

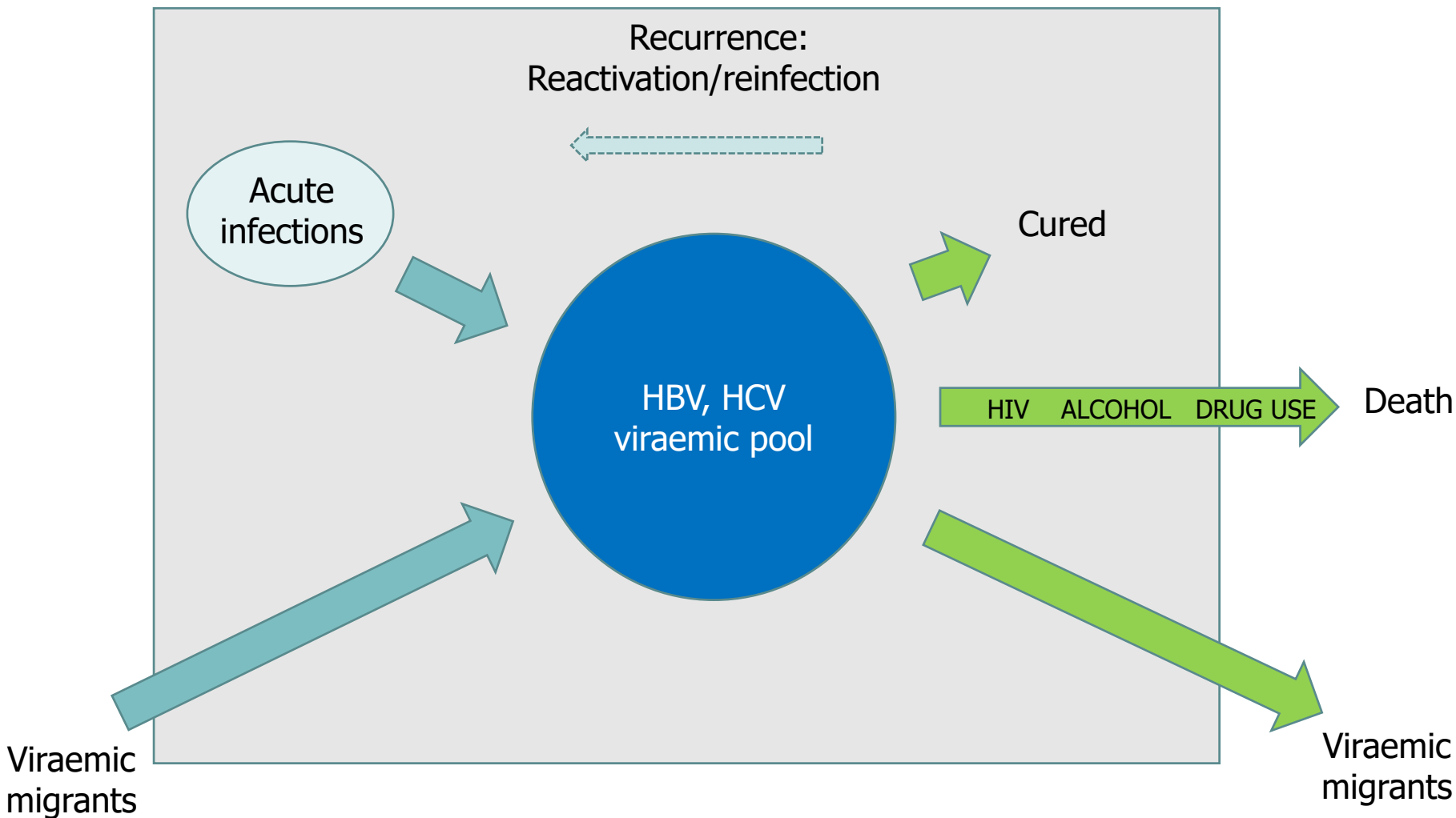


The diverse and dynamic epidemics of viral hepatitis in Europe: challenges to elimination

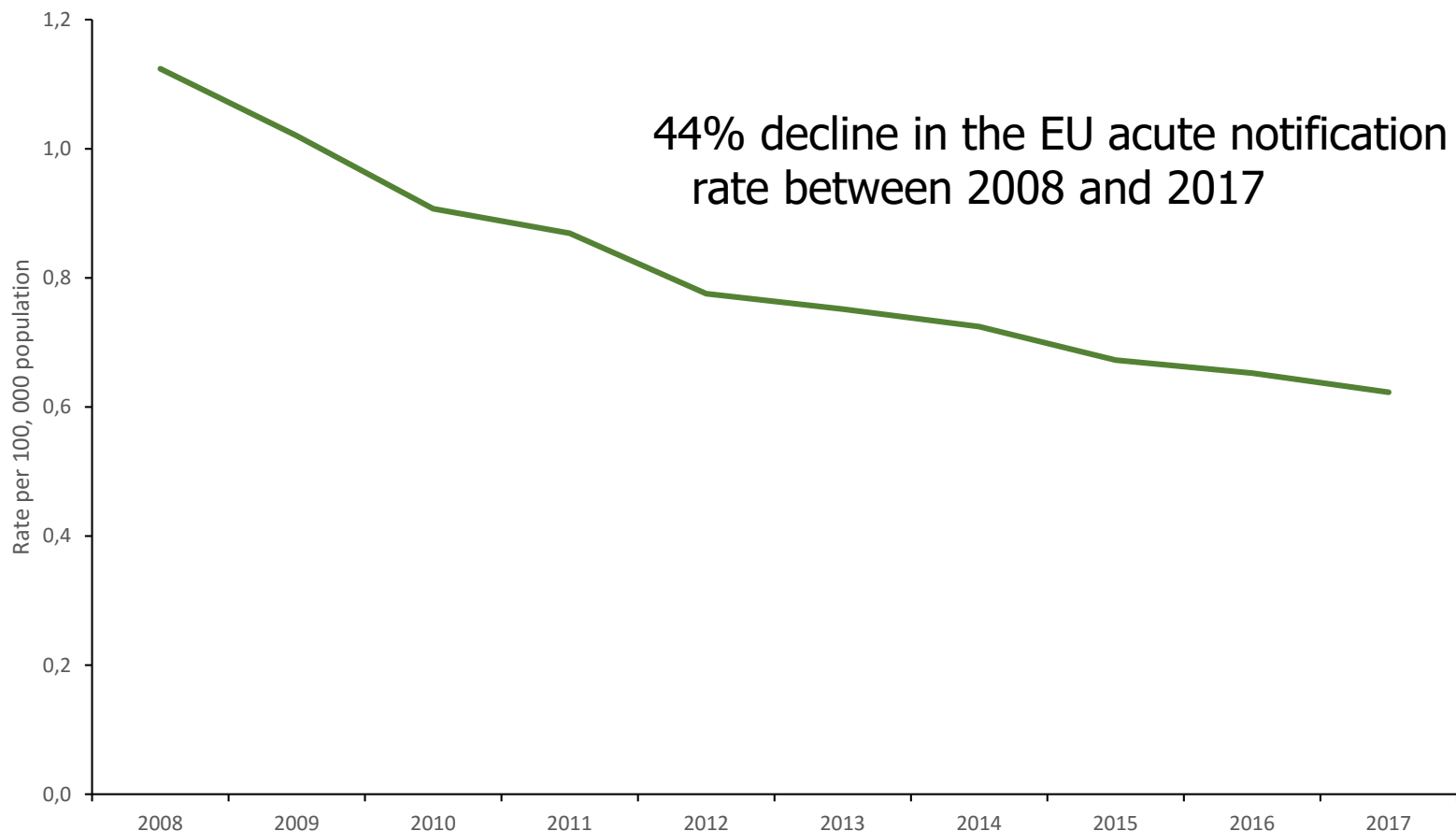
Erika Duffell

European Centre for Disease Prevention and Control, Stockholm, Sweden
ESCMID Postgraduate Education Course, 27th September 2019.

