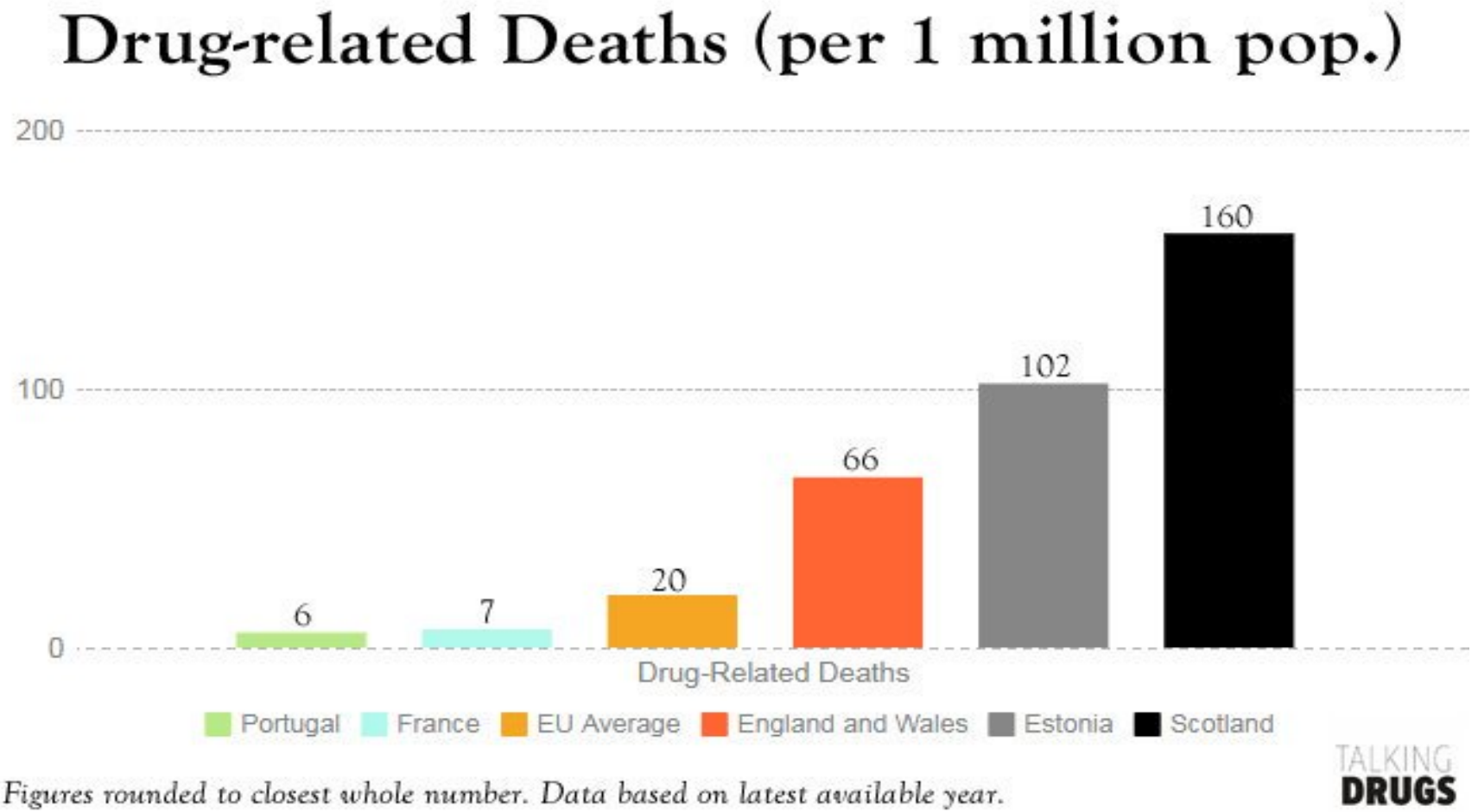
Comparing European countries with ‘high’ or ‘increasing’ drug-related death (DRD) rates

Dr. Andrew McAuley[a] & Dr. Tim Millar[b]

a) BBV/STI/VPD Group, Health Protection Scotland & Glasgow Caledonian University, School of Health and Life Sciences

b) Division of Psychology & Mental Health, School of Health Sciences, The University of Manchester

“Scotland May Now Have Highest Rate of Drug-Related Deaths in the EU”



"Comparing data on drug-related deaths is *difficult* because there are differences in definitions, toxicology and coroner processes, under-reporting and delays in reporting."

