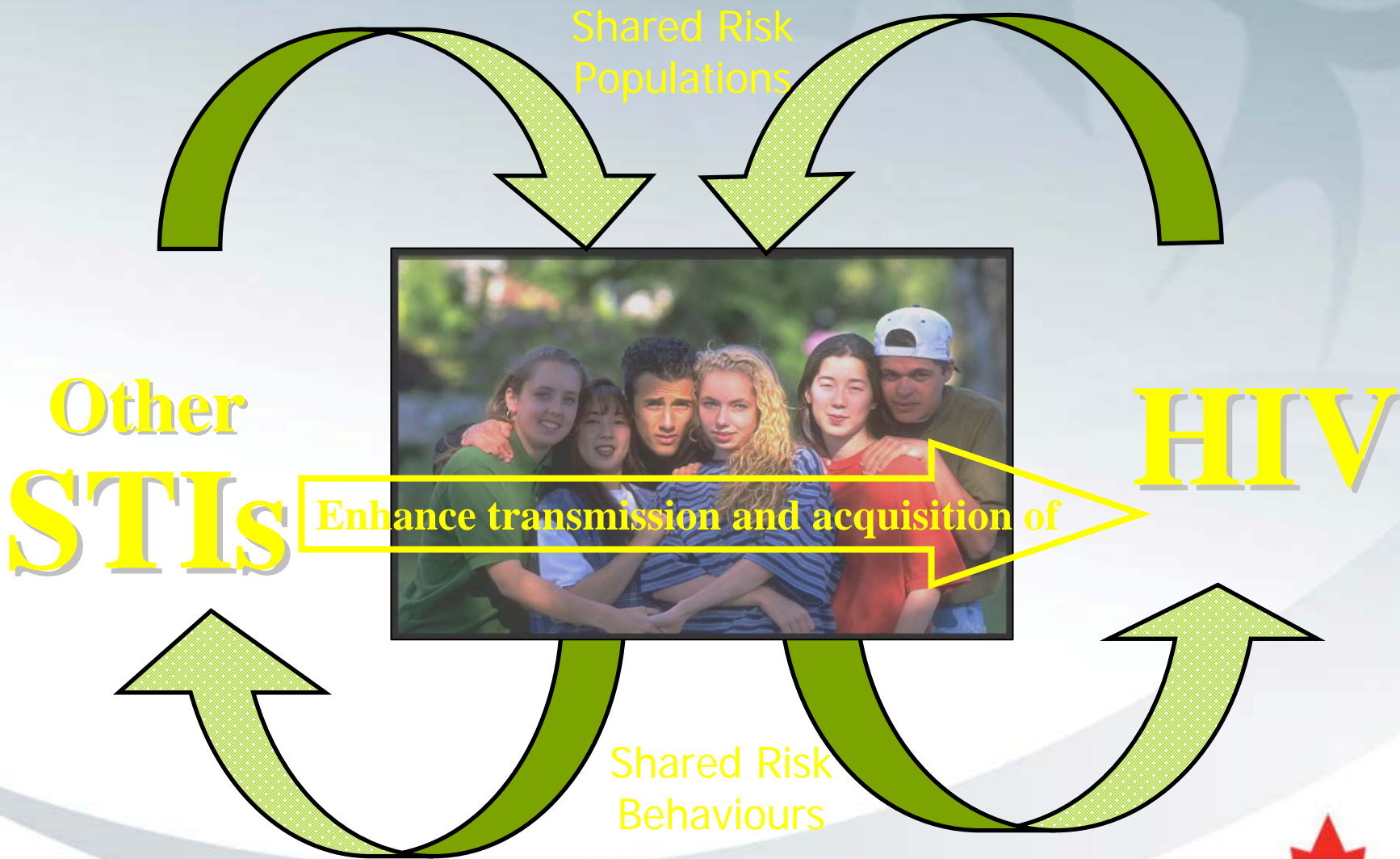
AGENCE DE SANTÉ PUBLIQUE *du* CANADA  
PUBLIC HEALTH AGENCY *of* CANADA



Agence de santé  
publique du Canada

Public Health  
Agency of Canada

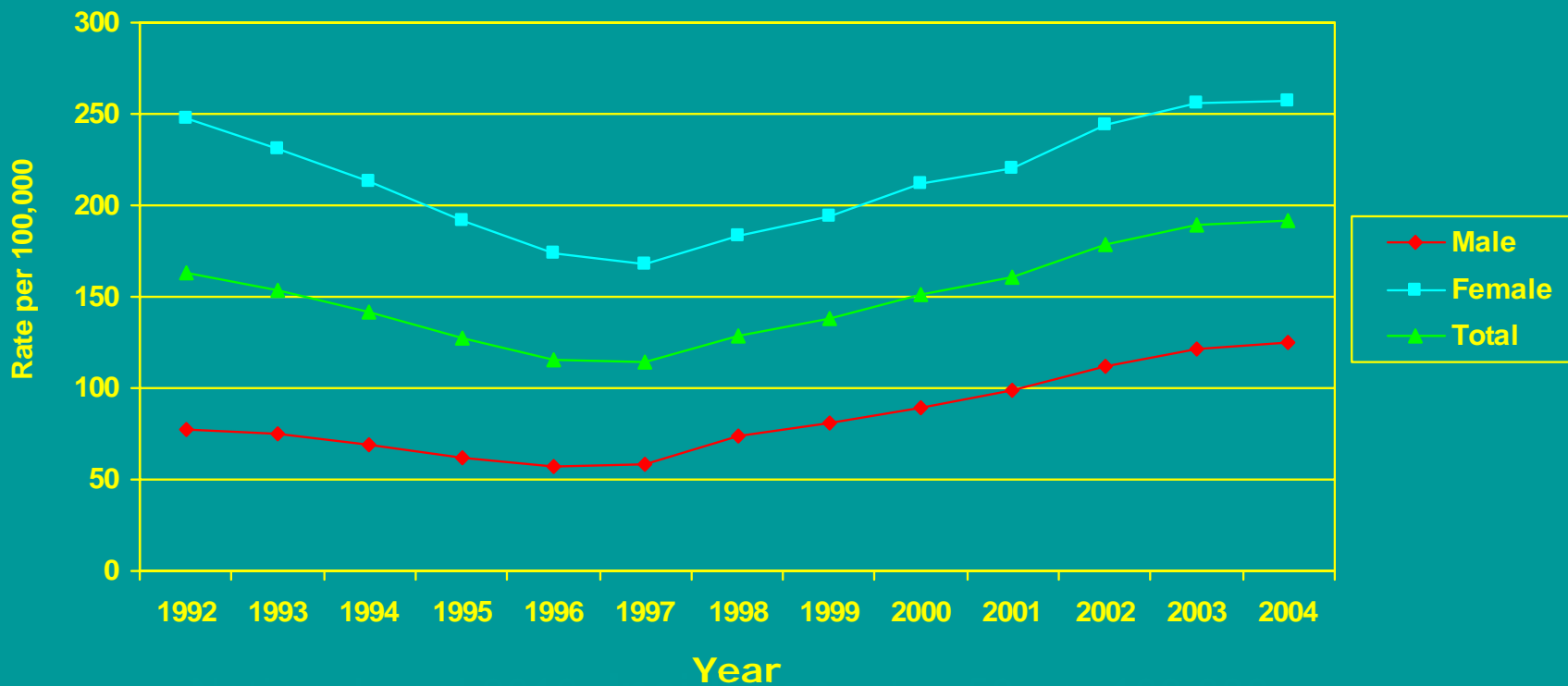
Canada 



# Chlamydia



## Reported Chlamydia Rates in Canada, by sex\*



- Data for 2003 and 2004 have not yet been verified by provinces and territories and may be subject to change
- Data unavailable for Saskatchewan and Nunavut for 2004
- Source: Surveillance and Epidemiology Unit, Community Acquired Infections Division, PHAC



# Chlamydia

- Most prevalent bacterial STI in Canada
- Disproportionately affects adolescents and young adults
- Females account for over 2/3 of reported chlamydia cases
  - PID, chronic pelvic pain, ectopic pregnancy, infertility



# Chlamydia

- Reported rate had been declining until 1997
- Recent rate increase may be due in part to increased screening since the availability of new non-invasive NAAT (eg. PCR, LCR) - but not the whole story



# Chlamydia: Factors favouring control

- Effective, single-dose treatment for non-compliant individuals
- Non-invasive urine testing



# Chlamydia: Hurdles and Challenges

- Suboptimal chlamydia awareness/knowledge
- Majority of infections are asymptomatic
  - 80% of females
  - 50% of males
- “Hidden Epidemic” - lack of awareness and symptoms results in a lack of adequate screening, diagnosis, treatment and reporting.



# Chlamydia Prevention and Control: Strategies

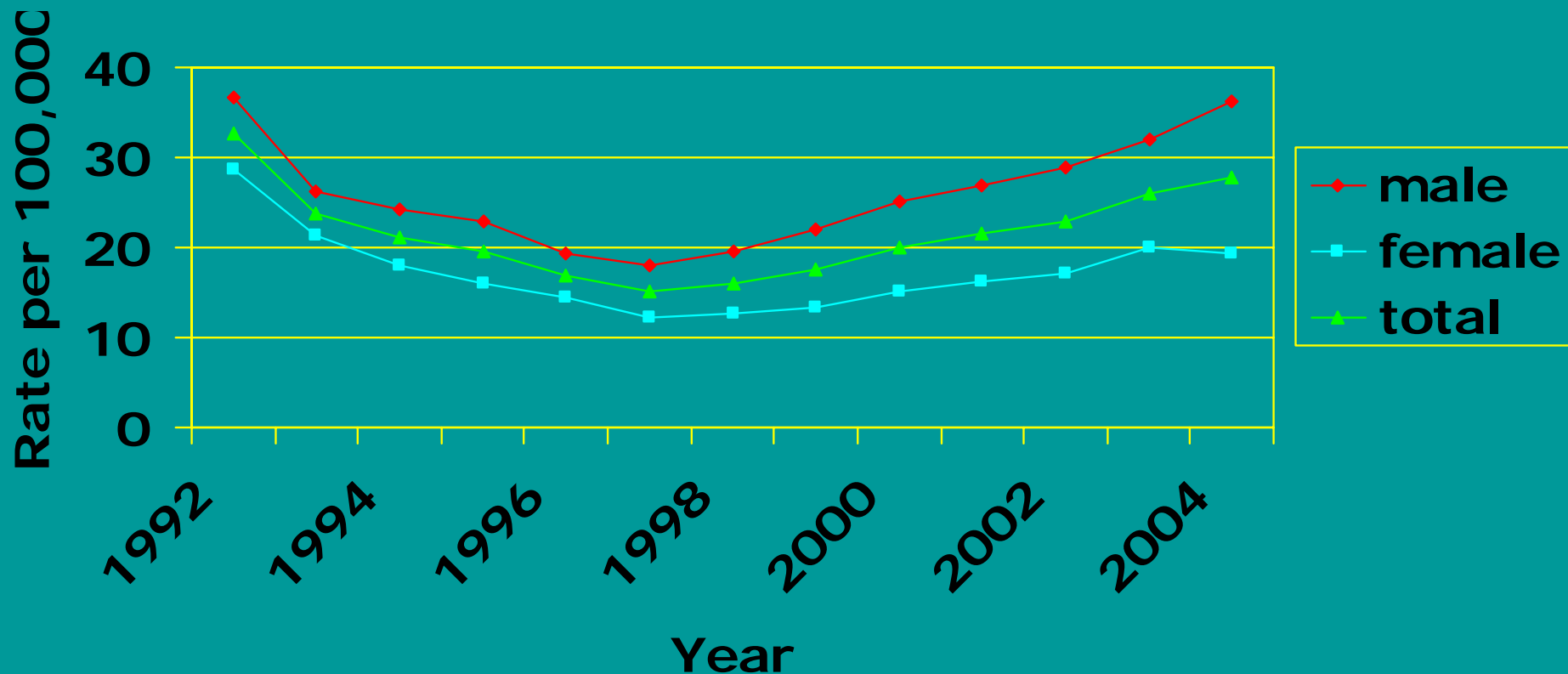
- Increase Awareness - Sexual Health Education
  - Canadian Sexual Health Education Guidelines
- Targeted Prevention and Promotion
- Take advantage of non-invasive testing and one-dose treatment for non-compliant individuals
- Rescreening infected individuals 6 months post-treatment
- Focus on vulnerable population, youth, at risk females & males