Hepatitis B and C: inputs and outputs to the prevalence pool



Incidence: rates of acute hepatitis B cases in EU/EEA countries, 2008–2017



Source: ECDC Country reports from Austria, Czech Republic, Denmark, Estonia, Finland, France*, Germany, Greece, Hungary, Ireland, Latvia, the Netherlands, Norway, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom**.

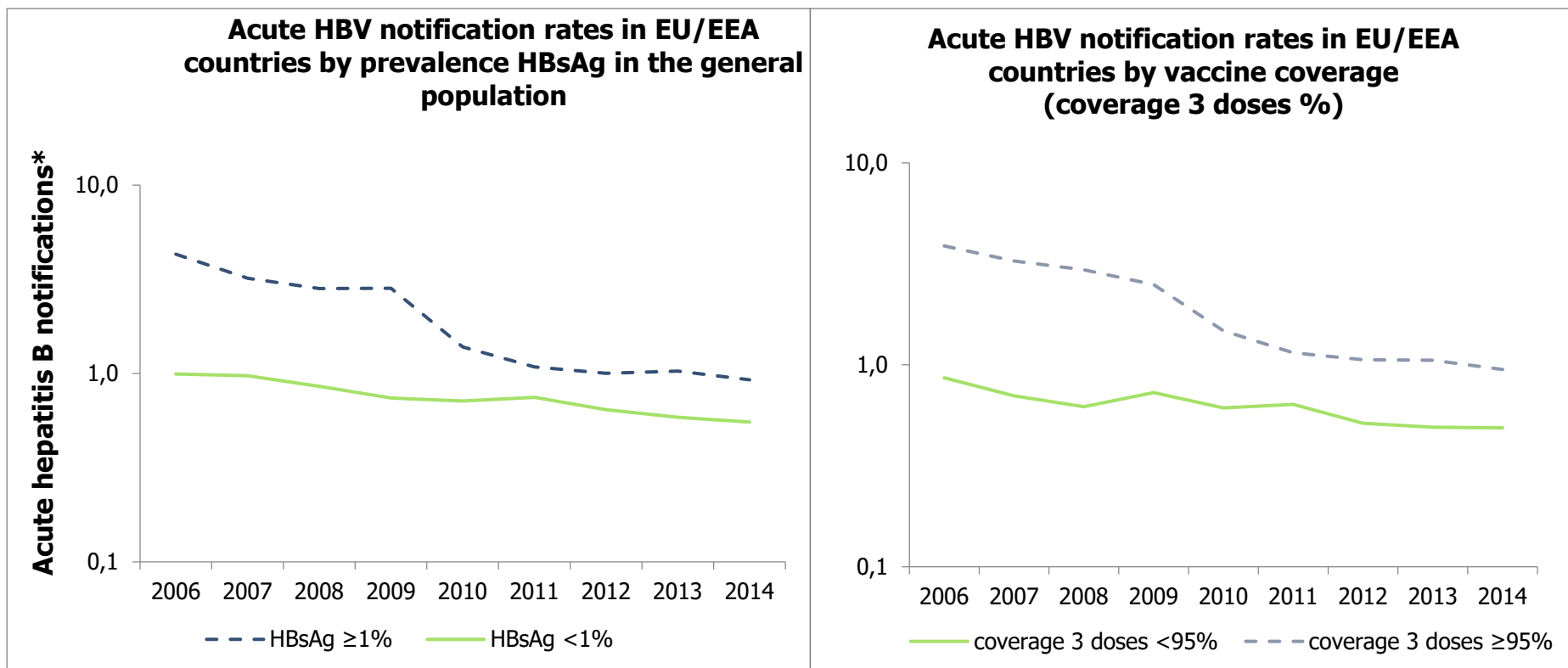
* Underreporting of acute hepatitis B in France was estimated at 73% in 2016.

** UK data exclude Scotland as Scottish data have not been reported consistently.

Incidence: Acute hepatitis B notifications



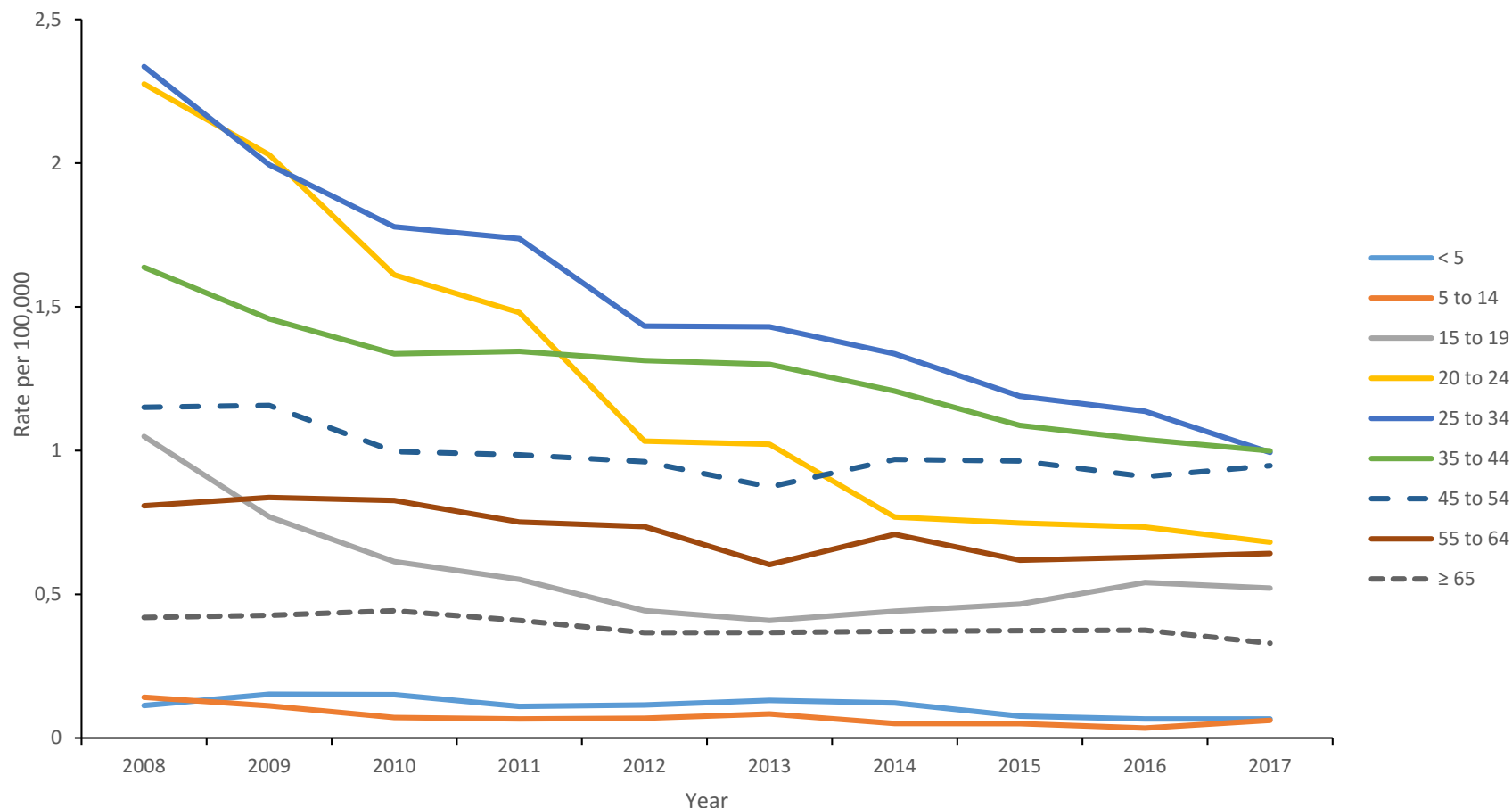
Greater decline in rates among countries with endemicity over 1% and with a high vaccine coverage (>95%)



*Logarithmic scale

Source: Miglietta et al, Eurosurveillance 2018

Rate of acute hepatitis B notifications per 100,000 by age group, EU/EEA, 2008 - 2017



Source: ECDC, *Country reports from Austria, Czech Republic, Denmark, Estonia, Finland, France*, Germany, Greece, Hungary, Ireland, Latvia, the Netherlands, Norway, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom**.*

* Underreporting of acute hepatitis B in France was estimated at 73% in 2016.

