European Monitoring Centre for Drugs and Drug Addiction

The EMCDDA 'Drug-related infectious diseases' indicator:

Monitoring HIV and viral hepatitis among PWID in Europe

Lucas Wiessing - EMCDDA

Taiex course, Zagreb, 16 December 2013

Objectives

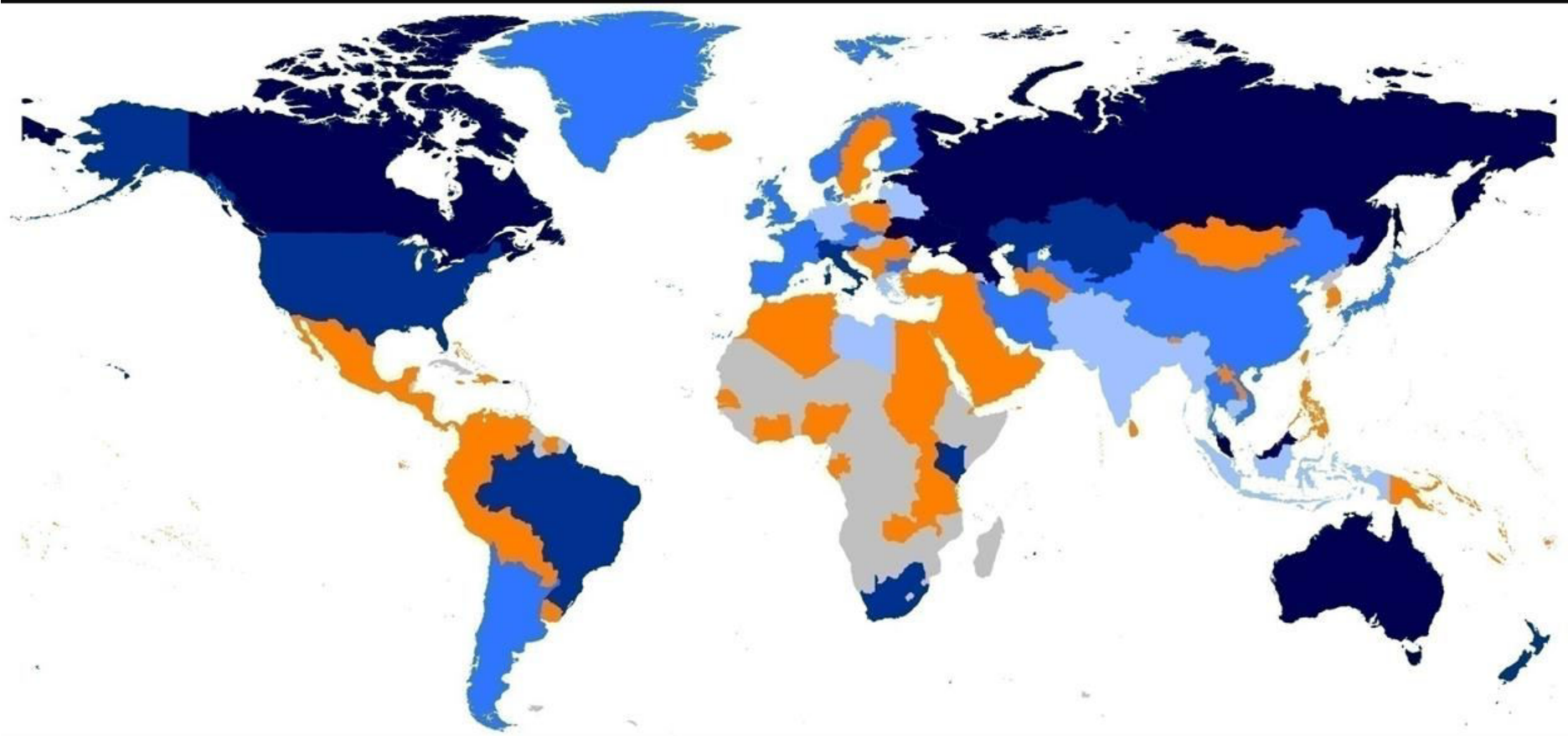
- To give you a broad view on different aspects of drug-related infectious diseases epidemiology at EU level
- To inform you about EMCDDA monitoring of Drug-related infectious diseases (DRID) activities and results
- To provide elements for further discussion of your national monitoring and study plans

Outline of presentation

- Background
- EMCDDA and DRID
- HIV and AIDS
- Viral hepatitis (B, C)
- Behavioural indicators
- TB, anthrax
- Responses
- Combining indicators, HIV risk assessments
- Modelling HCV
- IDU prevalence estimates
- Conclusion

Reference Group to the United Nations on HIV and injecting drug use, 2008

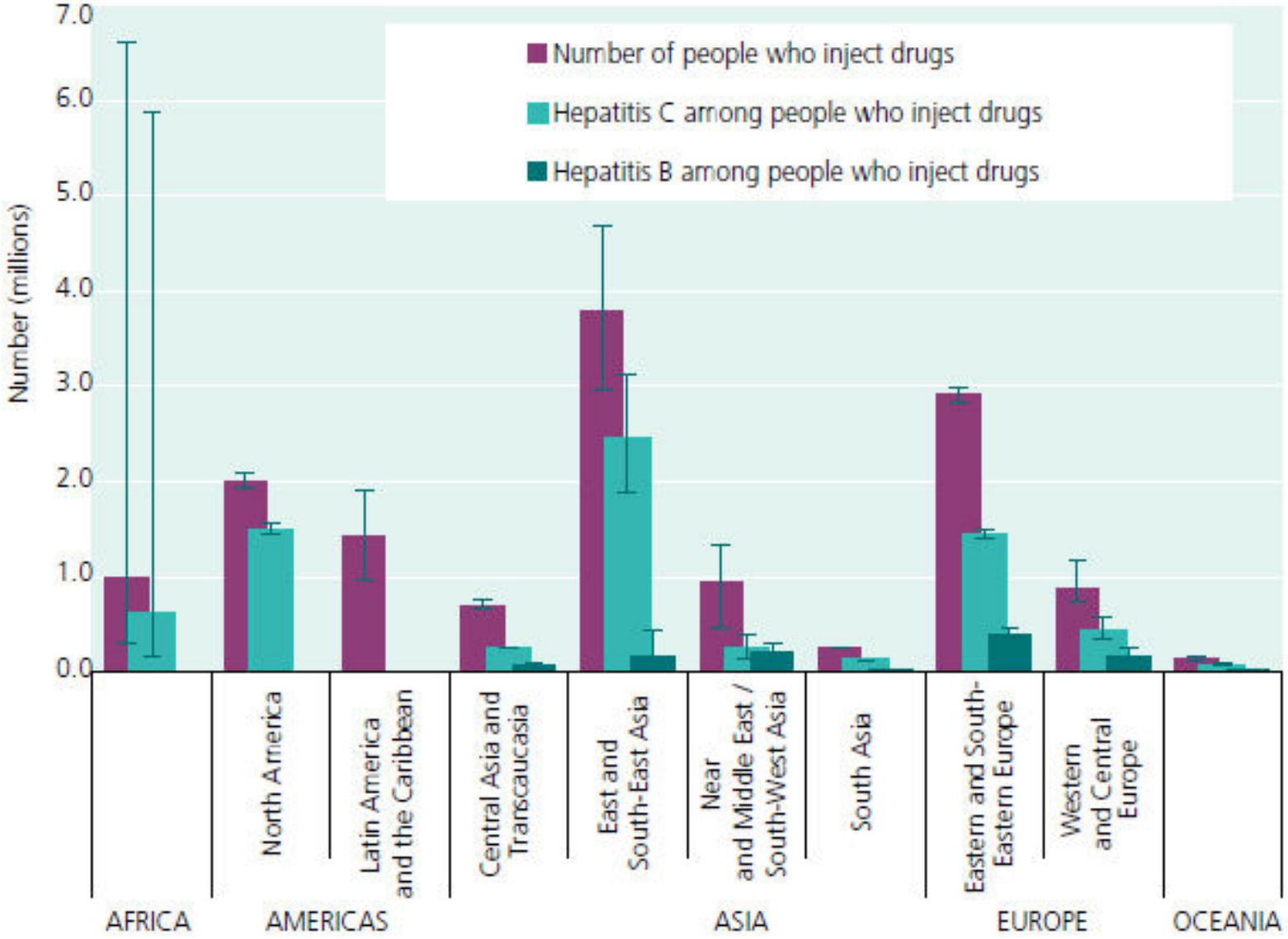
Injecting drug use



Prevalence of IDU (%)		
	0.00 - <0.25	(18 countries)
	0.25 - <0.50	(22 countries)
	0.50 - <1.00	(11 countries)
	>1.00	(10 countries)
Reports of IDU but no estimate in 87 countries		

Fig. 9. **Estimated number of people who inject drugs, and number of people who inject drugs living with hepatitis B and hepatitis C**

UNODC, World Drug Report 2013



Why are IDUs important for public health?

- High HIV / hepatitis seroprevalence ('concentrated epidemics')
- Often multiple co-infections, problems in HIV management, worse prognosis for the liver disease
- Can form 'core group' or pockets of infection for continuing spread to the general population
- Cost-effective to screen, prevent and treat

People who inject drugs (PWID) - issues

- HIV, hepatitis C, hepatitis B/D/A, TB, STIs, bacterial infections
- Overdose, OD death
- Malnourishment, dental problems etc.
- Need specialist and multidisciplinary care
- Homelessness, social exclusion, mental health problems, legal status
- Repeated arrests, imprisonment, fear, ‘hidden population’
- Stigma /discrimination also by health workers
- Less access to (life-saving) treatment

Changes in epidemiological landscape

- Less injecting, less heroin use
- PWID are often an ageing cohort
- More stimulant use (more risks?)
- Economic crisis – homelessness /marginalisation
- Long-term HIV decline – but new outbreaks
- Hepatitis B – universal vaccination
- Hepatitis C – high prevalence, new treatments, treatment for prevention?
- Anthrax, wound botulism, TB, STIs, other

EMCDDA AND DRID (METHODS)

European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)

"To provide the Community and EU Member States with factual, objective, reliable and comparable information at European level concerning drugs and drug addiction and their consequences"

Methods:

- Reitox National Focal Points (NFPs), national experts.
- Annual reporting to EMCDDA (national reports, standard templates, questionnaires).
- Expert groups and ad hoc working groups.

EMCDDA Annual Report and Statistical Bulletin:

- Available at www.emcdda.europa.eu

European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)

Structure:

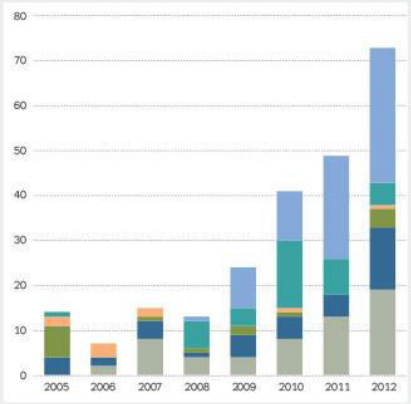
- Prevalence, consequences and data management (EPI)
- Supply reduction and new trends (SAT)
- Interventions, best practice and scientific partners (IBS)
- Policy, evaluation and content coordination (POL)
- Reitox coordination of EU network of national focal points
- Administration, Communication, ICT and Direction

European drug report package - EDR 2013

A comprehensive analysis on the drugs problem in Europe

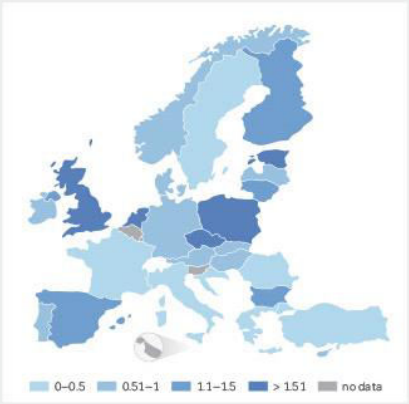
Trends and developments

providing a top-level analysis of key developments



Statistical bulletin

containing full data arrays, explanatory graphics and methodological information



Country overviews

national data and analysis at your fingertips

Perspectives on drugs

interactive windows on key issues

The EU ‘Council Resolution of 10 December 2001 on the implementation of the five key epidemiological indicators on drugs‘ (EPI unit)

1. Extent and pattern of drug use in the general population.
2. Prevalence of problem drug use.
3. Demand for treatment by drug users.
4. Drug-related deaths and mortality of drug users.
5. Drug-related infectious diseases (HIV, hepatitis B/C, other).

Objectives of DRID monitoring (EMCDDA 2011)*

- Surveillance of infections in injecting drug users – detect trends, early warning
- Identify ‘hot spots’ and high-risk subgroups to inform action by member states
- Understand factors related to spread (risk, protective) to inform prevention
- EU / national networking for sharing of expertise and collaboration

*Wiessing L, DRID expert meeting 2011

Drug Related Infectious Diseases (DRID): projects and activities

- Collecting and reporting DRID data (HIV, hepatitis B/C, other) at EU level (monitoring)
- Annual meetings of EU DRID expert network (country experts)
- DRID modelling network – data analyses, scientific publications
- Develop methods: DRID toolkit, behavioural surveillance
- Collaborate with international partners (EU Commission, ECDC, WHO, UNODC, UNAIDS…)
- Collaboration and support of national studies, expert meetings

Overview activities DRID 2013

- DRID Toolkit – 3 modules (behavioural indicators, example questionnaire, methods for biobehavioral surveys)
- Behavioural pilot data report (in progress)
- Strategy review meeting
- Modelling network studies
- Outbreaks activities (HIV, anthrax)
- HCV systematic review
- Project IDUs / non-IDUs and stimulants
- DRID EU expert meeting (16-18 October)

Main data formats DRID data

- Case reporting or notifications (counts of cases and rates in general population)
- Prevalence data (rates in the risk group e.g. % infected among PWID)

- Prevalence data can be based on real prevalence studies (e.g. HIV prevalence in a convenience sample of PWID), or on routine diagnostic testing data (positivity rates among those being tested)

Core data collection tool (ST9)

- **Standard Table 9** (ST9) is the data collection tool for DRID data (HIV, HCV, HBV...) in the online EMCDDA data reporting system 'Fonte', it has four parts (data forms):
- **ST9 part 1** - study methods
- **ST9 part 2** - prevalence data results (numerator, denominator, percentage), it can be filled in more than once for each region, virus, covered by the study
- **ST9 part 3** - behavioural data was recently updated, this can also be filled in repeatedly for sub-regional results of the study
- **(ST9 part 4)** - to collect hepatitis notifications data, but this data collection is now handed over to ECDC, who already provide the European HIV/AIDS case reporting data to the EMCDDA

Main indicators ST9

- HIV prevalence (all, young, new PWID)
- HIV case reporting

- HCV-ab prevalence (all, young, new PWID)
- Hepatitis C notifications

- HBV prevalence (aHBc, aHBs, HBsAg)
- Hepatitis B notifications

ST9 indicators (2)

- Prevalence / diagnostic positivity rates
  - By: region, gender, age groups (<25, 25-34, >=35) years injected, opioids / other drugs, first treatment demand (TDI data), ever in prison, HBV vaccination status, HCV RNA+, HCV genotypes
- Incidence
  - Acute notifications hepatitis C and B (not chronic!)
  - HIV case reports for IDUs
  - Prevalence in new IDUs (injecting < 2 years)

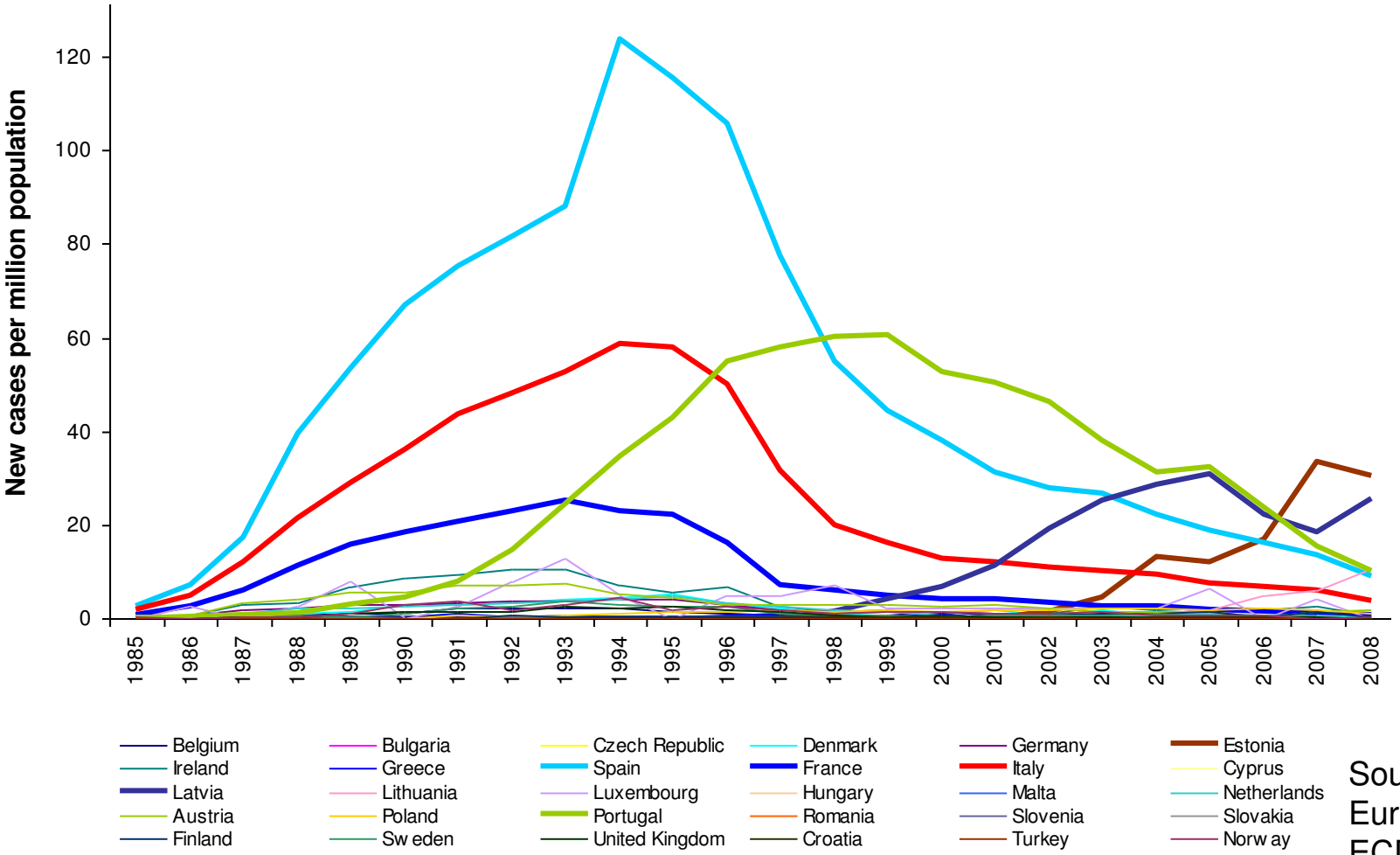
National reports

- In addition to the structured reporting of secondary data to EMCDDA through Fonte and ST9 (and other standard tables for other areas), National Focal Points send a National Report annually to EMCDDA
- This report is a tool for textual description on a wide range of national topics regarding drug use, including infectious diseases
- It allows for reporting some other data not reported through Fonte, e.g. short paragraphs with summary data on STIs, TB, hepatitis A etc.
- Problems of comparability and overlap with Fonte, the national reports are currently being evaluated and will be revised

HIV AND AIDS

(RESULTS)

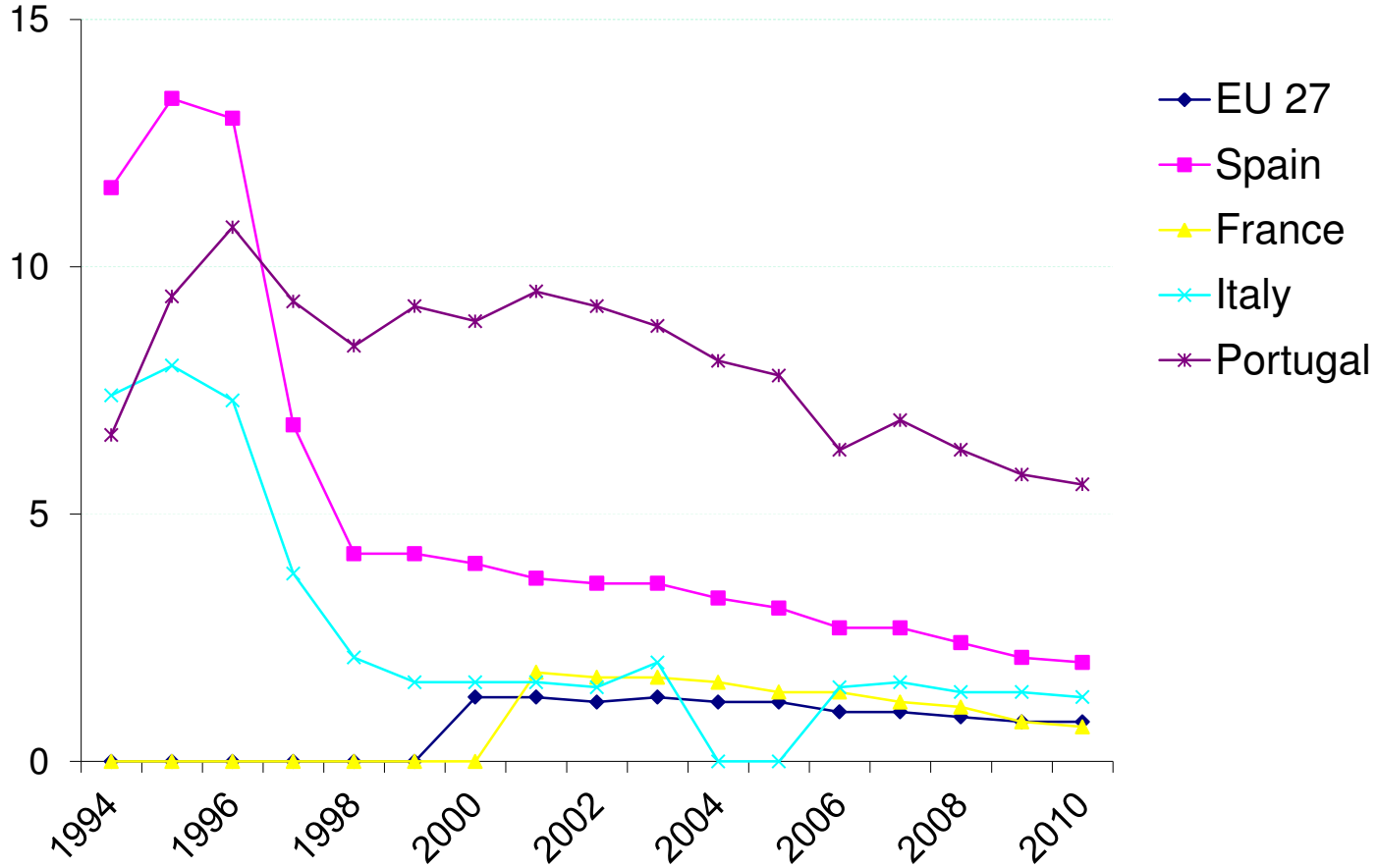
AIDS incidence among injecting drug users by country and year of diagnosis, cases / million, 1985 to 2008



Sources: EuroHIV, ECDC/WHO

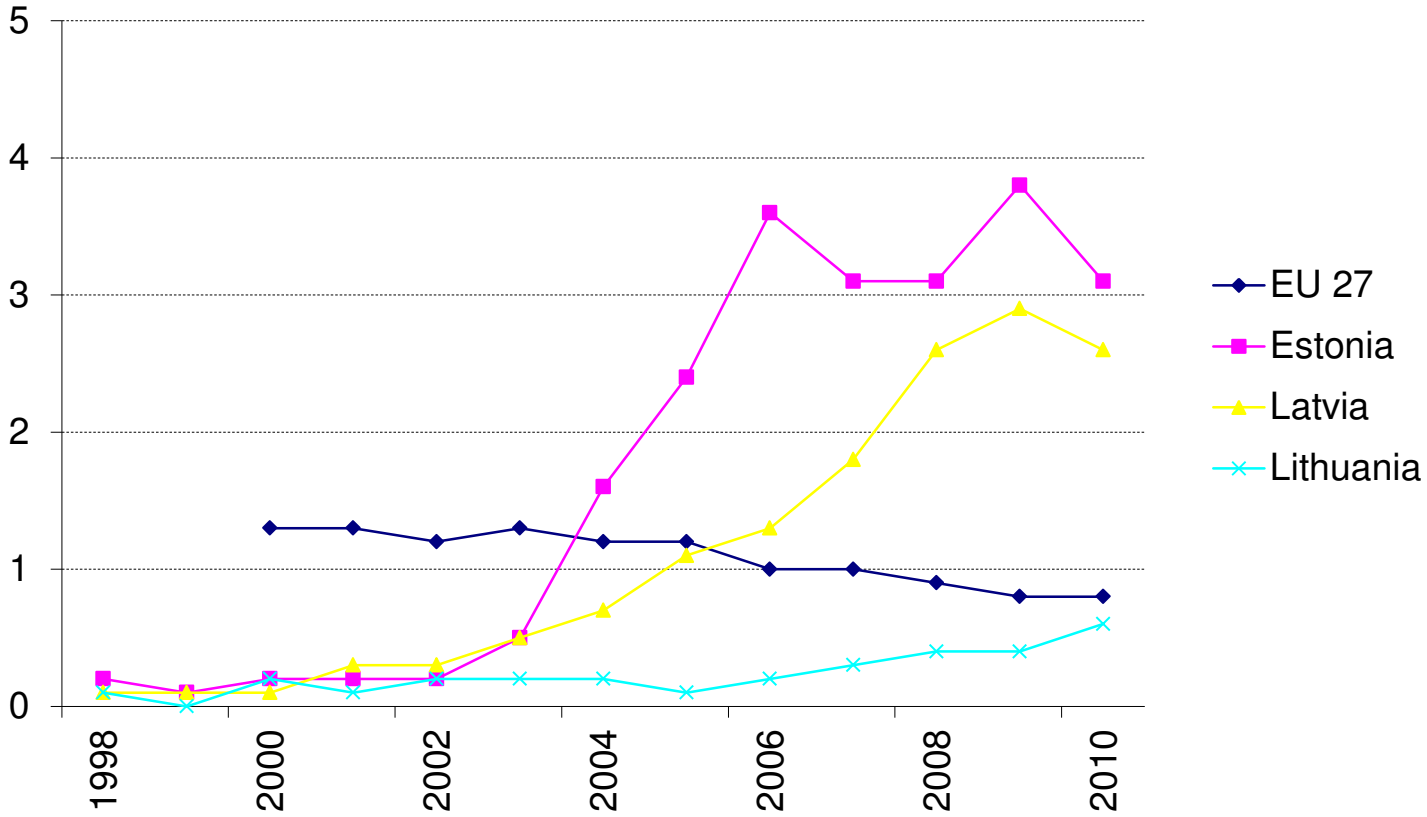
Standardised HIV/AIDS death rate per 100000 inhabitants, 1994-2010

