

# Chlamydia control: an international perspective

Dr. Nicola Low, MD FFPH  
Institute of Social and Preventive Medicine,  
University of Bern, Switzerland

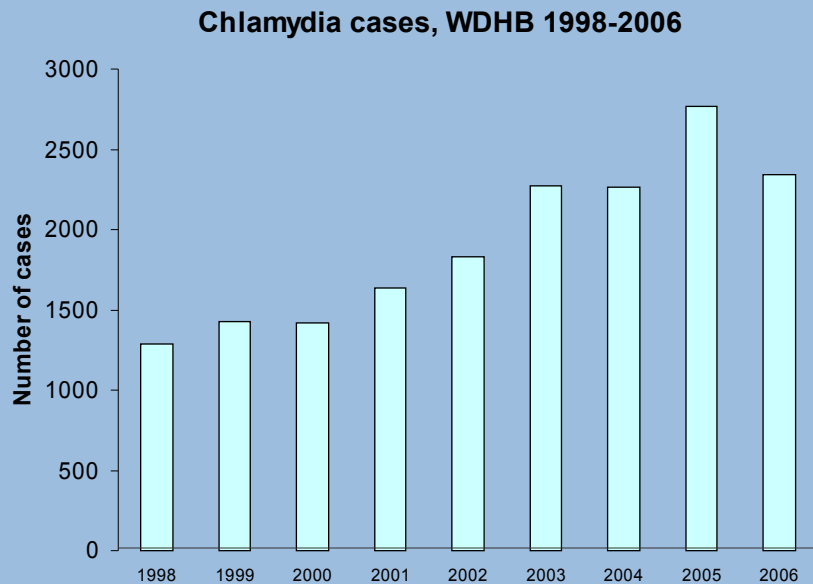
New Zealand Sexual Health Conference, Dunedin, 28-30 August, 2008  
Plenary session 2, Friday 29th August, 2008



# Outline

- > An epidemic of chlamydia?
- > How to control chlamydia?
- > How does chlamydia screening work?
- > The evidence?
- > Where next?

# An epidemic of chlamydia<sup>1</sup>?



2006: 24,469 tests; 2343 cases; 691/100k

## >Chlamydia cases

—Diagnosed and reported

## >Positivity

—The number of positive test results amongst all those tested

## >Incidence

—The number of newly infected cases in a given time period in the population at risk

## >Prevalence

—The number of cases with the infection in the population at risk

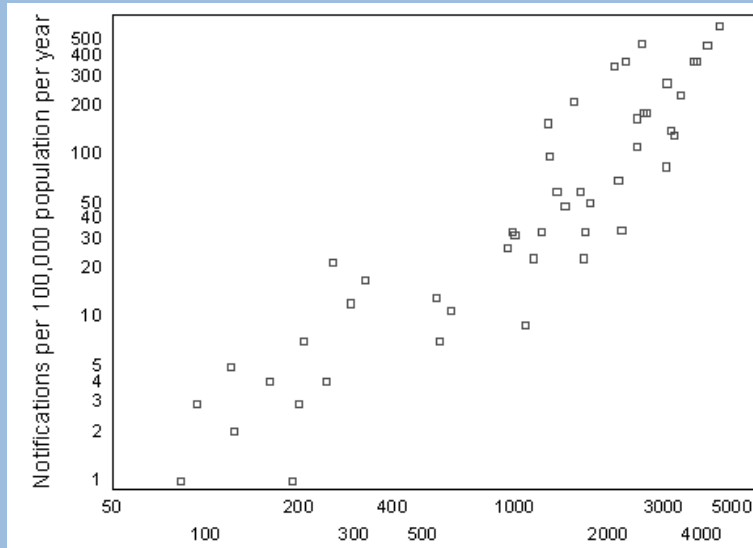
1. Edwards D. *NZ Med J*, 1985; Minister of Health NZ, 2001; 2. Morgan J. *NZ Med J*, 2008