** UK data exclude Scotland as Scottish data have not been reported consistently.

Incidence: hepatitis C



Declining incidence reported following control of blood transfusion and iatrogenic transmission in 1990s

- Further declines following introduction of harm reduction

Incidence among **PWIDs** up to 66 per 100 person-years (Wiessing et al., 2014)

- Possible recent declines in some countries (e.g. Scotland)

Incidence among **HIV infected MSM** up to 11.8 per 100 person-years (Jin et al., 2017)

- Recent decline among HIV infected MSM related to direct acting antivirals in Netherlands
- Incidence among **HIV negative MSM** lower but epidemiology changing with CHEMSEX and use of PrEP

The scale of the hepatitis B and C epidemics in EU/EEA countries

**Estimated number
living with the
infection**

HBV
4.7 million

HCV
3.9 million

% undiagnosed

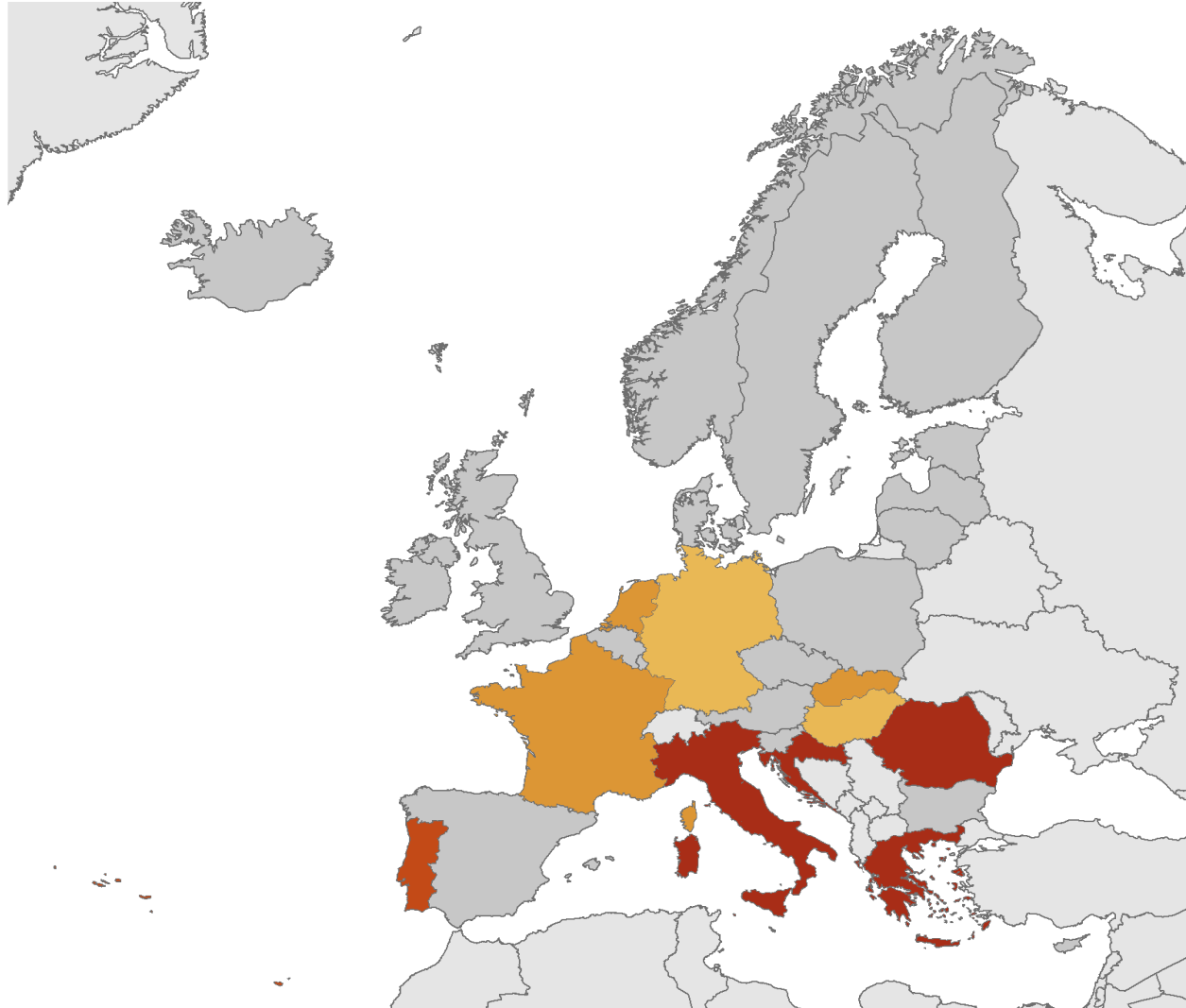
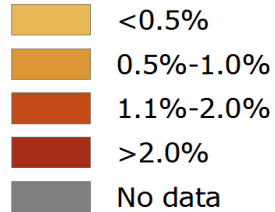
HBV
40-85%

HCV
20-91%

Sources: Hofstraat SHI et al 2017; ECDC 2018; van Sighem A et al 2017

HBsAg prevalence, general population, EU/EEA, 2008-2017

HBsAg prevalence



Luxembourg



Malta



Liechtenstein

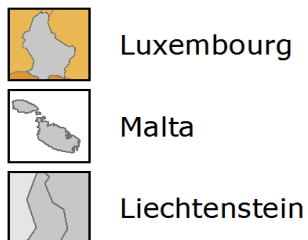
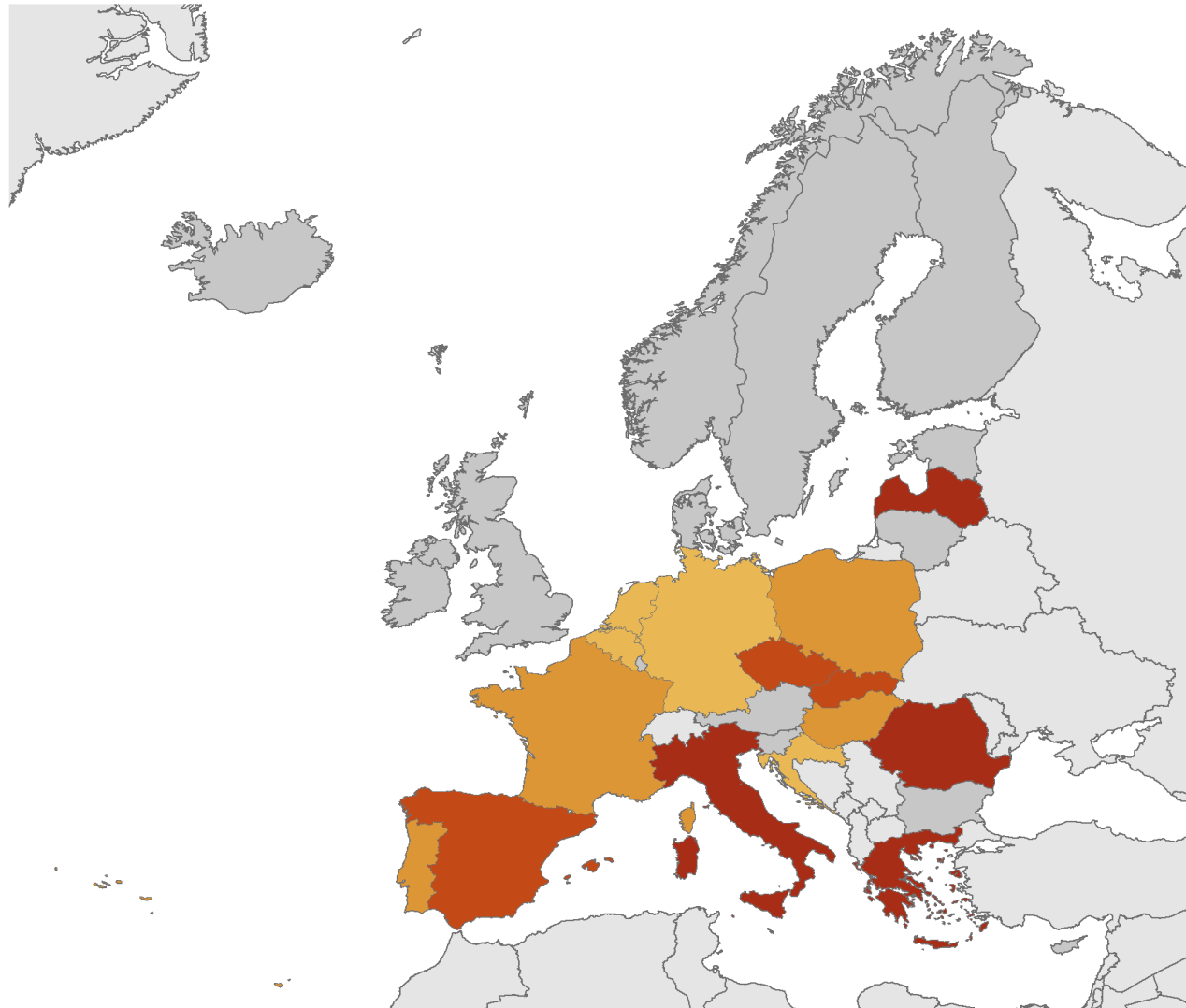
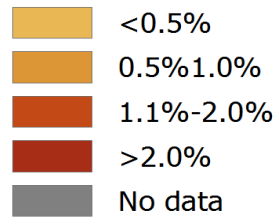
Source: ECDC hepatitis B and C prevalence database: <https://ecdc.europa.eu/en/all-topics-zhepatitis-btools/hepatitis-b-prevalence-database>