Source: Eurostat HIV-AIDS (ICD 10 B20-B24)



Standardised HIV/AIDS death rate per 100000 inhabitants, 1998-2010

Source: Eurostat HIV-AIDS (ICD 10th codes B20-B24)

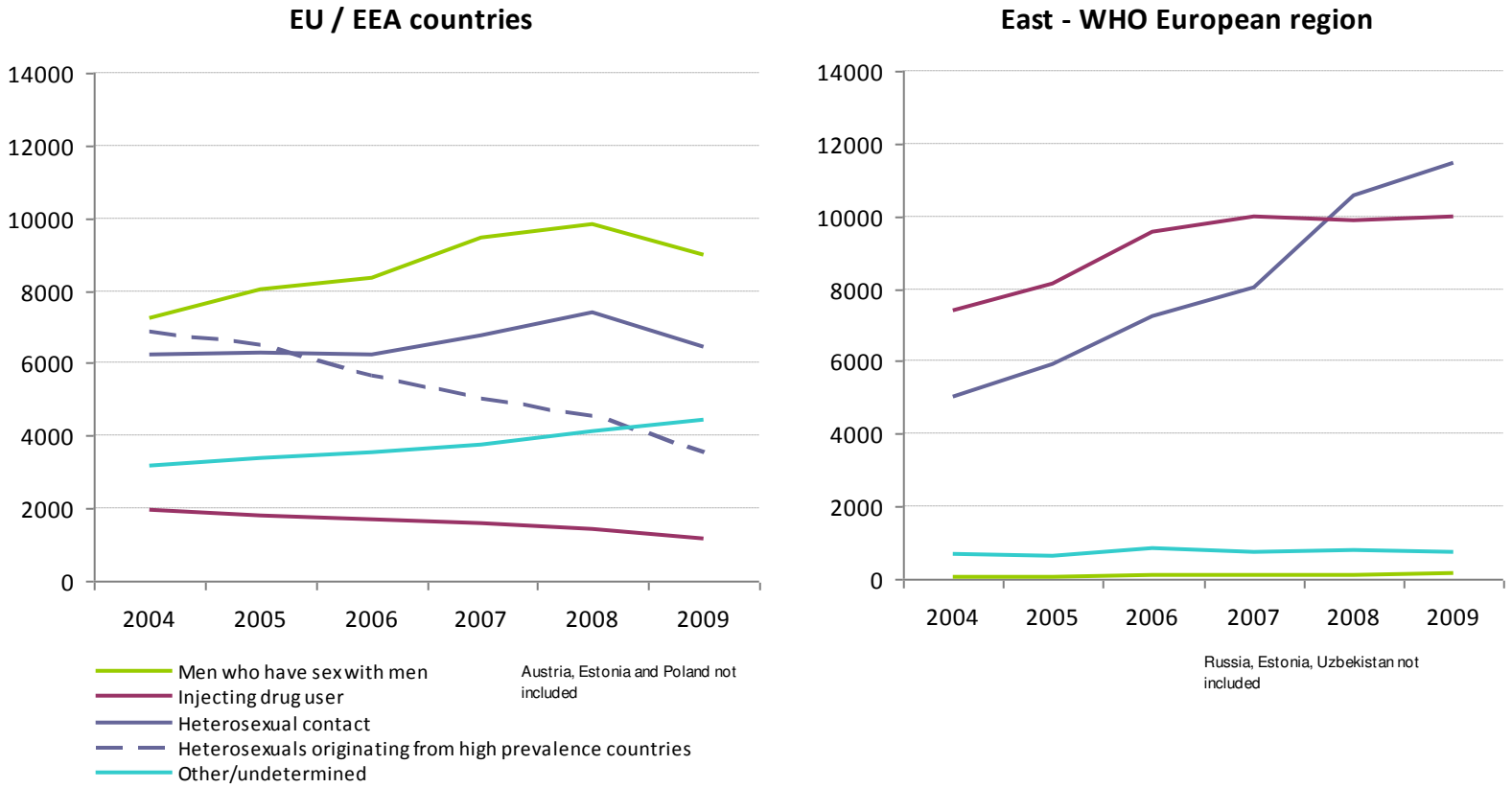


HIV case reporting data

Newly diagnosed cases are used as an indicator for incidence, but caution…

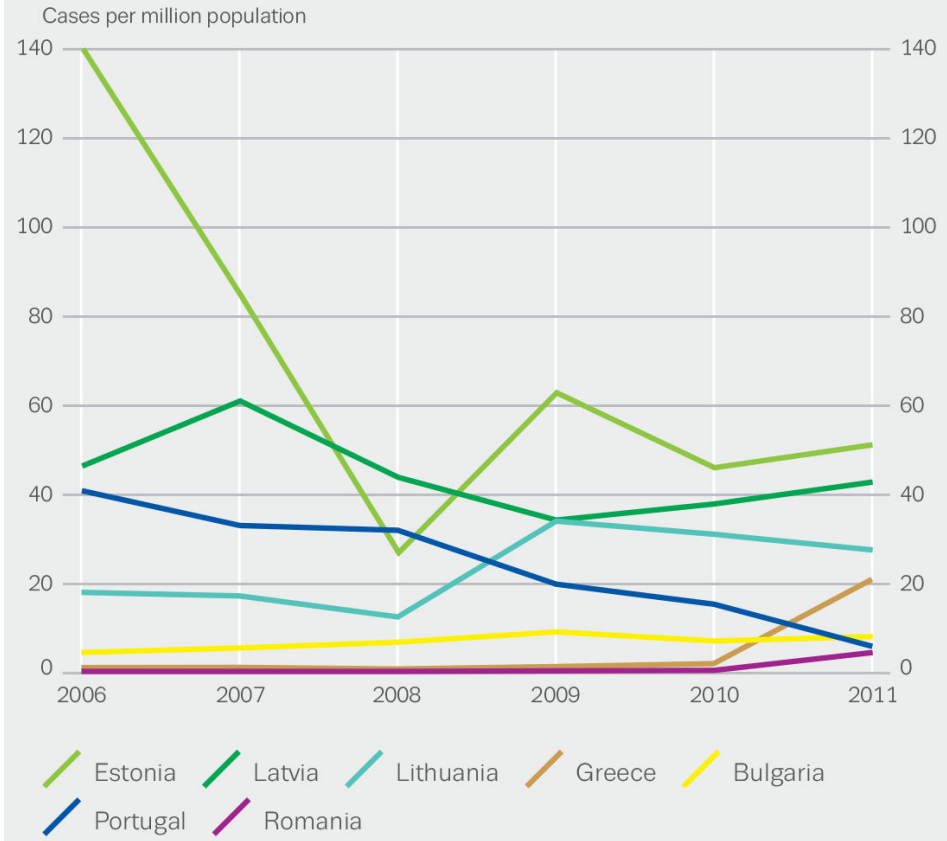
- Time from infection to diagnosis can be many years
- Many late diagnoses of HIV (near AIDS)
- Underreporting, reporting delay
- May be biased by changes in testing frequency
- Data quality problems including risk group misclassification (e.g. under-reporting of injecting history in PWID)

HIV infections newly diagnosed in the WHO European region: main risk categories by year of diagnosis (2004-2009), not adjusted for reporting delay



Source: ECDC/WHO 2010

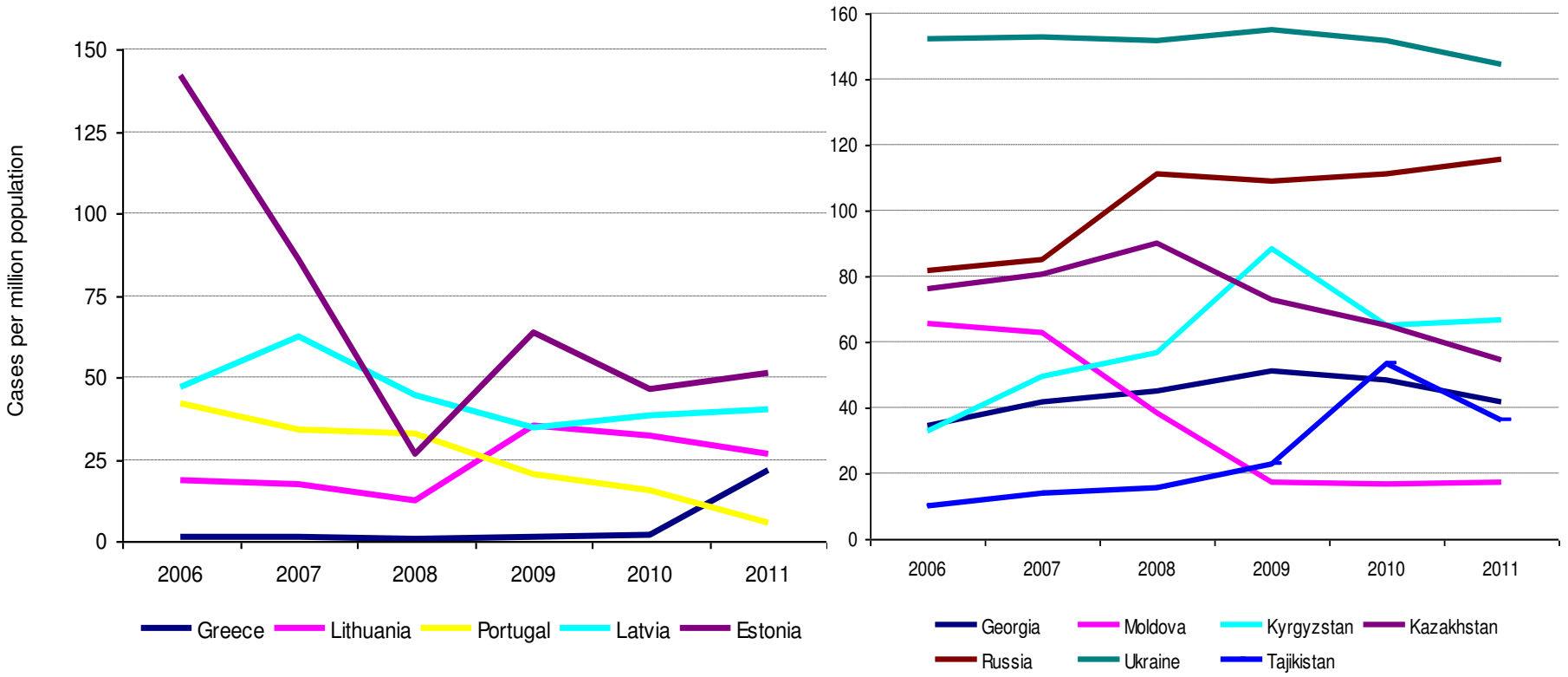
Disruption in decline in new HIV diagnoses



NB: Newly diagnosed HIV infections among injecting drug users in countries reporting the highest rates in 2011 (source: ECDC).

2011 HIV outbreaks in Greece and Romania continued into 2012

HIV cases newly diagnosed in IDUs per million population, Eastern countries of the WHO European region 2006-2011

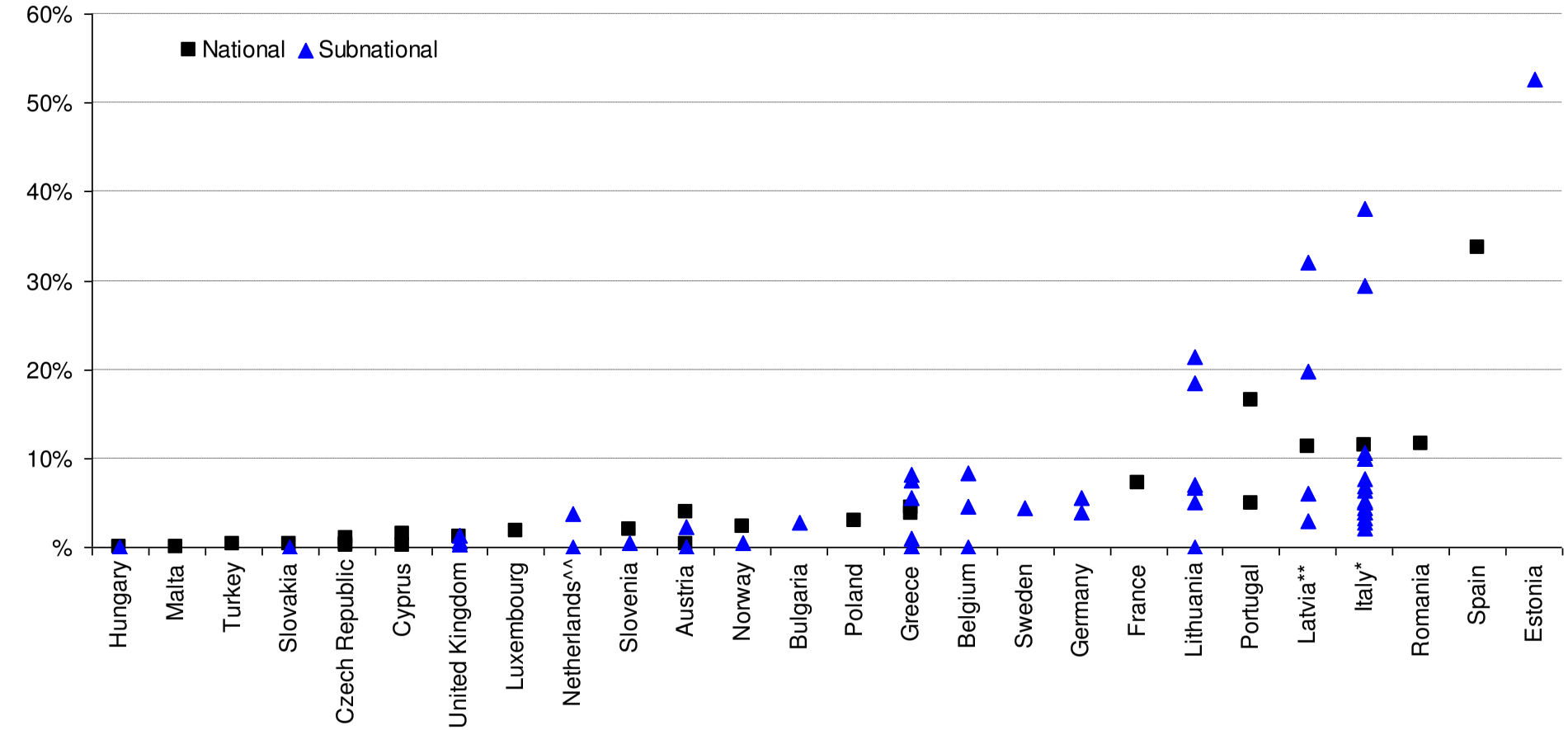


Sources: ECDC/WHO 2012; Wiessing et al., Eurosurveillance, 2008

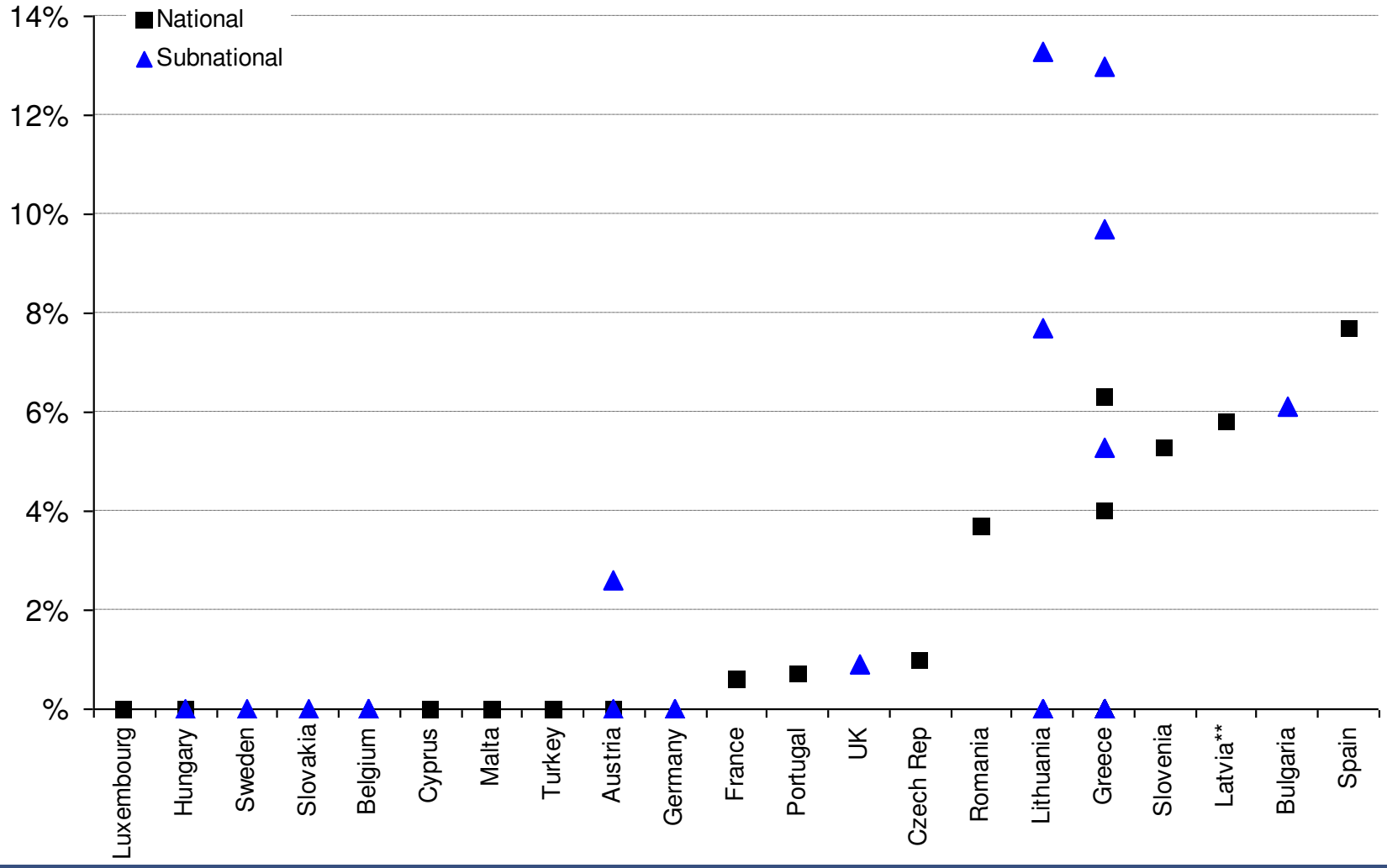
HIV prevalence data

- Convenience samples of IDUs (venue based, time location sampling, snowball sampling)
- Respondent Driven Sampling (probability sample)
- Difficult to have national coverage with prevalence surveys
- Alternative is to use routine diagnostic ‘prevalence’ data, e.g. those tested in drug treatment centres, but several limitations e.g may exclude ‘known positives’
- See guidance in draft EMCDDA ‘DRID protocol’ at www.emcdda.europa.eu

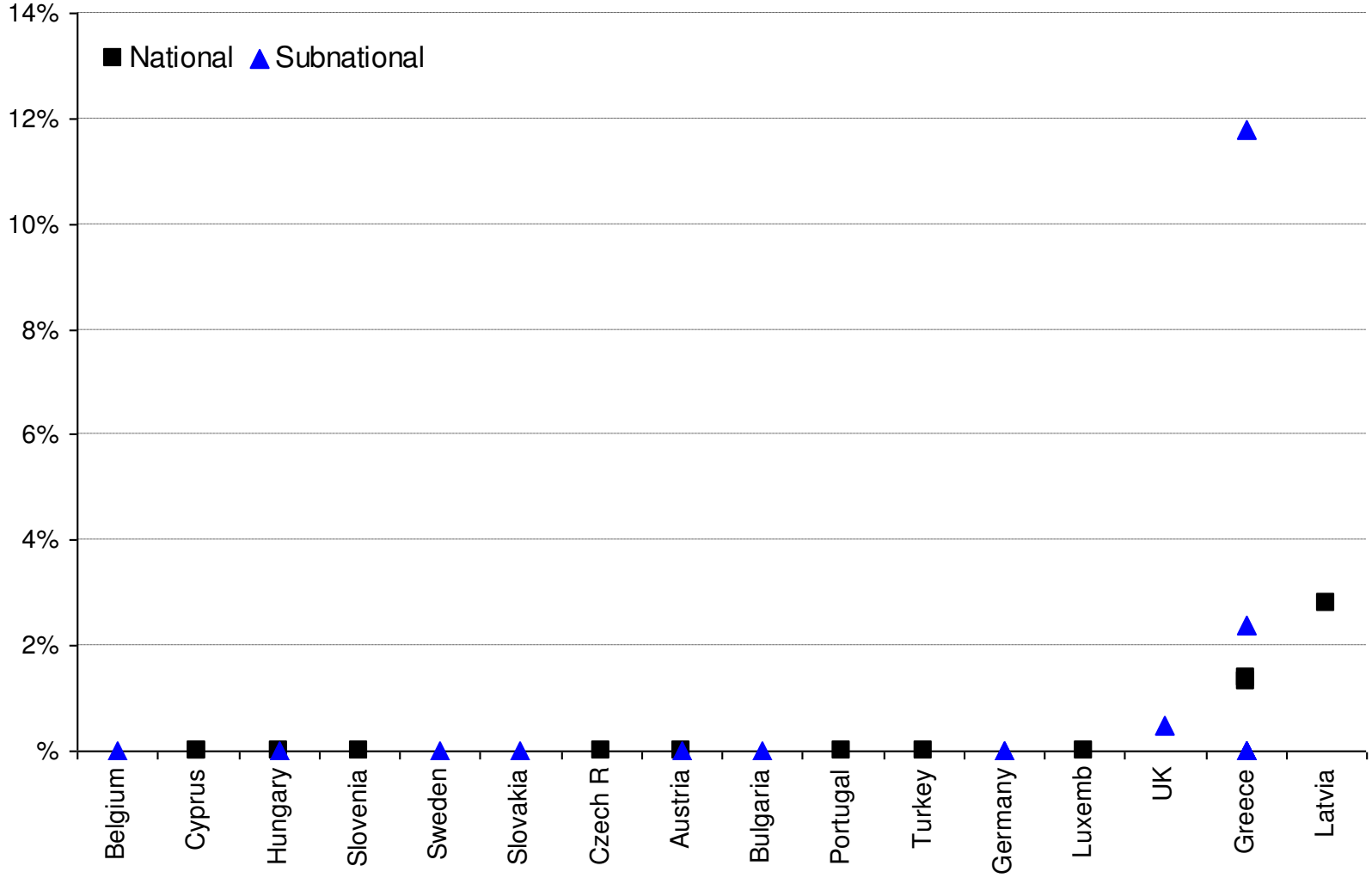
HIV prevalence among injecting drug users – studies with national and subnational coverage 2010-2011



HIV prevalence in young injecting drug users (< age 25), studies with national and subnational coverage 2010-2011



HIV prevalence in new injecting drug users (injecting < 2 years), national and subnational studies 2010-2011