## Chlamydia rates by county, Sweden, 2007

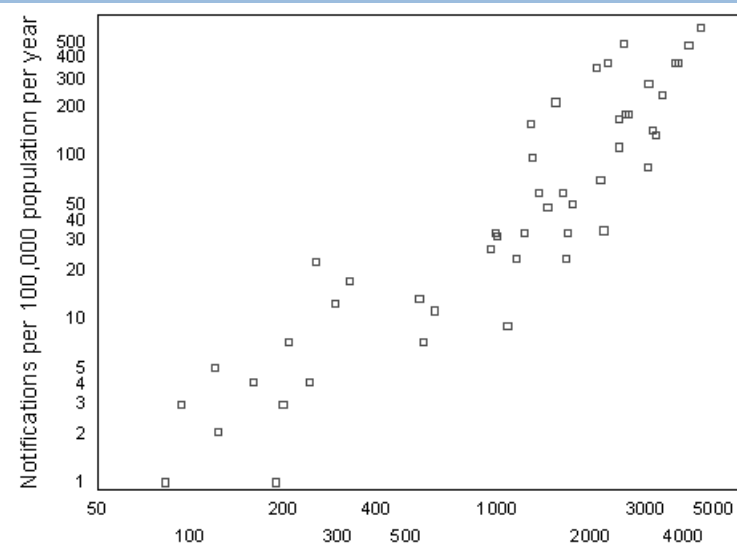


2007: >500,000 tests;  
47102 cases; 531/100k

# An epidemic of testing?



Women



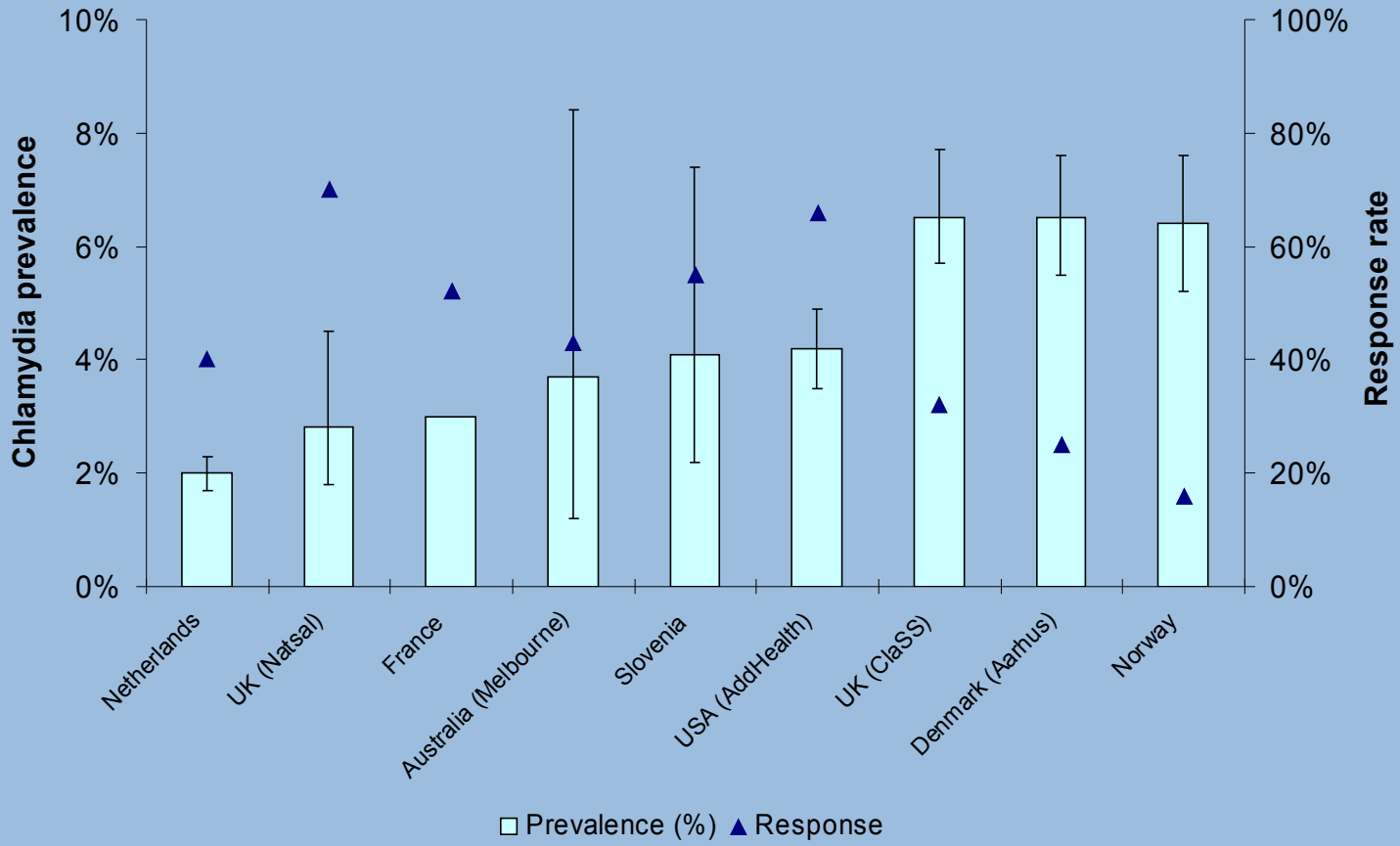
Men

Number of tests per 100,000 population per year, New South Wales, 1999-2001

- > Strong correlation between chlamydia testing and notification rates
- > Increasing testing explains 83% of variation in notifications in women and 88% in men
- > More sensitive tests, more risky people tested? More transmission?

Chen MY et al. *Aus NZ J Public Health* 2005

# Chlamydia, population prevalence



Van Bergen JE et al. 2006 (15-24 yrs); Fenton KA et al. 2001 (18-24 yrs); Bajos N et al. 2007 (18-24 yrs); Hocking JS et al. 2006 (18-24 yrs); Klavs I et al. 2004 (18-24 yrs); Miller WC et al. 2004 (18-26 yrs); Macleod JA et al. 2006 (16-24 yrs); Andersen B et al. 2001 (21-23 yrs); Klovstad H et al. (unpublished) (16-24 yrs)

# Chlamydia incidence

- > New infections in previously uninfected people
- > Reduce incidence by preventing new infection or re-infection
- > Incidence in asymptomatic 16-24 year olds women at GP in England 4.1 (95%CI 1.9 to 9.2) per 100 woman years
  - Loss to follow up 45%
  - Not population-based



LaMontagne DS et al. *Sex Transm Infect* 2005



# Control of sexually transmitted infections

## PUBLIC HEALTH METHODS NEEDED IN THE CONTROL OF SYPHILIS

The whole health problem in the control of syphilis comprises just two elements: (1) Every infected person must take treatment, and (2) facilities for diagnosis and treatment must be made freely available. First and foremost is the need for adequate facilities for diagnosis and treatment. This method has been the backbone of European programs of control.

The problem may be stated in a different way:

1. Legal aspects should include (a) notification of cases, particularly the lapsed cases; (b) notification of sources of infection; (c) compulsory treatment after other efforts have failed, and (d) quarantine of irresponsible persons.

2. Medical services to insure early diagnosis and complete treatment should comprise (a) laboratory diagnostic facilities, including dark-field examination; (b) adequate clinical services on a free, partial payment and full payment basis; (c) free distribution of drugs to physicians as well as to clinics; (d) payment of physicians in rural areas and small villages for treating those unable to pay, and (e) prophylaxis.

3. Epidemiologic measures should include (a) intensive inquiry in every early case, both in clinic and private patients, to determine the source of infection; (b) examination of contacts in families and elsewhere, and (c) concentration of effort where necessary in early cases.

- > Surveillance system
- > Early diagnosis
- > Effective treatment
- > Partner treatment

Parran T. JAMA 1931

# Project SCREEn

- > Screening for Chlamydia Review in Europe
- > Postal questionnaire to all European Union member and applicant states, European Free Trade Association, USA
  - Guidelines and recommendations for testing and case management
  - Laboratory diagnosis of chlamydia
  - Surveillance and monitoring
  - Chlamydia screening programmes, existing and planned
  - Legal and regulatory framework for STI control
  - Payment for services for people with STI
  - Organisation of sexual health services
- > Background data about health service organisation, economic indicators, chlamydia prevalence and sexual behaviour surveys



Low N et al. [http://ecdc.europa.eu/pdf/chlamydia\\_control.pdf](http://ecdc.europa.eu/pdf/chlamydia_control.pdf)