*Data from peer-reviewed publications 2008-2017 with a risk of bias score ≥ 4 .

Anti-HCV prevalence, general population, EU/EEA, 2008-2017



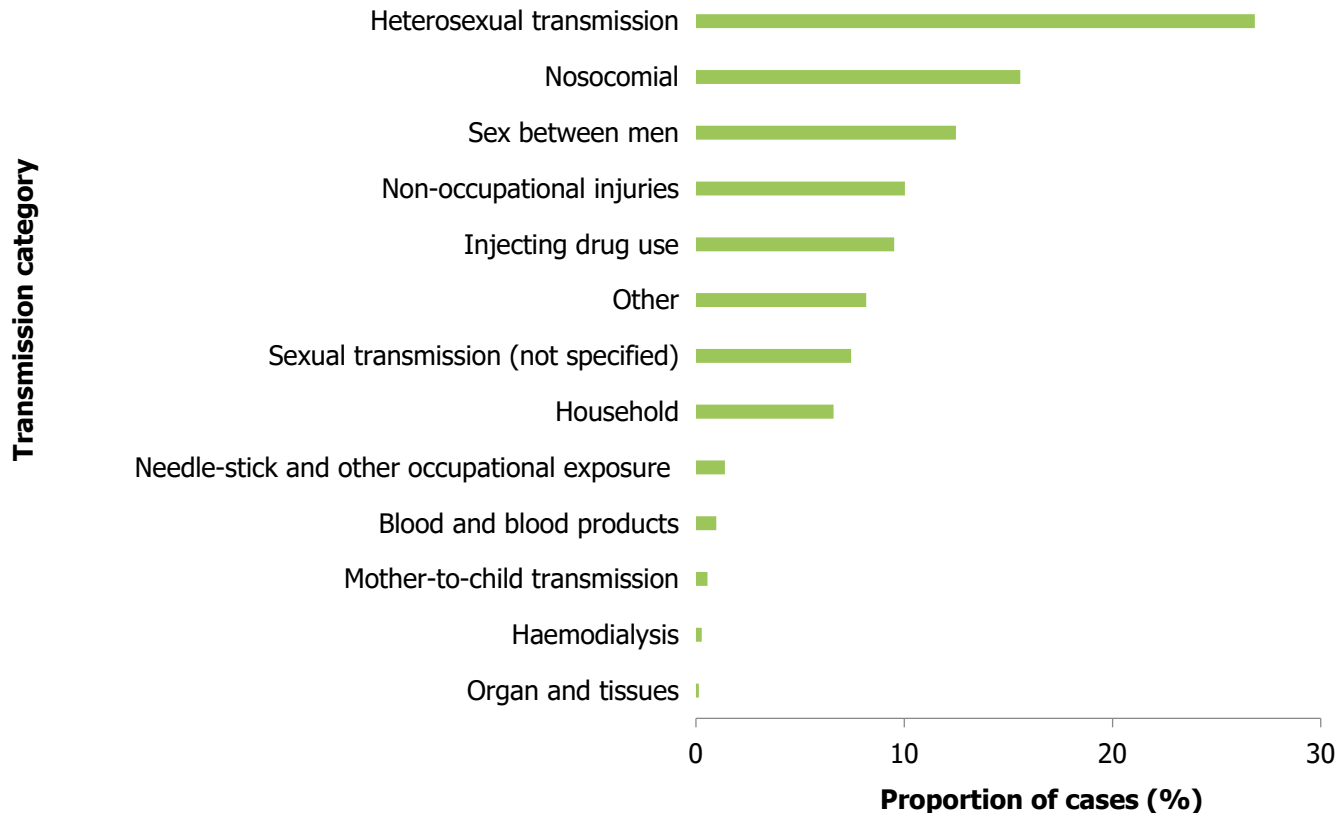
Anti-HCV prevalence



Source: ECDC hepatitis B and C prevalence database: <https://ecdc.europa.eu/en/all-topics-zhepatitis-btools/hepatitis-b-prevalence-database>

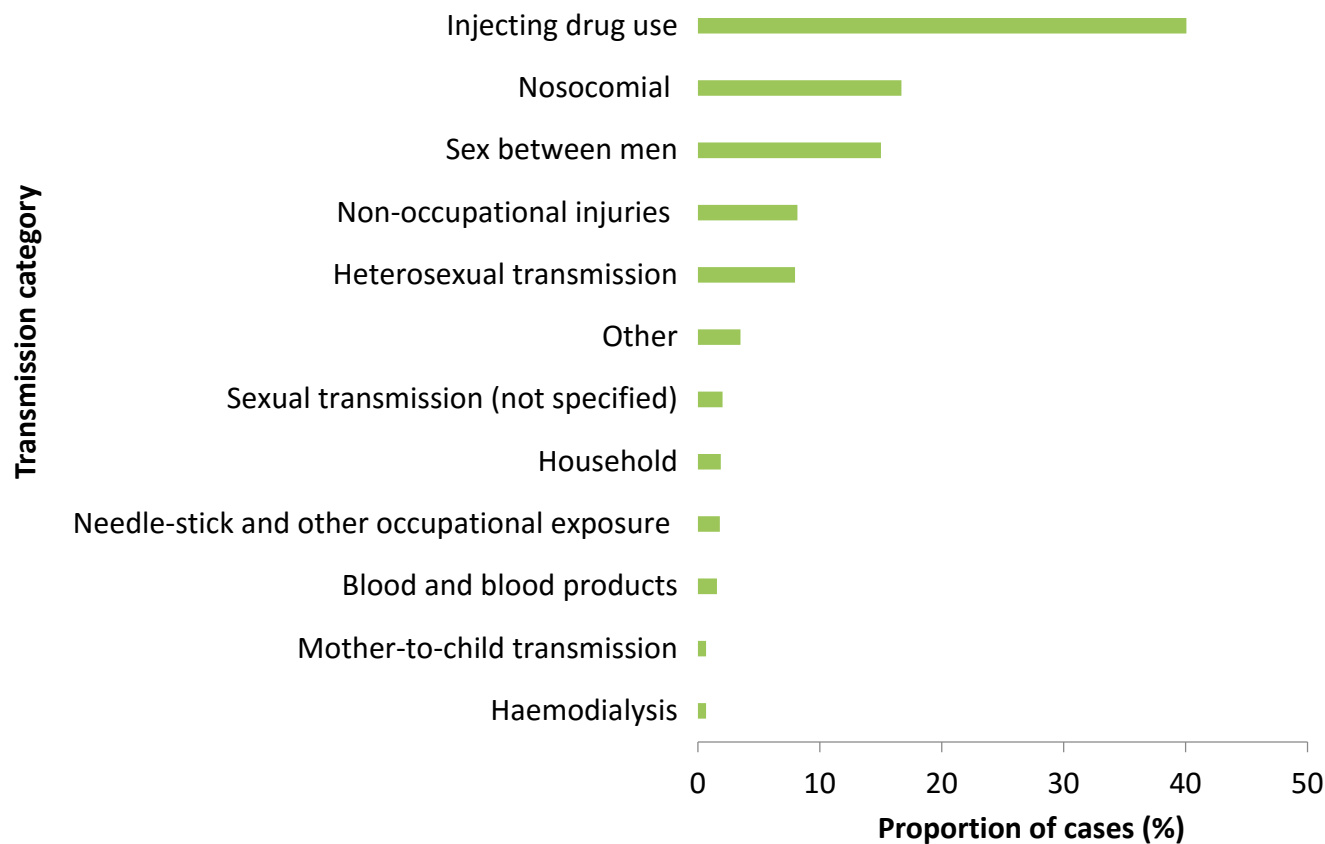
*Data from peer-reviewed publications 2008-2017 with a risk of bias score ≥ 4 . ta