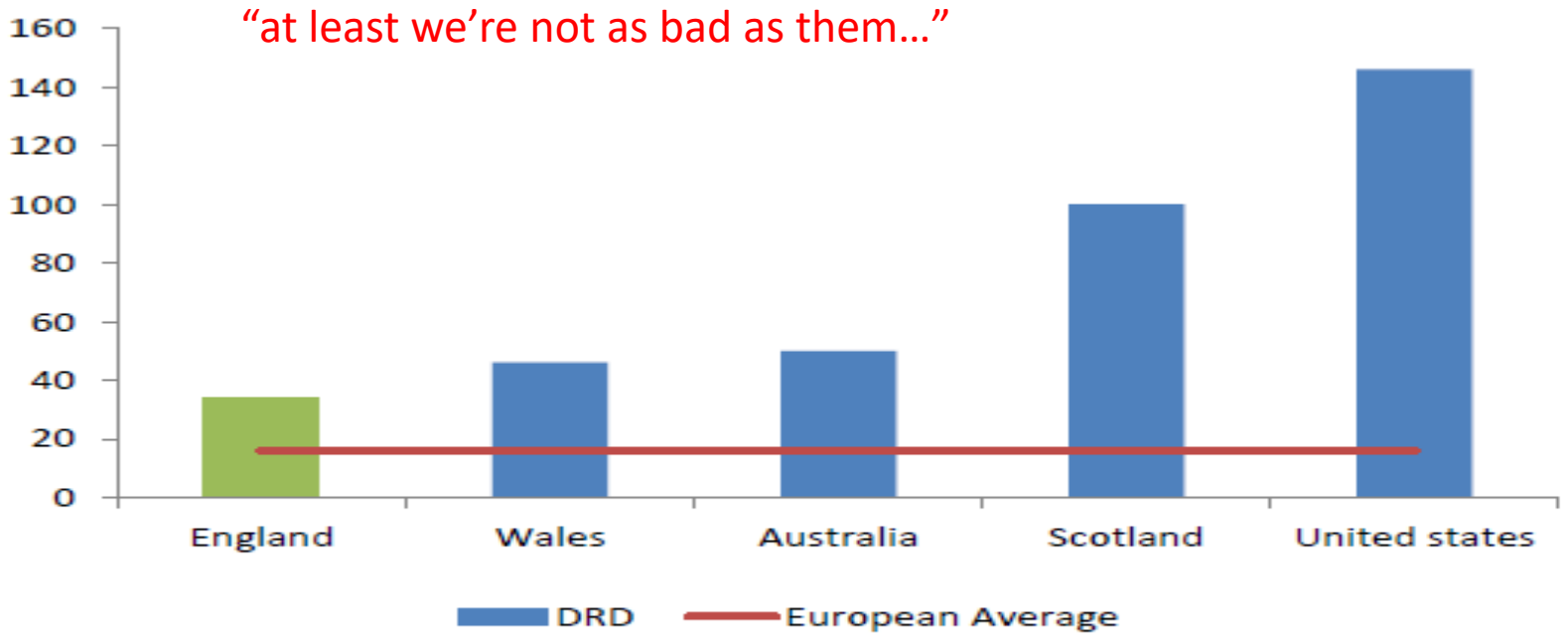
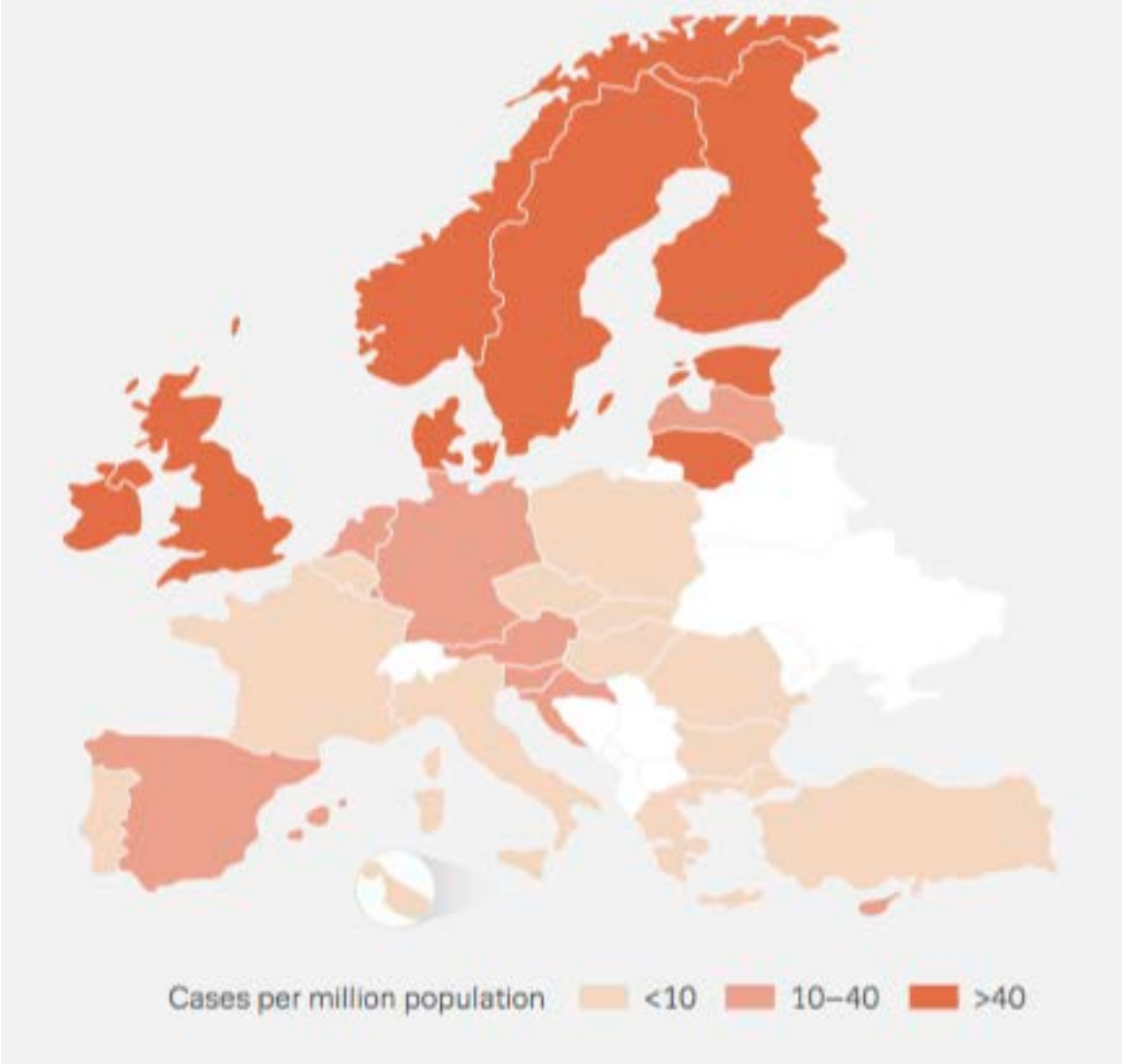


Figure 27: Rate of drug related deaths per million population, by country and European average (which includes England)

Source: Public Health England (2017)

"Although national differences in coding and reporting practices, as well as possible under-reporting, <u>make it difficult to compare countries</u>, analysing trends over time <u>within individual countries</u> is valuable" ***(EMCDDA, European Drug Report, 2015).***



NB: these are general population DRD rates …. and do not account for variation in the size (and rate) of the populations at risk of DRD.