# Gonorrhoea



# Reported Gonorrhoea Rates in Canada, by sex\*

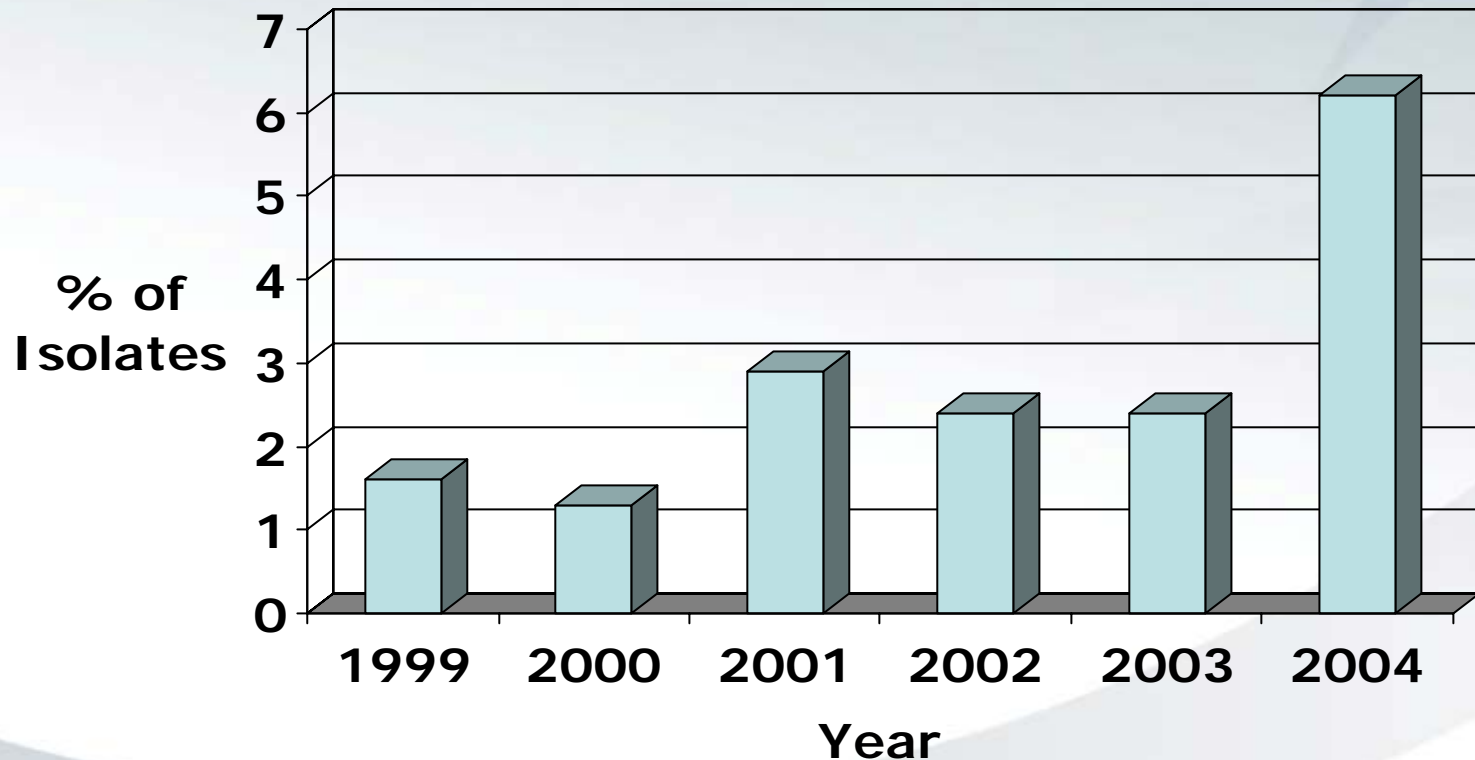


## National goal 2010: Eliminate locally transmitted infection

- Data for 2003/2004 have not yet been verified by P/Ts and maybe subject to change
- Data unavailable for Saskatchewan and Nunavut for 2004
- Source: Surveillance and Epidemiology Unit, Community Acquired Infections Division, PHAC



## Proportion of *N. gonorrhoeae* Isolates Resistant to Ciprofloxacin in Canada\*



•Data for 2004 are preliminary and changes are anticipated

Source: National Microbiology Laboratory, PHAC



# *Neisseria gonorrhoeae*: Resistance in Canada

- The proportion of penicillin-resistant organisms is  $>1\%$  in most areas and may reach 15% or higher in certain urban and rural areas.
- Quinolone resistance increasing nationally:
  - $< 1\%$  in the early 90s
  - 1% in the late 1990s
  - Preliminary national rate of over 6% in 2004



# *Neisseria gonorrhoea:* Resistance in Canada (2)

Quinolones are not recommended if the case or contact are from, or are epidemiologically linked to:

Any area with rates of quinolone resistant *N gonorrhoeae* > 3 - 5%

- Asia
- Pacific Islands (incl. Hawaii)
- India
- Israel
- Australia
- United Kingdom
- Regions of the United States
- MSM epidemiologically linked to the United States
- Regions in Canada

**Please check with your local public health officials to learn about  
quinolone resistance in your area**



# Gonorrhoea

- Second most commonly reported bacterial STI in Canada
- Males account for almost 2/3 of nationally reported cases



# Gonorrhoea: Hurdles and Challenges

- Lack of symptoms (asymptomatic):
  - Up to 80% of females
  - 10-20% of males
- Even more likely to be asymptomatic if infected at rectal or pharyngeal sites
- Quinolone resistance increasing in Canada



# Gonorrhoea: Factors favouring control

- Effective, single-dose treatment
- Non-invasive urine testing - continually improving and more available



# Gonorrhoea Prevention and Control: Strategies

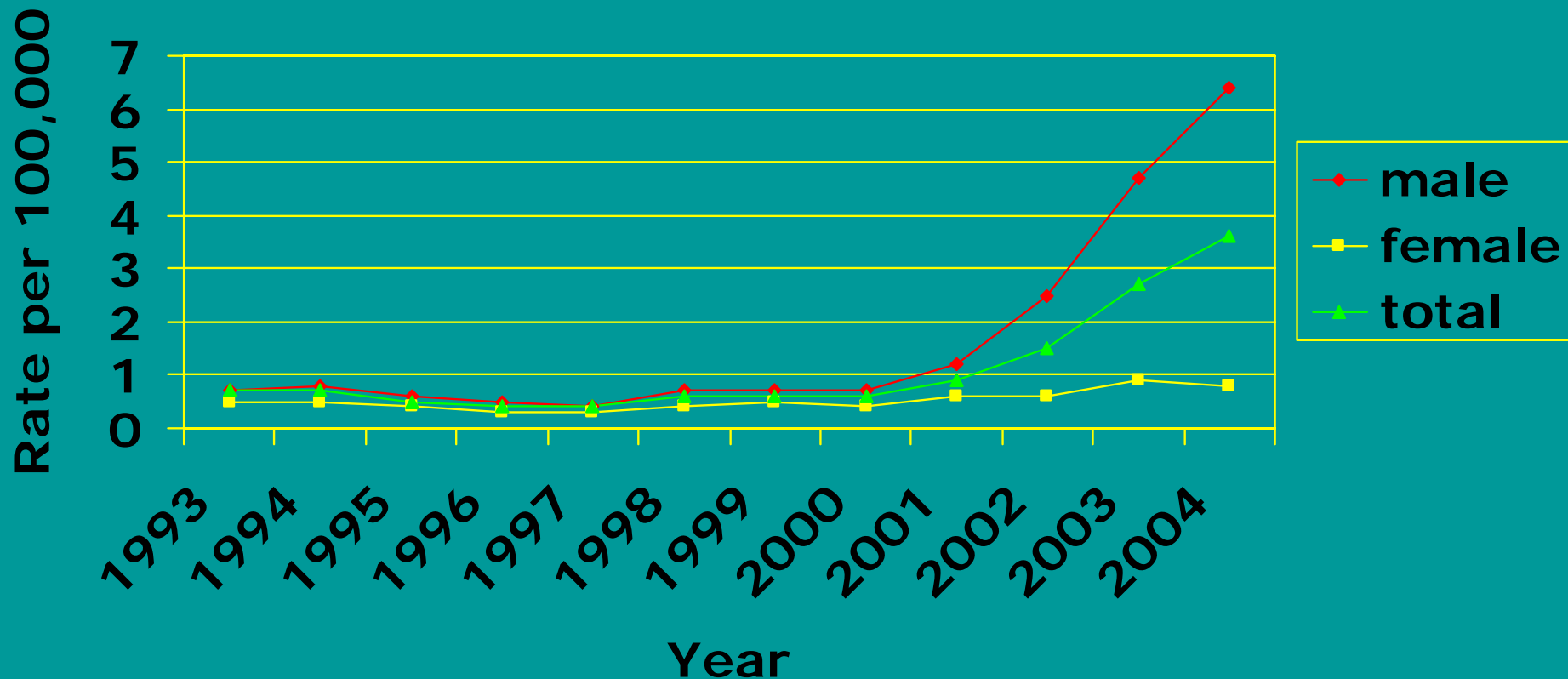
- Increase Awareness – Sexual Health Education
- Targeted Prevention and Promotion
- Take travel and partner history to tailor treatment (e.g. not using quinolones as 1<sup>st</sup> choice therapy in cases with travel to Asia, Hawaii, California etc)
- Take advantage of single-dose treatment
- Rescreening infected individuals 6 months post-treatment
- Monitor resistance and associated risk factors (e.g. sentinel surveillance)
  - **Modify treatment recommendations with changing resistance pattern**
- Cyberprevention
- Focus on vulnerable population