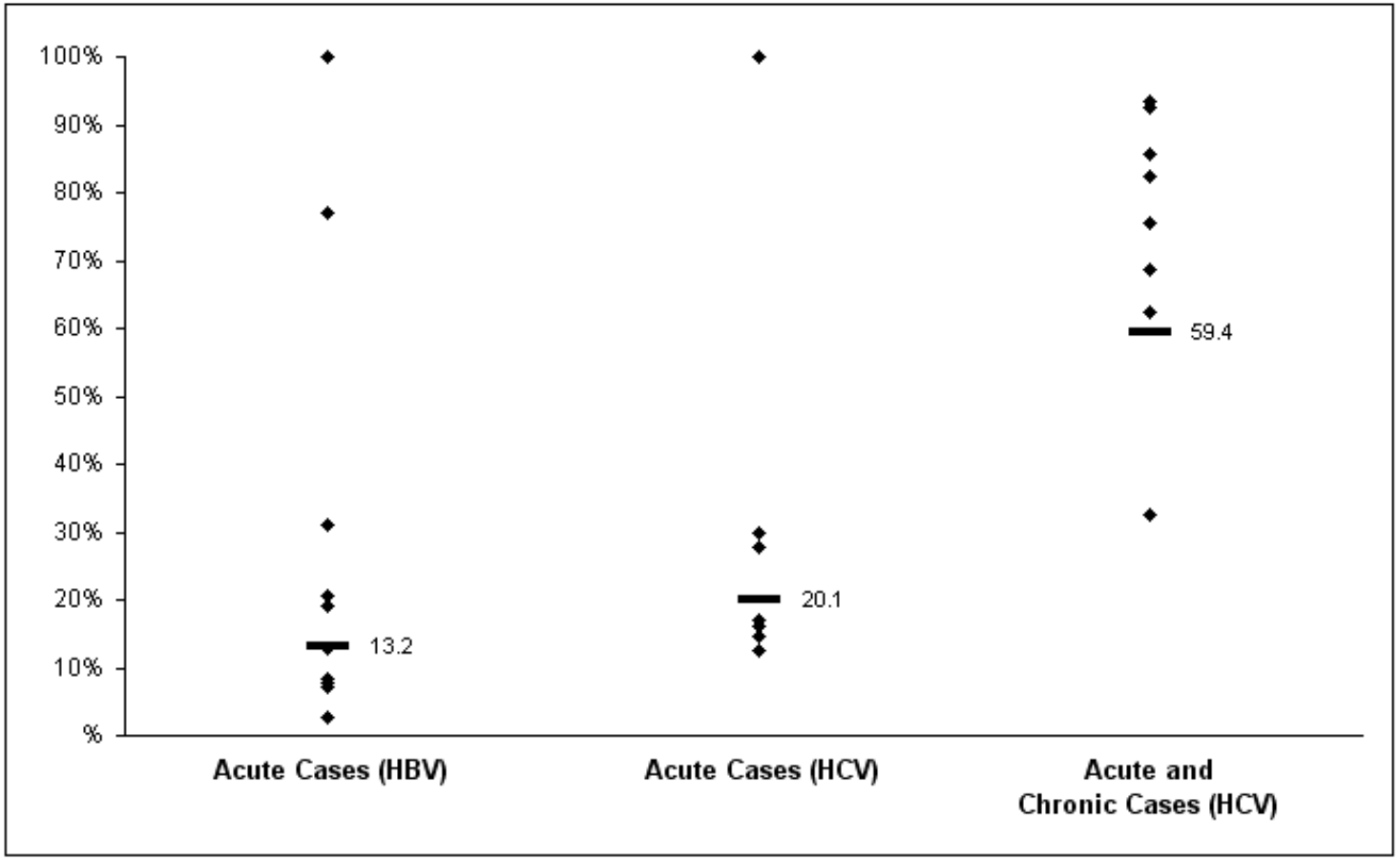


VIRAL HEPATITIS (B,C)

Hepatitis notifications: strengths and limitations

- Mostly mandatory notification of new diagnoses, HCV recently added in most countries
- Hepatitis B/C notifications data are unreliable (70-80% of acute cases are asymptomatic; under-reporting can be 50-98%) (Hagan H et al. J Urban Health 2002; Hansen et al. Ugeskr Laeger. 2008)
- Absolute numbers and rates are severe underestimates and should not be used to compare prevalence. Trends in chronic cases may mainly reflect testing practice and not incidence
- Difficulties in case definition and acertainment of acute cases
- Proportion of IDU among cases with known risk may be a more reliable indicator. Caution as risk information often missing, and the proportion of IDUs can still depend on differential screening practices (although in acute cases perhaps less so)

% IDUs among HCV and HBV notifications with known risk factor information, 2010

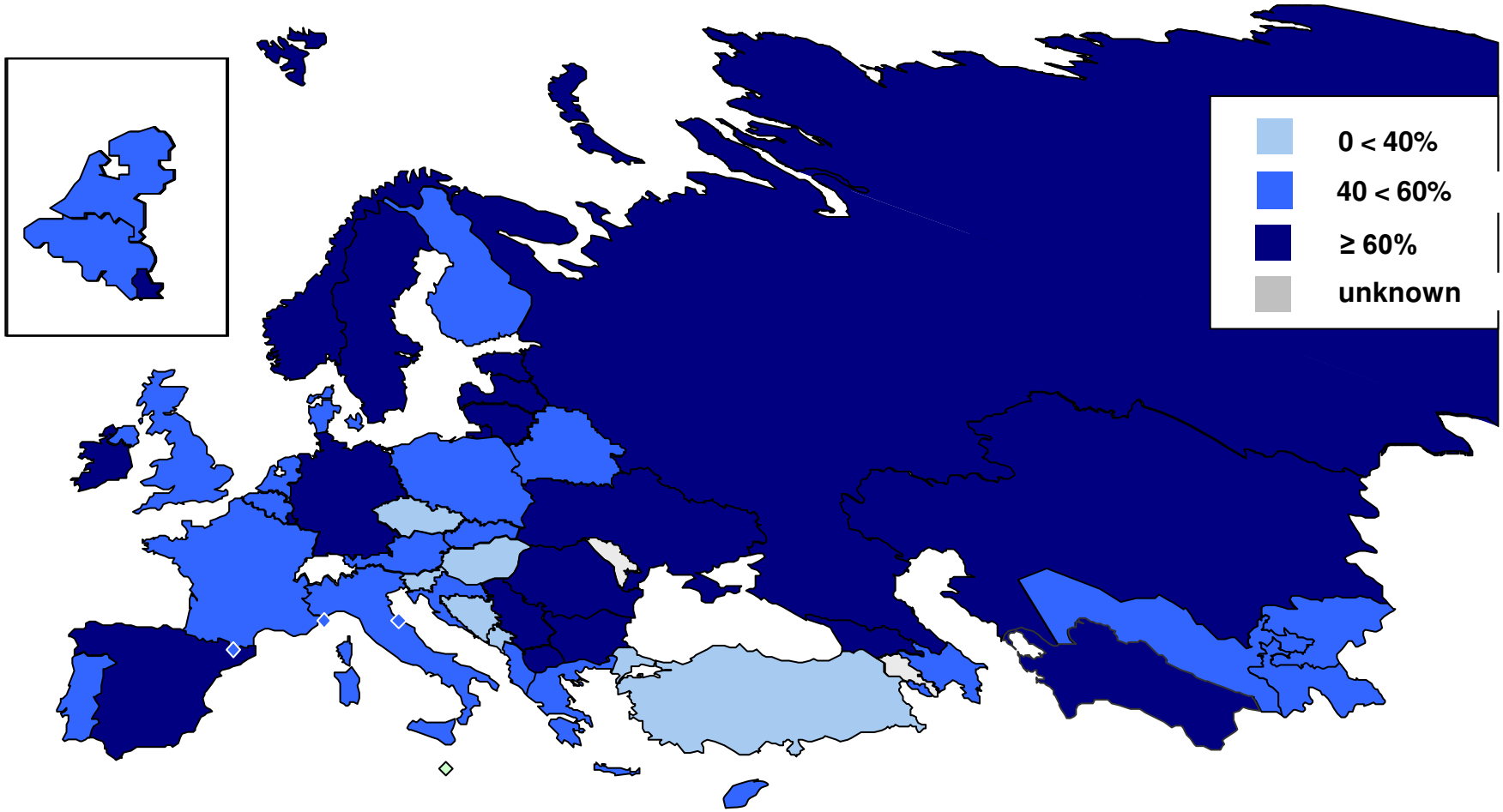


Note:

Overall percentage (large bar).

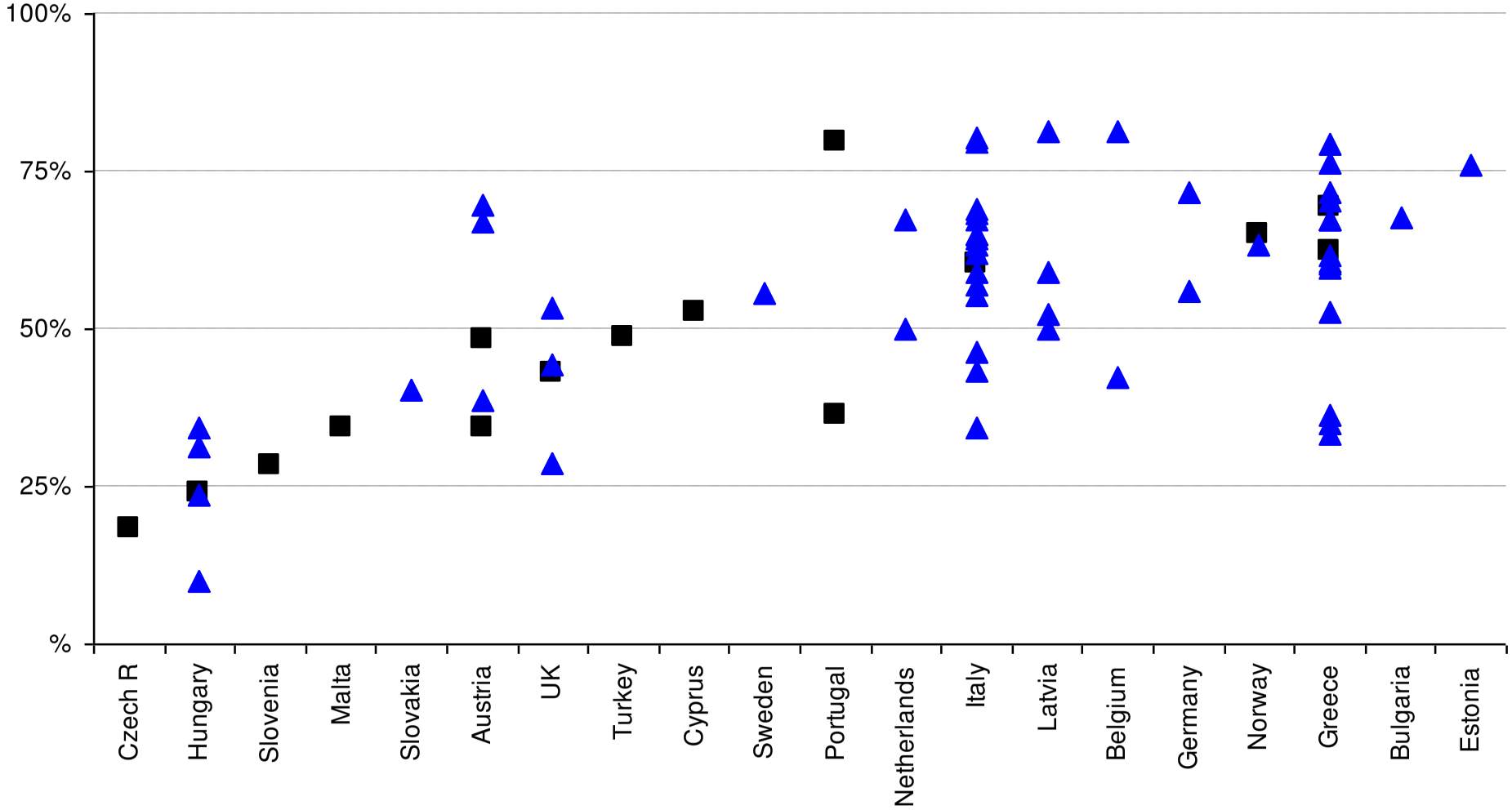
Data from 8 countries (HCV), 11 countries (HBV)

Hepatitis C virus antibodies prevalence among people who inject drugs in Europe, 2008-2009 or most recent data available

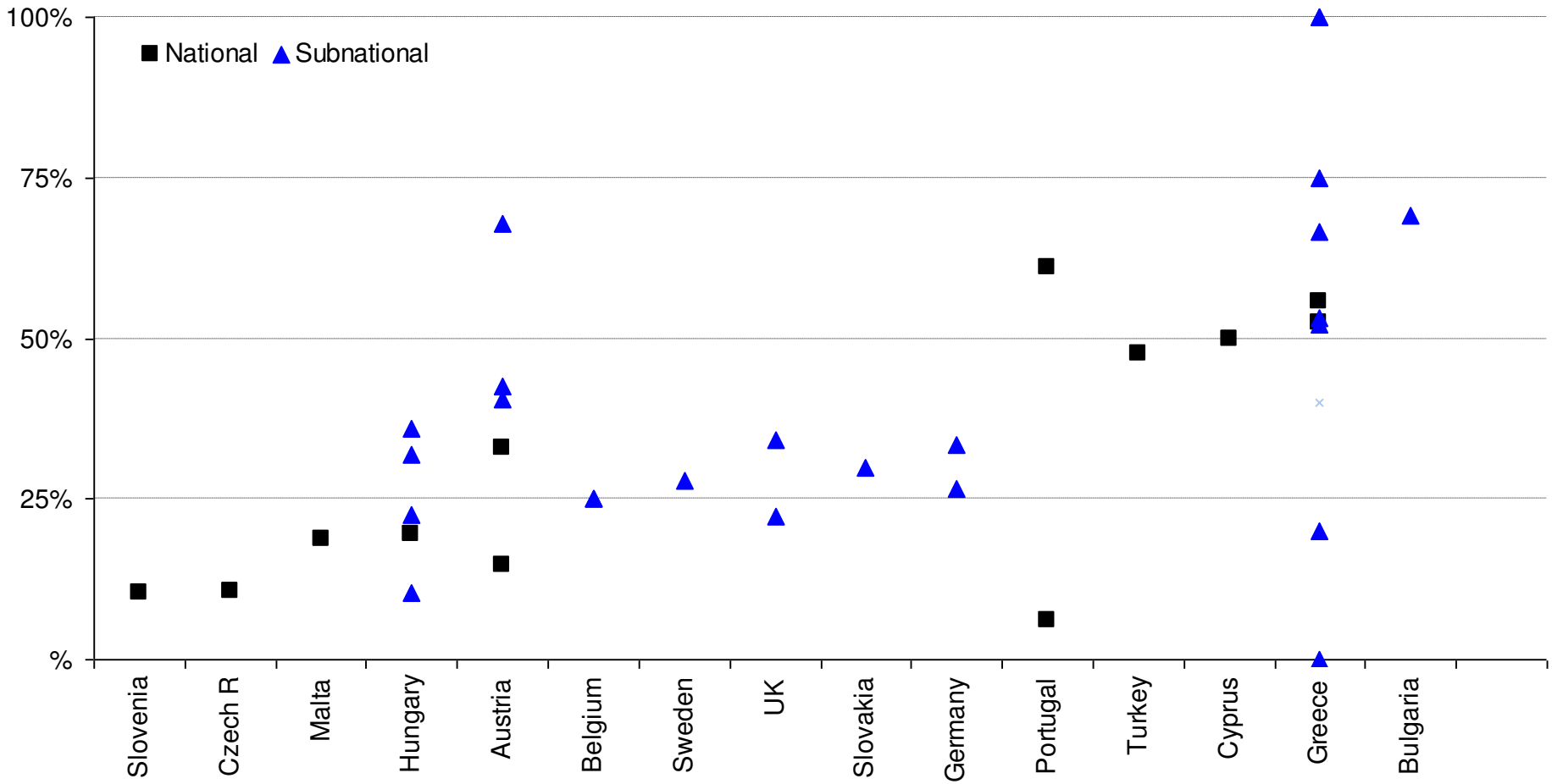


Source: EMCDDA and Reitox National Focal Points (EU); IHRA, EHRN and WHO/Europe (other countries)
Colour indicates midpoint of national data, or if not available, of local data.

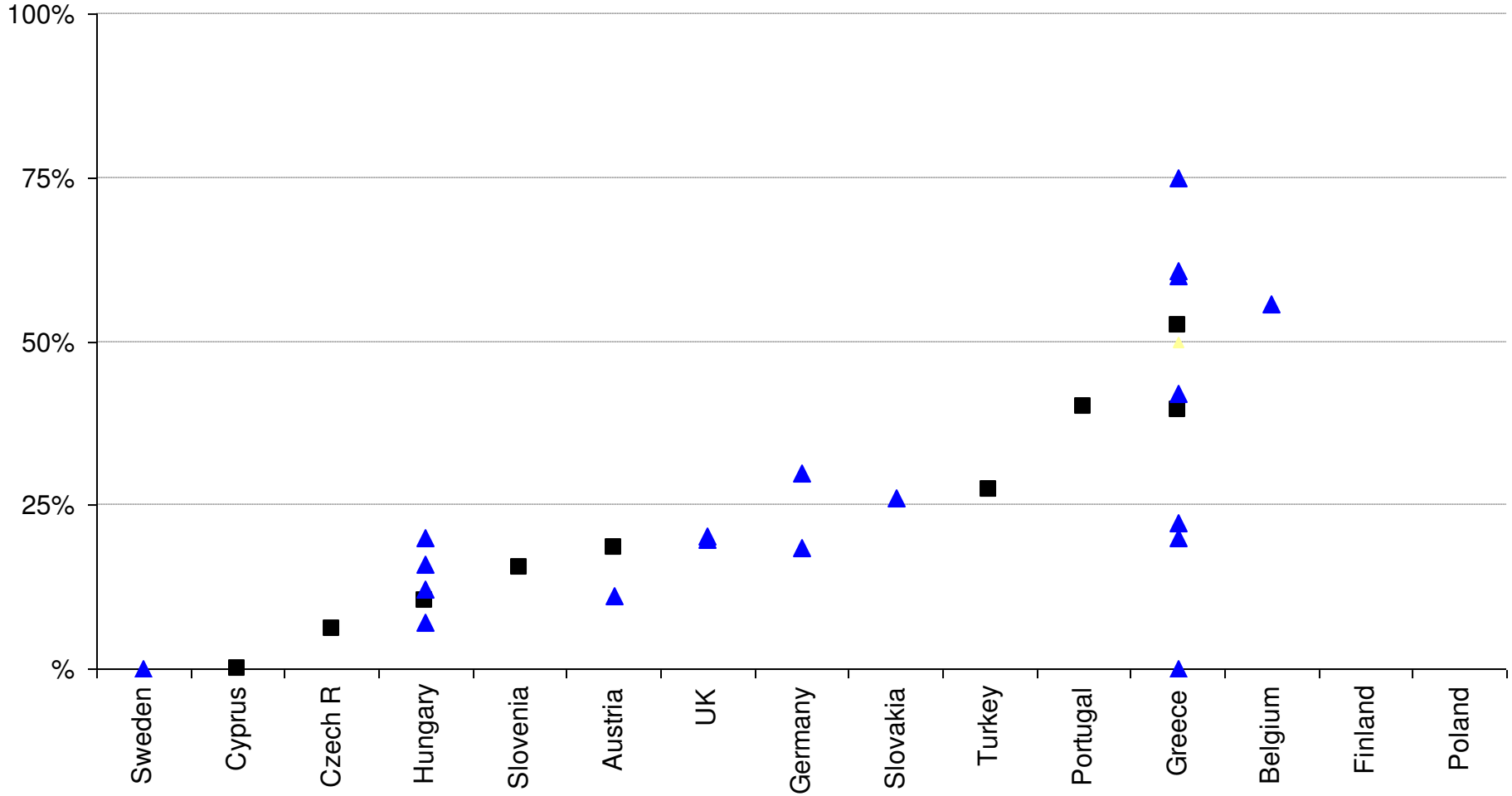
HCV antibody prevalence among PWID – studies with national and subnational coverage 2010-2011



HCV-ab prevalence in samples of young PWID (under age 25), national & subnational studies 2010-2011



HCV-ab prevalence in samples of new PWID (<2 years), national & subnational studies 2010-2011



Trends in HCV prevalence in PWID at national or subnational level, 2006-2011

- Declining HCV ab prevalences in PWID recorded in 4 countries (Italy, Portugal, Sweden, Norway)
- Increases reported from 8 (Austria, Bulgaria, Cyprus, Hungary, Greece, Italy, Romania and UK-E&W)
- Increases among young IDUs (age < 25) in Austria, Bulgaria, Cyprus, Greece and Hungary
- Increases among new IDUs (injecting < 2 yrs) in Greece

EMCDDA annual report 2012; Wiessing etal. Eurosurveillance 2011

BEHAVIOURAL INDICATORS

Behavioural indicators (as revised per 2012, GARP indicators underlined)

4 "Core" indicators (%)

- Sharing used needles/syringes (4wk)
- Sharing other used paraphernalia (4wk)
- HIV tested* (12m)
- HCV tested (12m)

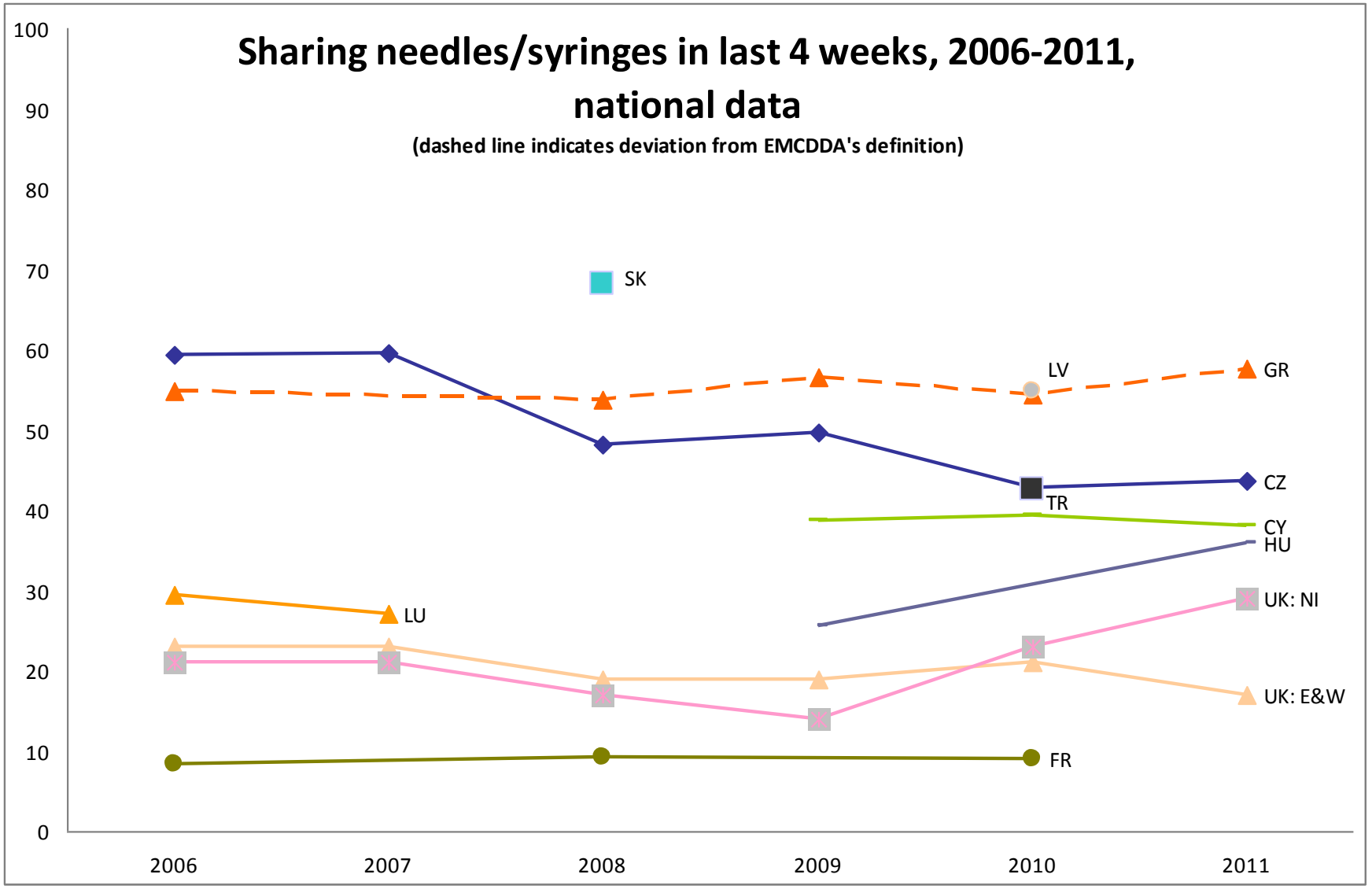
14 "Additional" indicators (%)

- Sterile needle/syringe at last injection (4wk)
- Injecting once per day or more (4wk)
- Paid for sex / sex work (12m)
- Condom use last intercourse (12m)
- More than one sexual partner (12m)
- No. sterile needles for personal use (4wk)
- Opioid substitution treatment (4wk)

+ 29 "Optional" indicators

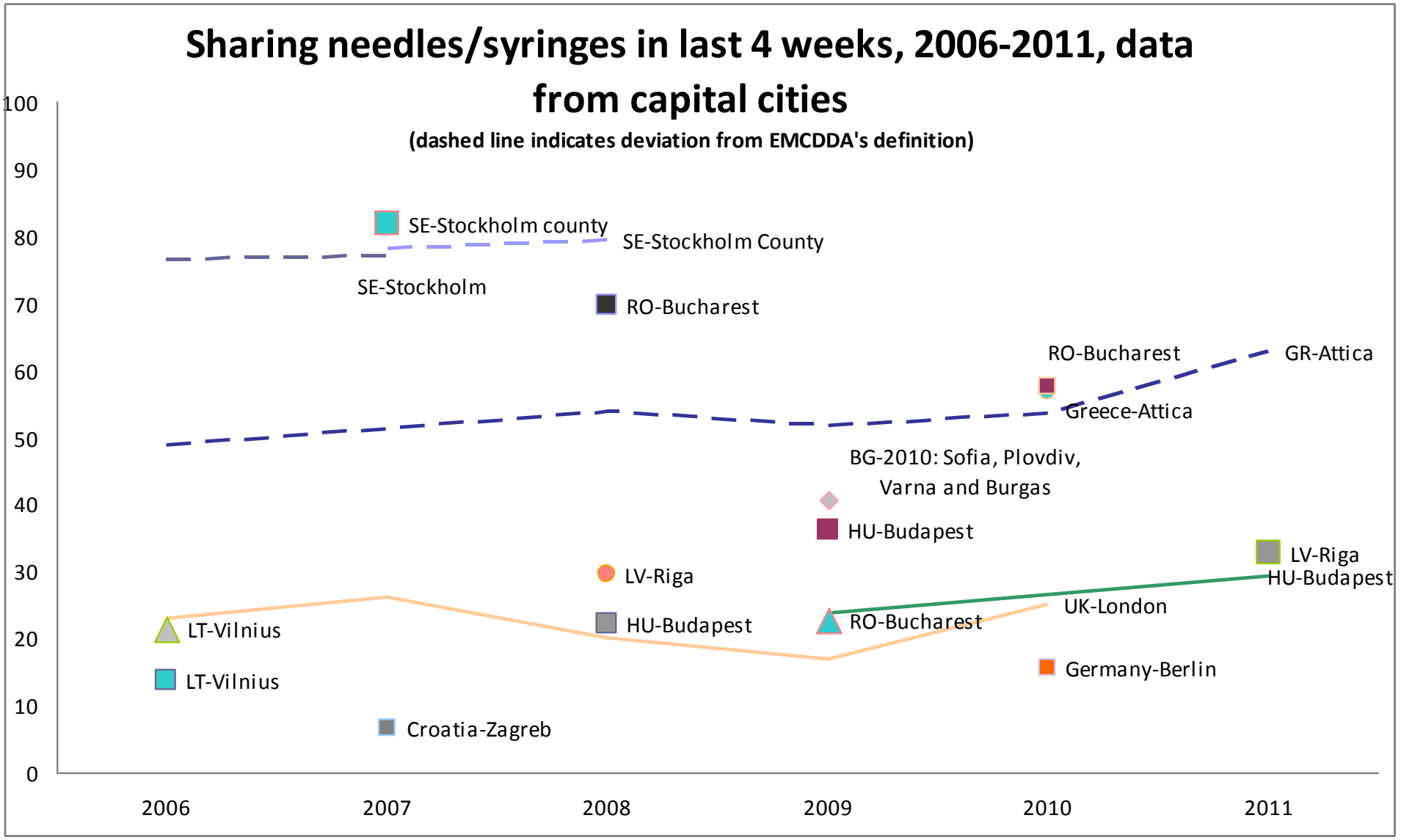
(most are means and medians of Core or Additional indicators or breakdowns by age, gender, etc.)