# European Union, 2007

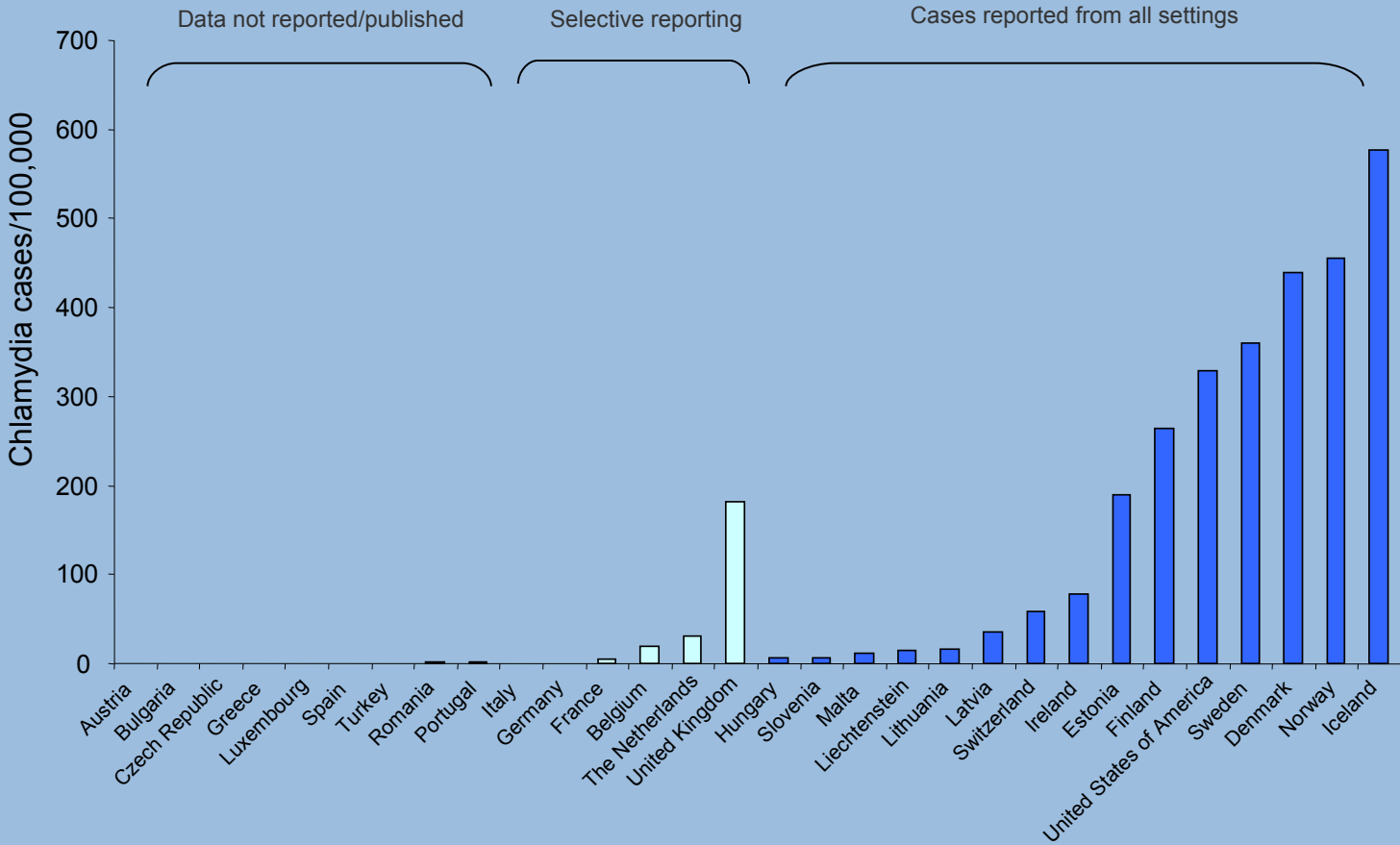
34 countries invited

30 countries responded

# Surveillance

- > 26/30 countries had a system for reporting chlamydia to public health authorities
  - 17 with compulsory reporting of all laboratory diagnosed chlamydia
  - 7 with compulsory reporting of all chlamydia diagnosed in selected clinical settings
- > 21/26 countries publish chlamydia surveillance data routinely
- > 6/26 countries report number of tests as well as number of positive cases

# Rates of diagnosed chlamydia



Low N et al. [http://ecdc.europa.eu/pdf/chlamydia\\_control.pdf](http://ecdc.europa.eu/pdf/chlamydia_control.pdf)

# Clinical guidelines 1

- > 12 countries with no chlamydia case management guideline
- > 18 countries reported 32 case management guidelines
  - 7 with same guideline for all practitioners
  - 4 with one guideline for specialists and another for all other practitioners
  - 3 with guideline only for specialists in GUM/STD clinics
  - 4 with different guidelines for other professional groups
- > Audit of adherence to guidelines only done in UK

## Clinical guidelines 2

- > Chlamydia testing available in a variety of clinical settings, in addition to GUM/STD clinics
  - Gynaecology clinics in all participating countries
  - General practice in 24 countries
  - Family planning clinics in 23 countries
  - Pharmacies and over-the-counter in 5 countries
- > Clinical guidelines did not cover all settings where chlamydia testing was available
  - In each setting, practitioners in 53-64% of countries not covered by a guideline

# Partner notification

- > Partner notification mostly by patient referral<sup>1</sup>
- > Not done/not reported
  - In family planning clinics in 9/22 countries where chlamydia diagnosis available
  - In 20-30% of other diagnostic settings
- > Physician responsibility in most settings
- > Partner notification outcomes not asked



# Screening for sexually transmitted infection control

Screening is a programme not a test

News Politics

# NHS screening programme takes centre stage in Brown fightback

- PM launches drive to avert 200,000 deaths a year
- New attempt to regain initiative from Tories

**David Hencke**, Westminster correspondent  
 The Guardian, Monday January 7 2008  
[Article history](#)



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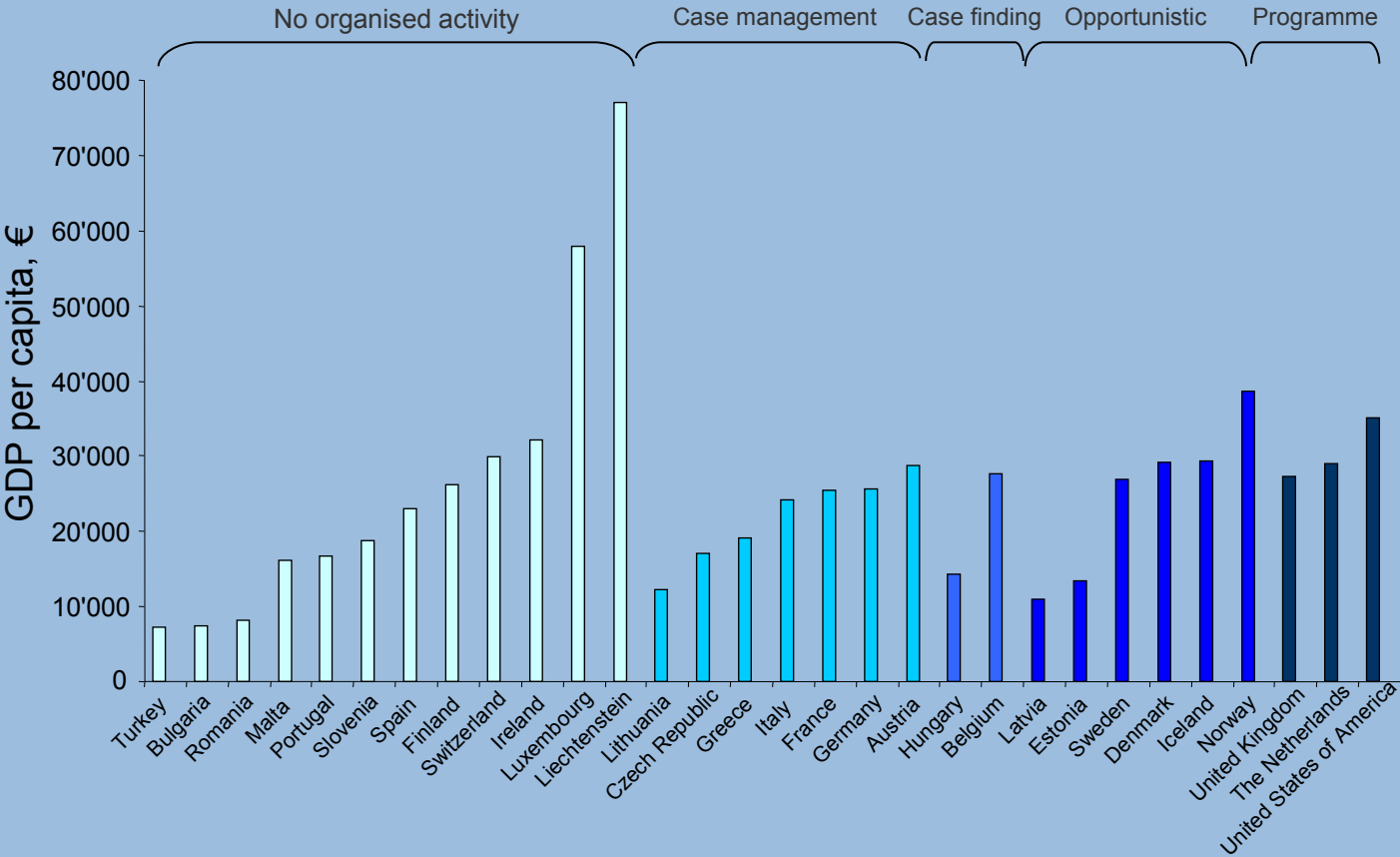
**SIGN UP** →