# Syphilis



## Reported Infectious Syphilis Rates in Canada, by sex\*



**National goal 2000: Maintain rates < 0.5 per 100,000**

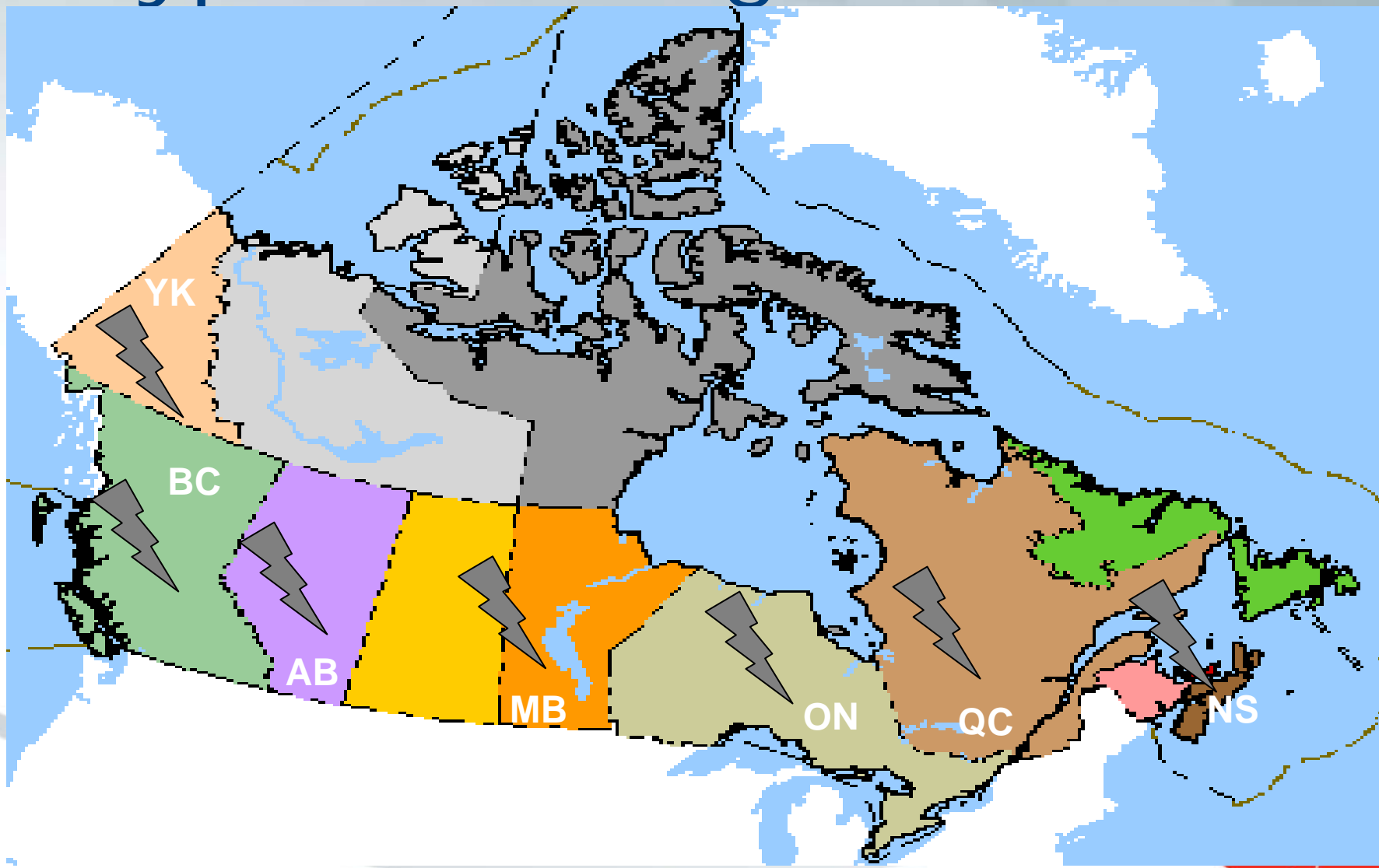
- Data for 2003 and 2004 have not yet been verified by provinces and territories and may be subject to change
- Data unavailable for Saskatchewan and Nunavut for 2004
- Source: Surveillance and Epidemiology Unit, Community Acquired Infections Division, PHAC



# Syphilis



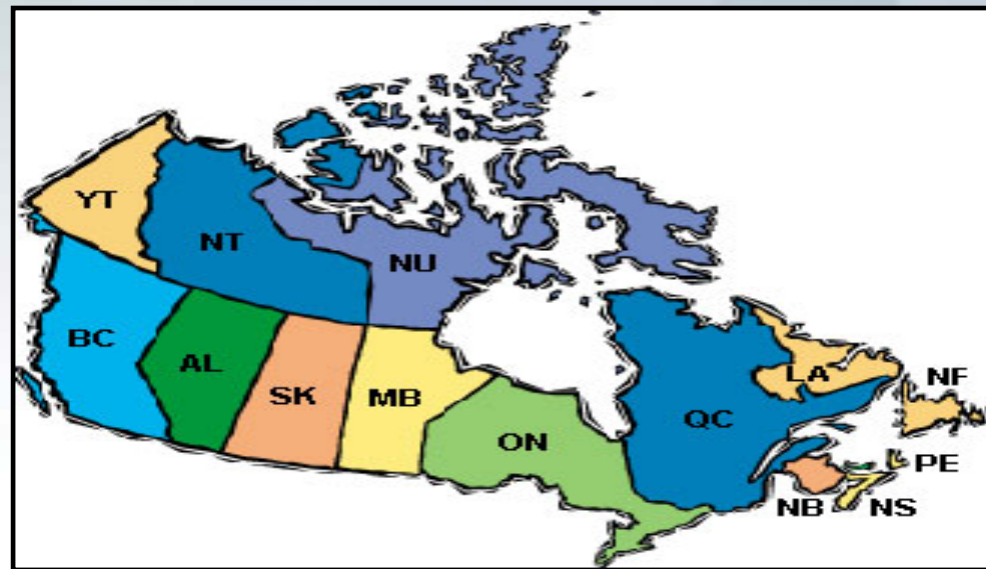
# Syphilis Resurgence



# Syphilis: Challenges

## Regional Outbreaks

- Halifax: MSM
- Winnipeg: heterosexual
- Toronto: MSM
- Ottawa: MSM
- Montreal: MSM
- Calgary/Edmonton: MSM/  
heterosexual
- Yukon: heterosexual
- Vancouver:
  - 1997-2002: sex trade
  - 2003: sex trade and MSM
  - 2004: MSM



# Syphilis Control: Hurdles and Challenges

- Many cases co-infected with HIV
- Lack of availability of treatment - Benzathine Penicillin G
- Increasing Trend of Risky Sexual Behaviour
- Lack of Awareness, especially oral transmission



# Syphilis Prevention and Control: Strategies

- Intensify targeted prevention and health promotion
- Cyberprevention
- Enhance surveillance
- Sentinel surveillance for azithromycin resistance
- Enhance efforts for case finding and management
- Resolve Bicillin access issue
- Rapid outbreak response
- Focus on vulnerable population



# LGV

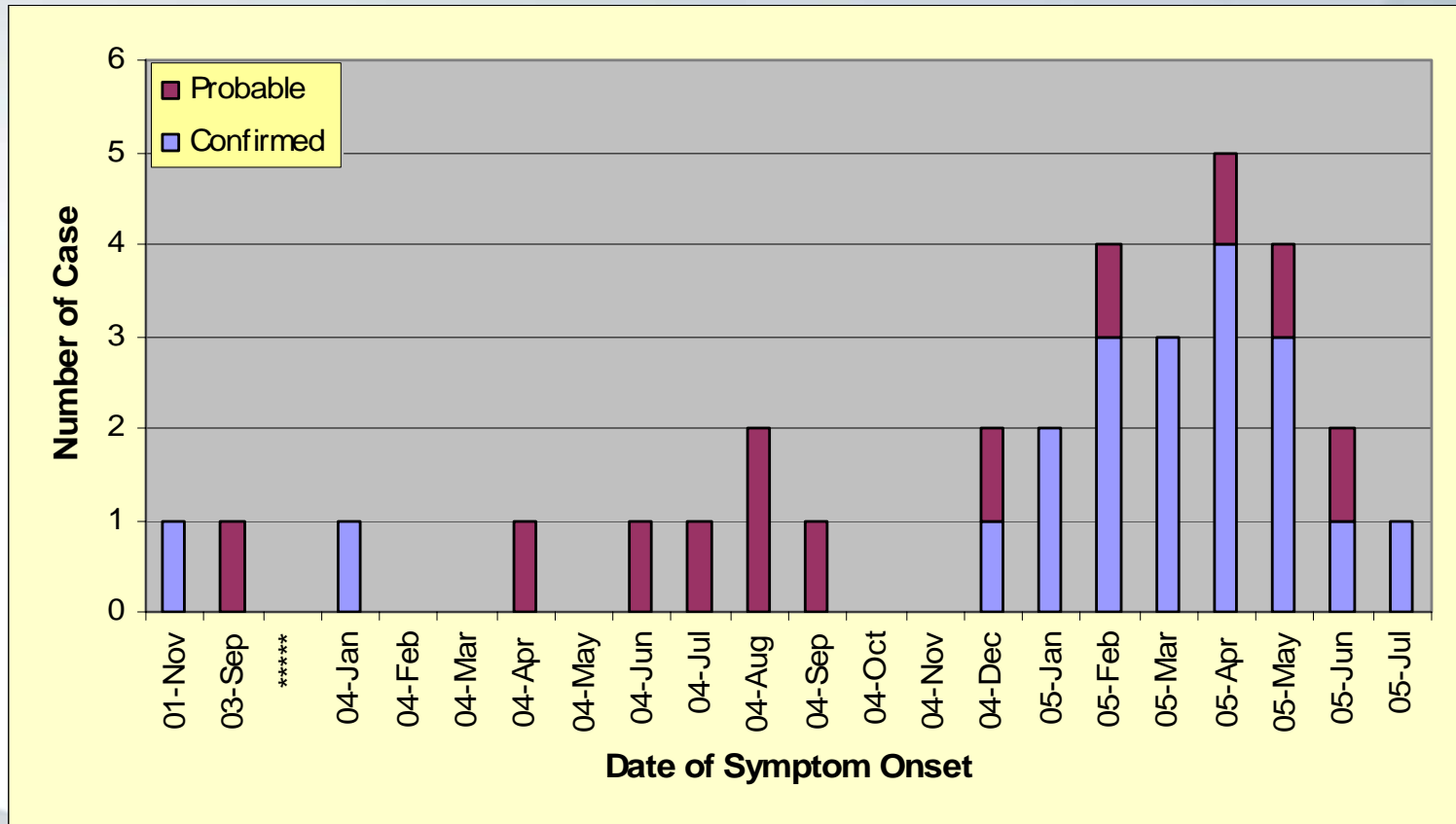


# Enhanced Surveillance of LGV Background

- Endemic in parts of Africa, Asia, South America and the Caribbean
- In 2003, outbreaks in MSM in the Netherlands; reports followed in 2004 from across Europe and the US
- Voluntary, national enhanced surveillance established by PHAC with P/Ts: 02/05