- Under age 25
- Female
- Less than 2 years since first injection
- Opioids as primary drug (4wk)
- Ever in prison
- Born outside country
- Homeless (12m)


Sharing needles/syringes in last 4 weeks, 2006-2011, national data
(dashed line indicates deviation from EMCDDA's definition)
100
90
80
70
60
50
40
30
20
10
0
2006
2007
2008
2009
2010
2011
SK
LV
GR
CZ
TR
CY
HU
LU
UK: NI
UK: E&W
FR

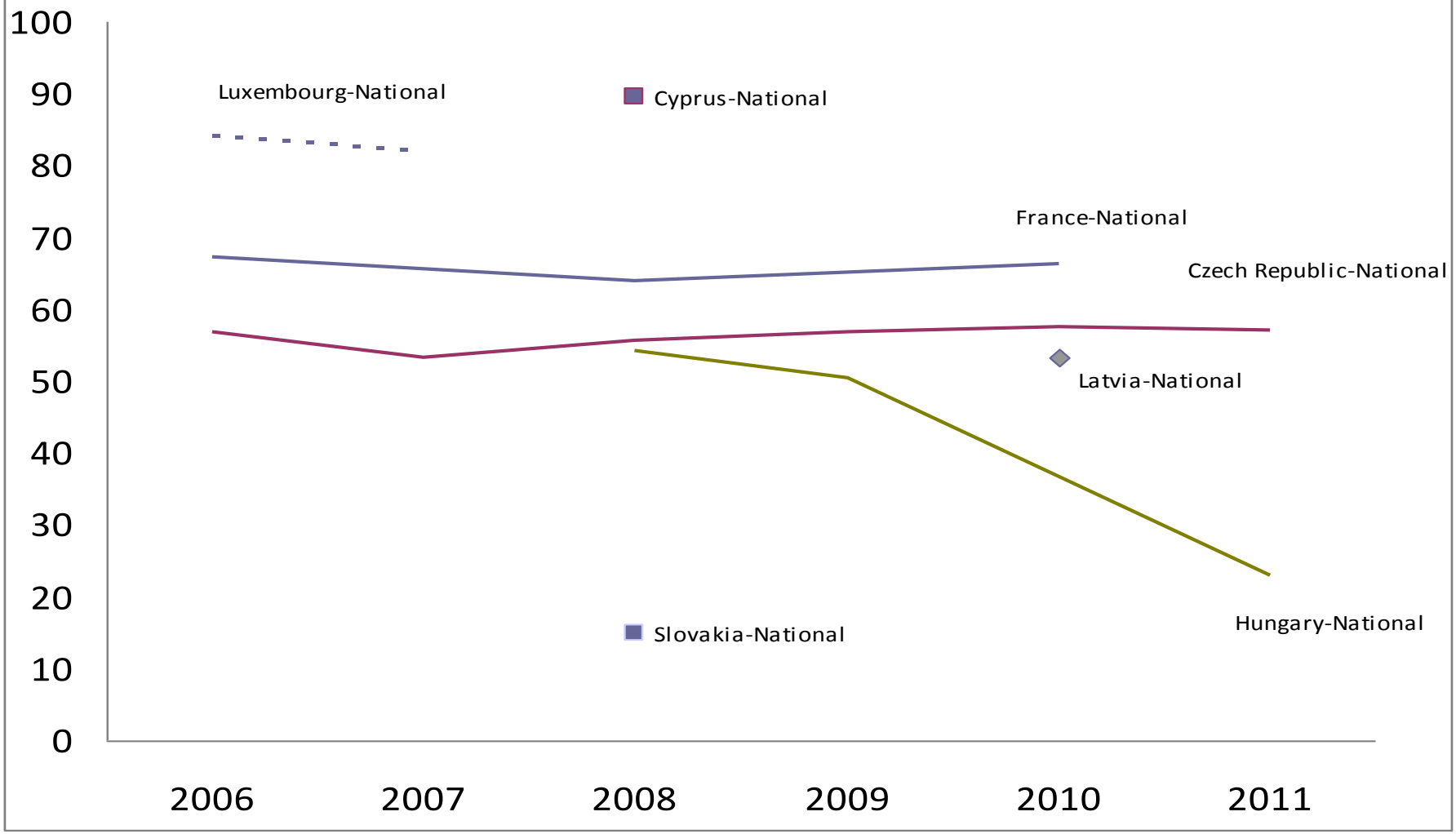
Sharing needles/syringes in last 4 weeks, 2006-2011, data from capital cities

(dashed line indicates deviation from EMCDDA's definition)



Percentage of PWID tested for HIV in last 12 months, 2006 to 2011, National data

(dashed lines/dot show deviation from EMDDA's definition)



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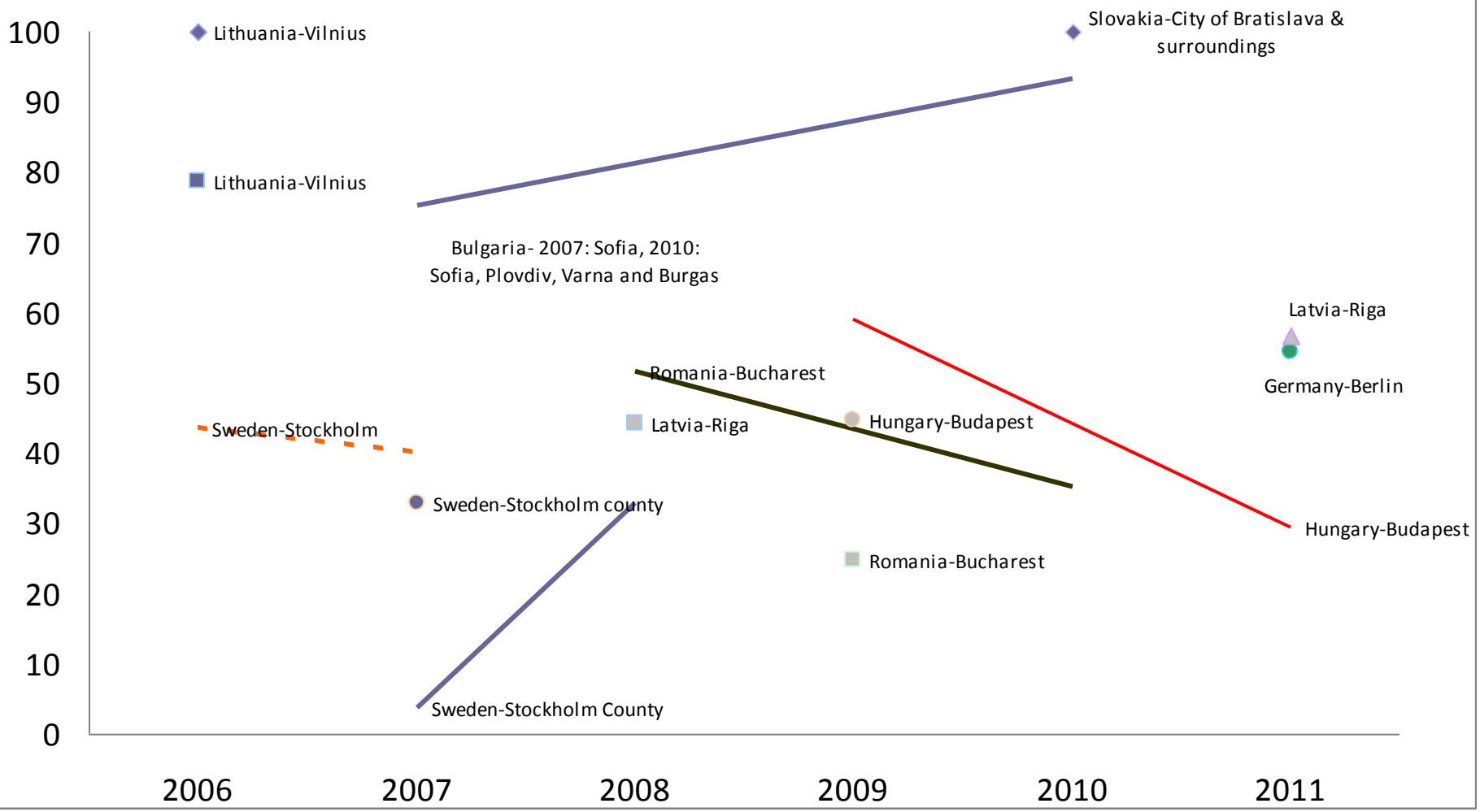


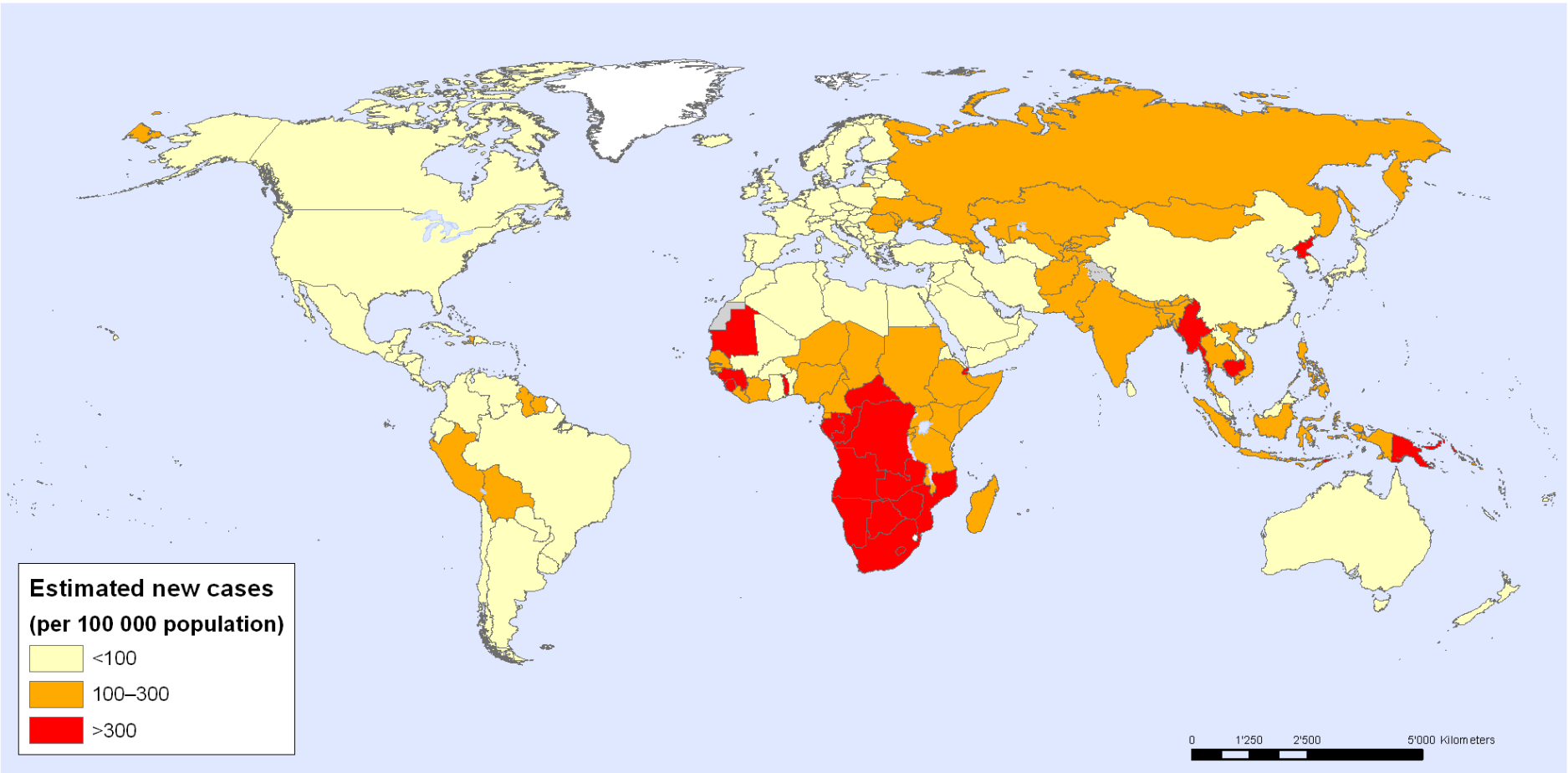
16 studies / 10 countries

TB AND ANTHRAX

Tuberculosis basic facts - CDC

- *Mycobacterium tuberculosis*
- usually attack the lungs, but can attack any part of the body such as the kidney, spine, and brain.
- If not treated properly, TB disease can be fatal
- Airborne spread (cough, sneeze..)
- 2 forms: latent TB infection (no symptoms and not infectious) and TB disease (sick, infectious, immunesystem unable to stop the bacterium)
- Risk factors: HIV infection; recently infected with TB; (in the last 2 years); other health problems (e.g. diabetes); alcohol abuse or illegal drug use; not treated correctly for TB infection in the past

Tuberculosis, estimated new cases, 2010

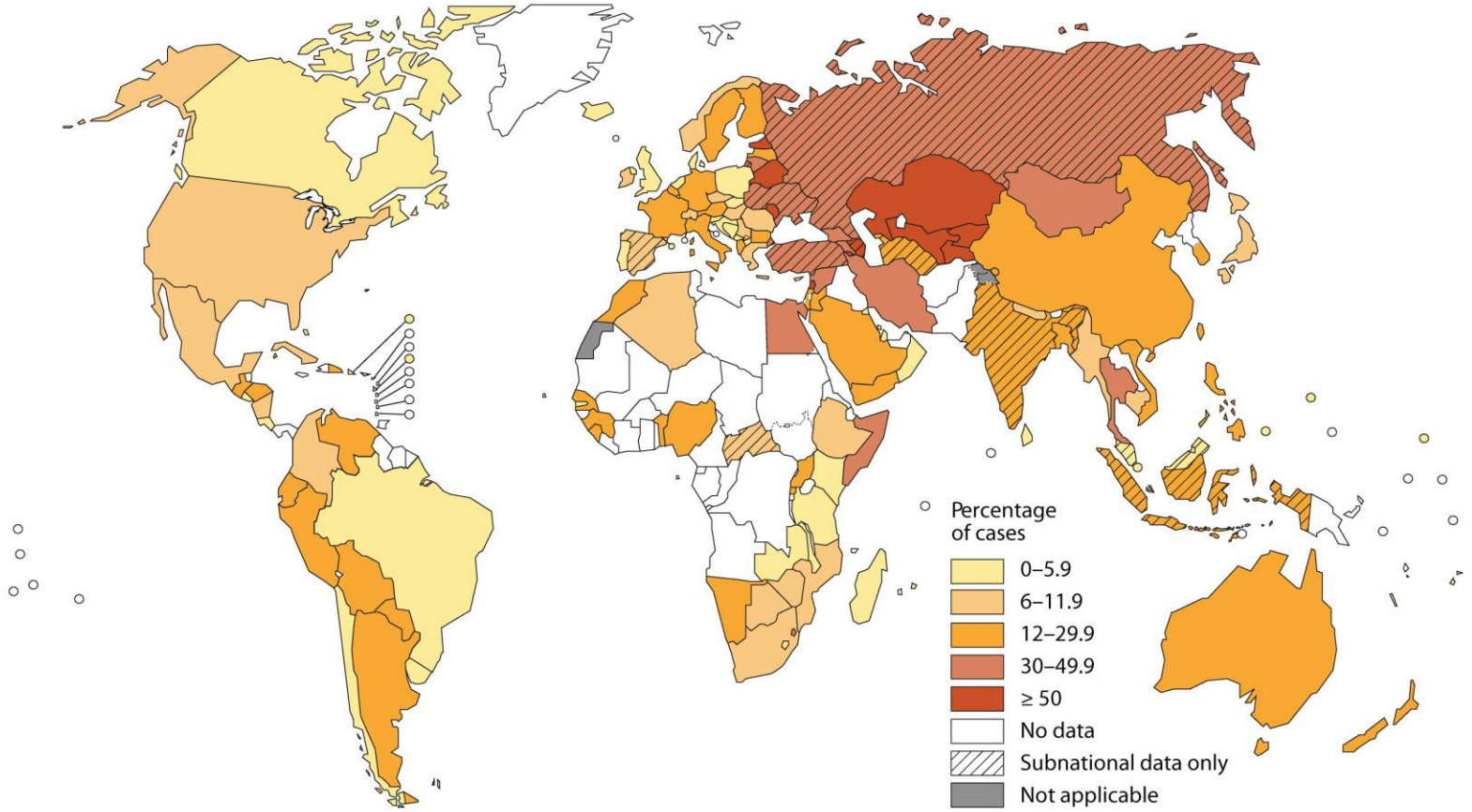


The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

World Health Organization

Percentage of previously treated tuberculosis cases with MDR-TB*

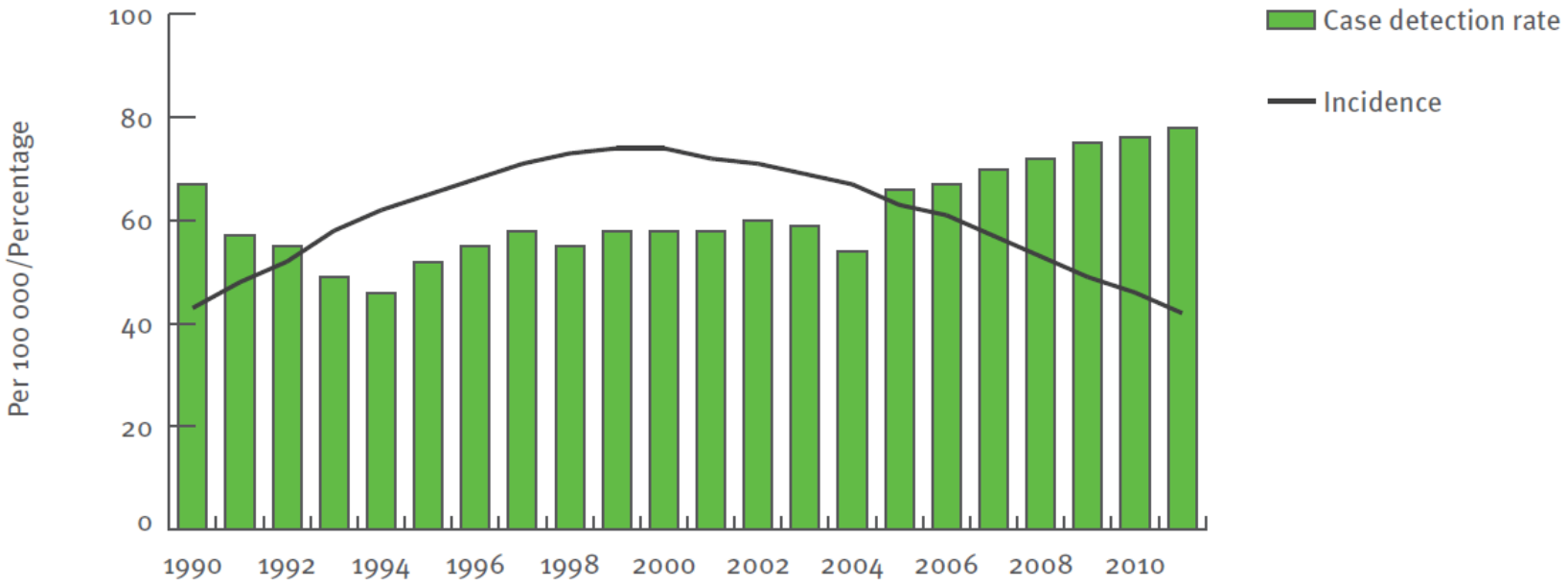


* MDR-TB: multidrug-resistant tuberculosis (resistance to, at least, isoniazid and rifampicin)
Note: Figures are based on the most recent year for which data have been reported, which varies among countries.

Source: *Global Tuberculosis Report 2012*. WHO, 2012.

World Health Organization

Figure A: Estimated TB incidence (per 100 000 population) and case detection rates (as a percentage), WHO European Region, 1990–2011

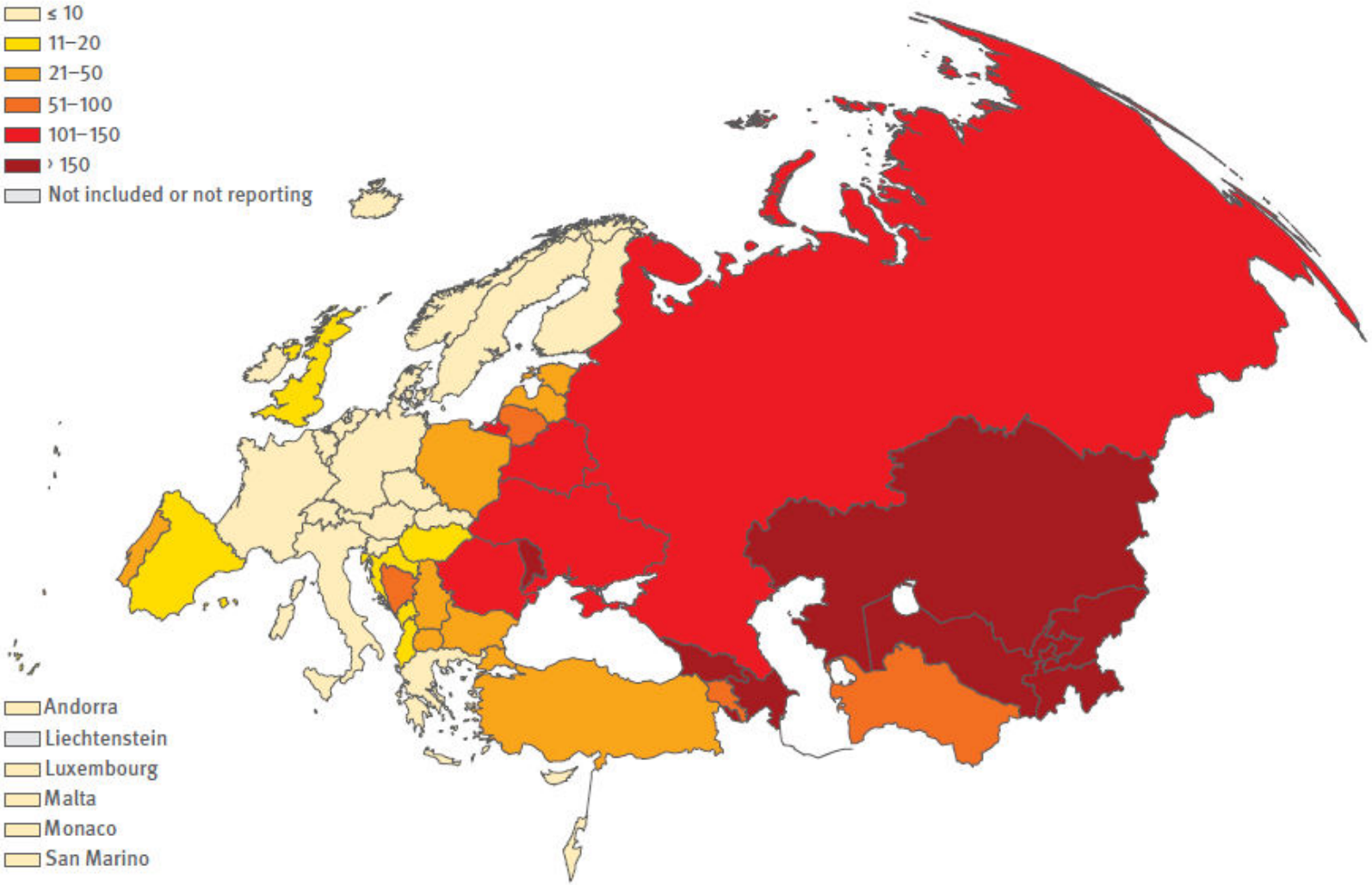


Global TB database, WHO (http://www.who.int/tb/country/data/download/en/index.html), accessed on 3 January 2013.