Aim

- To explore why DRD rates in European countries are *high* or *increasing*.
  - Sweden
  - Norway
  - Scotland
  - Finland
  - Denmark
  - Estonia
  - Ireland

➢ *NB: selected countries pre-determined by EMCDDA*

Methods

- Country profiles, developed with national experts, and relevant, available EMCDDA indicators
- All seven countries: opioids implicated in 80%-90% of DRD; therefore, opioid-related DRD were the primary focus
- Considered:
  - Differences (and trends) in the number of drug users at risk of DRD
  - Differences (and trends) in factors that may influence the risk of DRD (among those at such risk)
  - Differences in / changes to mechanisms to record DRD

Drivers of the extent of DRD:

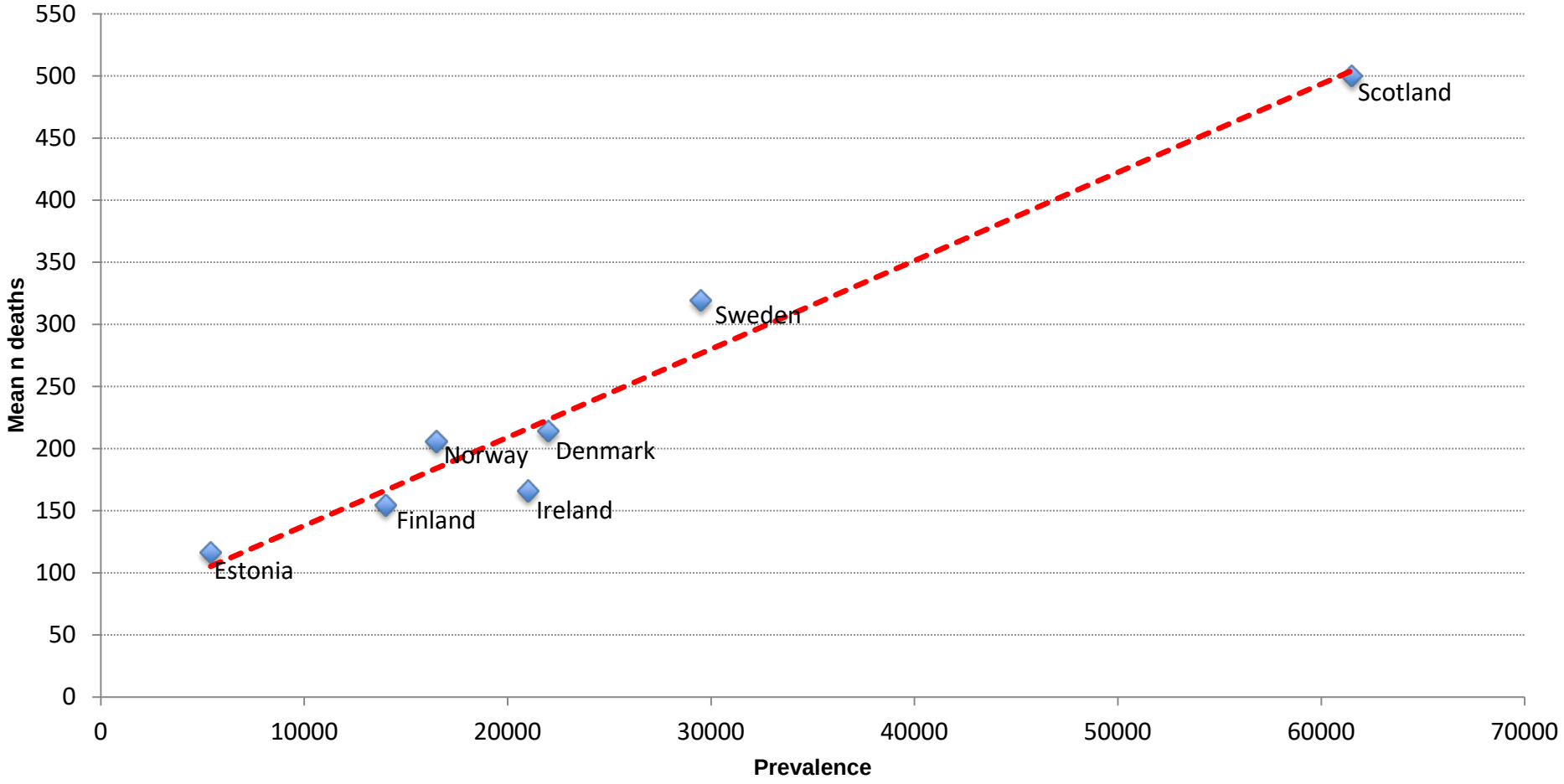
- The size of the population specifically at risk of DRD
  - *Available (albeit flawed) estimates indicate a 30x difference in prevalence rates across EU countries for the main 'at risk' group (EMCDDA, 2016): so, we should expect to observe differences in DRD general population rates!*

- The level of risk experienced by the 'at risk' group
  - *Are users in one place or time more or less likely to suffer a fatal overdose? A much more interesting question…. and much more difficult to answer*