# Enhanced Surveillance of LGV: Epidemic Curve



# Enhanced Surveillance of LGV: Case Demographic and Clinical Characteristics

Characteristic	No. of cases (%)
Male	38/38 (100)
Ethnicity	
Caucasian	22/27 (81.5)
Asian	1/27 (3.7)
South American	4/27 (14.8)
Age Range	24-56

Most common symptoms experienced were: proctitis (85.7%), bloody stools (66.7%), inguinal lymphadenopathy (50.0%), malaise (46.2%), papule/lesion (32.1%), rectal discharge (18.8%)



# Enhanced Surveillance of LGV: Co-Infections

<b>Concurrent infection</b>	<b>No. of cases (%)</b>
<b>HIV</b>	<b>24/30 (80.0)</b>
<b>Syphilis</b>	<b>8/32 (25.0)</b>
<b>Hepatitis B</b>	<b>3/15 (20.0)</b>
<b>Genital herpes</b>	<b>7/29 (24.1)</b>
<b>Genital/anal warts</b>	<b>4/16 (25.0)</b>
<b>Gonorrhoea</b>	<b>5/30 (16.7)</b>
<b>Hepatitis C</b>	<b>3/25 (12.0)</b>



# Enhanced Surveillance of LGV: Sexual Risk Behaviours

Characteristic	No. of cases (%)
Sex within 60 days before symptoms	31/35 (88.6)
Sex without a condom	18/27 (66.7)
Male partners	29/30 (96.7)
Female partners	1/28 (3.6)
Anal sex	24/27 (88.9)
Vaginal sex	1/29 (3.4)
Oral sex	23/26 (88.5)
Fisting	3/21 (14.3)
Rimming	2/24 (8.3)
Shared sex toys	4/14 (28.6)
Rectal drug use	1/14 (7.1)



# Enhanced Surveillance of LGV: Circumstances of Sex

Circumstances of sex	No. of cases (%)
Private residence	11/20 (52.4)
Bathhouse	15/27 (55.6)
Internet partnering	8/26 (30.8)
Rave/circuit party	3/25 (12.0)
Sex trade	1/25 (4.0)
Leather scene	1/25 (4.0)
Sex while traveling	7/29 (24.1)
Within Canada	4/7 (57.1)
Outside Canada	2/7 (28.6)
Non-Canadian resident	1/7 (14.3)



# Enhanced Surveillance of LGV: Take Home Messages

- Primarily among MSM
- 65% reported sex without a condom
- Concurrent infection common



# HSV



# Genital Herpes (HSV)

- Estimated to be one of the most common STI
- Not reportable at the federal level
- Caused by HSV types 1 and 2
- Asymptomatic viral shedding can lead to transmission
- ? Benefit of type-specific HSV serology
- HSV vaccine in the future



# Active Neonatal Surveillance Study

## Phase I: Surveillance

- October 1, 2000 to September 30, 2003: Complete

## Phase II: Follow up

- Three year follow up of cases identified in Phase I, from October 2001-2006: Ongoing



# Neonatal HSV cases Regional Distribution

## October 2000 to September 2003

<b>Region</b>	<b>N</b>	<b>%</b>	<b>Incidence Per 100,000 live births</b>
<b>Western</b>	<b>14</b>	<b>24.1</b>	<b>6.0</b>
<b>Prairies</b>	<b>5</b>	<b>8.6</b>	<b>6.5</b>
<b>Central</b>	<b>35</b>	<b>60.4</b>	<b>5.8</b>
<b>Atlantic</b>	<b>4</b>	<b>6.9</b>	<b>6.1</b>
<b>North</b>	<b>0</b>	<b>0</b>	<b>0</b>



# Treatment and Outcomes

	N	%
<b>Received antiviral (N=55)</b>		
•Acyclovir IV only	41	74.5
•Acyclovir IV and PO	14	25.5
<b>Fatal cases (N=9)</b>		
•HSV-1	2	22.2
•HSV-2	6	66.7
•Localized	1	11.1
•Disseminated	7	77.8
<b>Sequelae at 2 months (N=14)</b>		
•Physical		
- encephalitis	10	71.4
- seizures	9	64.3
- microcephaly	2	14.2
- hydrocephaly	1	7.1
- blindness	1	7.1
•Developmental		
- gross-motor	3	21.4
- fine-motor	2	14.2
- personal-social	2	14.2
- language	2	14.2



# Fatal outcome

Case Fatality Rate (CFR) = 15.5%

- 9 infants died, all within 24 days of birth
- Death more likely to occur for those with:
  - **disseminated vs only localized infections (36.8% vs. 2.8%,  $p < .001$ )**
  - **HSV-2 vs HSV-1 infections (33.3% vs. 6.7%,  $p = 0.04$ )**



# Neonatal Herpes Surveillance Phase I Outcomes

- **First national epidemiological study in Canada**
- **Incidence: 5.9/100,000 live births**
- **Aboriginal mothers & those under 20 disproportionately affected**
- **Many mothers had no known genital herpes history prior to delivery**
- **Almost 2/3 of infant infections attributed to HSV-1**
- **Over a third of cases had disseminated infection**
- **HSV-2 infections more severe, likely to disseminate, resulting in sequelae or death**
- **Case fatality rate = 15.5%**



# Public Health Implications

Large proportion of infected mothers without HSV history prior to delivery

- Implications for prenatal screening

Large proportion of cases attributed to HSV-1

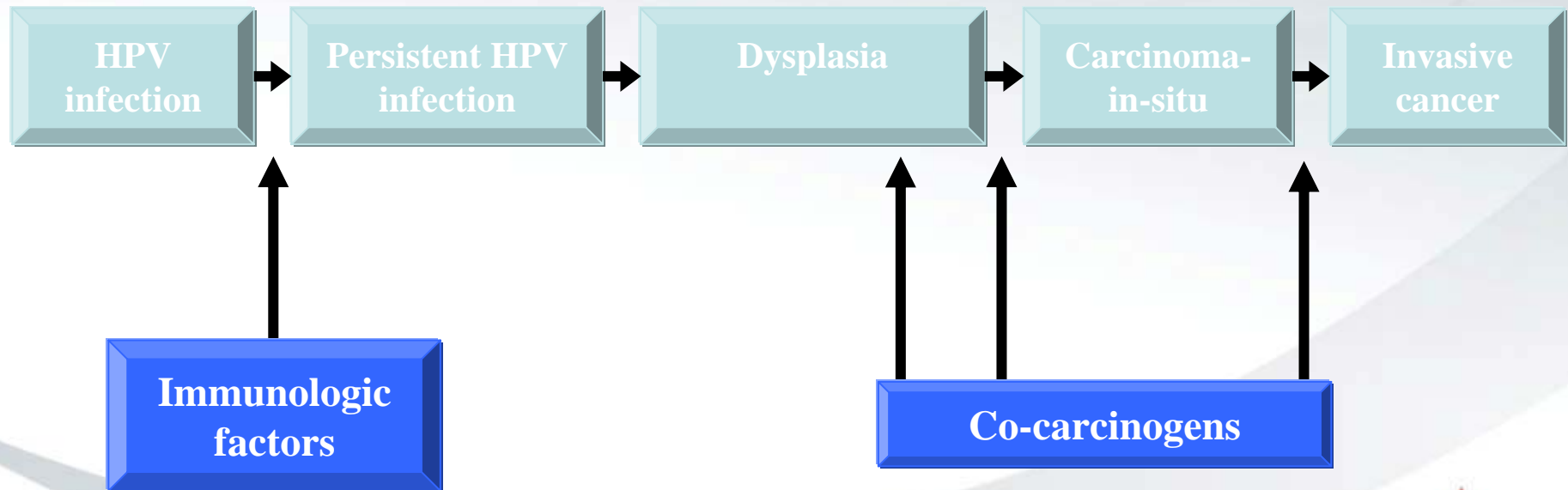
- Implications for vaccine and drug development



# HPV



# HPV Induced Ano-genital Cancer



# Human Papillomavirus (HPV)

- Estimated to be one of the most common STI
- Not reportable at federal level
- High risk types (oncogenic)
  - Genital cancers (cervical, anal, penile)
- Low risk types (non-oncogenic)
  - Genital warts



# HPV Infection: Natural History

- Often transient
- Persistence of oncogenic types is associated with cancer
- Peak prevalence: ages 20-24
- More likely to persist in women > 30 years



# HPV and Cervical Cancer: New Horizons

- HPV-DNA testing
  - ?benefit of selective testing
- Liquid Based Cytology
  - Implications for HPV testing and testing for other STIs
- Awareness of HPV - Cervical Cancer link
- HPV preventative vaccine soon



# Canadian HPV Data Limitations

- Population
  - Age
  - Gender
  - Ethnicity
  - Risk factors
  - Recruitment/setting
- Cross sectional geographically limited HPV studies but no sentinel surveillance
- Sampling from single site (e.g. cervix)
- Transitory nature of HPV infection



# HPV vaccine: Future HPV & Cervical Cancer Surveillance Considerations

- Baseline & trend
- Sentinel HR-HPV surveillance in targetted settings (e.g. HIV clinic, STI clinic etc)
  - incidence
  - prevalence
  - persistence
- Cervical screening uptake
- Ano-genital carcinoma-in-situ
- Ano-genital invasive carcinoma