Reported transmission category for acute hepatitis B notifications in EU/EEA countries, 2017



Source: ECDC reports - Austria, Cyprus, Denmark, Estonia, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

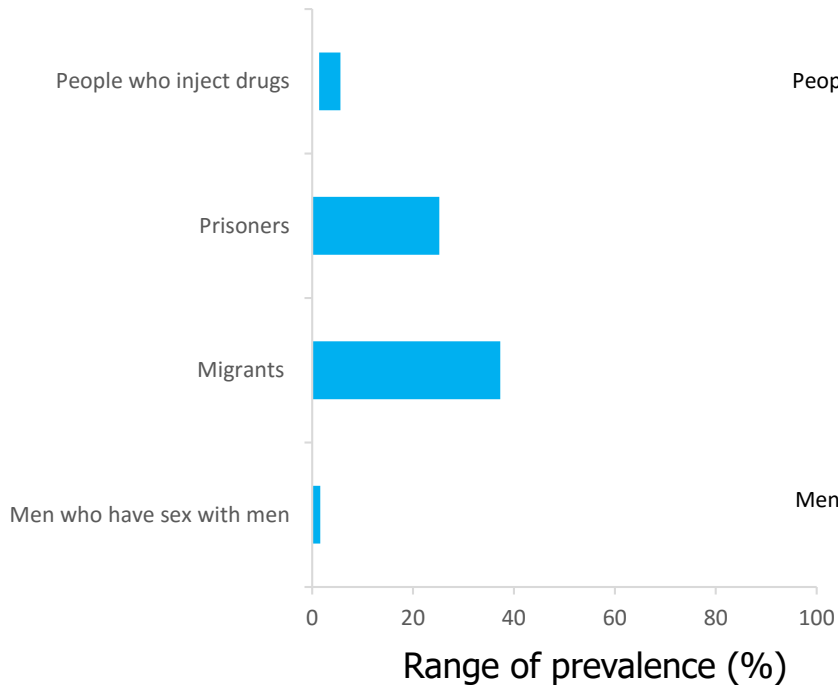
Reported transmission category for acute hepatitis C notifications in EU/EEA countries, 2017



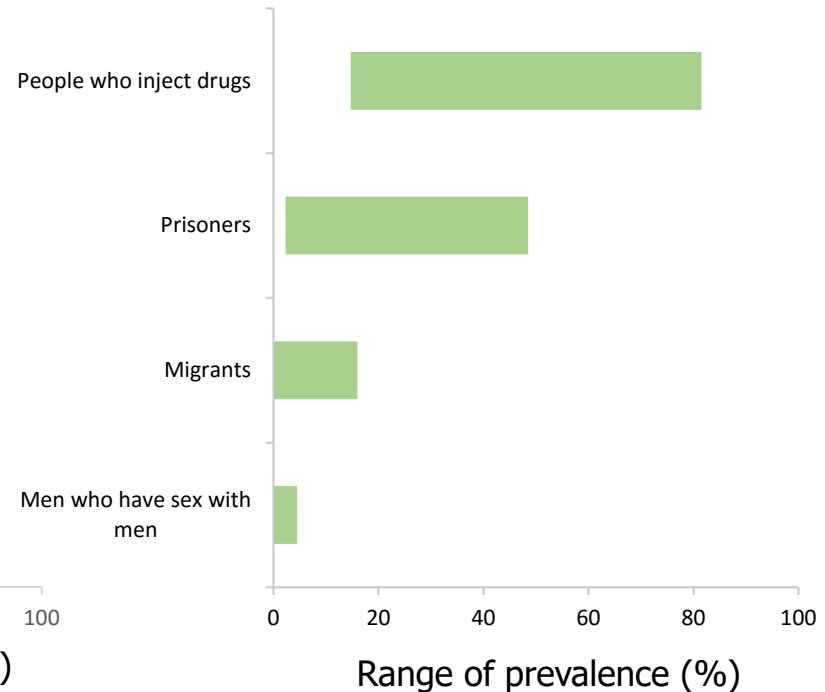
Source: ECDC - Country reports from Austria, Denmark, Estonia, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Prevalence in key populations

HBsAg prevalence (%)



Anti-HCV prevalence (%)



Source:

EMCDDA: <http://www.emcdda.europa.eu/data/>

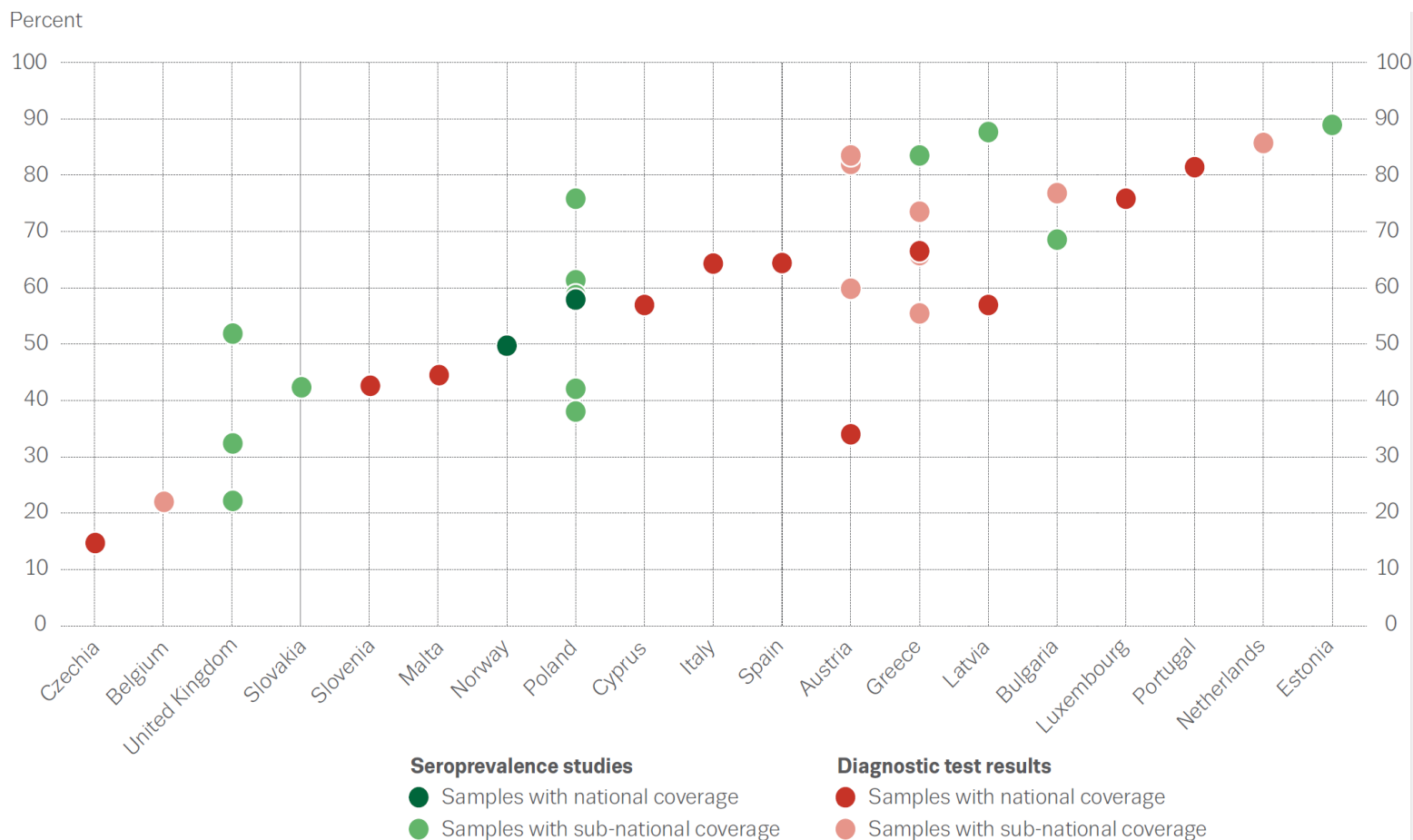
ECDC hepatitis B and C prevalence databases:

<https://ecdc.europa.eu/en/all-topics-zhepatitis-btools/hepatitis-b-prevalence-database>

<https://ecdc.europa.eu/en/all-topics-zhepatitis-ctools/hepatitis-c-prevalence-database>

Injecting drug use and hepatitis

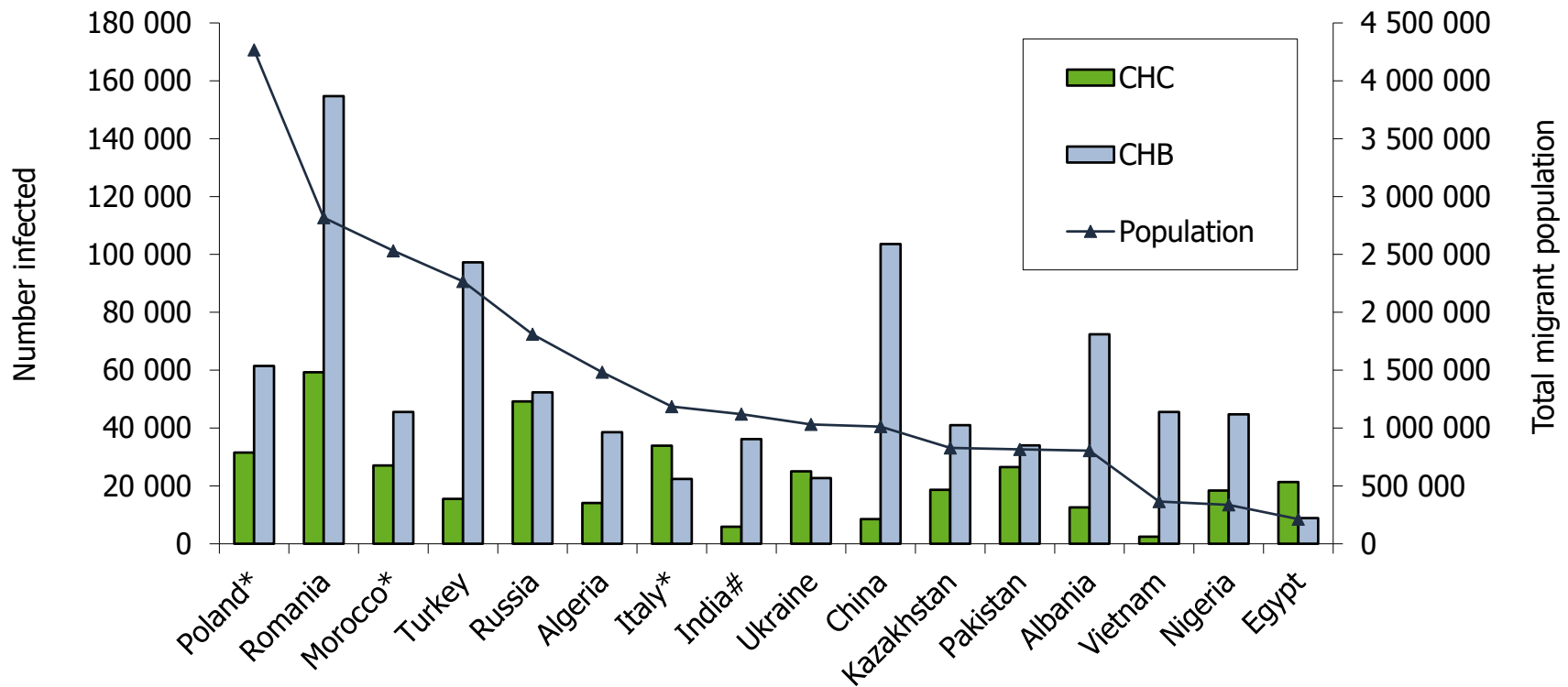
- Injecting drug use is central to the hepatitis C epidemic in Europe
- Anti-HCV prevalence among PWIDs **50 times** greater than the general population (Hahné et al., 2013)



Migration and hepatitis

Migrants comprise around 10% of the EU/EEA population, yet account for 25% of all chronic HBV cases and 14% of chronic HCV cases

Estimated number of chronic hepatitis B (CHB) and hepatitis C (CHC) cases among migrants in the EU/EEA and size of the migrant population



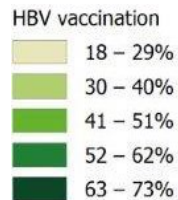
*HBsAg endemicity <2%
 #Anti-HCV endemicity <1%
 Source: ECDC, 2016

MSM and hepatitis

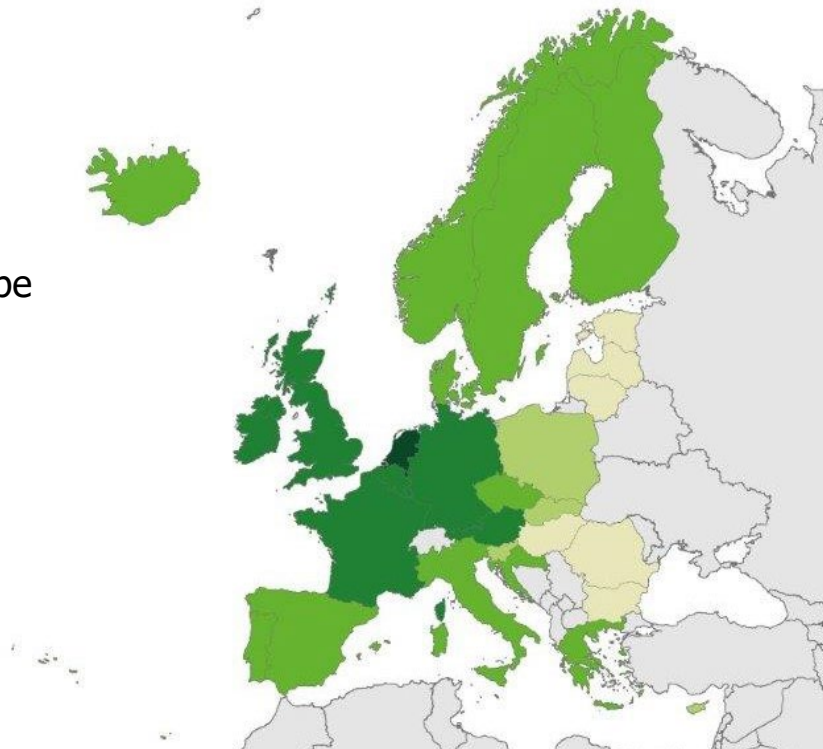
General: Increasing cases of syphilis and gonorrhoea among MSM

HCV: Increasing cases sexually acquired HCV infection

HBV : Higher HBV prevalence among MSM in eastern European countries



Estimates suggest
51% MSM in Europe
are unvaccinated



Percentage of respondents
to EMIS 2017 survey
reporting a full course of
hepatitis B vaccination* in
EU/EEA countries**