- TB incidence falling in the Region at a rate of about 5% per year between 2000 and 2011.
- Prevalence of TB was estimated at 56 cases per 100 000 population (about 500 000 cases)
- TB mortality was 4.9 deaths per 100 000 population (around 44 000 cases)

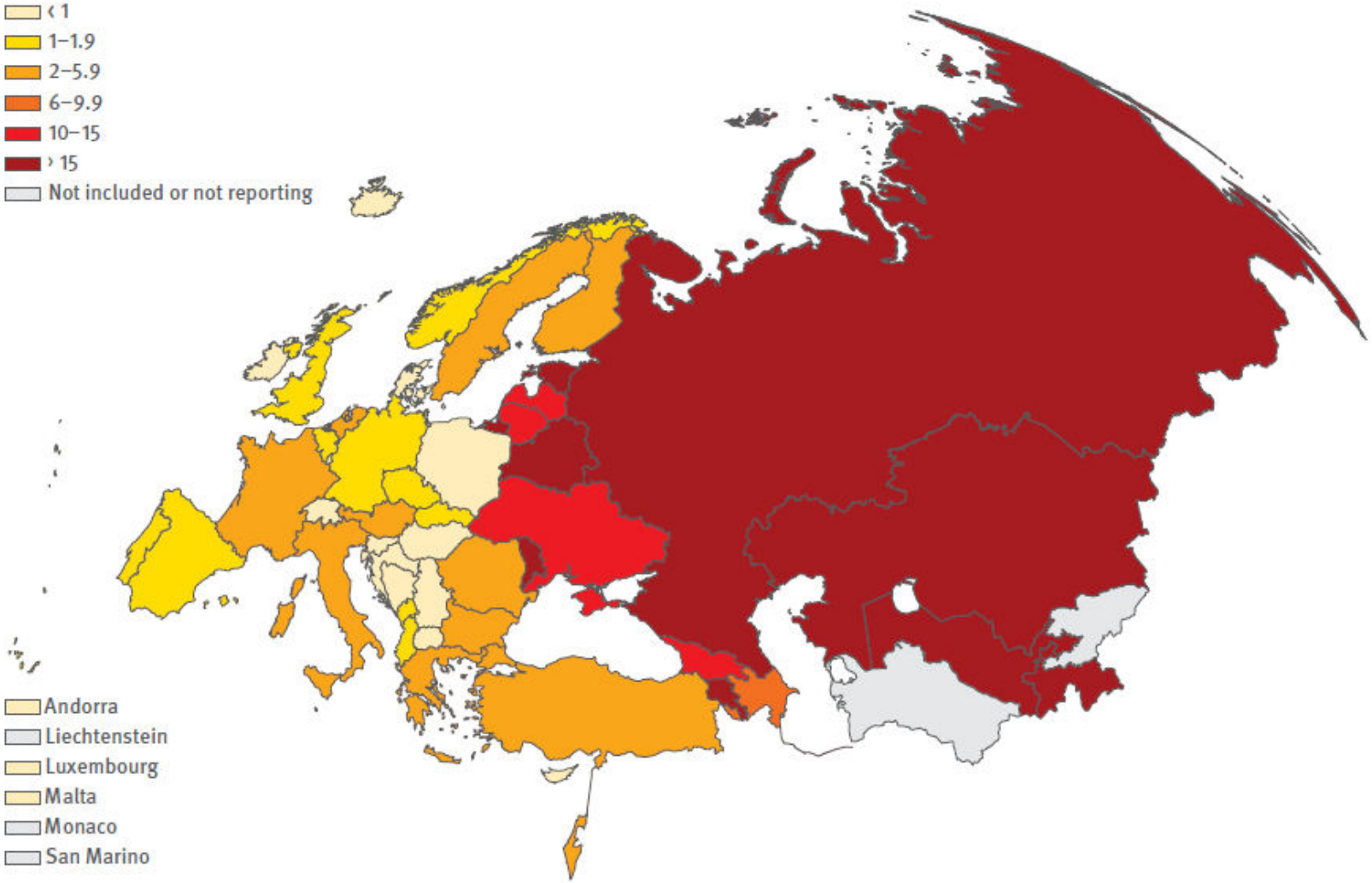
- MDR-TB was reported for 5% of cases with drug susceptibility testing results (2% of new TB cases and 17% of previously treated cases) and continues to be most prevalent in the three Baltic countries. The overall trend is slightly decreasing.
- Extensively drug-resistant TB (XDR-TB) was reported for 13% of 1 017 MDR-TB cases tested for second-line drug susceptibility.

Figure B: Estimated TB incidence per 100 000 population, European Region, 2011[a]



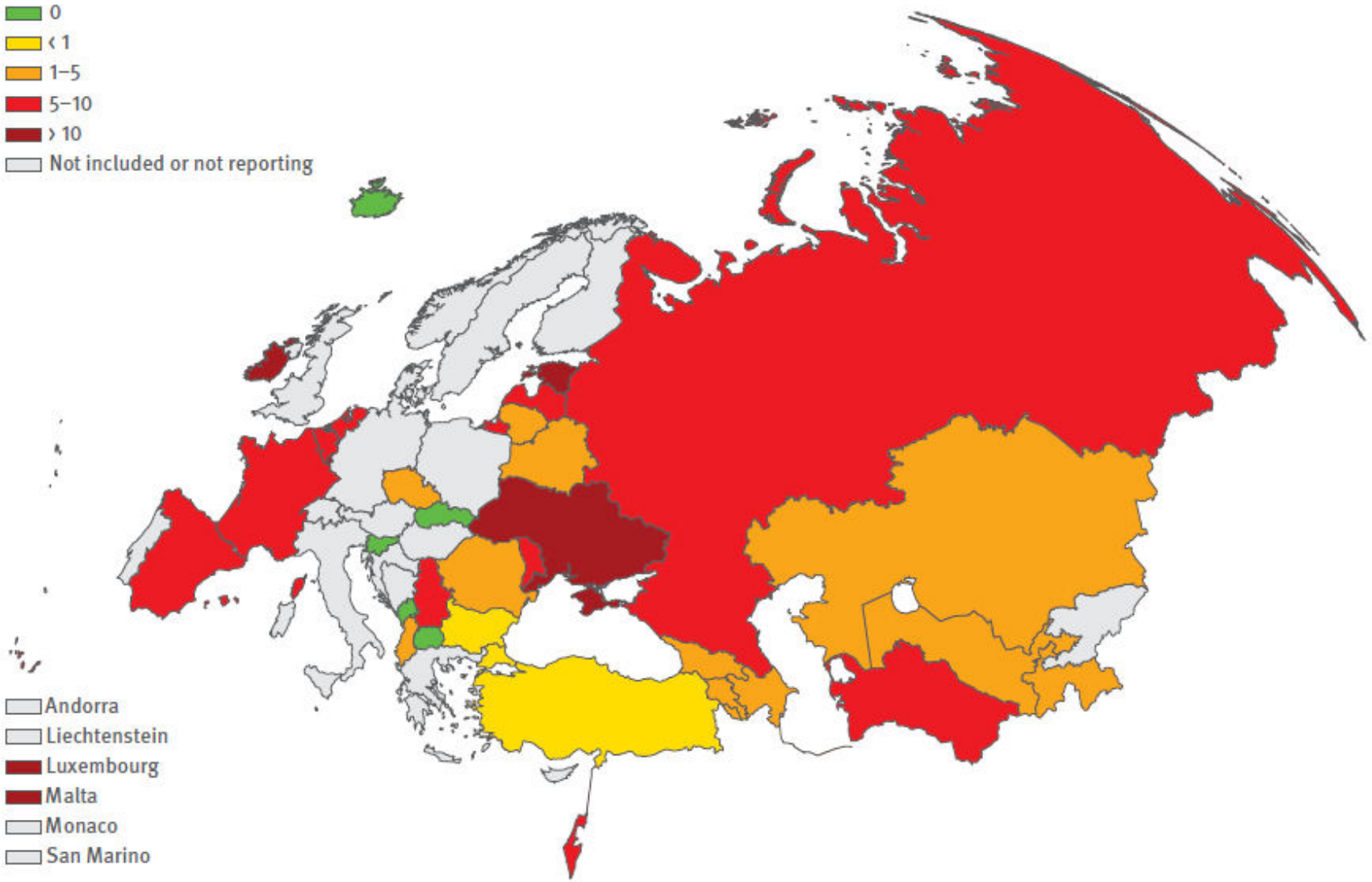
[a] Data from UN Administrated Province of Kosovo (in accordance with Security Council Resolution 1244 (1999)) is not included in the figures reported for Serbia

Map 8: Percentage of notified TB cases with multidrug resistance among new laboratory-confirmed pulmonary TB cases, European Region, 2011[a]



[a] Data from UN Administrated Province of Kosovo (in accordance with Security Council Resolution 1244 (1999)) is not included in the figures reported for Serbia

Map 12: Percentage of HIV positive TB cases among all TB cases with known HIV status, European Region, 2011[a]

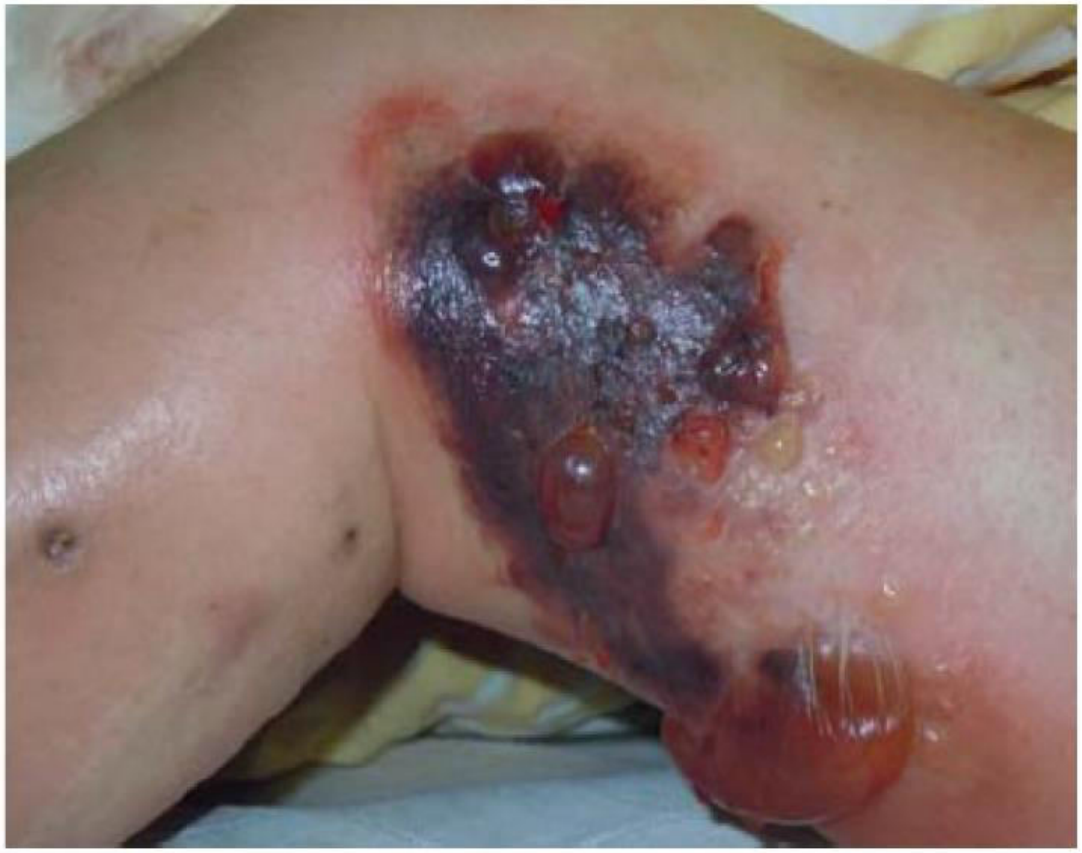


[a] Data from UN Administrated Province of Kosovo (in accordance with Security Council Resolution 1244 (1999)) is not included in the figures reported for Serbia

Anthrax – basic facts

- Anthrax is a serious, sometimes fatal disease of animals and humans
- It is not passed directly from one infected person or animal coming into contact with another; it is spread by spores.
- The illness can be treated by vaccines, and it sometimes responds to antibiotics
- Risk factors for humans: Working with infected animals or animal products (Inhalation anthrax or Cutaneous anthrax), Eating raw or undercooked meat from infected animals (gastrointestinal anthrax), Injecting heroin (injection anthrax)

Injection anthrax



Grunow, R; Verbeek, L; Jacob, D; Holzmann, T; Birkenfeld, G; Wiens, D; Eichel-Streiber, L v; Grass, G; Reischl, U
Injection Anthrax—a New Outbreak in Heroin Users
Dtsch Arztebl Int 2012; 109(49): 843-8; DOI: 10.3238/arztebl.2012.0843

The recent outbreak

Nr	Region, Country	Gend/age	Admiss	Fatal
1	Regensburg, Germany	m/51	05. Jun. 12	†
2	Regensburg, Germany	f	18. Jun. 12	
3	Berlin, Germany	f	17. Jun. 12	
4	Copenhagen, Denmark	m/55	05. Jul. 12	†
5	Rhône-Alpes, France	m	xx. Jul. 12	
6	Lanarkshire, UK (Scotland)	f/33	xx. Jul. 12	
7	Copenhagen, Denmark	m/39	xx. Jul. 12	
8	Blackpool, UK (England)	m	xx. Aug. 12	†
9	Gwynedd, UK (Wales)	m	xx. Aug. 12	
10	Blackpool, UK (England)	f	xx. Aug. 12	†
11	Berlin, Germany	m	07. Sep. 12	
12	Oxford, UK (England)	f	xx. Oct. 12	
13	Kent/Medway, UK (England)	f	07. Dec.12	†
14	Suffolk, UK (England)	f	27. Feb.13	†
15	Glasgow, UK (Scotland)	m/49	09. Mar.13	† (7)

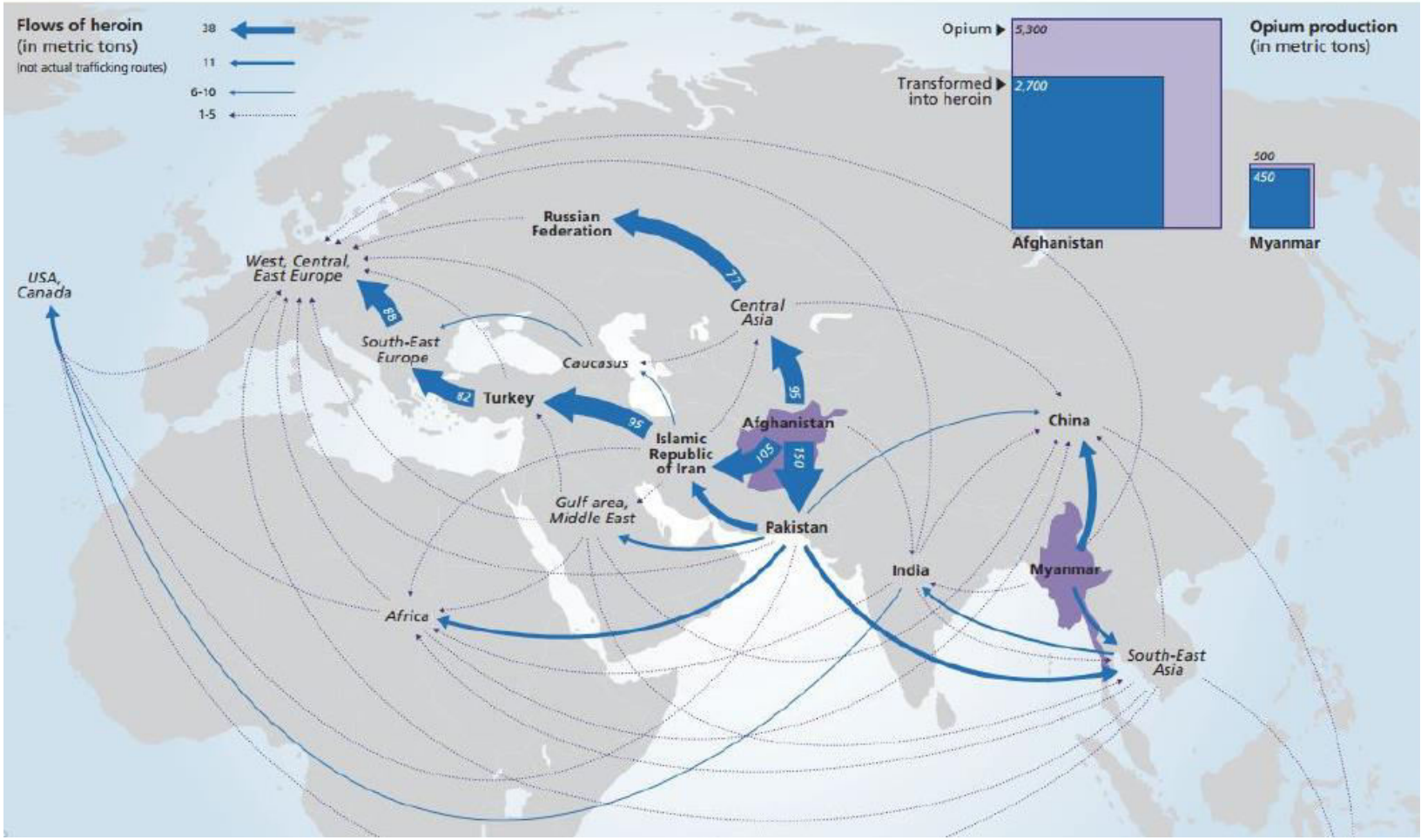
Results from genotyping

- 2012/13: German cases (1,2,3), UK cases (8,10) and Danish cases (4,7) indistinguishable to Ba4599 and from each other
- 2009/10: 71 positive samples from the *B. anthracis* isolates were all of an identical, single strain Ba4599
- Related strains seen in infected goats in the East of Turkey
- 2000, Norwegian case: Isolated strain almost identical with 6 isolates from 5 cases between 2009 and 2012 (R Grunow et al, Eurosurveillance, Vol. 18, Issue 13, 28 March 2013)

Heroin on the go

Map 2: Global heroin flows of Asian origins

Source: UNODC



Recommendations: Risk communication

- Encourage PWUH to seek early medical attention for any symptoms that arise
- Encourage heroin users to stop heroin use, acknowledging that not all users will be able to avoid use and that these should transition to appropriately-dosed OST.
- Risk communication of anthrax risk messages should be done via locations that heroin users access, involving networks and peer-to-peer systems in addition to traditional media.

RESPONSES

Prevention and care - issues

- Hepatitis B/C more infective than HIV. Need higher coverage / intensity of: oral substitution treatment (OST), needle & syringe programmes, information, voluntary counseling & testing etc.
- Combined approaches are likely more effective (Pollack and Heimer, EMCDDA 2004; van den Berg et al. Addiction 2007)
- Evaluate antiviral treatment as a prevention tool (e.g. modelling and ecological studies for HIV)
- Targeted vaccination for HAV, HBV (also prevents HDV) in IDUs, and in general population (IDUs often lower coverage)
- Review drug policies where they conflict with public health, e.g. cooperation between low-threshold services and police
- Educate medical staff on how to work with drug users, combine services and expertise (OST and viral treatment)

Three key HIV prevention measures, two of these specific for IDUs

- **Opioid substitution therapy (OST)**
  Retains patients in treatment, reduces illicit heroin use, injecting frequency and needle sharing (and positive but n.s. effects on crime and mortality) (28 studies) – Strong protective effects on HIV seroconversion (4 studies)
- **Needle and syringe programmes (NSP)**
  Mixed effects found on HIV prev./incid. – few good studies, methodological difficulties. However they clearly reduce injecting risk behaviour (23 studies pos., 1 neg.)
- **New: HAART** Lowers viral load in the population (note: increases survival thus potentially also increased transmission)

Sources: *Cochrane reviews Mattick et al 2003 and Gowing et al. 2005; UNODC 2002; WHO – Wodak & Cooney 2004; Metzger & Navaline 2003; Committee on the Prevention of HIV Infection among Injecting Drug Users in High-Risk Countries http://www.nap.edu/catalog/11731.html*

Comprehensive package of interventions

(WHO, UNODC, UNAIDS technical guide to set targets… 2009)

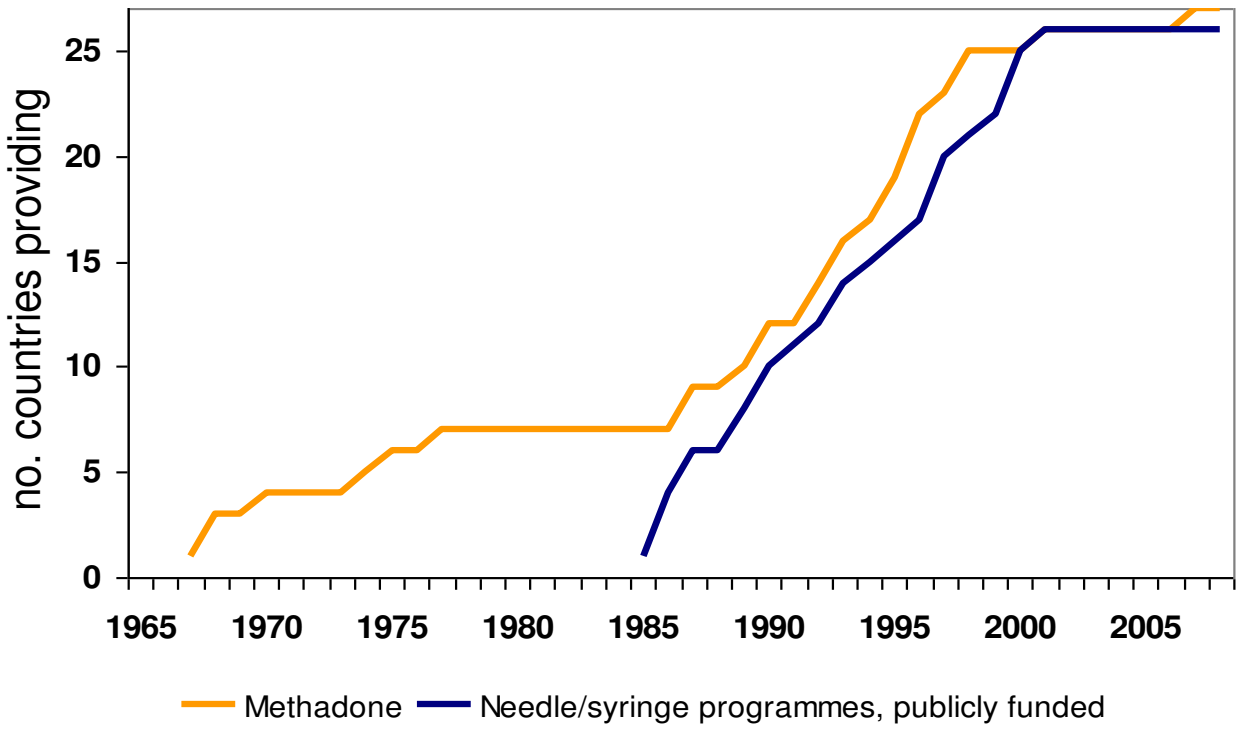
1. Needle and syringe programmes (NSPs)
2. Opioid substitution therapy (OST) and other drug dependence treatment
3. HIV testing and counselling (T&C)
4. Antiretroviral therapy (ART)
5. Prevention and treatment of sexually transmitted infections (STIs)
6. Condom programmes for IDUs and their sexual partners
7. Targeted information, education and communication (IEC) for IDUs and their sexual partners
8. Vaccination, diagnosis and treatment of viral hepatitis
9. Prevention, diagnosis and treatment of tuberculosis (TB)

ECDC / EMCDDA joint guidance - **Prevention and control of infectious diseases among people who inject drugs**