# Population Lens



# Vulnerable Populations – Youth

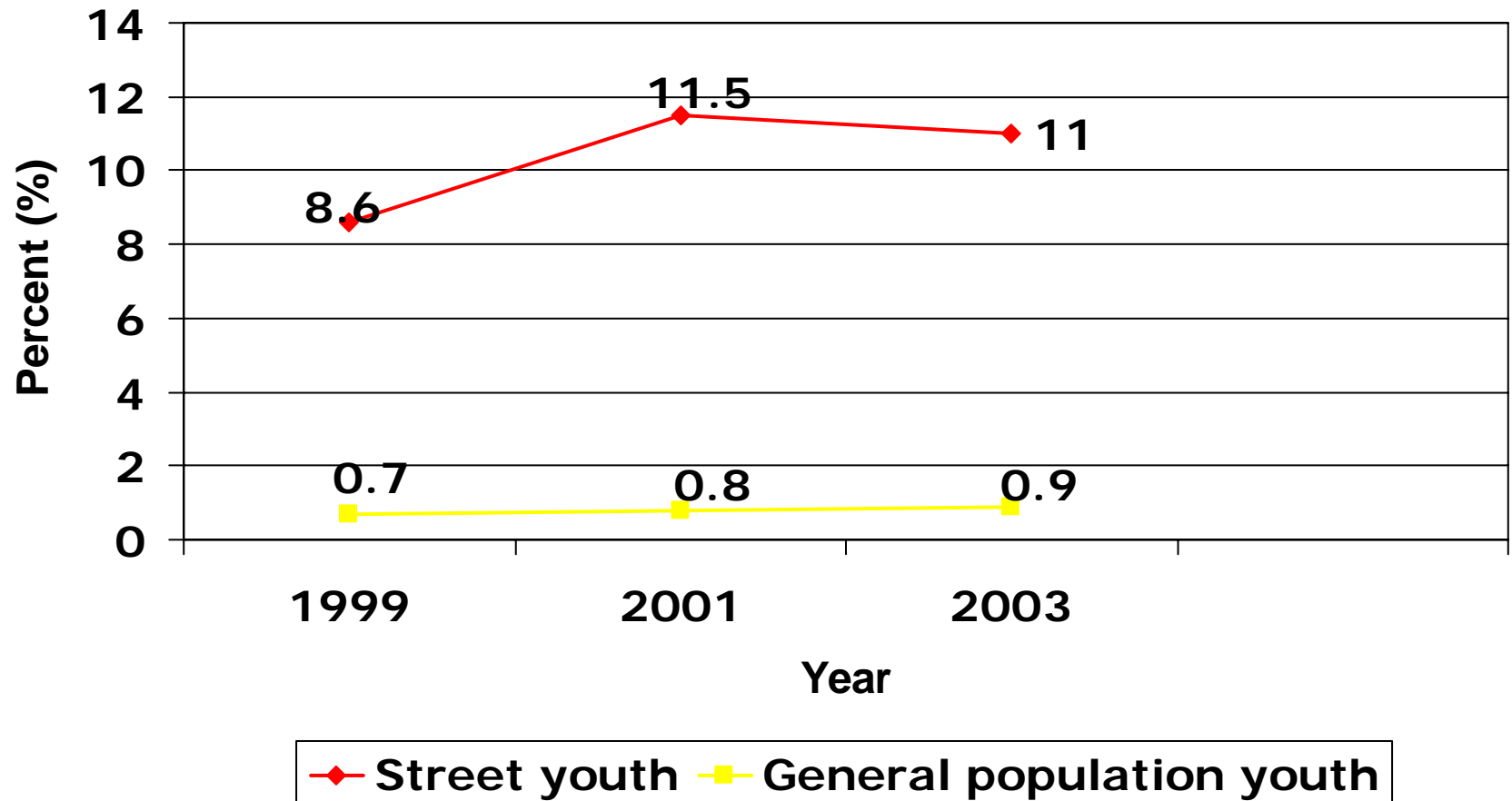
In street youth, IDU, other drug use and risky sexual behaviours are prevalent



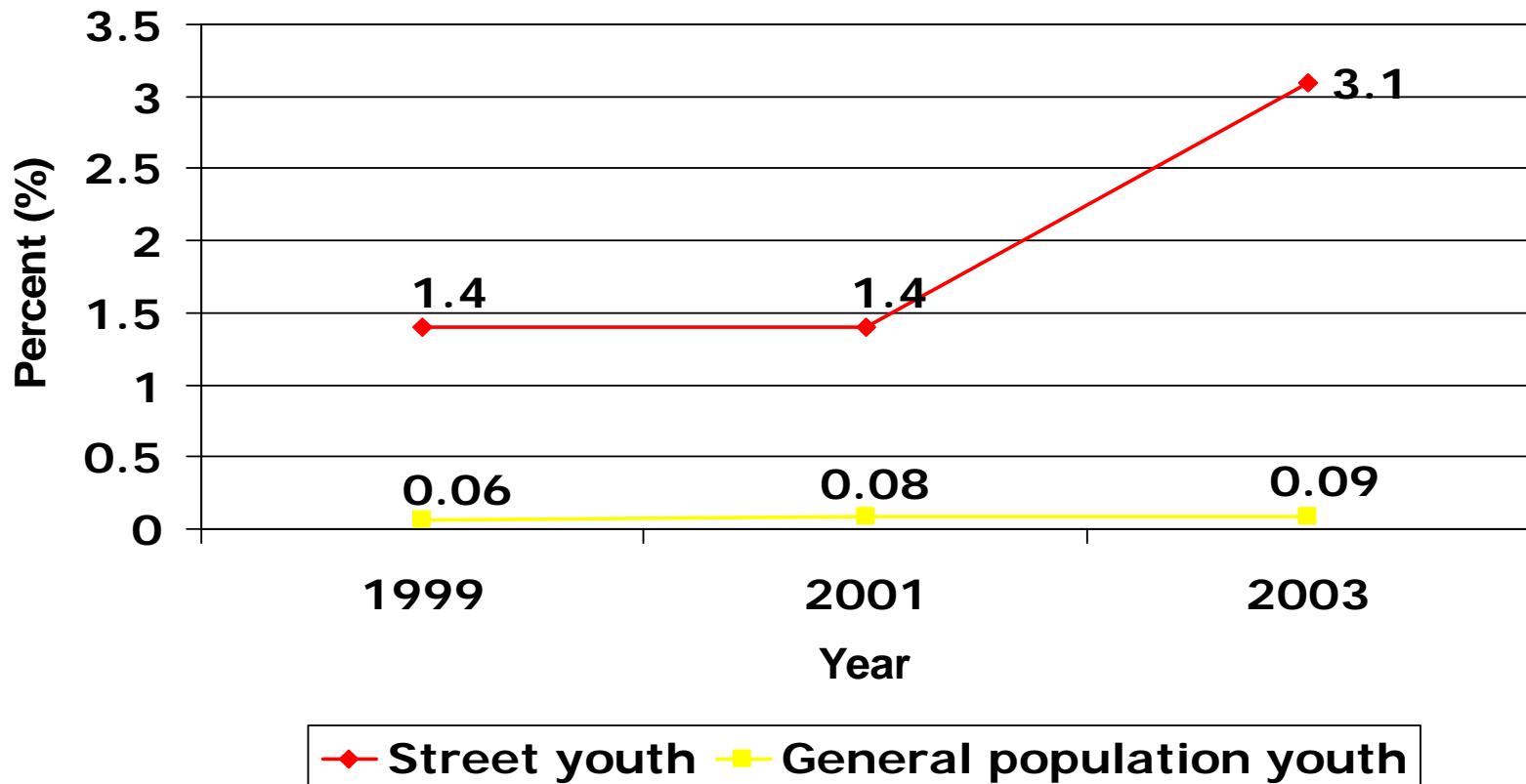
# Enhanced Surveillance of Canadian Street Youth



# Street Youth: Chlamydia Rates, 1999-2003



# E-SYS: Gonorrhoea Rates, 1999-2003



# Vulnerable Populations – Aboriginal

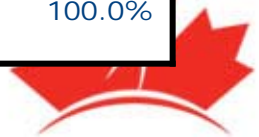
- STI (inc. HIV), HCV and TB much more common than that observed in non-Aboriginal people
- Social and health disparities within Aboriginal communities



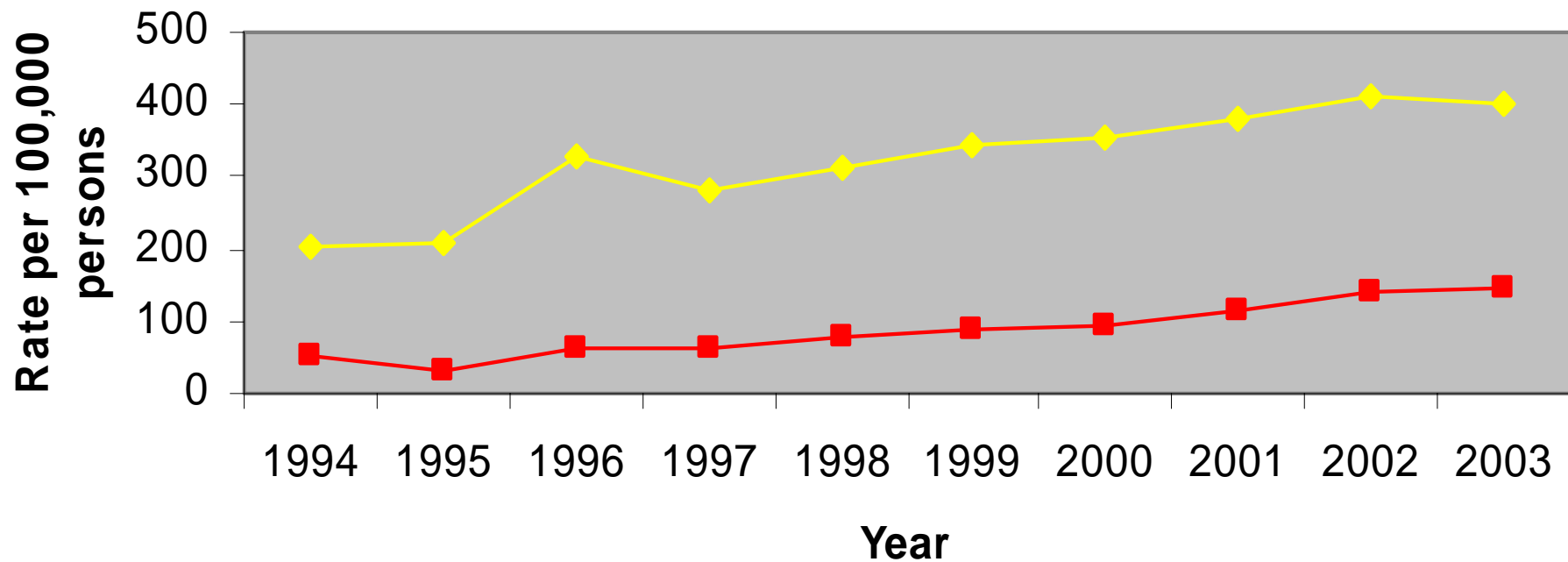
# Descriptive Statistics

- Of the 75,261 cases of bacterial STIs reported in BC, Alberta and Yukon between 1994 & 2000, 61.4% have associated ethnicity information
- In these two provinces and one territory, Aboriginal people make up 4% of the population
- Of the cases with ethnicity data, the Aboriginal population account for 20% of all diagnosed STIs