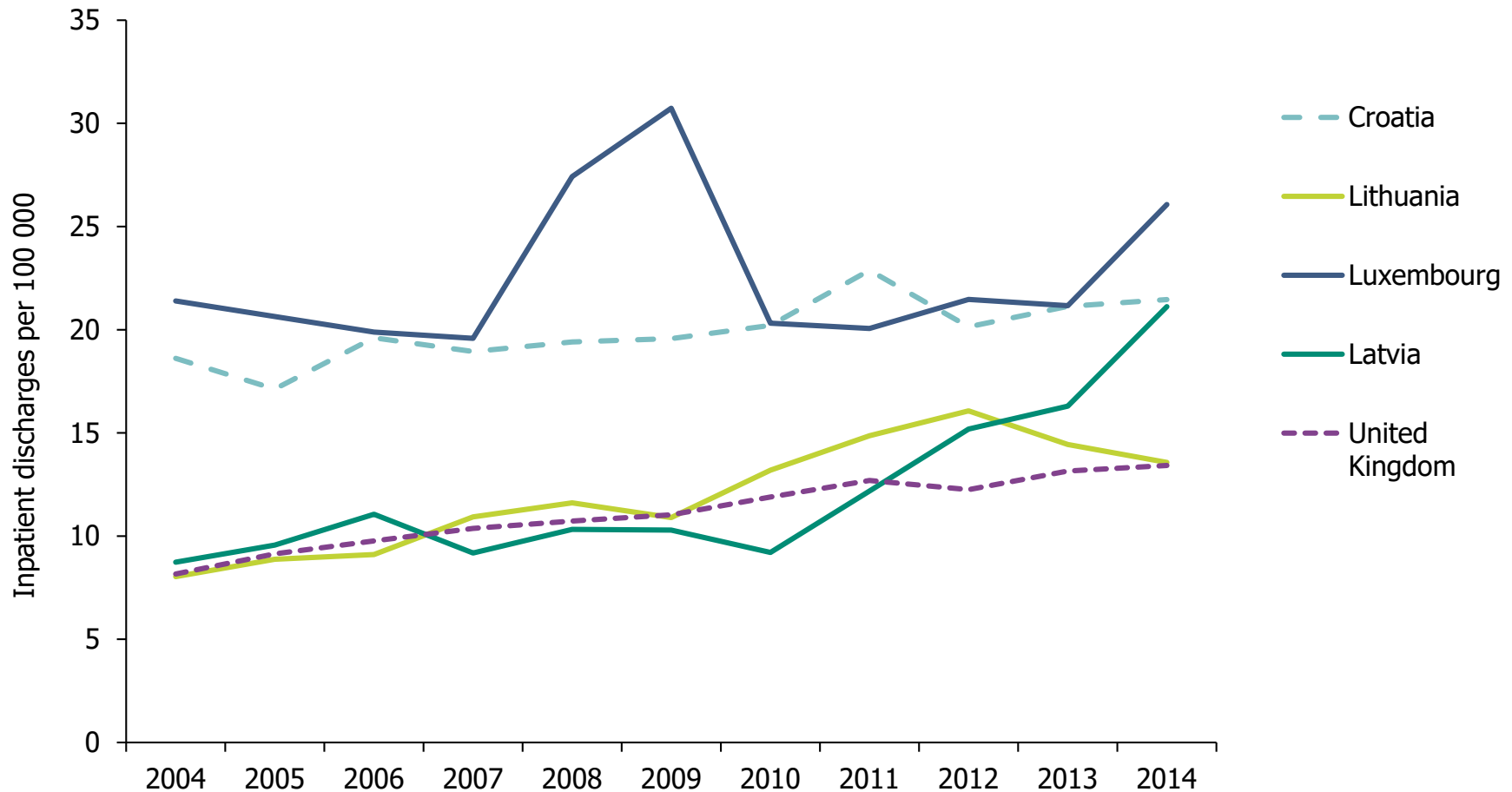
Source: The EMIS Network EMIS-2017: The European Men-Who-Have-Sex-With-Men Internet Survey

* Excluding men with a history of hepatitis B

** Data from Liechtenstein reported with Switzerland and not included in map.

Morbidity: liver cancer hospital data

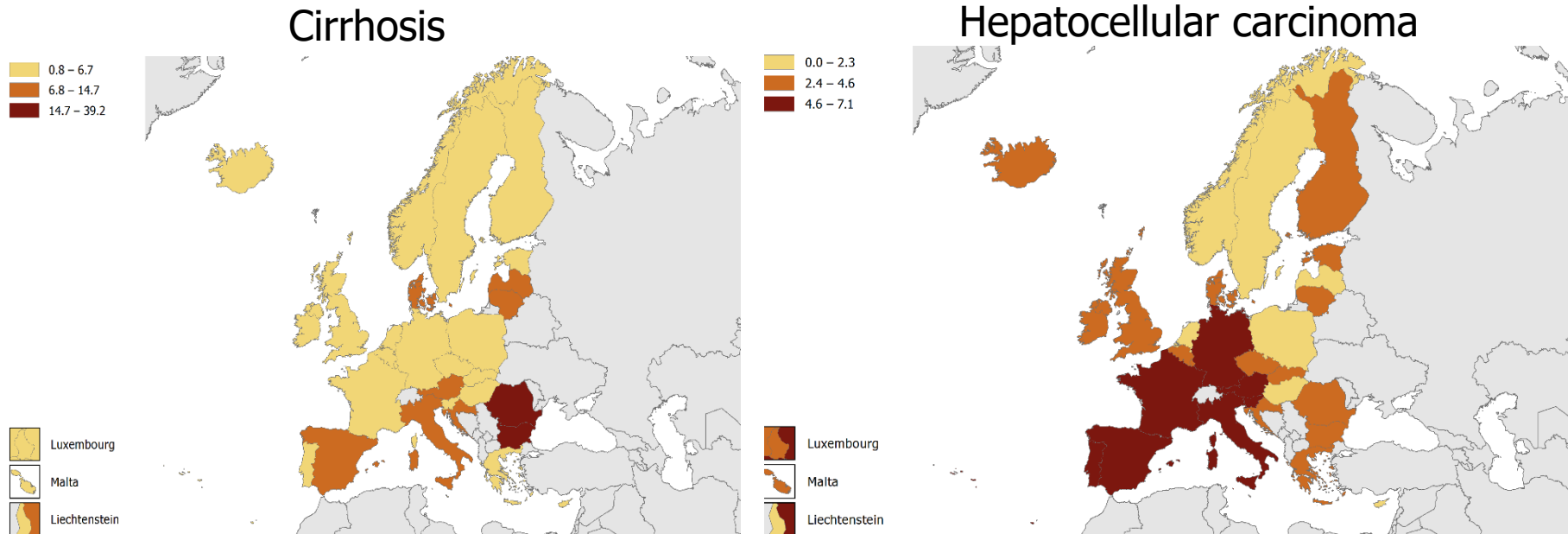
Inpatient hospital discharge rates of primary liver cancer for select* EU/EEA countries per 100,000 population, 2004 - 2014