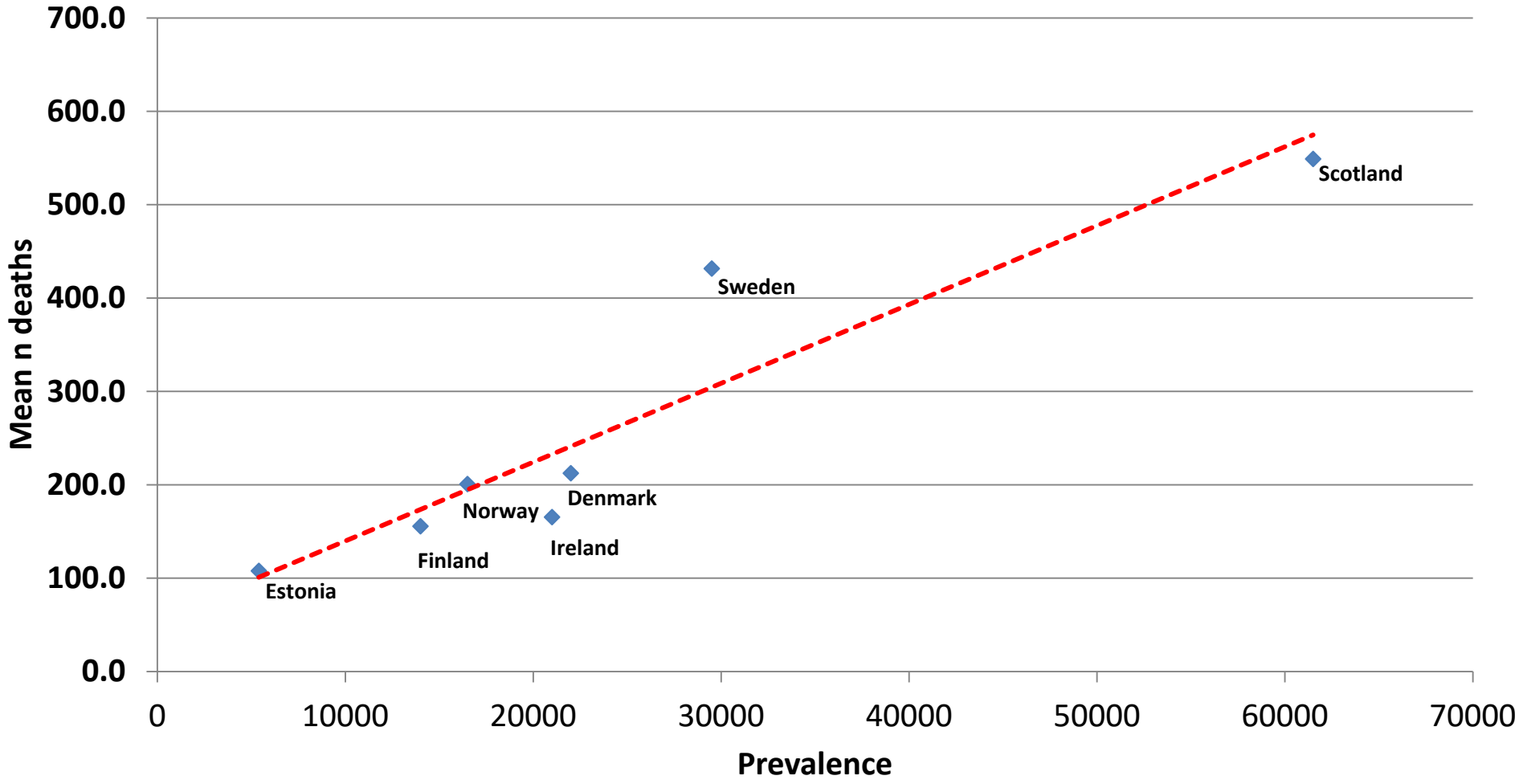
Comparison of DRD rates for two hypothetical countries:

Country A:		**Country B:**
100 opioid DRD p.a. General Population=1,000,000 persons Estimated POU prevalence 5,000 persons (POU population rate=50 per 10,000)		500 opioid DRD p.a. General Population=5,000,000 persons Estimated POU prevalence 60,000 persons (POU population rate=120 per 10,000)
General population DRD rate=1 per 10,000	=	General population DRD rate=1 per 10,000
POU DRD rate=200 per 10,000	≠	POU DRD rate=83 per 10,000

Mean annual number of opioid related deaths (2009-13) vs. ‘best (gu)estimates’ of problem opioid prevalence (or proxy):



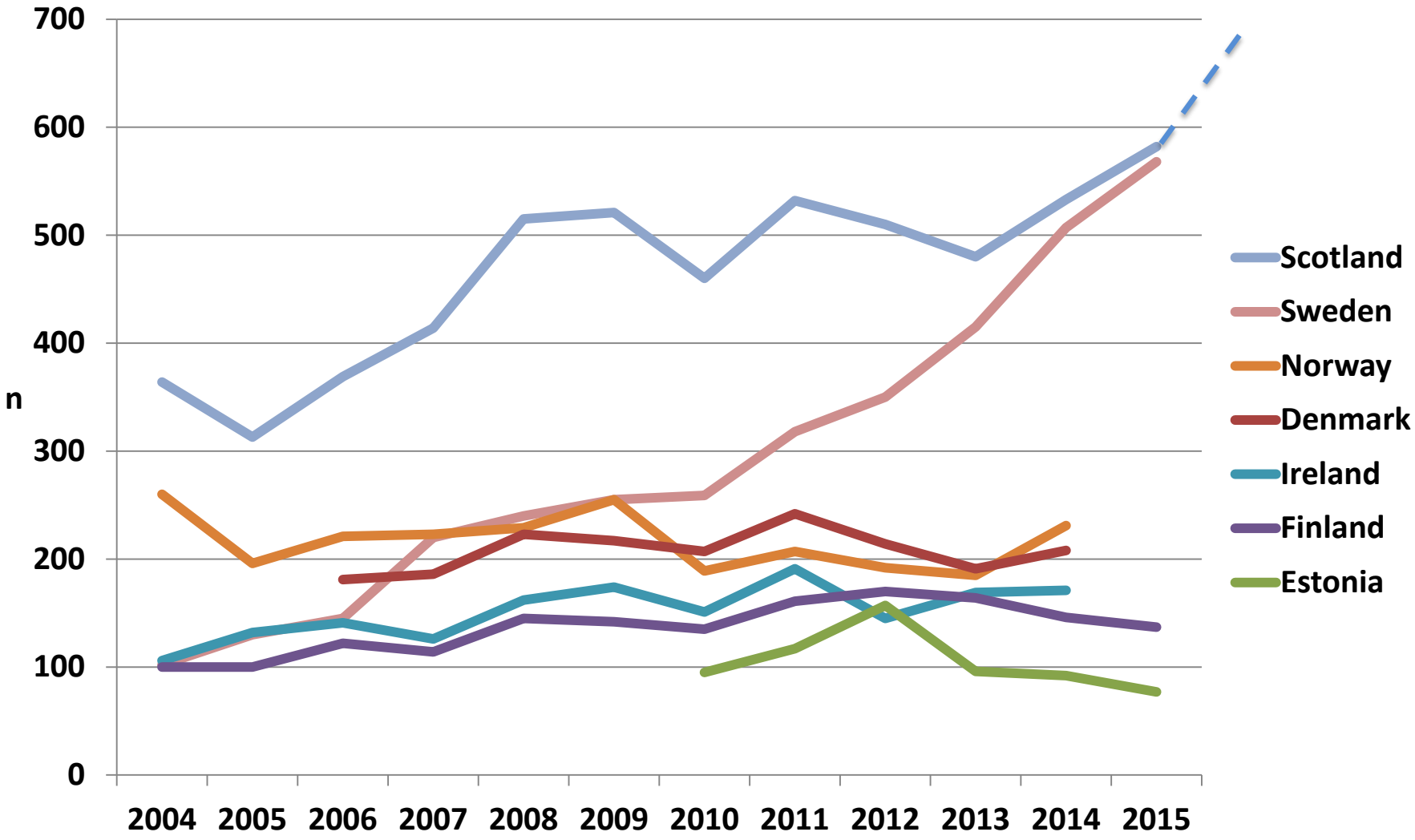
Mean annual number of opioid related deaths (most recent 5-year period) vs. ‘best (gu)estimates’ of problem opioid prevalence (or proxy):