Description	Ethnicity	Chlamydia	Gonorrhea	Syphilis	Total
Ethnicity by STI	Aboriginal	19.3%	25.2%	28.3%	20.1%
	Non-Aboriginal	80.7%	74.8%	71.7%	79.9%
STI by Ethnicity	Aboriginal	84.9%	14.0%	1.1%	100.0%
	Non-Aboriginal	88.9%	10.4%	0.7%	100.0%



# Reported Chlamydia Rates\* in Aboriginal and Non-Aboriginal Populations, AB, BC, & YT\*\*



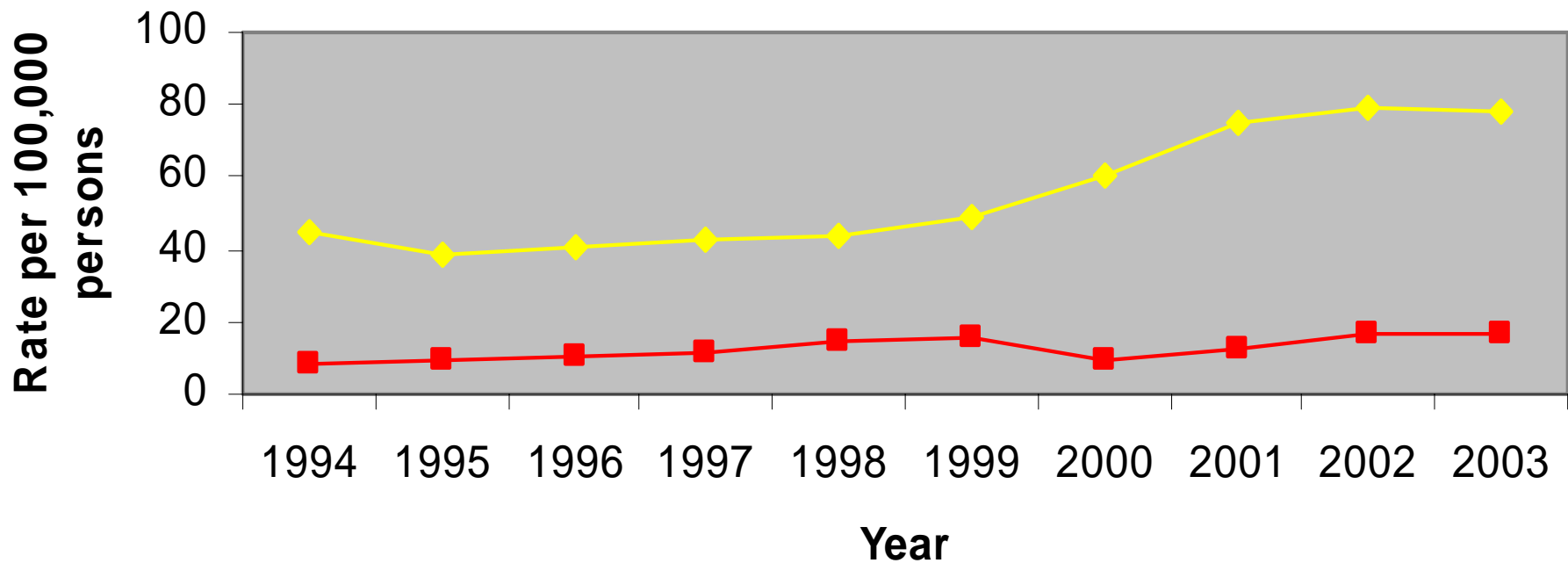
\*Age & sex standardized

—◆— Aboriginal —■— Non-Aboriginal

\*\*Data are preliminary and changes are anticipated



# Reported Gonorrhoea Rates\* in Aboriginal and Non-Aboriginal Populations, AB, BC, & YT\*\*



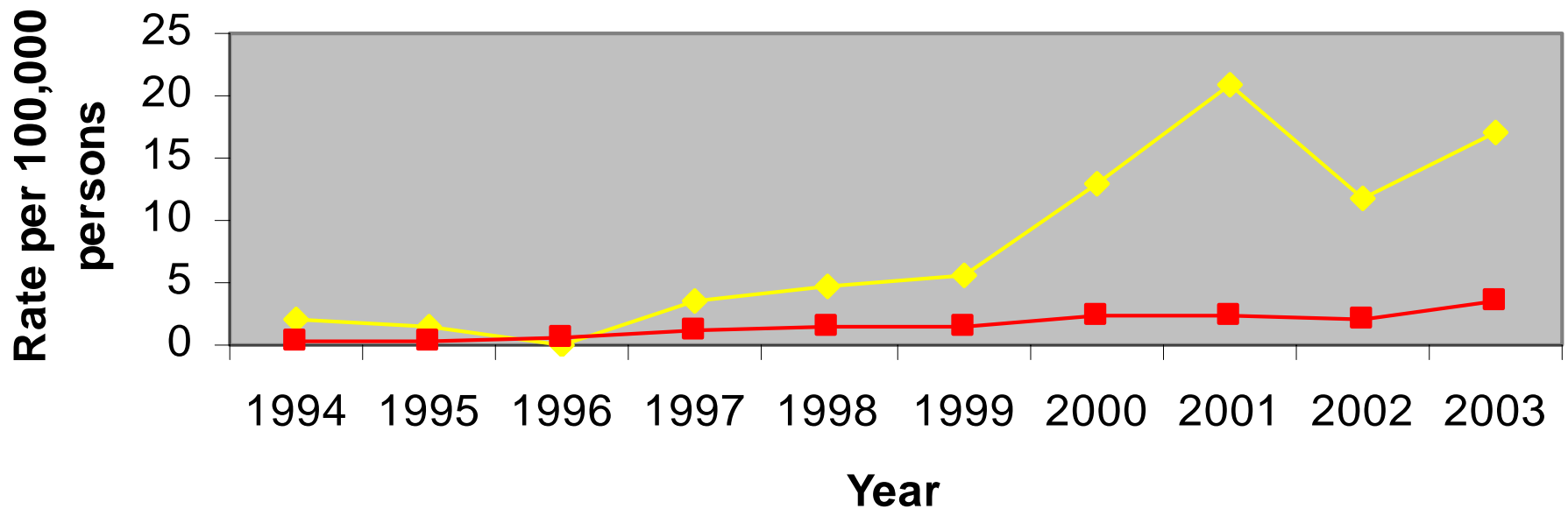
\*Age & sex standardized

—◆— Aboriginal —■— Non-Aboriginal

\*\*Data are preliminary and changes are anticipated



# Reported Infectious Syphilis Rates\* in Aboriginal and Non-Aboriginal Populations\*\* (AB, BC, & YT Combined)



\*Age & sex standardized

—◆— Aboriginal —■— Non-Aboriginal

\*\*Data are preliminary and changes are anticipated



Syphilis ◦ HIV ◦ Chlamydia ◦ Herpes  
HPV ◦ Gonorrhoea ◦ LGV ◦ Syphilis ◦  
HIV ◦ Chlamydia ◦ Herpes ◦ HPV ◦  
Gonorrhoea ◦ LGV ◦ Syphilis ◦ HIV ◦  
Chlamydia ◦ Herpes ◦ HPV ◦ Gonorrhoea  
LGV ◦ Syphilis ◦ HIV ◦ Chlamydia ◦  
Herpes ◦ HPV ◦ Gonorrhoea ◦ LGV ◦  
Syphilis ◦ HIV ◦ Chlamydia ◦ Herpes

**Canadian Guidelines on  
Sexually  
Transmitted  
Infections (STI)**

**2006**  
EDITION

Canadian STI Guidelines - Canadian STI Guidelines - Canadian STI  
STI Guidelines - Canadian STI Guidelines - Canadian STI Guideline  
Guidelines - Canadian STI Guidelines - Canadian STI Guidelines -  
Canadian STI Guidelines - Canadian STI Guidelines - Canadian STI  
STI Guidelines - Canadian STI Guidelines - Canadian STI Guideline  
Guidelines - Canadian STI Guidelines - Canadian STI Guidelines -



Public Health  
Agency of Canada

Agence de santé  
publique du Canada

Canada



# Chlamydia screening

## Use NAAT

- Sexually active females under 25
- All pregnant women
- For sexually active males and other females, screen if risk factors present:
  - Sexual contact with chlamydia-infected partner
  - New sexual partner or more than 2 partners in the past year
  - History of STI
  - IDU
  - Inmates
  - Sex workers
  - Street youth
- Rescreening infected individuals 6 months post-treatment



# *Chlamydia trachomatis:*

## Infants

- The use of erythromycin in infants under 6 weeks of age has been associated with infantile hypertrophic pyloric stenosis (IHPS)
  - The risk of IHPS with other macrolides (e.g. azithromycin, clarithromycin) is unknown
- IHPS following erythromycin use should be reported to the Canadian Adverse Drug Reaction Monitoring Program at 1-866-234-2345.



# Syphilis: Treatment

- Latest draft of the recommendations has been fast-tracked and pre-posted on the PHAC website:

<http://www.phac-aspc.gc.ca/std-mts/>

- **Preferred**

- Primary, secondary and early latent (pregnant and non-pregnant adults):

- Benzathine penicillin G 2.4 million units IM as a single dose

- Late latent, Latent syphilis of unknown duration, tertiary (excluding neurosyphilis):

- Benzathine penicillin G 2.4 million units IM weekly for 3 doses

- **Neurosyphilis:**

- Penicillin G 3-4 million units IV q4h for 10-14 days



# Syphilis: Access to Benzathine Penicillin Treatment

- In 2002, Wyeth- Ayerst, the sole Canadian distributor of Benzathine penicillin G (Bicillin LA), discontinued its distribution in Canada
- Benzathine penicillin G is available in Canada only through provincial/territorial Sexually Transmitted Disease Services, who obtain the drug from non-Canadian pharmaceutical companies (King and Bioniche) through Health Canada's Special Access Program
- Wyeth & King – no real interest
- ? Other offshore sources interested distributing in Canada
- ? Domestic production by generic companies
- ? Alternative treatment



## ORIGINAL ARTICLE

# Single-Dose Azithromycin versus Penicillin G Benzathine for the Treatment of Early Syphilis

Gabriele Riedner, M.D., Ph.D., Mary Rusizoka, Dipl.Med., Jim Todd, M.Sc., Leonard Maboko, M.D., Michael Hoelscher, M.D., Donan Mmbando, M.D., Eleuter Samky, M.D., Eligius Lyamuya, Ph.D., David Mabey, M.D., Ph.D., Heiner Grosskurth, M.D., Ph.D., and Richard Hayes, D.Sc.