# Categories of chlamydia control

- > No organised activity
  - No guideline for case management of diagnosed chlamydia
- > Case management
  - Case management guideline for at least one group of health care professionals recommended by a recognised national body
- > Case finding
  - Case management guideline + guideline covers partner notification and includes recommendation for testing sexual partners of diagnosed chlamydia cases or another sexually transmitted infection
- > Opportunistic testing
  - Case finding + recommendation for chlamydia testing of at least one other group of asymptomatic individuals
- > Screening programme
  - Organised programme ongoing or with a planned implementation date

# Chlamydia control in Europe and USA

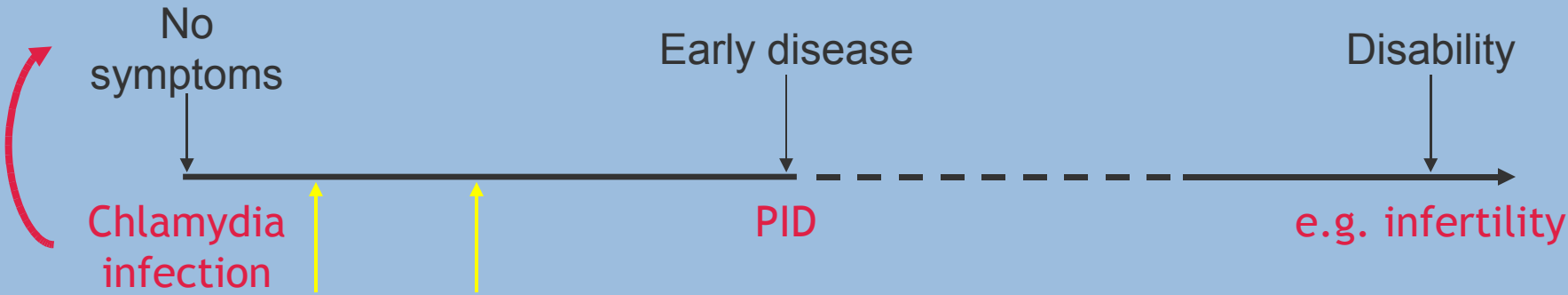


No organised activity, GDP mean (SD) €26,728 (21,180); Case management, €21,786 (5,814); Case finding, €20,950 (9,405); Opportunistic testing, €24,733 (10,534); screening programme, €30,400 (4,063)