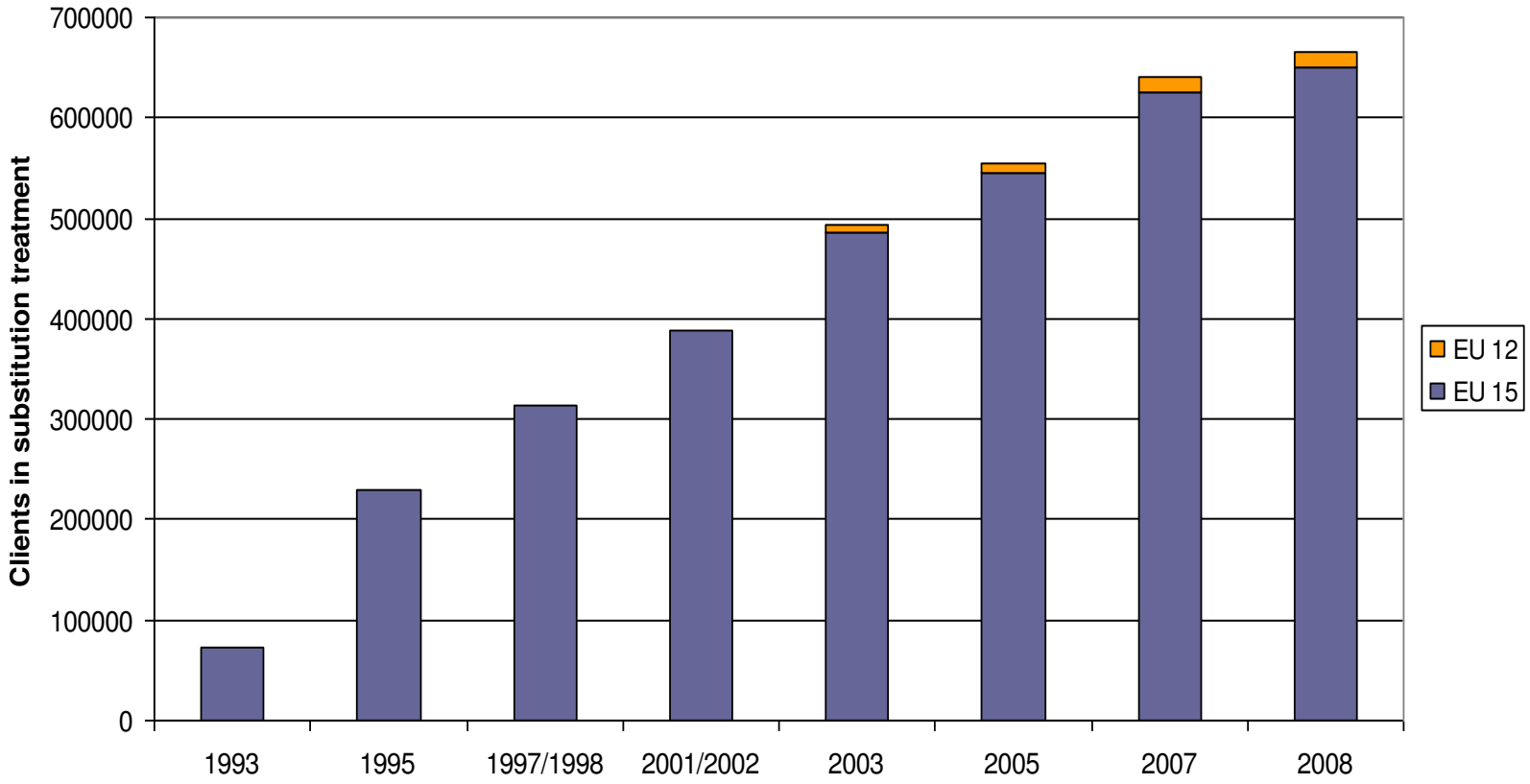
- **Seven recommended key interventions:**
  - Injection equipment
  - Vaccination
  - Drug dependence treatment
  - Testing
  - Infectious disease treatment
  - Health promotion
  - Targeted delivery of services

- **Combine these key interventions to enhance prevention synergy and effectiveness!**

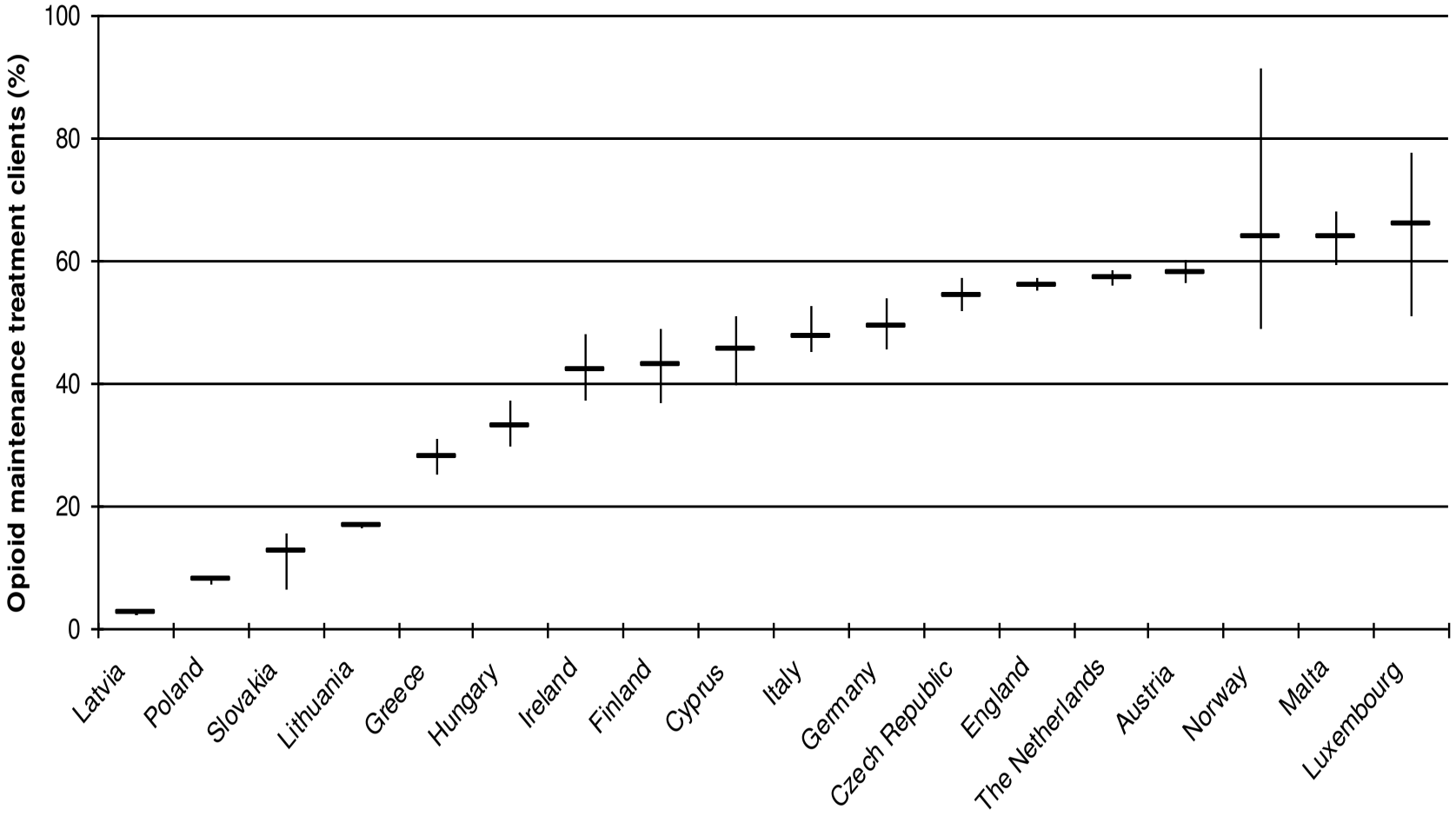
Introduction of substitution treatment and needle and syringe programmes in the 27 EU Member States



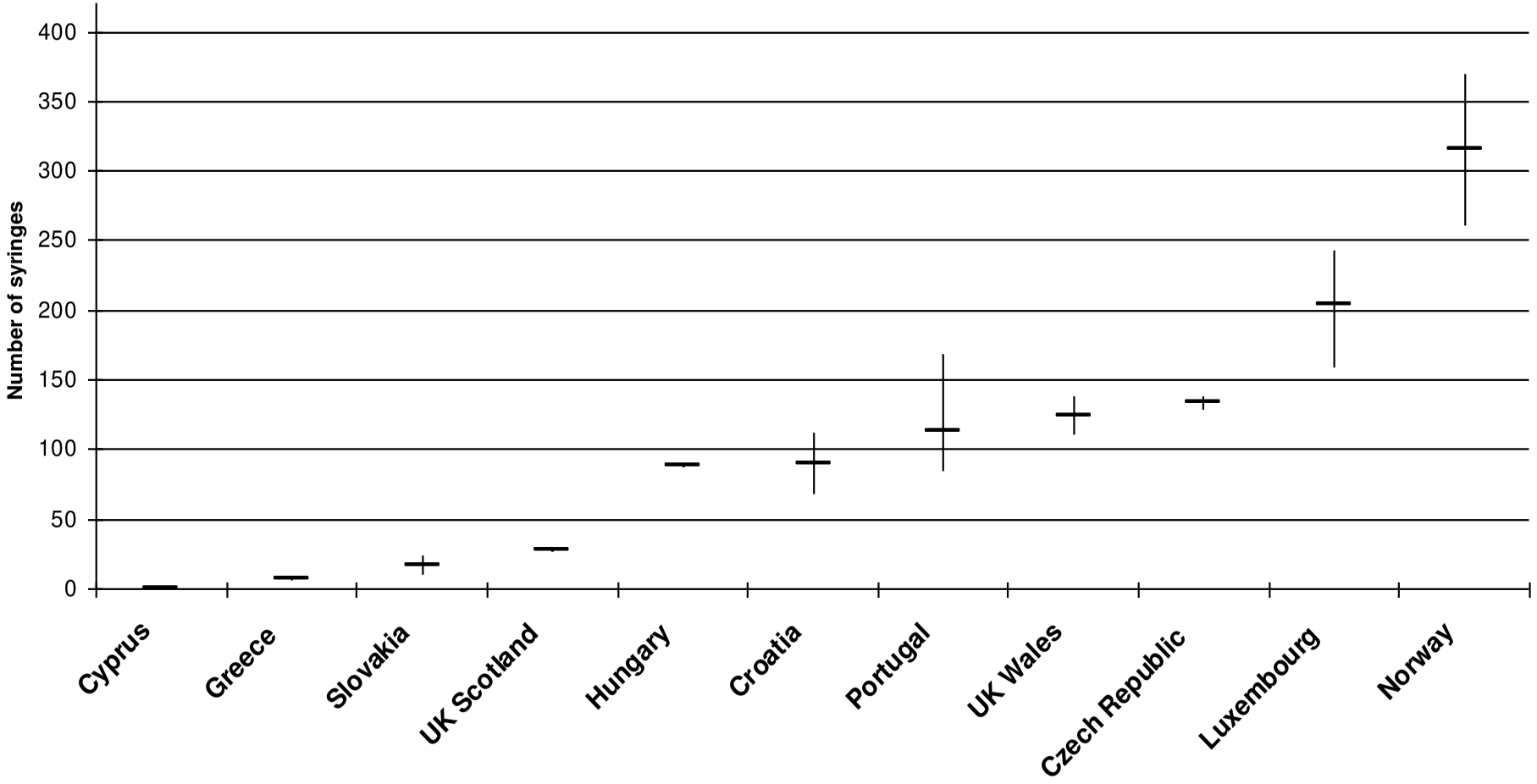
Number receiving opioid substitution treatment from 1993 to 2008 in the EU-27



Opioid substitution treatment clients as a percentage of the estimated number of problem opioid users, 2010 or most recent year available



Syringes distributed through specialised programmes in 2010 per estimated IDU



COMBINING INDICATORS (HIV-HCV) HIV RISK ASSESSMENTS

Addiction

RESEARCH REPORT

doi:10.1111/j.1360-0443.2009.02759.x

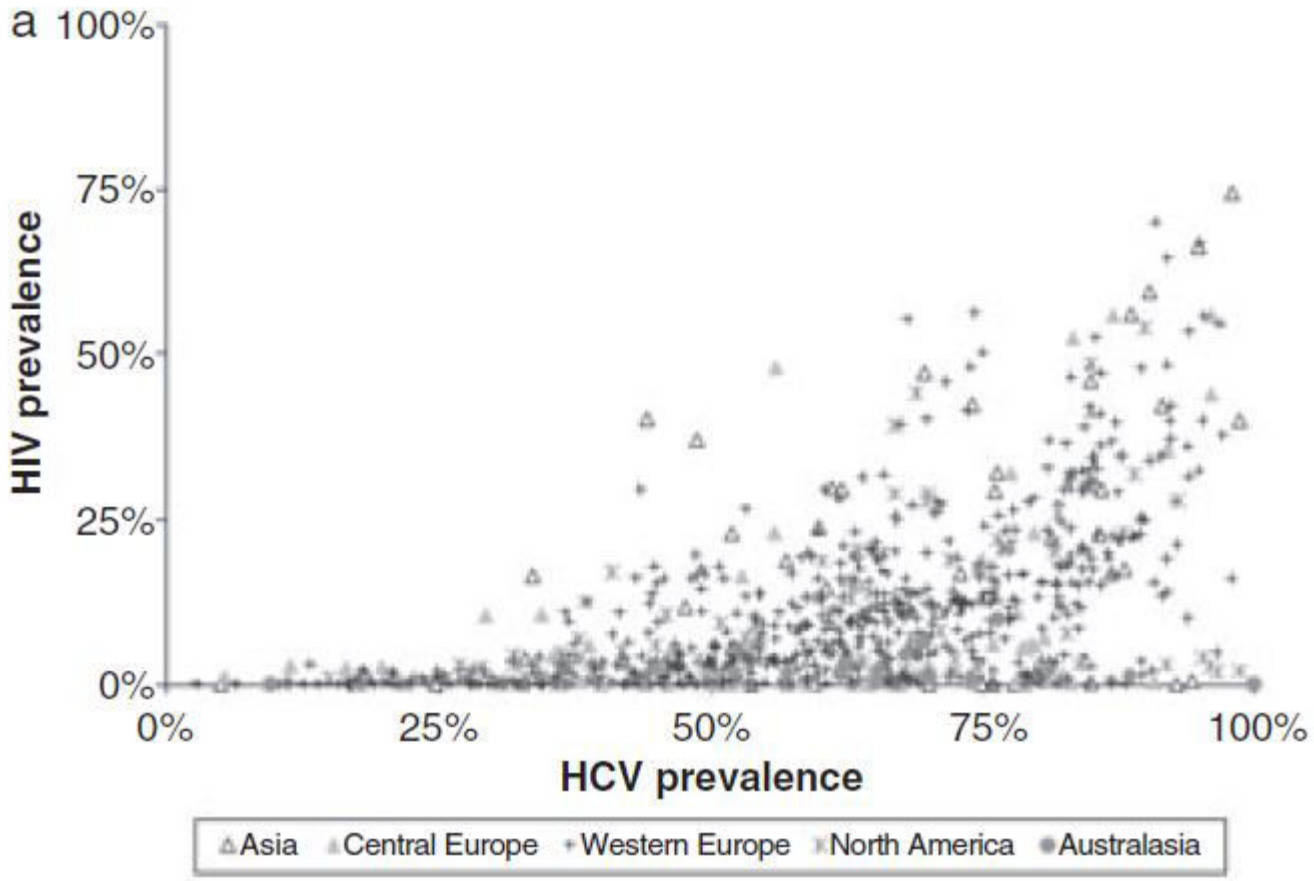
Can hepatitis C virus prevalence be used as a measure of injection-related human immunodeficiency virus risk in populations of injecting drug users? An ecological analysis

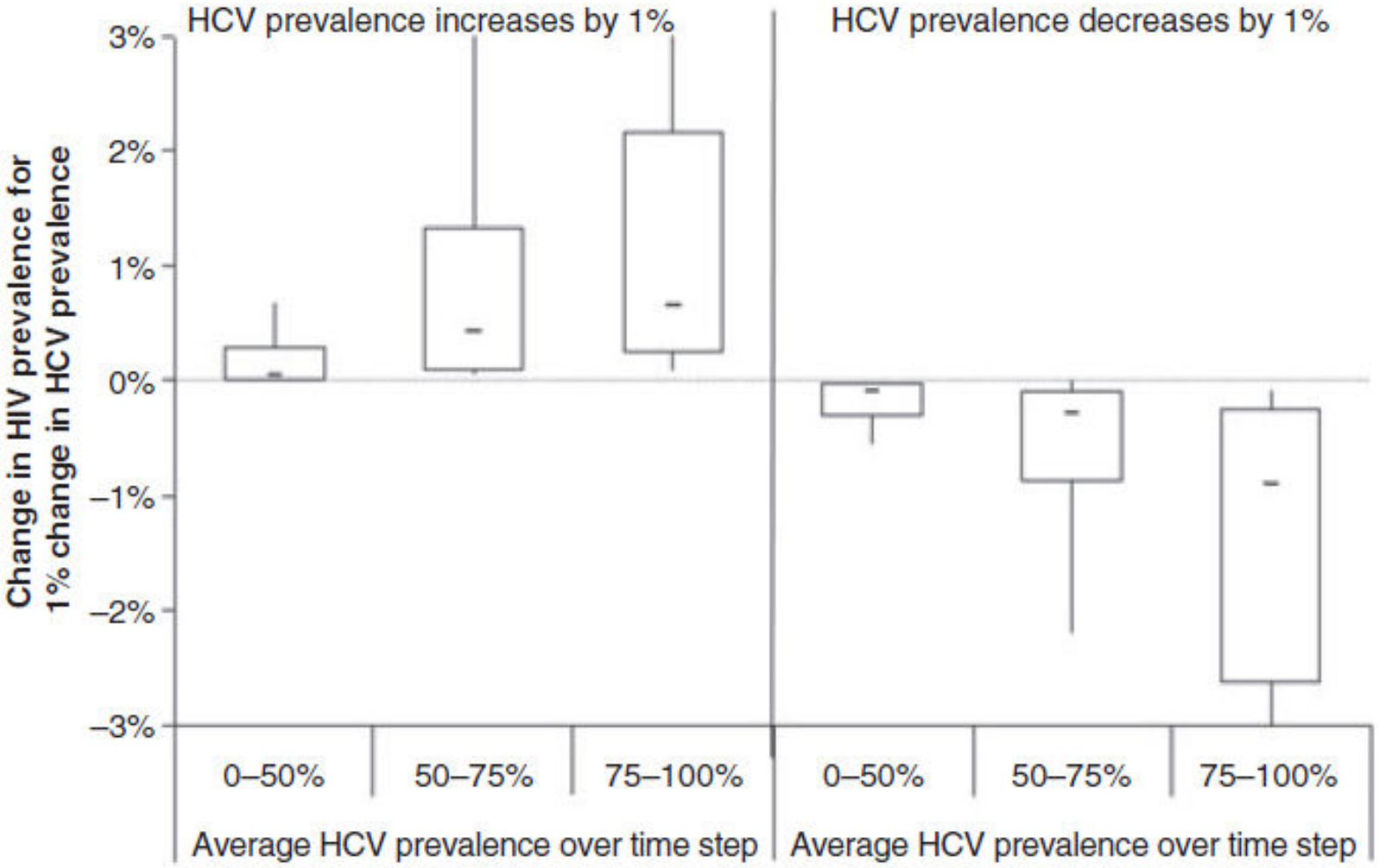
Peter Vickerman[1,2], Matthew Hickman[2], Margaret May[2], Mirjam Kretzschmar[3,4] & Lucas Wiessing[5]

London School of Hygiene and Tropical Medicine, London, UK,[1] University of Bristol, Bristol, UK,[2] University Medical Centre Utrecht, Utrecht, the Netherlands,[3] Centre for Infectious Disease Control, RIVM, Bilthoven, the Netherlands[4] and European Monitoring Centre for Drugs and Drug Addiction, Portugal[5]

ABSTRACT

Background Human immunodeficiency virus (HIV) outbreaks occur among injecting drug users (IDUs), but where HIV is low insight is required into the future risk of increased transmission. The relationship between hepatitis C virus (HCV) and HIV prevalence among IDUs is explored to determine whether HCV prevalence could indicate HIV risk. **Methods** Systematic review of IDU HIV/HCV prevalence data and regression analysis using weighted prevalence


a
100%
75%
50%
25%
0%
HIV prevalence
0%
25%
50%
75%
100%
HCV prevalence
Asia
Central Europe
Western Europe
North America
Australasia

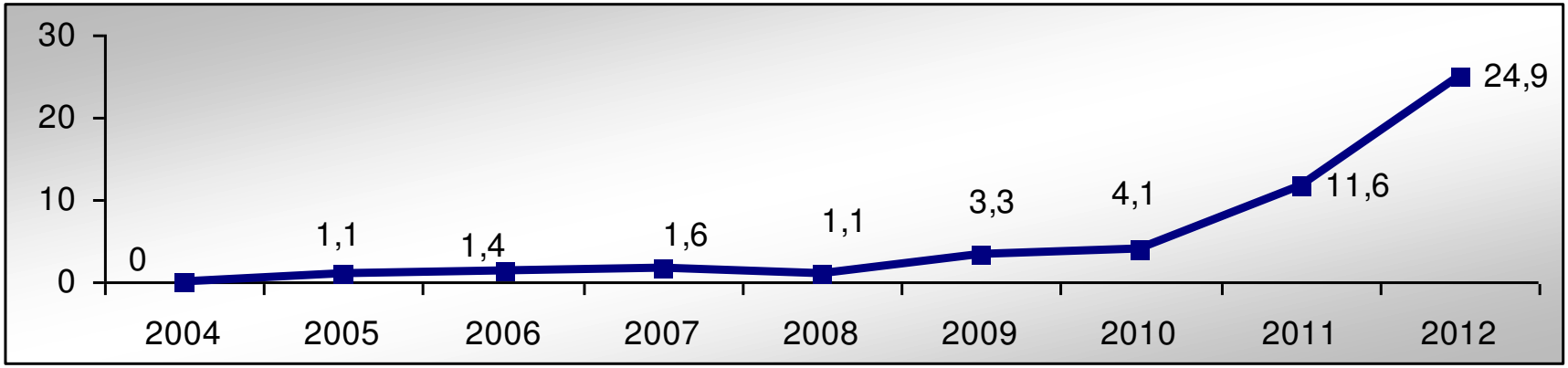

HCV prevalence increases by 1%
HCV prevalence decreases by 1%
Change in HIV prevalence for 1% change in HCV prevalence
3%
2%
1%
0%
–1%
–2%
–3%
0–50%
50–75%
75–100%
0–50%
50–75%
75–100%
Average HCV prevalence over time step
Average HCV prevalence over time step

Combining indicators: EMCDDA/ECDC Joint EU HIV risk assessments (Pharris etal 2011, Hedrich etal 2013)

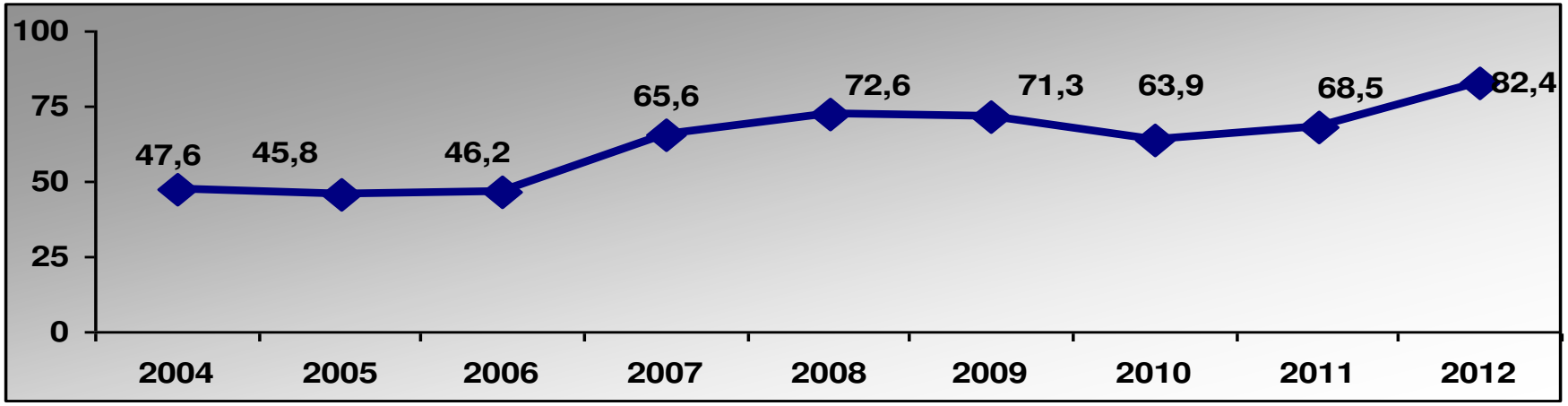
- HIV-PWID case reporting
- Prevalence of HIV in PWID (and in young / new PWID)
- Prevalence of HCV in PWID (as injecting indicator)
- Other injecting risk information (behavioural, drug supply indicators)
- Coverage of OST in POU
- Coverage of NSP in PWID

- Qualitative information? Costs of services?