## ABSTRACT

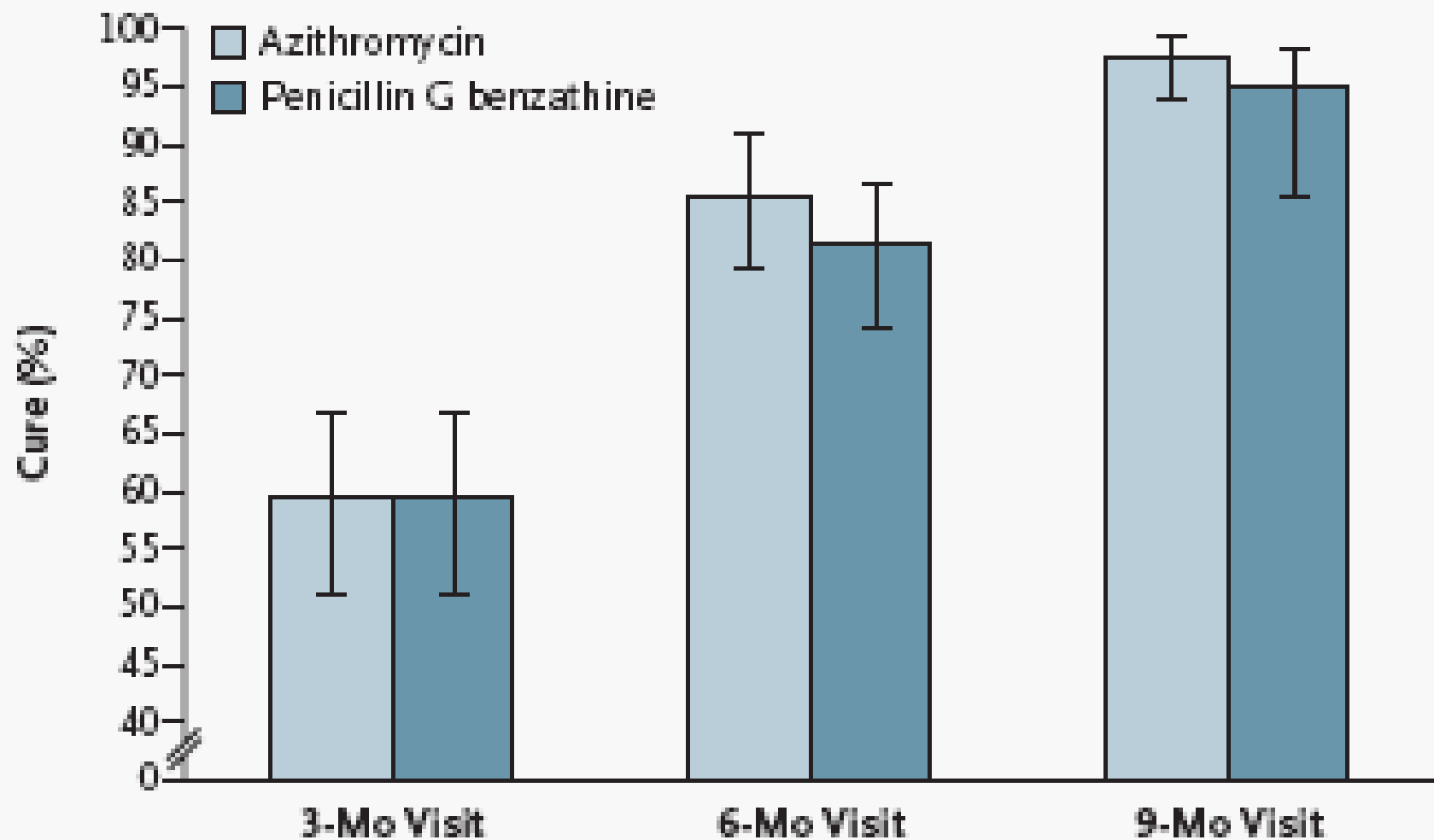
**BACKGROUND**

Pilot studies suggest that a single, 2-g oral dose of azithromycin may be an alternative to a 2.4-MU intramuscular dose of penicillin G benzathine in the prevention and treatment of syphilis. We evaluated the efficacy of treatment with azithromycin in a developing country.

**METHODS**

A total of 328 subjects, 25 with primary and 303 with high-titer (a titer of at least 1:8 on a rapid plasmin reagin [RPR] test) latent syphilis, were recruited through screening of high-risk populations in Mbeya, Tanzania, and randomly assigned to receive 2 g of azithromycin orally (163 subjects) or 2.4 million units of penicillin G benzathine intramuscularly (165 subjects). The primary outcome was treatment efficacy, with cure defined serologically (a decline in the RPR titer of at least two dilutions by nine months after treatment) and, in primary syphilis, by epithelialization of ulcers within one or two weeks.

From the London School of Hygiene and Tropical Medicine, London (G.R., J.T., D. Mabey, R.H.); the Regional Medical Office, Mbeya, Tanzania (M.R., D. Mmbando); the Mbeya Medical Research Programme, Mbeya, Tanzania (L.M.); the Department of Infectious Diseases and Tropical Medicine, Ludwig-Maximilians-University, Munich, Germany (M.H.); the Mbeya Consultant Hospital, Mbeya, Tanzania (E.S.); Muhimbili University College of Health Sciences, Dar es salaam, Tanzania (E.L.); and the Medical Research Council Programme on AIDS, Uganda Virus Research Institute, Entebbe, Uganda (H.G.). Address reprint requests to Dr. Riedner at the WHO Regional Office for the Eastern Mediterranean, Adul Razzak Al-Sanhouri St, P.O. Box 7068, Nasr City, Cairo 11371, Egypt, or at [riedner@amro.who.int](mailto:riedner@amro.who.int).



**Figure 2.** Mean Cure Rates.

The NEW ENGLAND JOURNAL *of* MEDICINE

BRIEF REPORT

## Macrolide Resistance in *Treponema pallidum* in the United States and Ireland

Sheila A. Lukehart, Ph.D., Charmie Godornes, B.S., Barbara J. Molini, M.S.,  
Patricia Sonnett, B.S., Susan Hopkins, M.D., Fiona Mulcahy, M.D.,  
Joseph Engelman, M.D., Samuel J. Mitchell, M.D., Ph.D., Anne M. Rompalo, M.D.,  
Christina M. Marra, M.D., and Jeffrey D. Klausner, M.D., M.P.H.



# Syphilis: Azithromycin Resistance

Due to recent reports of treatment failure in early syphilis with azithromycin and rapid development of azithromycin resistance in *T. pallidum*, this agent should not be routinely used as a treatment option for early or incubating syphilis unless:

- Adequate and close follow up can be ensured
- Used only in jurisdictions where little/no azithromycin genotypic resistance has been demonstrated
  - BC sample > 50% azithromycin resistance
  - at the present time, very limited Canadian data on the prevalence of Azithromycin resistance in *T.pallidum* is available



# STI: Challenges

National rates of Chlamydia, Gonorrhoea and Syphilis all rising

- **Problem not only in youth, but also in men over 30**

## WHY?

- Safe-sex burnout
- HAART and post-exposure prophylaxis
- Younger generation did not witness AIDS devastation
- Internet facilitating high risk partnering
- Club drugs (e.g. Crystal meth, Viagra, Ecstasy)



# STI: Challenges

- **Hidden Epidemic**
- **Outbreaks**
- **STIs do not respect international borders**
- **Oral transmission of STIs**
- **Difficult to access Bicillin treatment (syphilis)**
- **Antimicrobial resistance (gonorrhoea and syphilis)**
- **Reduced capacity in tracking resistance because of increasing NAAT use**



# Opportunities

- **Behavioural surveillance gap – hindering targeted awareness, prevention and promotion**
- **Insufficient data on viral STIs**
- **Address gaps & needs in Aboriginal people, MSM, youth, street youth, IDU, incarcerated & migrants**
- **Work with community to rejuvenate “stale” public health messages**
- **Need new medium to get messages out (eg. Cyberprevention)**



# Internet

- 42% of San Francisco men testing positive for syphilis met sex partners on the Internet
- 80% of MSM in the US have had sex with partners met online





[TELL THEM](#)

[GET CHECKED](#)

[STD INFO](#)

[RESOURCES](#)

[TREATMENT](#)

[ STD ] [INTERNET NOTIFICATION SERVICE FOR PARTNERS OR TRICKS](#)

[ABOUT THIS SITE](#)

[CONTACT US](#)

In San Francisco, there's an easy way to tell your sex partners you have an STD. Send them a free inSPOT e-card, ANONYMOUSLY or from your email address, [right here](#).

No information will be reported to any government or private agency. Please respect the community and don't use these cards to spam.

[More About This Site ->](#)  
[Community Guidelines ->](#)



Tell your tricks, hookups, ex's, boyfriends and partners they may have been exposed to an STD.

[TELL THEM](#)



If you've received an InSpot card, find out where to get screened and if necessary, treated, for an STD.

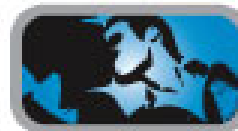
[GET CHECKED](#)



This site was created by I.S.I.S., Inc., a non-profit group, with funding from the San Francisco Department of Public Health.



**in** SPOT.org

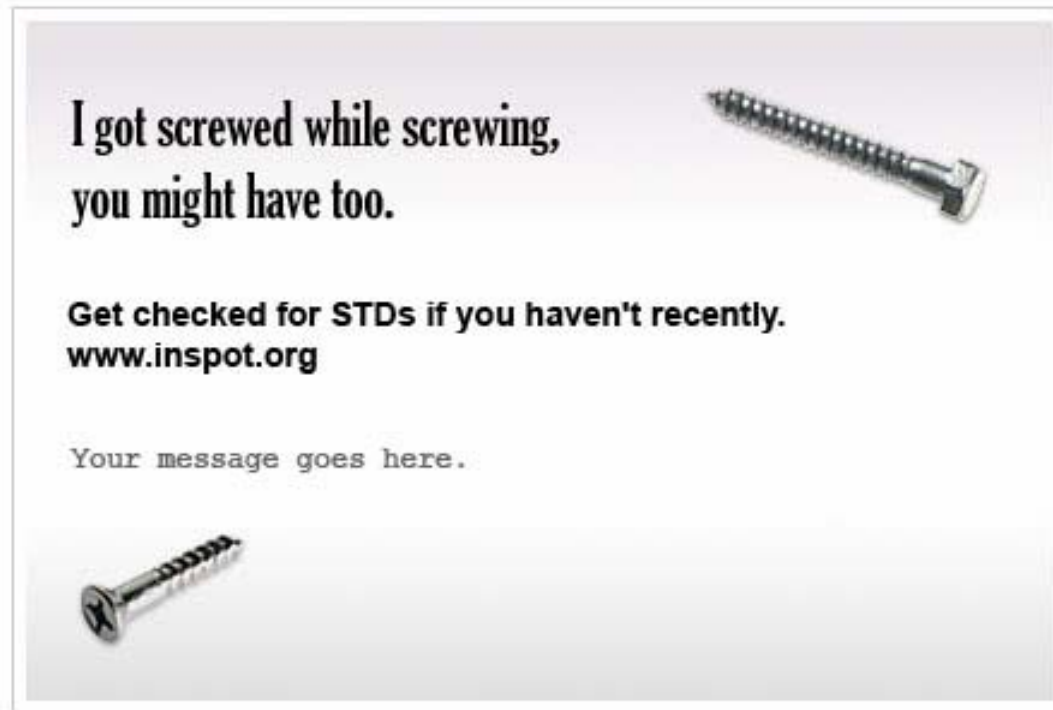


E-cards.