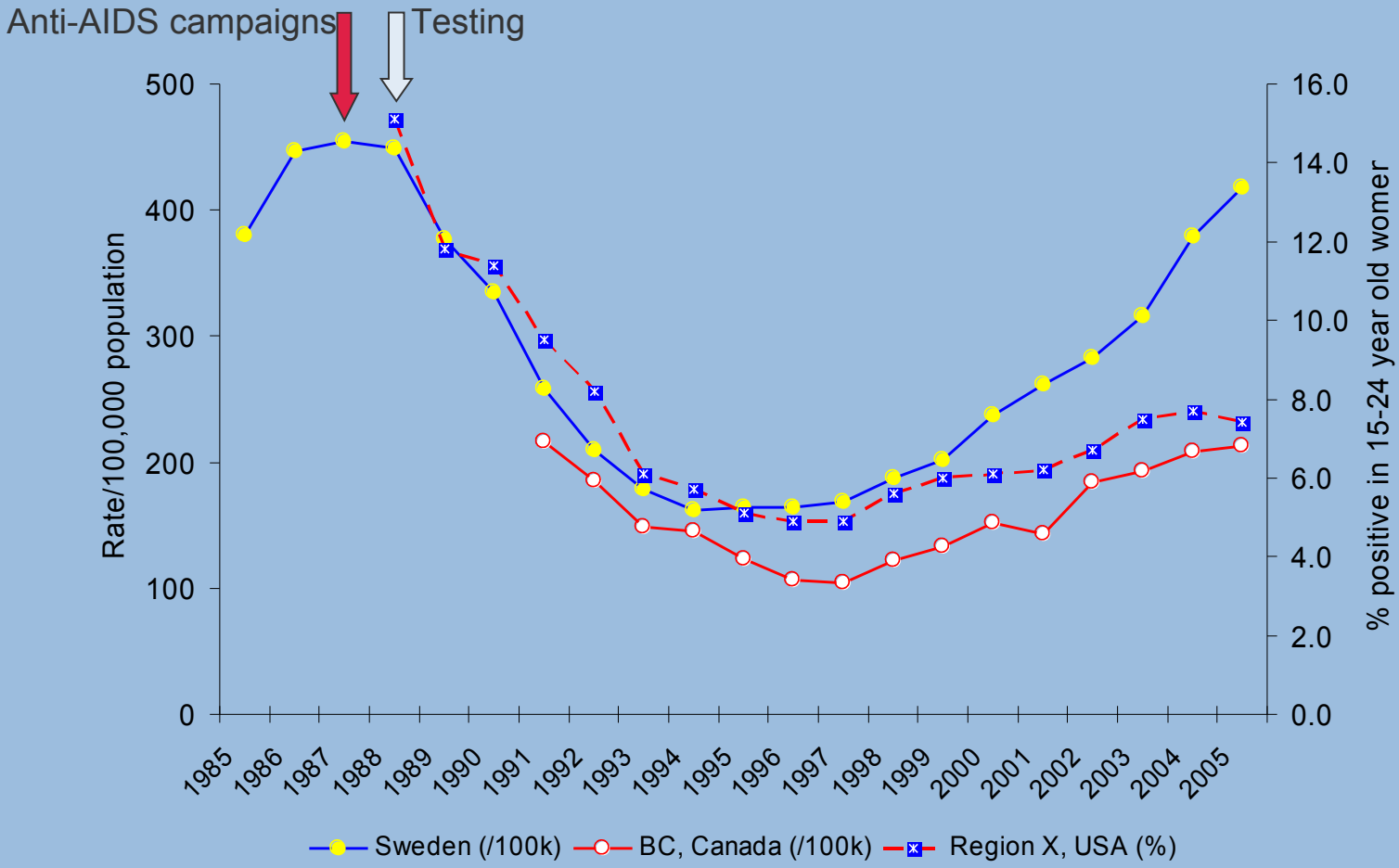
## Planned chlamydia screening

- > 9 countries reported plans for chlamydia screening programmes
  - 6 countries have no active clinical guideline for case management
  - 4 countries plan opportunistic screening, 1 register-based, 4 undecided

# How might chlamydia screening work?

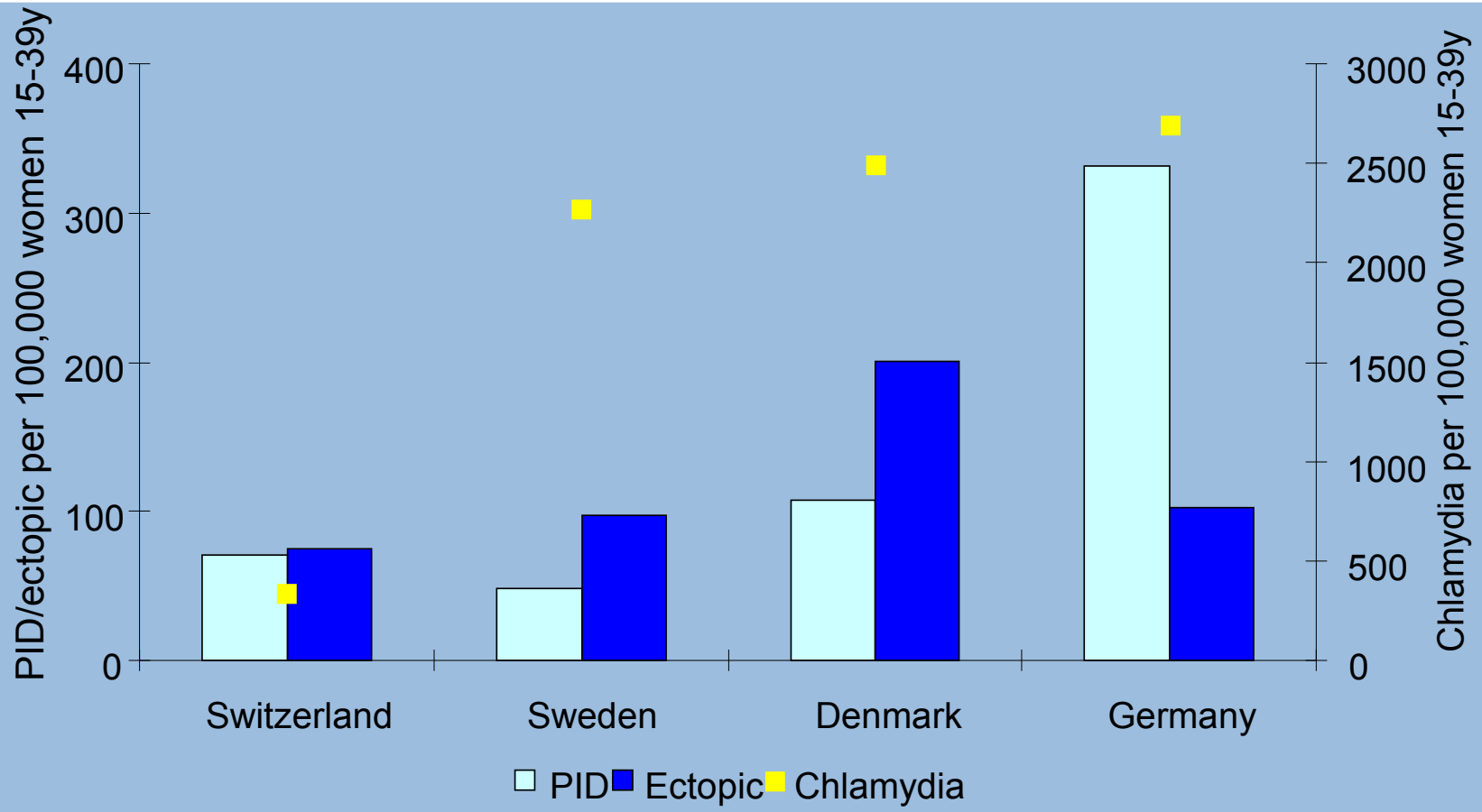


# Chlamydia time trends



Swedish Institute of Infectious Disease Control; US CDC; British Columbia CDC; Low N. *BMJ* 2007

# An ecological perspective



Bender N, Herrmann B, Andersen B, Scherer M, Low N (unpublished)



## Randomised controlled trials

### Seattle, USA<sup>1</sup>

- >36000 women randomised
- >2600 at high risk included (7%)
- >Screening at physician's office
  - Uptake 64% of eligible
- >Records of all reviewed
- >PID at one year
  - Relative risk reduction 56%

### Aarhus, Denmark<sup>2</sup>

- >9000 male and female high school students randomised
- >Screening by home sampling
  - Uptake 42%
- >45% of women followed at 1 year
- >PID at one year
  - Relative risk reduction 50%

3

Chlamydia causes 1/3 of all pelvic inflammatory disease

Most infections at baseline in unscreened population are not incident

cases  
1. Scholtes et al. *New Engl J Med* 1996; 2. Østergaard et al. *Clin Infect Dis* 2001; 3. Ness RB et al. *Obstet Gynecol* 2005, Paavonen J et al. in Holmes KK et al. (Eds) Sexually Transmitted Diseases, 4th Ed