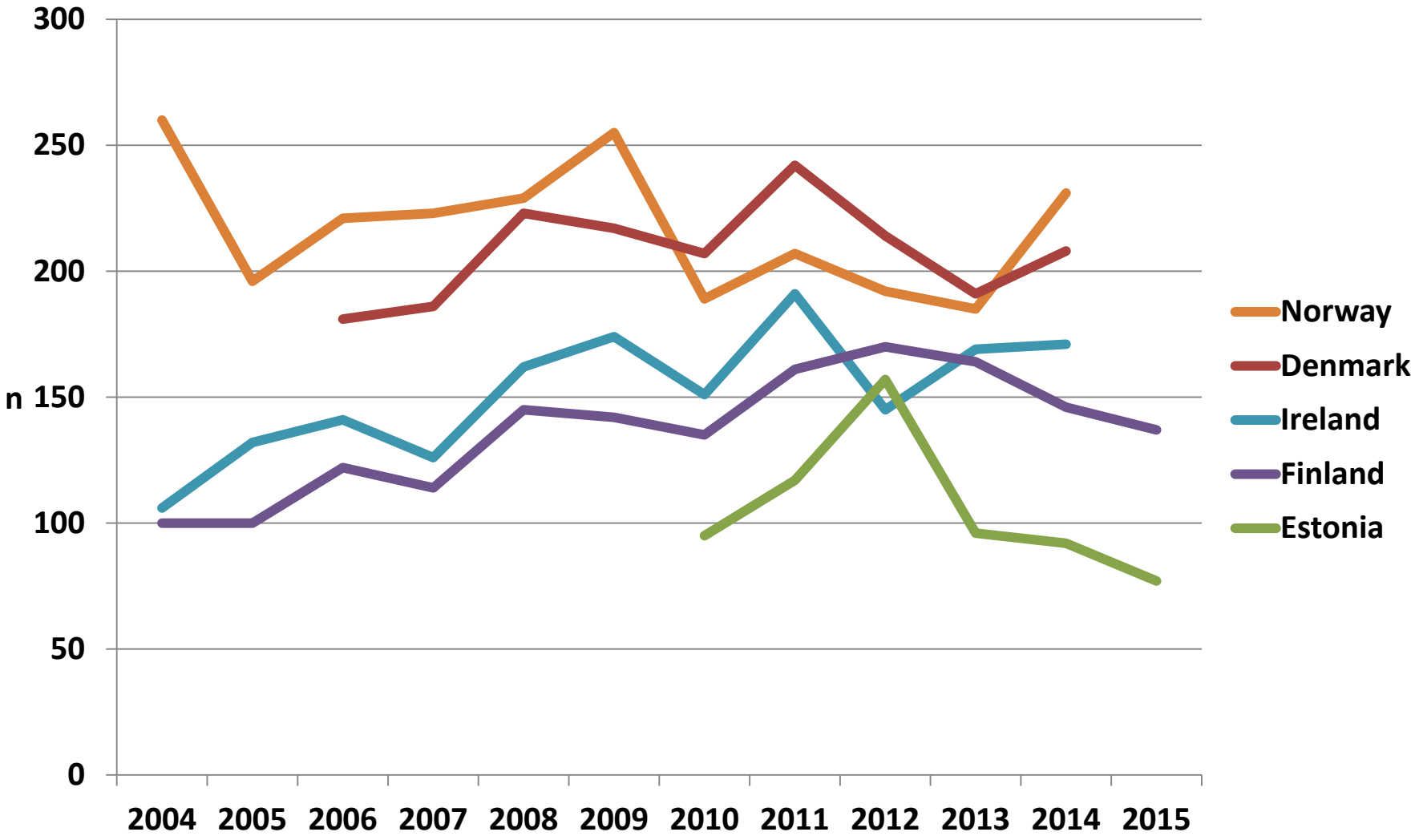
Cohort studies:

- 23 drug user mortality studies identified for the 7 countries
- 16 excluded - did not report a DRD rate
- Additional 3 excluded – lack of case definition comprising active drug use during observation
- 4 remaining studies, 2 countries, based on 2 cohorts
- Scotland (opiate users, observation 1996-2006): DRD rate during & post-treatment 4.4 (95% CI: 4.1–4.6) per 1,000 PY (Merrall et al., 2012)
- Norway (opiate users, observation 1997-2003): DRD rate during-treatment 4 (95% C.I. 0-8), post-treatment 21 (17–25), circa 6.7 (derived) per 1,000 PY combined (Clausen et al., 2008): note wide C.I.