An easy way to tell him  
you have an STD.



## San Francisco's STI E-notification Card designed with input from the Community Advisory Board



This is from a friend at  the [STD] Internet Notification Service for Partners Or Tricks.

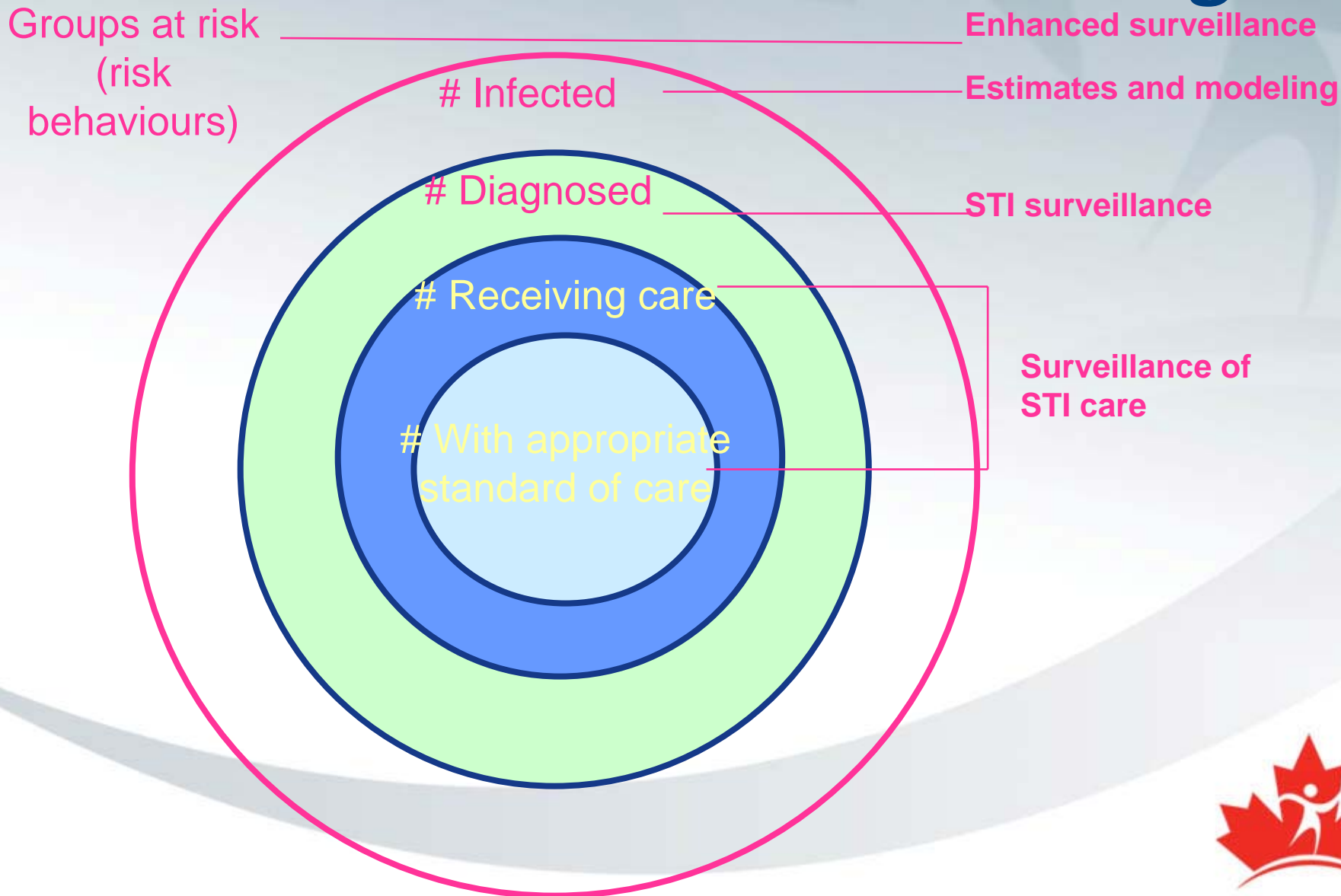


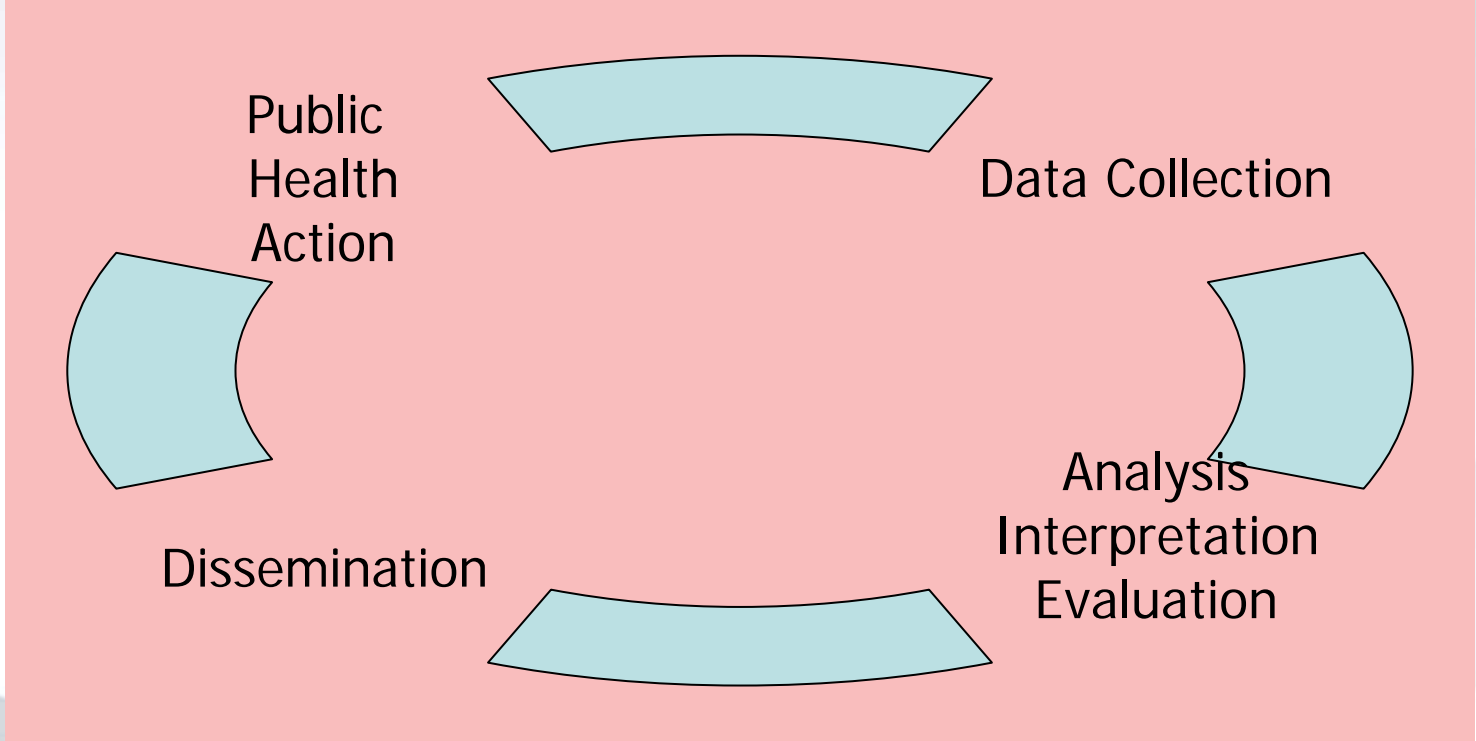
# STI E-Notification Usage

- No database collecting any of the information that people type onto their cards.
- Only aggregate data are collected re: number of visitors, cards, etc.
  - 750 people visit the site everyday
  - 200 people send cards per month
  - Visitors notify an average of 2.5 partners
  - 80% of cards are sent anonymously
  - 80% of cards include a personal message
  - 51% of people receiving cards click-through for more info about testing and treatment

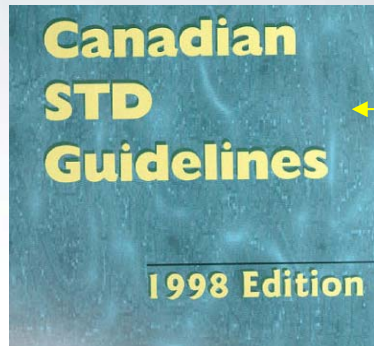


# Overview of STI Monitoring



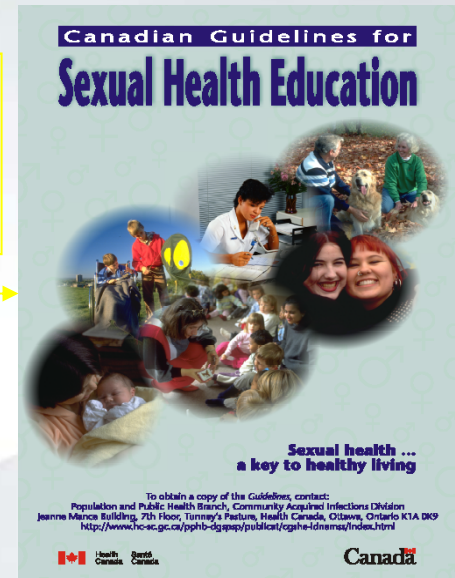


# Data for Action



**Routine STI Surveillance**

**Enhanced Surveillance**



# Conclusion

Integrate surveillance, research, prevention, treatment & care across sexually transmitted bloodborne infections to reduce disease burden through addressing:

- common *risk factors*
- common *risk populations*



# STI Resources on our Website

[http://www.phac-aspc.gc.ca/centres\\_e.html#cidpc](http://www.phac-aspc.gc.ca/centres_e.html#cidpc)



# Acknowledgement

- **Provincial and Territorial Health Professionals**
- **Public Health Agency of Canada Health Professionals**
- **Field Surveillance Officers**
- **Community Partners**
- **AIDS Committee of Ottawa**
- **Canadian Paediatric Society and all participating paediatricians**
- **Canadian Guidelines for STIs Expert Working Group, authors & reviewers**