# Organisation of screening programmes

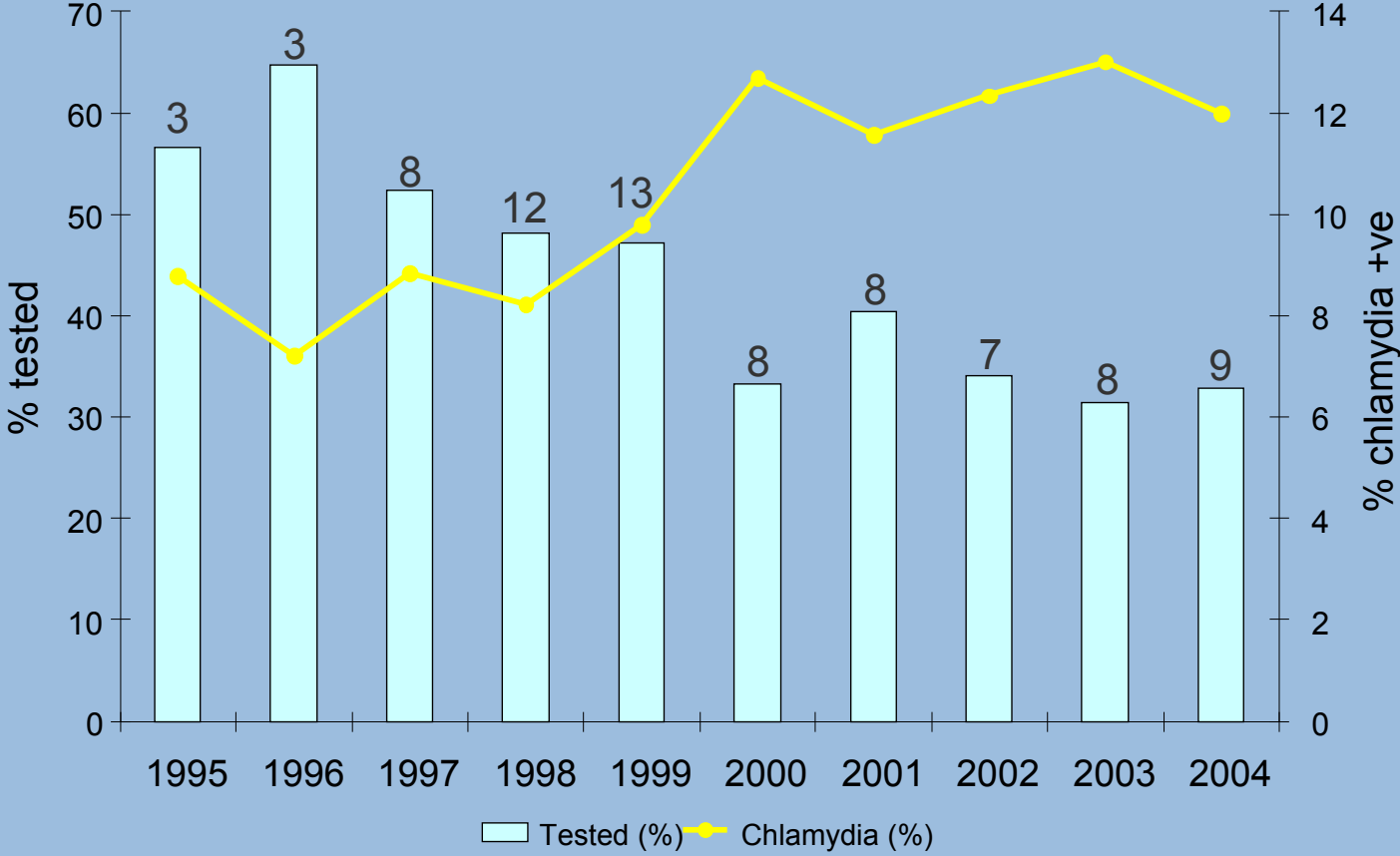
## Proactive, register-based

- > Identify target population using a register
- > Send regular invitations
- > Screening offer reaches all target population
- > Re-screening invitation automatically

## Opportunistic

- > Identify target population from existing service users
- > Health professional offers screening
- > Screening offer reaches health service users
- > Re-screening depends on re-attendance and re-offer

# Chlamydia screening coverage in a school programme, New Orleans



Register-based organisation. Records from 15215 9th-12th grade students. Numbers above columns are numbers of schools in program

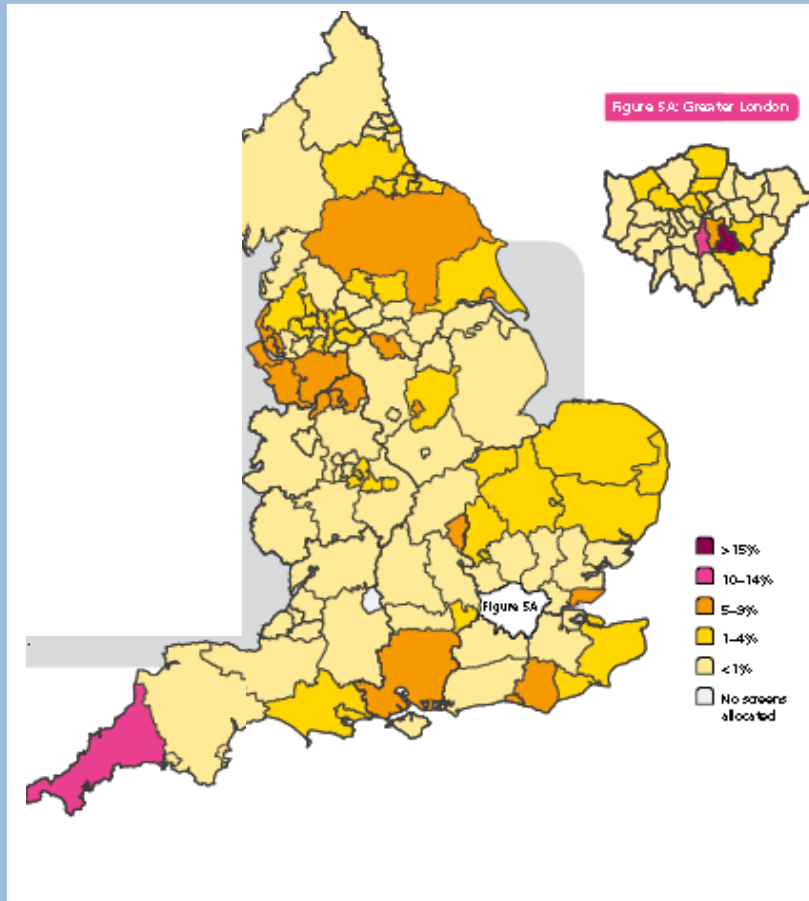
# Chlamydia screening coverage

First test result	Men (n=18,219 pyo)		Women (n=17,268 pyo)	
	RR (95% CI)	p-value	RR (95% CI)	p-value
Negative test	1 (reference)		1 (reference)	
Positive test	0.93 (0.84-1.02)	0.1154	0.87 (0.81-0.94)	>0.001

- >Regular screening is difficult to sustain
- >Uptake rates in this programme not associated with a sustained reduction in incidence
- >Women with a positive test were less likely to be tested again