Trends in the number of Drug-Related Deaths involving opioids: 2004-2015:



Trends in the number of Drug-Related Deaths involving opioids: 2004-2015:



Available HRDU/PDU prevalence trend estimates

Country	Method	2014	2013	2012	2011	2010	2009	2008	2007
AT	:	:	:	:	:	:	:	:	:
BE	:	:	:	:	:	:	:	:	:
BG	:	:	:	:	:	:	:	:	:
CY	TP	2.7	2	1.77	2.09	1.54	2.5	2	3.66
CZ	TM	6.73	6.28	5.71	5.51	5.3	5.04	4.39	4.2
DE	TM	:	4.42	4.4	4.65	4.06	3.71	3.96	3.3
DK	:	:	:	:	:	:	:	:	:
EE	:	:	:	:	:	:	:	:	:
ES	:	:	:	:	:	:	:	:	:
FI	:	:	:	:	:	:	:	:	:
FR	:	:	:	:	:	:	:	:	:
GR	:	:	:	:	:	:	:	:	:
HR	MM	:	:	3.48	3.3	:	:	:	:
HU	:	:	:	:	:	:	:	:	:
IE	:	:	:	:	:	:	:	:	:
IT	TM	:	:	:	:	:	9.95	9.8	:
LT	:	:	:	:	:	:	:	:	:
LU	OT	:	:	:	:	:	6.16	:	7.7
LV	TM	:	:	:	9.37	13.33	:	:	:
MT	:	:	:	:	:	:	:	:	:
NL	:	:	:	:	:	:	:	:	:
NO	:	:	:	:	:	:	:	:	:
PL	:	:	:	:	:	:	:	:	:
PT	:	:	:	:	:	:	:	:	:
RO	:	:	:	:	:	:	:	:	:
SE	:	:	:	:	:	:	:	:	:
SI	:	:	:	:	:	:	:	:	:
SK	OT	:	:	:	:	:	:	2.68	4.7
TR	:	:	:	:	:	:	:	:	:
UK	CM	:	:	9.16	9.19	9.38	9.79	:	10.1

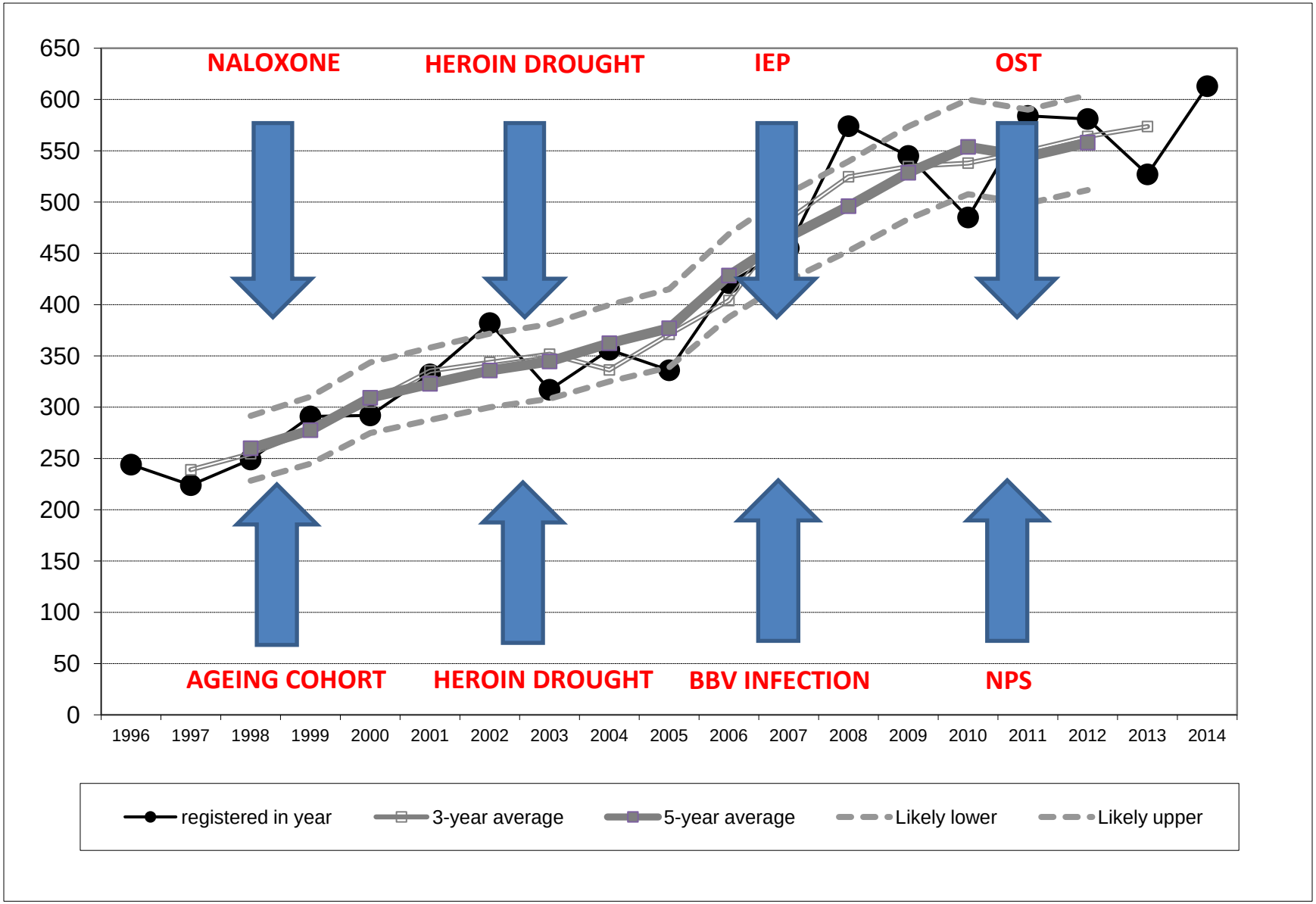
http://www.emcdda.europa.eu/data/stats2016