HIV prevalence among IDU's in treatment, Romania

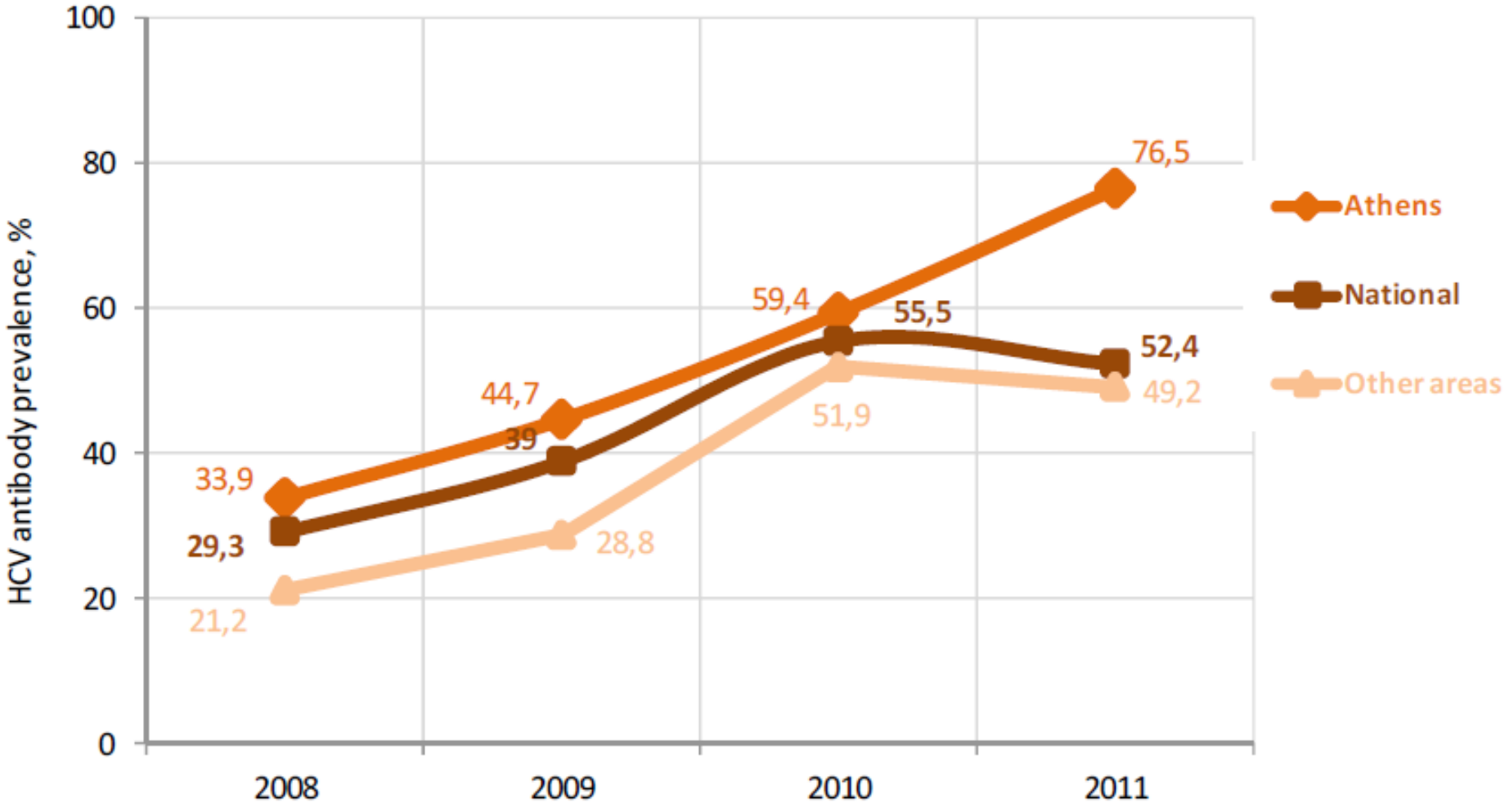


HVC prevalence among IDU's in treatment, Romania



Botescu etal. 2013

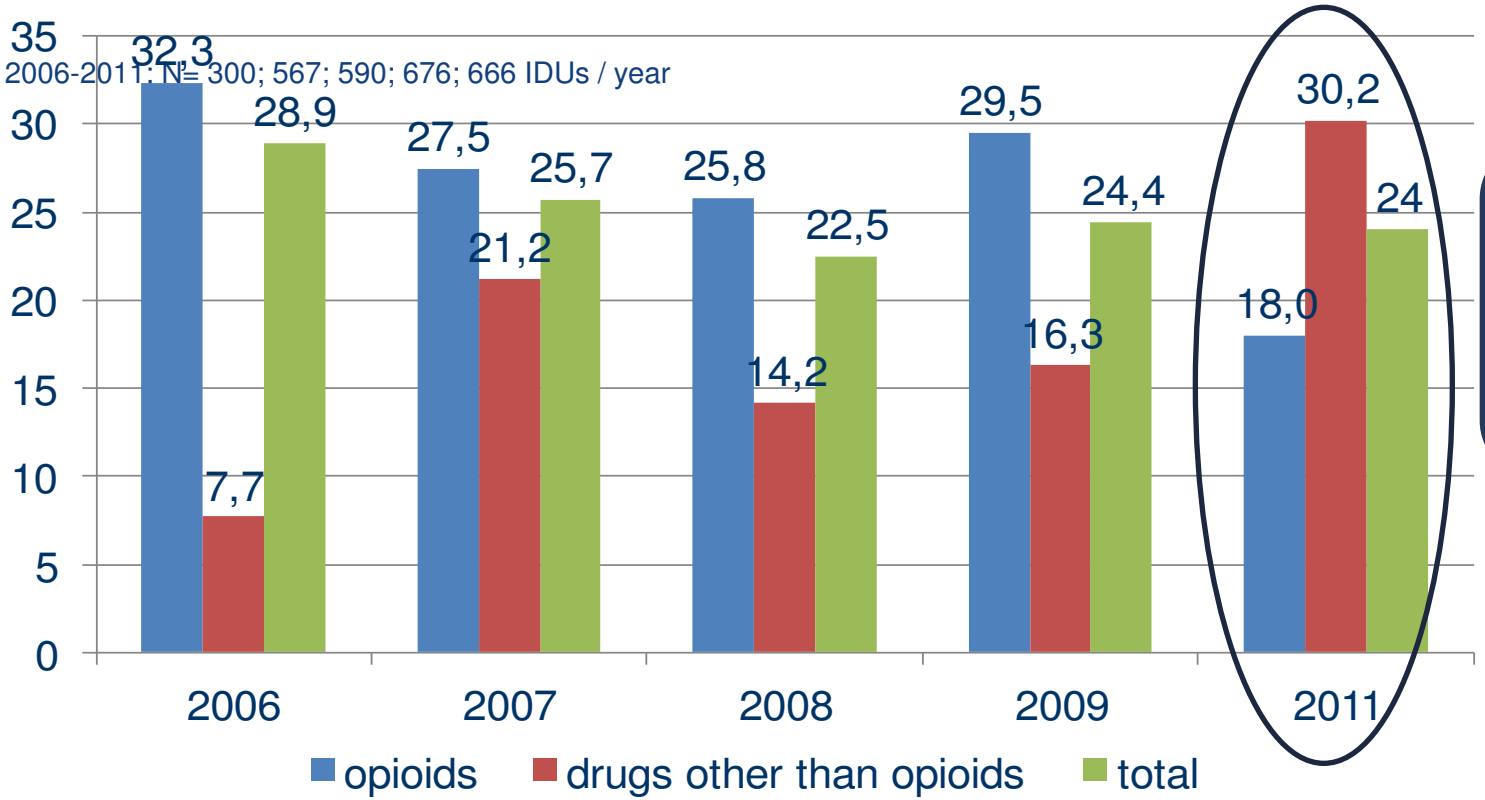
Figure 13. Trends in HCV antibody prevalence among 'new' IDUs (<2 years injecting) Fotiou etal. 2012



Transmission risks – HCV increase

Restructuring HCV prevalence (%) by primarily injected drug, increase among non-opioid injectors in 2011

National seroprevalence survey among IDUs in DTCs and NSPs,
2006-2011: N= 300; 567; 590; 676; 666 IDUs / year

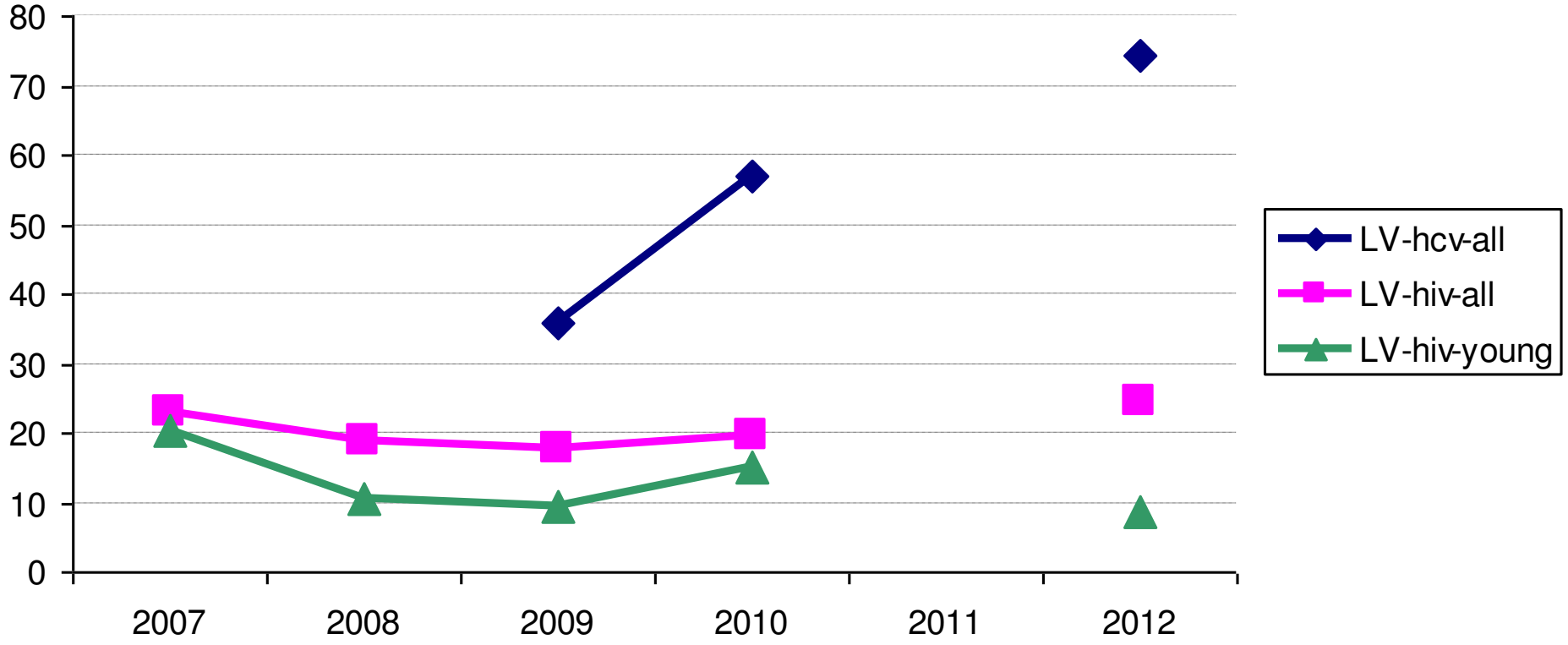


foreseeably in 2014 it will be repeated

Source: National Centre for Epidemiology and HNFP, 2012 M

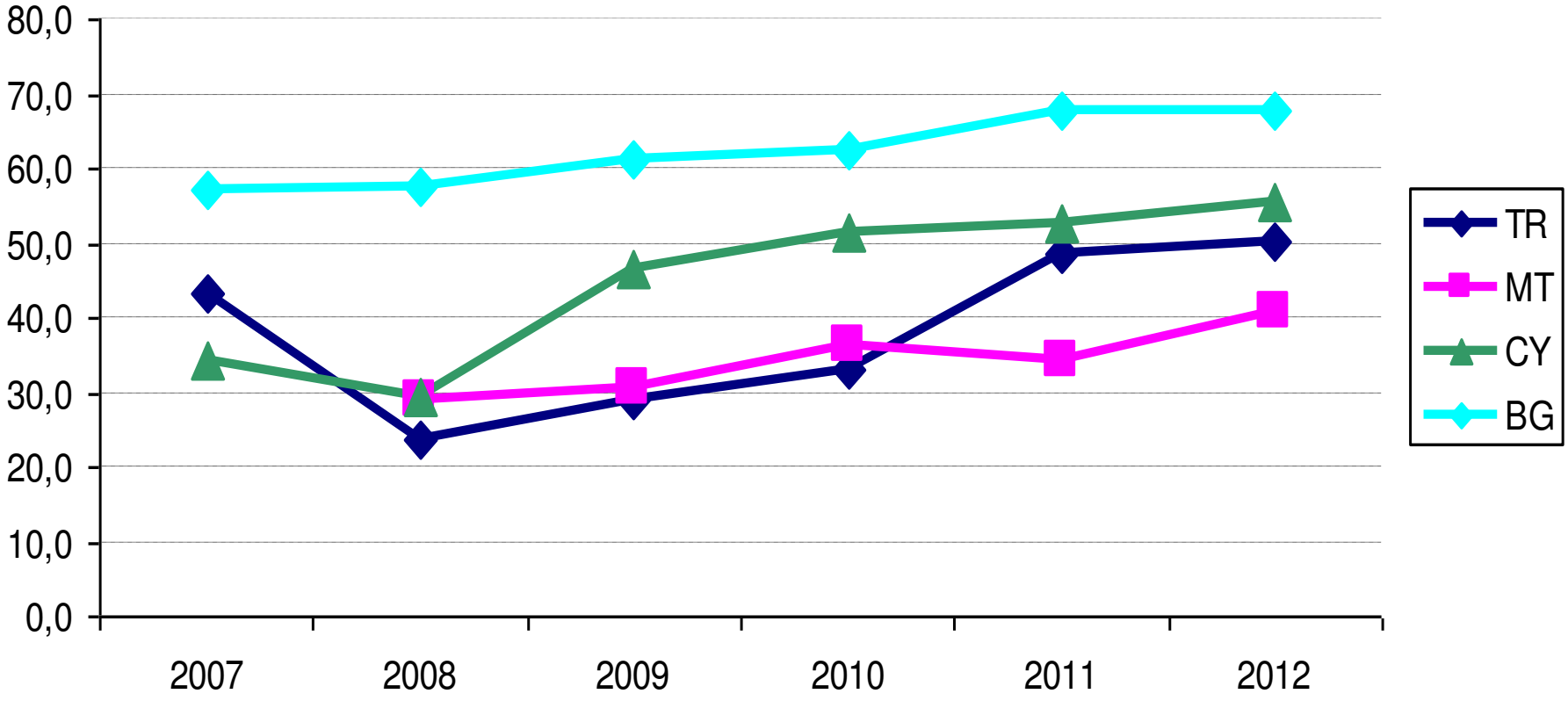
HIV, HCV prevalence among PWID in 6-7 cities* in Latvia (preliminary data for 2012)

Trapencieris etal. 2007; Dompalma etal 2010



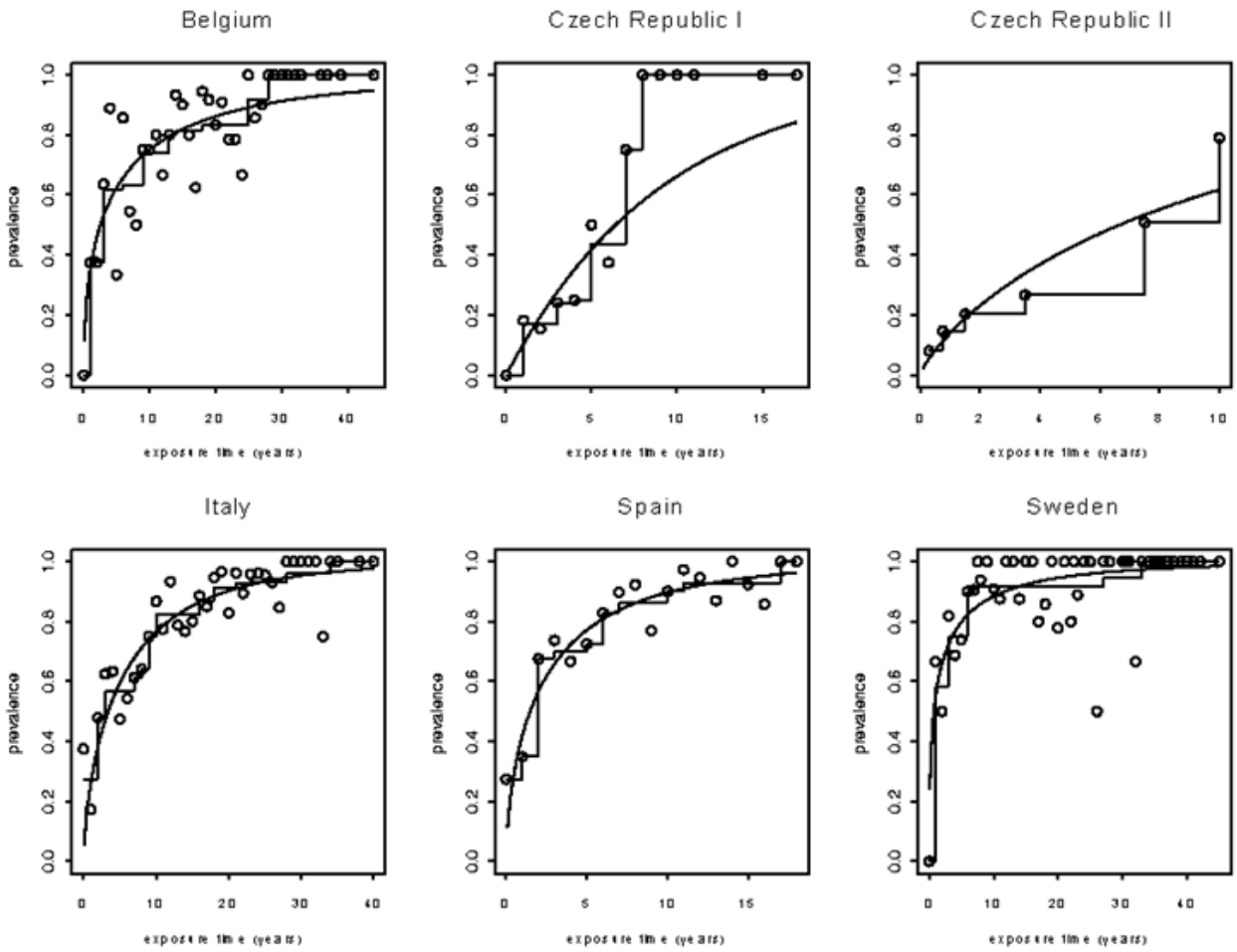
*6 cities before 2011, 7 cities in 2012

HCV prevalence among PWID increasing in Turkey, Malta, Cyprus and Bulgaria (data for 2012 are preliminary)

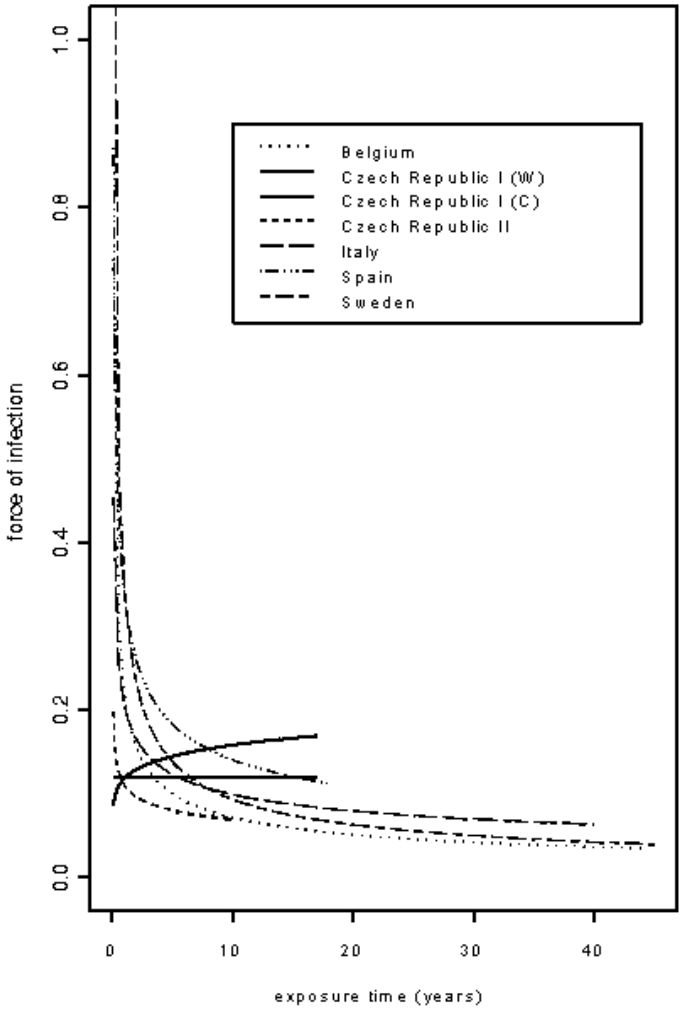


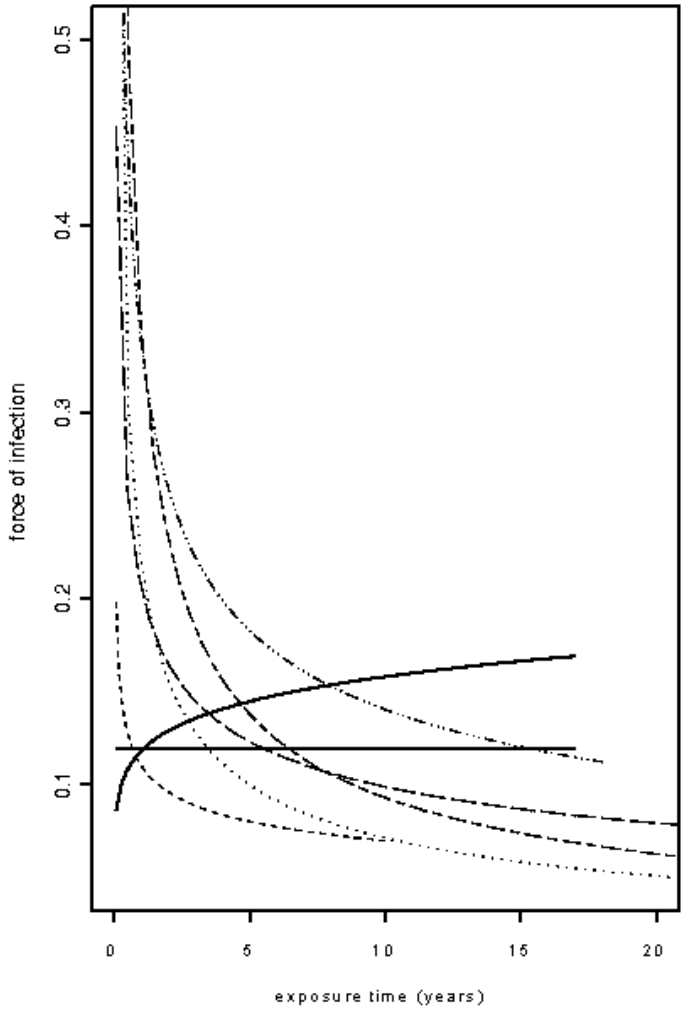
MODELLING HCV

Estimated prevalence of HCV by exposure time in six countries - obtained from the Weibull model and Isotonic regression (step function) Namata H. etal. submitted – EMCDDA/RIVM modelling group



Force of infection by exposure time for IDUs in six countries Namata H. etal. submitted – EMCDDA/RIVM modelling group





HCV antiviral treatment: Barriers among active IDUs

(Martin, Vickerman et al., 2011)

- **Antiviral treatment effective (~60%) and in UK approved for active IDU**
- **…but <1% currently treated**

Why?

- **Ongoing concern over potential non-completion/compliance and re-infection**

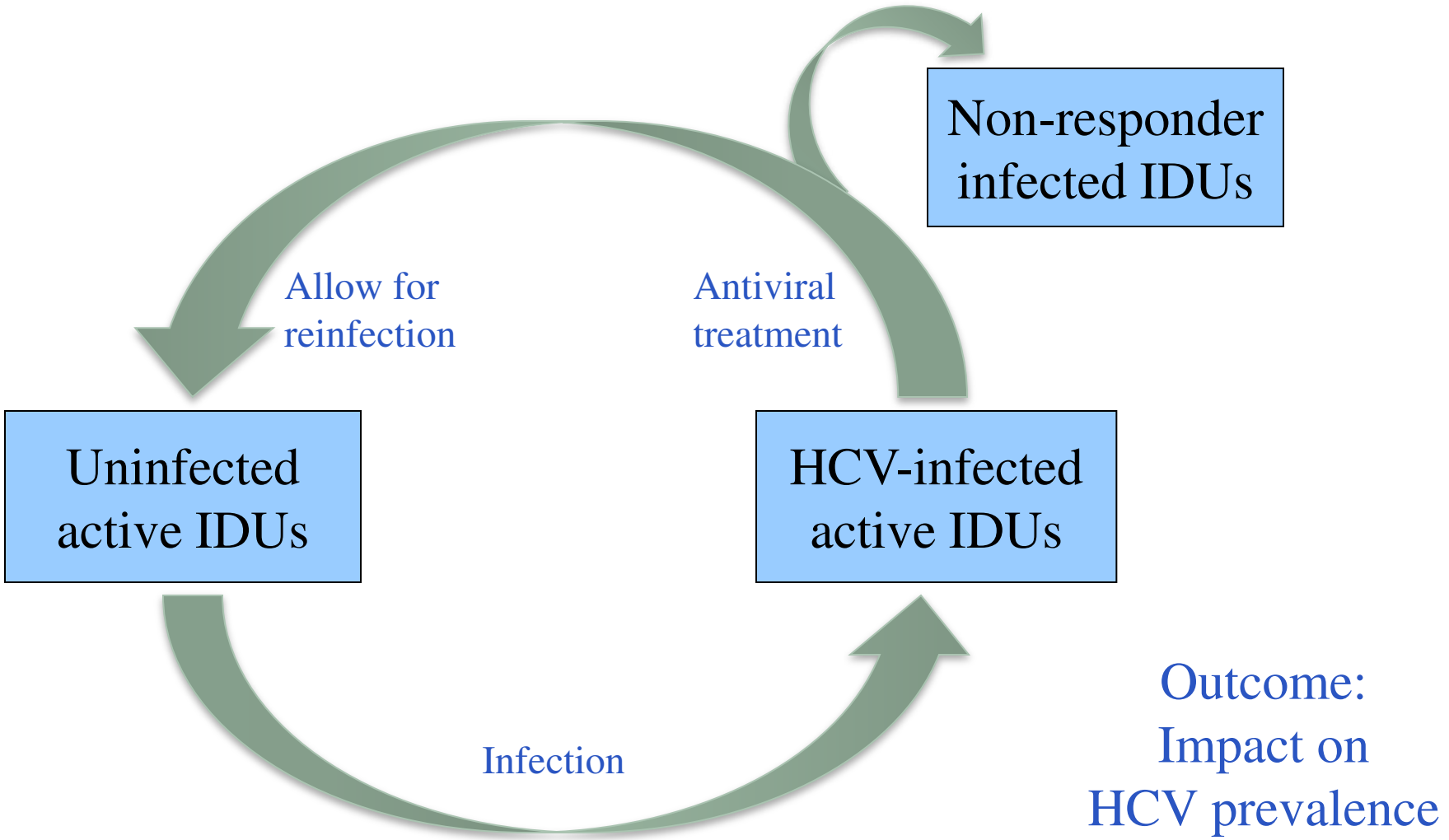
What does the evidence say?