Low N, Forster M, Taylor SN, Nsuami JM. BASHH/ASTDA 2008, Poster A-01, updated

## Chlamydia screening coverage in the National Chlamydia Screening Programme, England 2006-7



- > Opportunistic programme started 2003 in 16 areas
- > Highest coverage 16% by March 2007
- > Coverage < 5% in 5 of earliest screening areas
- > No information about rate of repeat annual screening

## Discussion – practical

- > Chlamydia is a common sexually transmitted infection in young adults in many developed countries
- > 40% of European countries have no guideline for the management of diagnosed chlamydia infection

## Discussion – evidence

- > Not clear whether or not chlamydia prevalence is increasing
- > Existing chlamydia control activities have not controlled chlamydia transmission or sequelae
- > Clinical equipoise remains
  - No high quality evidence that chlamydia screening programmes prevent pelvic inflammatory disease or chlamydia transmission
  - Level and frequency of screening required to reduce chlamydia transmission not known
  - No evidence about optimal delivery

## Discussion – future

- > Opportunities in New Zealand for evidence-based chlamydia control
- > Case management
  - Guideline implementation and training for practitioners in all relevant settings
  - Audit cycle for quality improvement
- > Pragmatic research
  - Prevalence and incidence
  - Effectiveness and timing of repeat testing
- > Randomised controlled trials of screening
  - Well-designed
  - Biological endpoints of transmission and complications
  - Different models of delivery
  - More than one round of screening



# We should „randomize until it hurts“

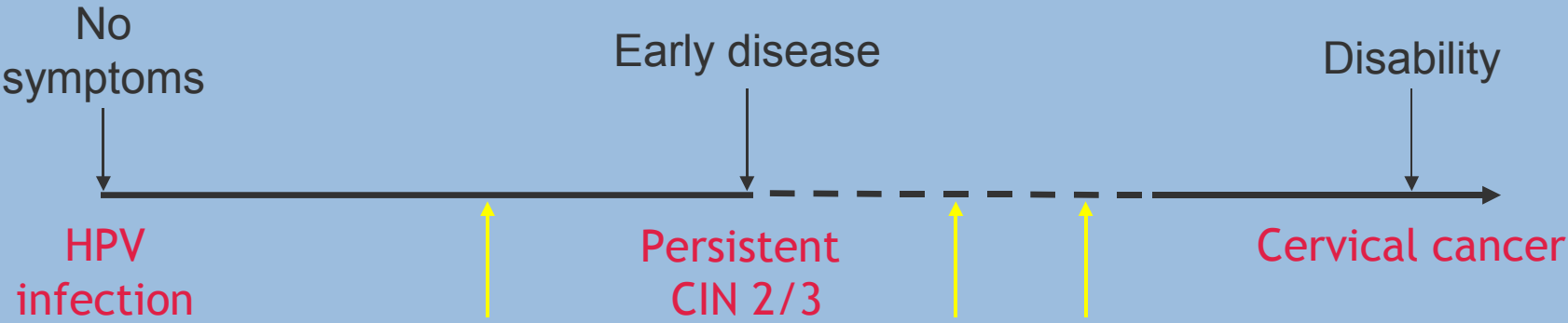
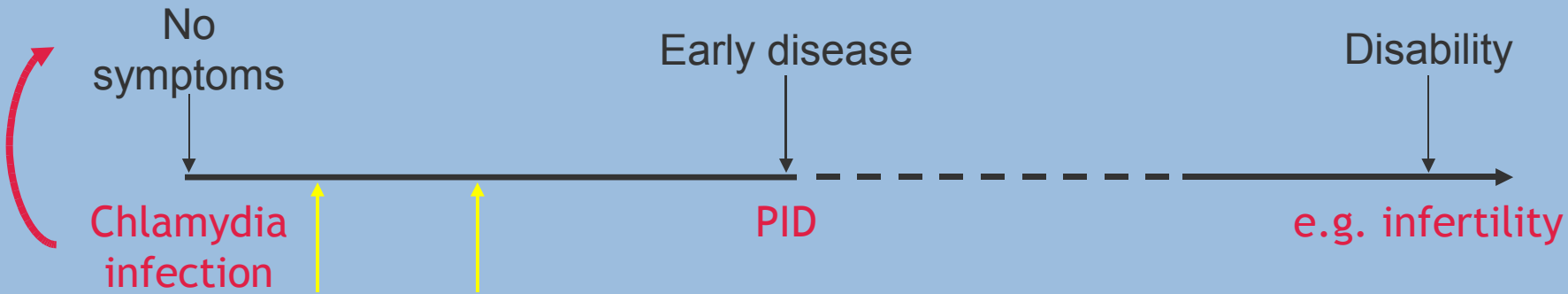


Sources: Cochrane AL. Effectiveness and Efficiency, 1972. Bob the Builder

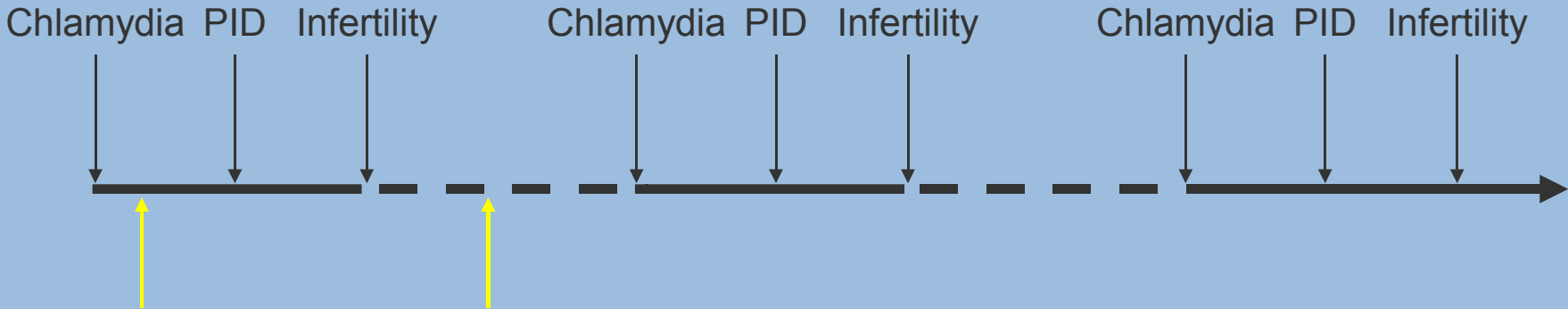
## Thanks to...