Drivers of risk:

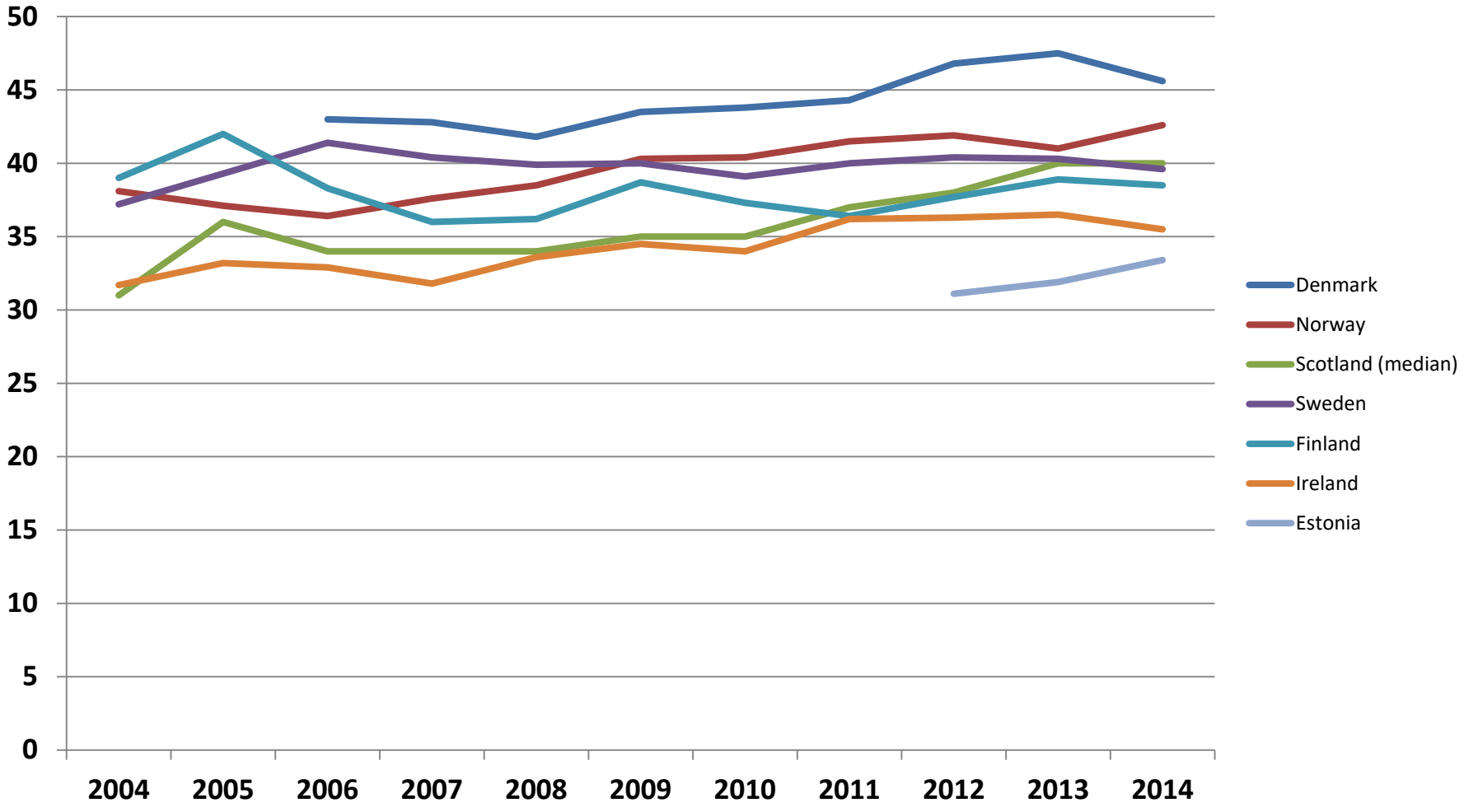
- Demographic
- Behavioural
- Contextual/environmental setting

- Set of (non-exhaustive) hypotheses about potential drivers - focus on drivers where (trend) data ***may*** be available
- We are looking at a moving target
- Upward and downward drivers will co-occur (and may operate simultaneously with changing prevalence)
- Likely complex set of interactions between some drivers

- ***No simple answers***


NALOXONE
HEROIN DROUGHT
IEP
OST
AGEING COHORT
HEROIN DROUGHT
BBV INFECTION
NPS
650
600
550
500
450
400
350
300
250
200
150
100
50
0
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
registered in year
3-year average
5-year average
Likely lower
Likely upper

Demographic risk: trend in mean age at DRD (all DRD):



Variation in behavioural risk?