- **IDU achieve similar SVR and compliance rates as non/ex-IDU [1]**
- **Small scale studies report low re-infection rates in first year [2].**

1. Hellard, M., R. Sacks-Davis, and J. Gold. Hepatitis C Treatment for Injection Drug Users: A Review of the Available Evidence. *Clinical Infectious Diseases*, 2009. **49**(4): p. 561-573.
2. Dalgard, O., Follow Up Studies of Treatment for Hepatitis C Virus Infection among Injection Drug Users. *Clinical Infectious Diseases*, 2005. **40**(s5): p. S336-S338.

Martin N, Vickerman P, Foster G, Hutchinson S, Goldberg D, Hickman M, J. Hepatology 2011.
Funded by Health Protection Scotland, NIHR and MRC

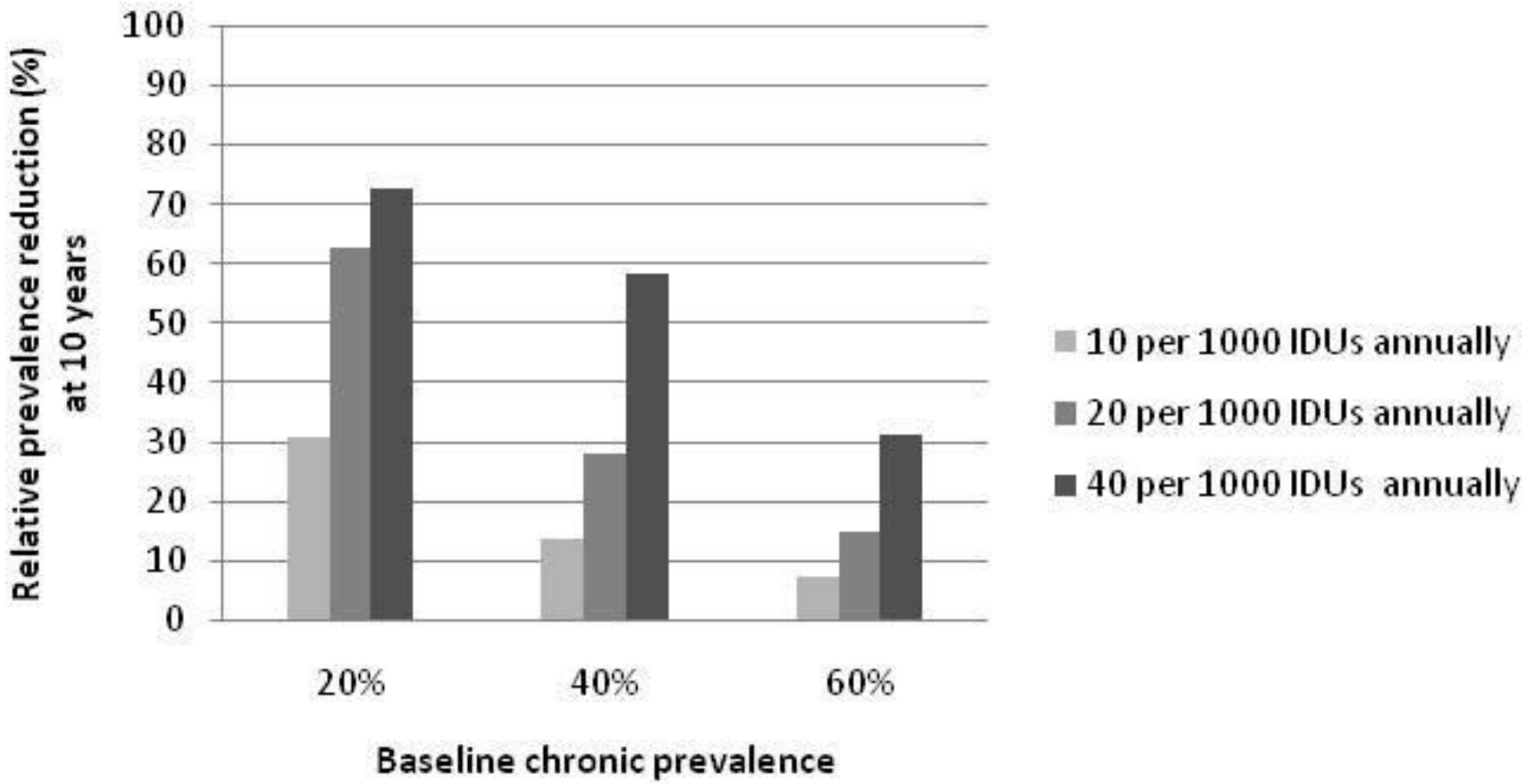
Model



Outcome:
Impact on
HCV prevalence

Martin N, Vickerman P, Foster G, Hutchinson S, Goldberg D, Hickman M, J. Hepatology 2011.
Funded by Health Protection Scotland, NIHR and MRC

Relative prevalence reductions at 10 years with varying treatment rates

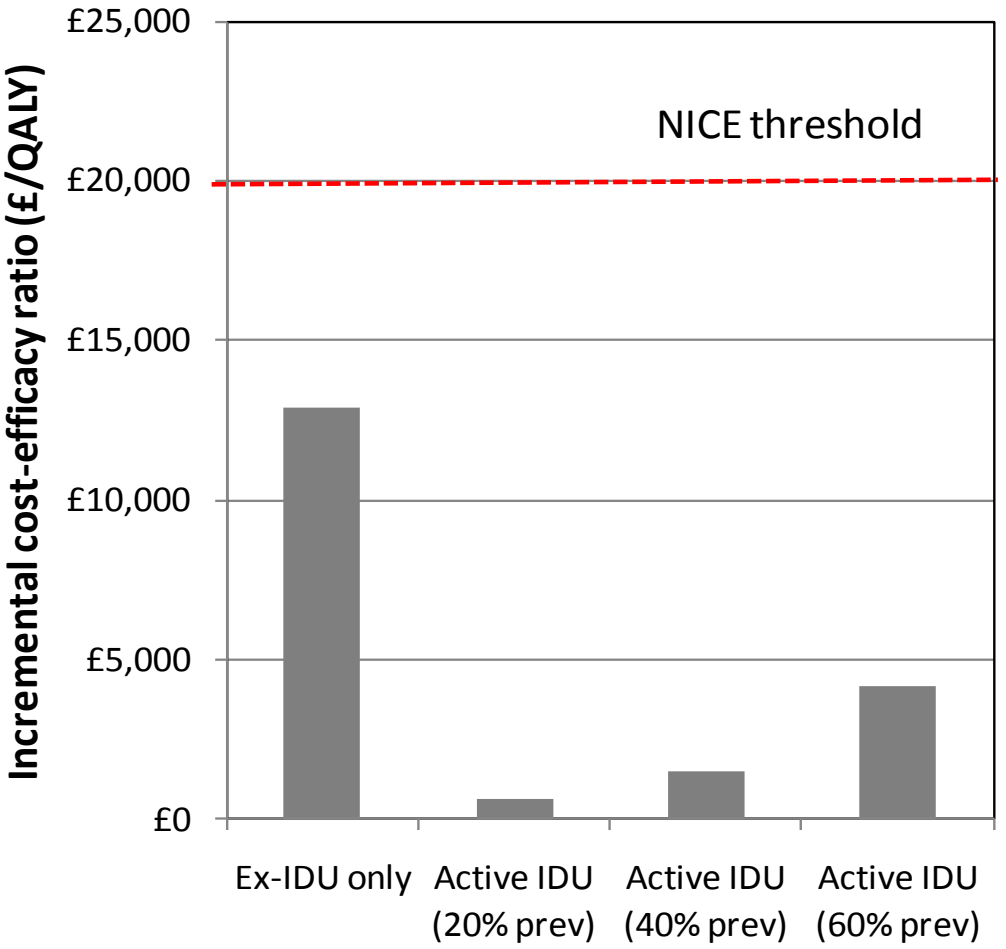


'Baseline': untreated endemic chronic infection prevalence

Martin N, Vickerman P, Foster G, Hutchinson S, Goldberg D, Hickman M, J. Hepatology 2011.
Funded by Health Protection Scotland, NIHR and MRC

Incremental cost per QALY vs. no treatment: Equal efficacy (SVR) for ex- and active IDU

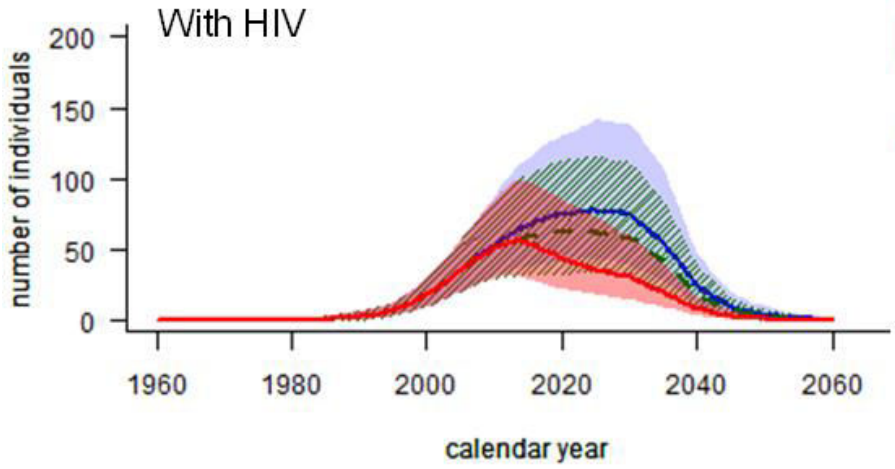
- Treating active IDUs much cheaper per QALY saved because:
  - Averts infections
  - QALYs saved from averting infection greater than treating infection
- More expensive per QALY at higher HCV prevalence:
  - More re-infection
- Always well within NICE threshold!

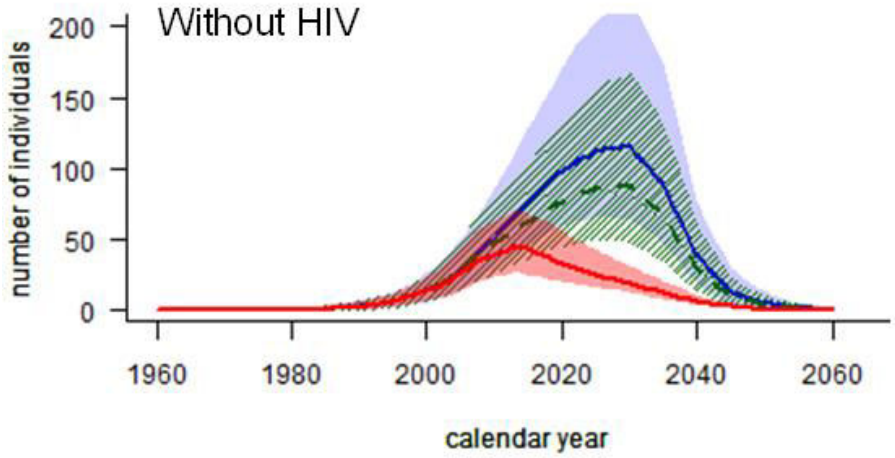


Martin et al., Hepatology 2012

Modelling study on disease burden of HCV among IDUs in Amsterdam

Matser etal., Addiction 2011





Effect of HCV treatment & HIV coinfection

Med. n of prevalent cases with HCV-related disease (No treatment)

Med. n of prevalent cases with HCV-related disease (Treating 25% of HIV-)

Med. n of prevalent cases with HCV-related disease (Treating 95% of HIV-, 65% of HIV+)

IDU PREVALENCE ESTIMATES

Injecting drug use prevalence estimates

- ‘Indirect estimation methods’
- Extrapolation from known cases in treatment, police arrests, hospitals etc.
- Capture-recapture method, multiplier-benchmark method, multivariate indicator method…other
- May have large confidence intervals, suitable for a global number, less so to follow trends

Estimates of IDU prevalence

EU 0.75 – 1 million IDUs, trends 'stable or declining'
rate in ages 15-64 ~0.3%

Western Europe* 1.0 million (0.8 – 1.3)
rate in ages 15-65 ~0.4%

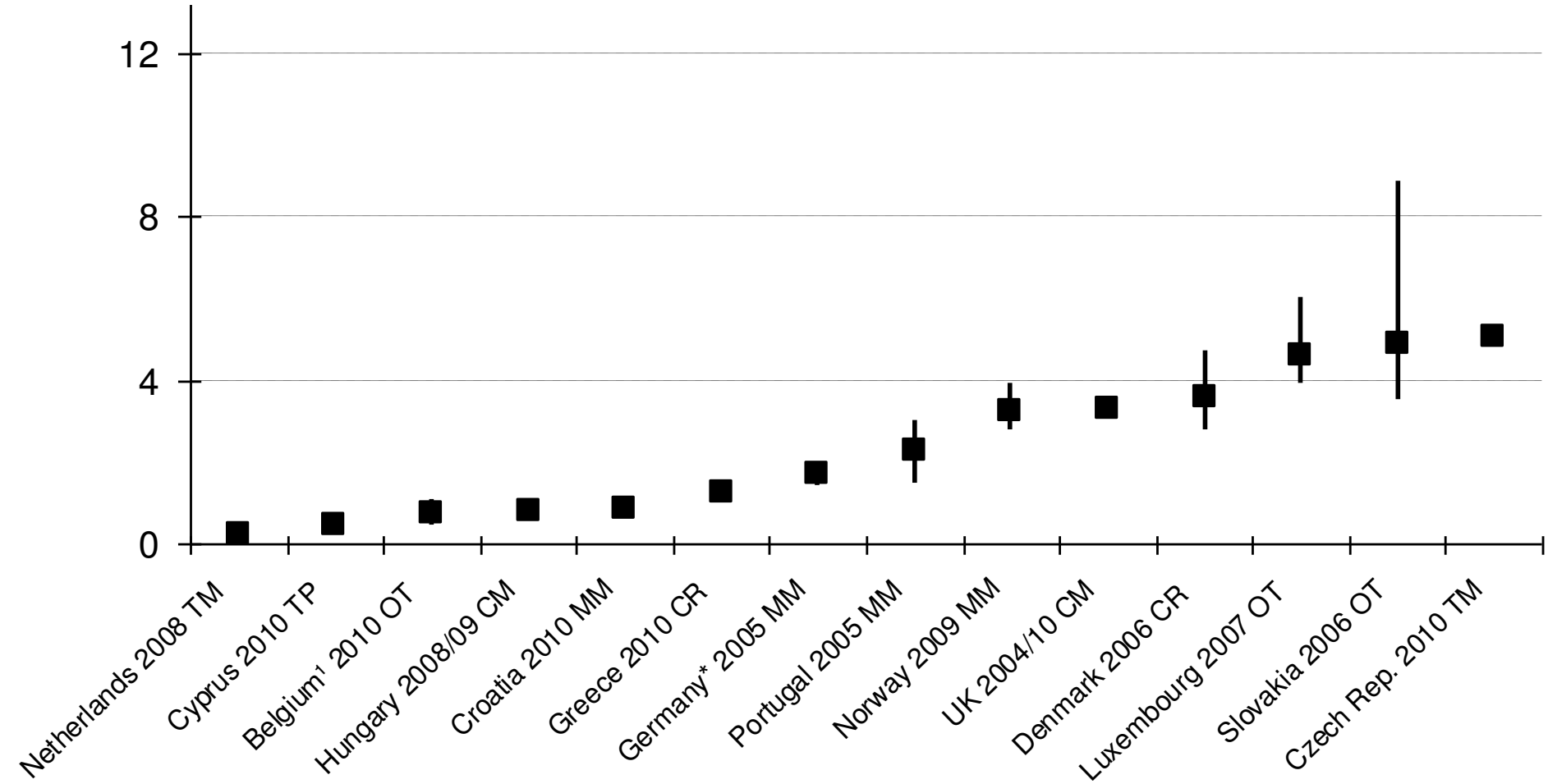
Eastern Europe and Central Asia** 3.7 million (2.7 – 4.9)
rate in ages 15-65 ~1.5%

*Albania, Andorra, Austria, Belgium, Denmark, Finland, Macedonia, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Malta, Monaco, Montenegro, Netherlands, Norway, Portugal, San, Serbia, Slovenia, Spain, Sweden, Switzerland, UK

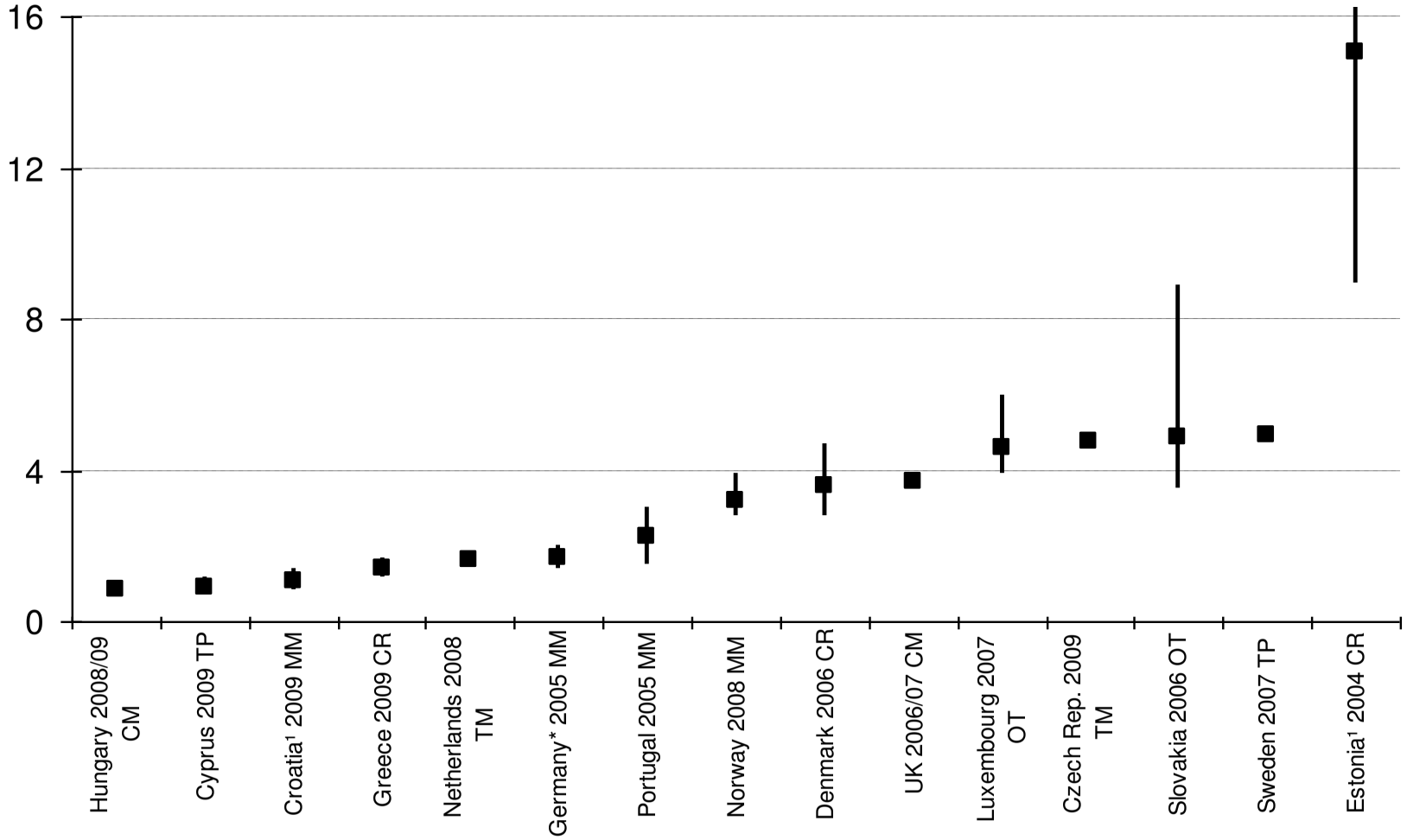
**Eastern Europe: Armenia, Azerbaijan, Belarus, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Russia, Slovakia, Ukraine.
Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

Sources: Mathers et al., Lancet 2008; EMCDDA 2010; Wiessing et al., Eurosurveillance 2010

Estimates of the prevalence of injecting drug use in EU, 2005-2010 (rate per 1000 population aged 15-64)



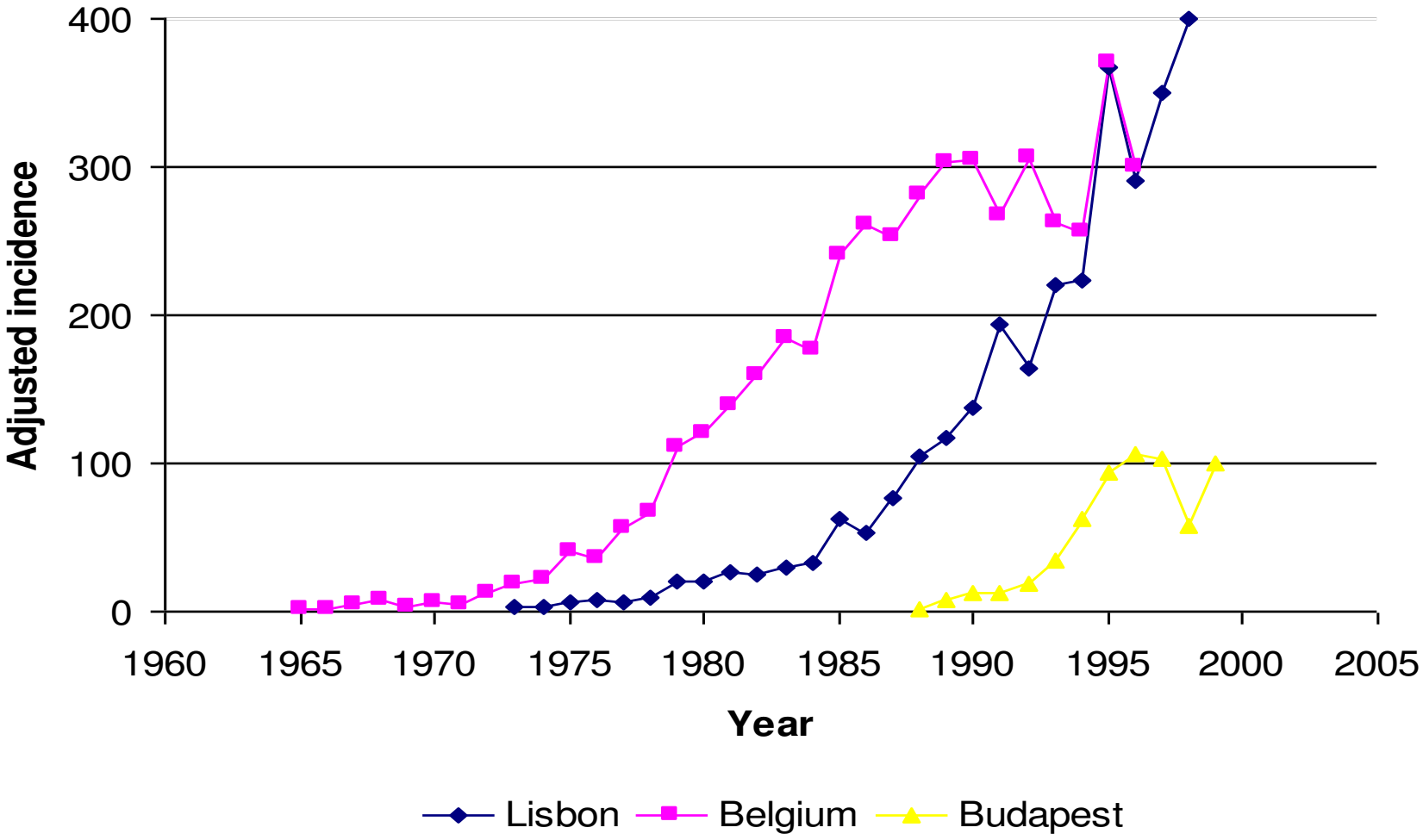
Estimates of the prevalence of injecting drug use, 2003-2009 (cases per 1000 population aged 15-64)



Problem opioid use incidence estimates

- Mainly based on back-calculation or lag-correction methods
- Need long time series e.g. number of cases having first treatment in 10 calendar years
- Ask individuals when they started using
- Re-order the observed curve using the distribution of time since first use (latency)
- Adjust for unobserved cases

Relative incidence of opiate use, Belgium Fr.C., Lisbon and Budapest (lag correction method)



CONCLUSION

Final considerations

- Data sources are imperfect, need to combine available data (prevalence and case-reporting, + other indicators), interpret very carefully
- Various indicators in combination may provide valuable insights (e.g. HCV as early risk indicator)
- Consider that PWID have many problems and may not be well represented in general services or routine data (e.g. national testing centres, case reporting)
- Consider cost-effectiveness of monitoring, low-cost solutions with coverage and sustainability are an important basis for monitoring

Final considerations 2

- PWID are at high risk of infectious diseases
- Large differences across Europe in HIV, long term decline, new outbreaks
- Hepatitis C generally very high in PWID, increasing in several countries
- This may point to increases in injecting risks (risk of HIV outbreaks? -> importance of high intervention coverage)
- EMCDDA is working with its partners to provide a timely and relevant picture of the epidemiological situation in Europe, to facilitate national and international policy making

Acknowledgments

- EMCDDA ‘Reitox’ National Focal Points and DRID experts, Isabelle Giraudon (HIV mortality), Peter Vickerman (HCV modelling), Cornelius Bartels (ECDC, anthrax) and many other colleagues