- > **SCREEn project team** – Jackie Cassell, Brenda Spencer, Nicole Bender, Adriane Martin Hilber, Jan van Bergen, Berit Andersen, Françoise Dubois-Arber, Björn Herrmann, Judith Stephenson
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- > **University of Bern, Switzerland** – Matthias Egger, Mathieu Forster
- > **Louisiana State University** – Malanda Nsuami

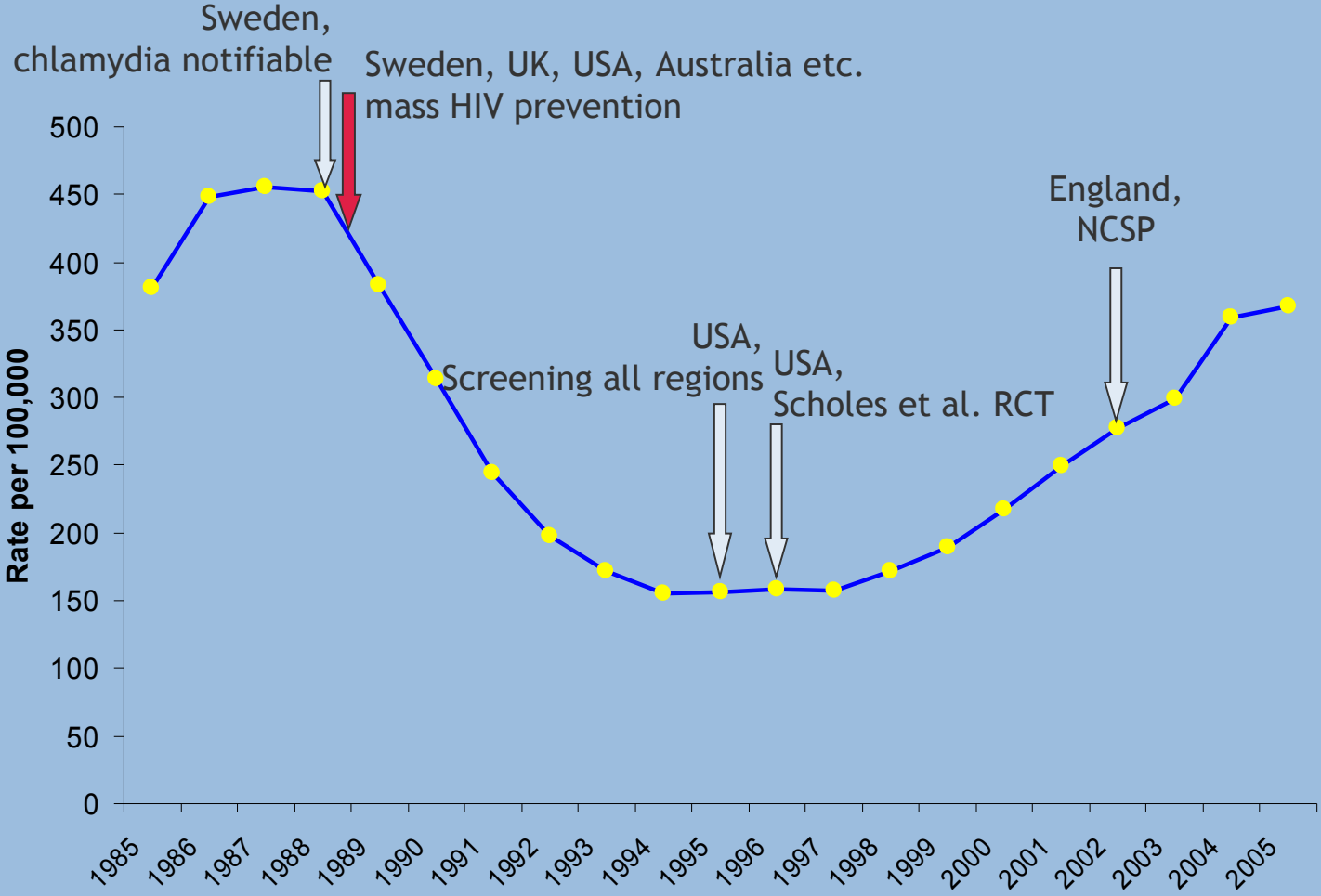
# What does screening do?



# An alternative view

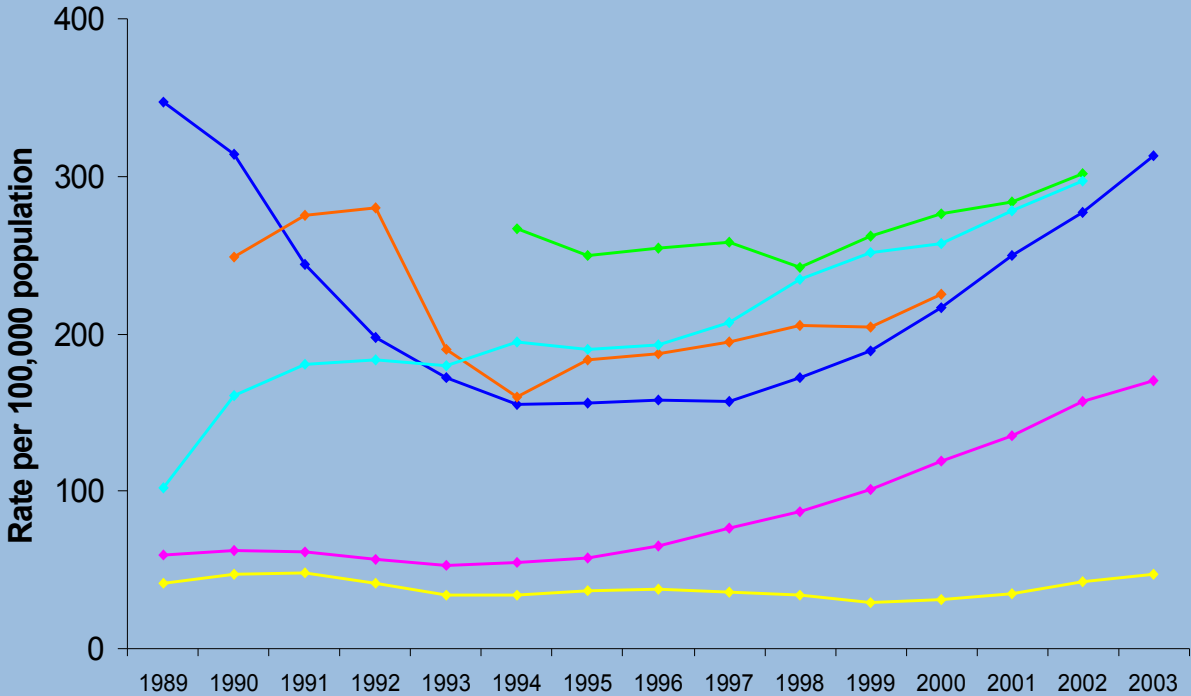


# Chlamydia trends, Sweden, 1989 to 2005



Smittskyddsinstitutet, Sweden

# Chlamydia in Europe, 1989 to 2003



Low N. Eurosurveillance <http://www.eurosurveillance.org/ew/2004/041007.asp#5>; plus Swiss Federal Office of Public Health