- **Do the at risk populations vary wrt injecting, type of opioid use, poly drug use, etc?**

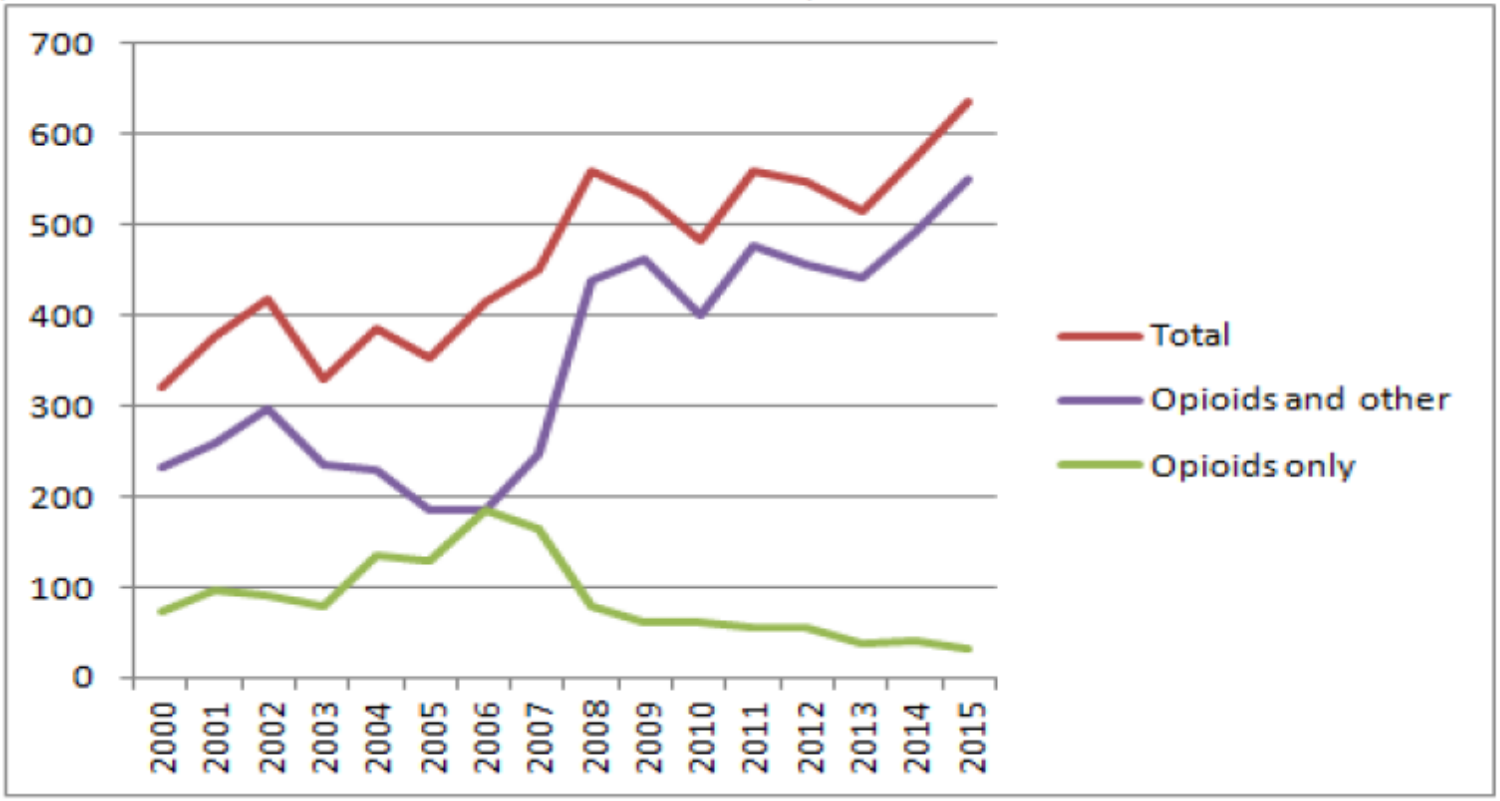
- Injecting: there is substantial variation in rate of injecting; Scotland is somewhere in the middle/lower end of the distribution.

- Type of opioid: there is variation; fentanyl in Estonia likely to put users at higher risk; buprenorphine (with alcohol & benzos) in Finland; Scotland (& Ireland) unusual re dominance of heroin.

- Polydrug use: toxicology suggests that polydrug use is common, perhaps more common in Scotland (but perhaps superior screening?)

Polydrug use:

Figure A.6.1: Crude numbers of annual drug-induced deaths recorded in Scotland, 2000-2015 (source: National Records of Scotland, 2016)



Prevalence of BBV among PWID (2010-16):

Country	HCV	HBV	HIV
Denmark	75%	35%	<5%
Estonia	76-90%	3-22%	~50%
Finland	74%	1.2%	-
Ireland	68%	-	-
Norway	64%	(Oslo) 35%	2.4%
Scotland	58%	-	1.9%
Sweden	60-80%	-	-

OST coverage:

- Variations between countries
- Absence of trend data on the size of the at-risk population, it is not possible to assess the potential effect that changes in the size of the OST group exert on DRD trends
- Lack of information on the delivery of treatment, dimensions of which are likely to modify a treatment's protective effect with regard to DRD

Availability of Harm Reduction Interventions:

Country	Methadone Maintenance Treatment	Buprenorphine Treatment	Buprenorphine /Naloxone	Needle & Syringe exchange	Supervised Injecting Facilities	Heroin Assisted Treatment	Take-Home Naloxone
Denmark	✓	✓	×	✓	✓	✓	✓
Estonia	✓	✓	×	✓	×	×	✓
Finland	✓	✓	✓	✓	×	×	×
Ireland	✓	×	✓	✓	×	×	✓
Norway	✓	✓	✓	✓	✓	×	✓
Scotland	✓	✓	✓	✓	×	×	✓
Sweden	✓	✓	✓	✓	×	×	×

Summary:

- Scotland's DRD rate (per person at risk) is broadly equivalent to (perhaps less than?) those of the other countries considered
- There is little clear evidence of elevated behavioural, demographic, or environmental (Tx, HR, BBV) risk in Scotland, vs. other countries
- Demographic risk (age) has increased
- Scotland has a reasonably comprehensive set of interventions, incl OST, to reduce risk – at least maintain them & improve them – clear gap is SIF/HAT

Thank you

andrew.mcauley@nhs.net

@arjmcauley

0141 282 2279