Source: Eurostat

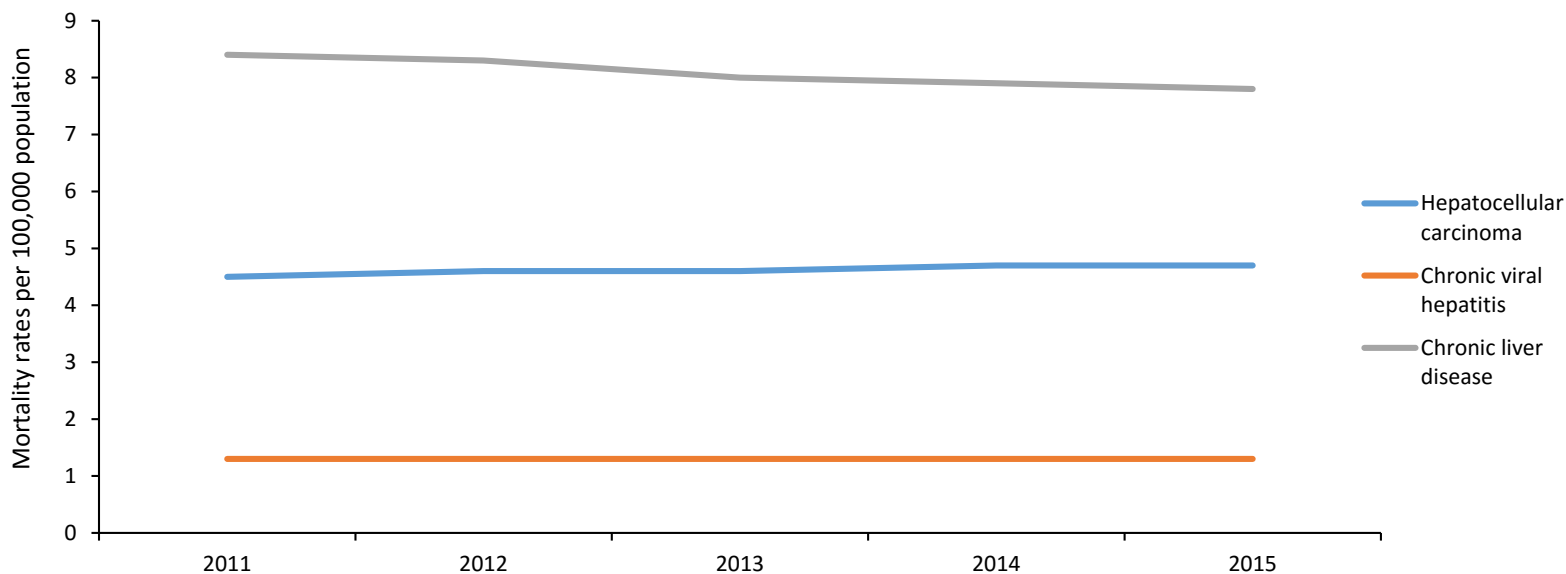
*Countries using ICD10 coding across reporting period

Mortality: Age-standardised mortality rates per 100,000 population from non-alcoholic cirrhosis and hepatocellular carcinoma in the EU/EEA countries in 2015



Source: Eurostat and Mardh O et al, (paper submitted to J Hepatol for publication).

Mortality: rates from hepatocellular carcinoma, chronic viral hepatitis and chronic liver disease across EU/EEA countries, 2011 - 2015



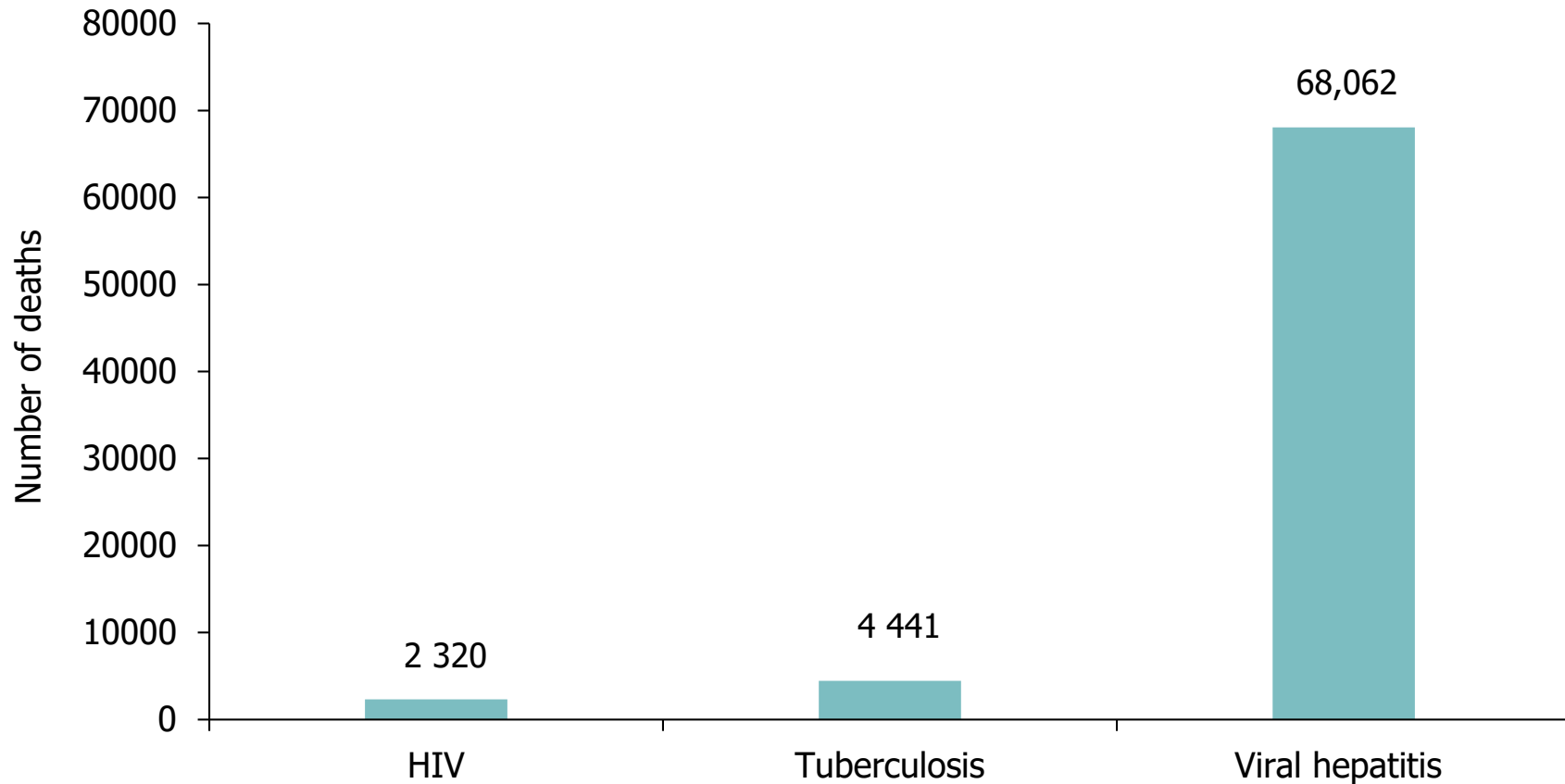
	2011	2012	2013	2014	2015	% change 2011 to 2015*	Difference in number of cases	Poisson regression for trend, p value
Hepatocellular carcinoma	4.5	4.6	4.6	4.7	4.7	5.30%	1456	0.935
Chronic viral hepatitis	1.3	1.3	1.3	1.3	1.3	2.30%	225	0.999
Chronic liver disease	8.4	8.3	8	7.9	7.8	-7.20%	-2479	0.857

*(2015 rate -2011 rate)/2011 rate

Note: Countries reporting in ICD-9 codes format (Greece) or in ICD-10 format with a three-digits precision (Bulgaria and Slovakia) during the period, were not included

Source: Eurostat and Mardh O et al, (paper submitted to J Hepatol for publication).

Deaths from HIV, tuberculosis and viral hepatitis* in EU/EEA countries, 2015



**Deaths from chronic liver disease (K72 - K75) + primary liver cancer (C22) attributable to HBV and HCV and deaths from chronic viral hepatitis (B18.0 - B18.2)*

Source: Eurostat and Mardh O et al, (paper submitted to J Hepatol for publication).

Additional challenges to elimination

HCV reinfection

- Reports of high reinfection rates post HCV treatment among HIV positive MSM

HIV

- Impact of HIV pre-exposure prophylaxis (PreP) on HCV infections
- Influence of HIV prevention programmes on HCV transmission among PWIDs

Alcohol

- Declining trends EU alcohol consumption, but high associated mortality and increasing consumption in eastern and central European countries

Conclusions



- The epidemiological, demographic and socio-political situation relating to hepatitis B and C in Europe is complex
- Whilst overall incidence of both infections is decreasing, incidence and prevalence remains high in specific populations with ongoing transmission and an increasing disease burden
- Primary prevention remains important for hepatitis B and C in Europe but, with a large pool of existing infections, increasing access to testing and treatment are major challenges to elimination
- A better understanding of the epidemiology and key drivers of the epidemics, such as demographic changes and responses, underpin efforts for eliminating hepatitis.



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