

# Prevention of hepatitis B and C in the EU/EEA and the UK

November 2020

## Key messages

### Hepatitis B

- In the European Union (EU), European Economic Area (EEA) and the United Kingdom (UK), there are an estimated 4.7 million cases of chronic hepatitis B [1].
- Hepatitis B disproportionately affects migrants, people in prison settings, men who have sex with men (MSM), and people living with HIV. Prevention efforts should focus on these key affected populations as well as pregnant women and healthcare workers.
- Monitoring data on hepatitis B prevention show that coverage of vaccination programmes for children and key selected adult populations, antenatal screening and birth dose vaccination to prevent vertical transmission, haemovigilance, and sexual and nosocomial transmission prevention must be improved in many countries to reach the 2020 targets set by the World Health Organization (WHO).

### Hepatitis C

- In the EU/EEA and the UK, there are an estimated 3.9 million cases of chronic hepatitis C [1].
- Hepatitis C disproportionately affects people who inject drugs (PWID), people in prison settings, MSM and people living with HIV. Prevention efforts are most critically needed for people who inject drugs (PWID), including in harm reduction settings and prisons.
- Data on hepatitis C prevention targets show that significant improvements in implementation of prevention strategies among PWID, including needle and syringe programmes (NSP) and opioid substitution therapy (OST) will be needed in many countries to reach the WHO targets for 2020.

### Hepatitis B and C

There are many gaps identified in reported data, highlighting the importance of improving monitoring efforts for hepatitis prevention. More robust data are especially needed on the size of key populations, hepatitis prevalence in key populations, coverage of antenatal screening for hepatitis B, coverage of harm reduction interventions for PWID, and indicators for sexual and nosocomial transmission.

**WHO European Action Plan Prevention Targets for 2020 [2]**

- 95% coverage with three doses of HBV vaccine in countries that implement universal childhood vaccination
- 90% coverage with interventions to prevent vertical transmission of HBV
- 100% of blood donations screened using quality-assured methods
- 50% of injections administered with safety-engineered injection devices
- 200+ sterile injection equipment kits distributed per person per year for PWID, as part of a comprehensive package of harm reduction services.

## Disease background

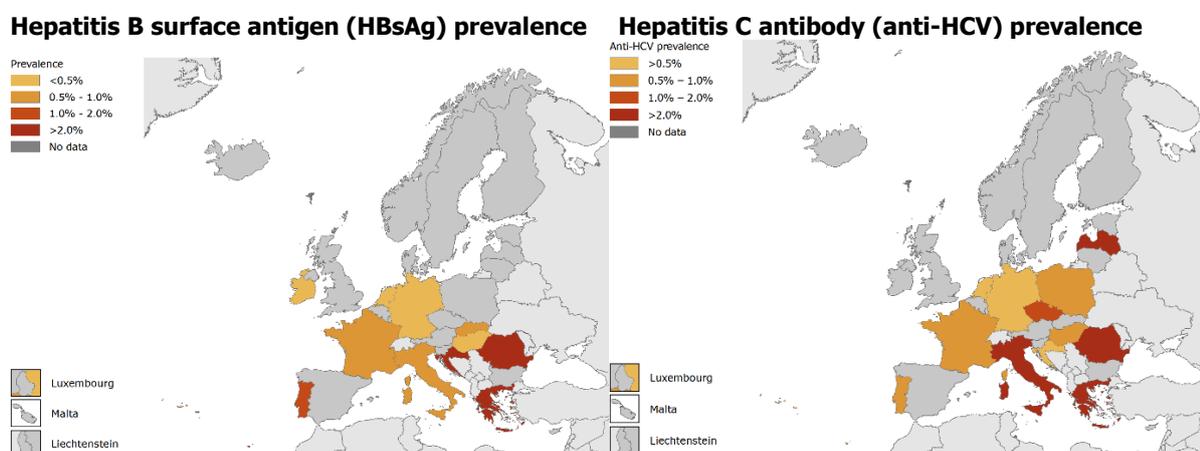
Although they are distinct diseases, hepatitis B virus (HBV) and hepatitis C virus (HCV) are both viral infections which cause acute and chronic hepatitis and are leading causes of hepatic cirrhosis and cancer. The main modes of transmission of HBV and HCV differ from each other and vary by country. In areas of high prevalence of HBV, transmission is mostly perinatal/vertical and in areas of lower prevalence, transmission usually occurs later in life through injecting drug use and sexual exposure. HCV is most commonly transmitted through percutaneous exposure, and in countries that have introduced blood screening, most infections occur among intravenous drug users.

## Prevalence of, and populations affected by, hepatitis B and C across the EU/EEA and the UK

### Prevalence

Estimates of hepatitis B surface antigen (HBsAg) prevalence and hepatitis C antibody (anti-HCV) prevalence in the general population between 2008 and 2017 were collected by ECDC. Among high quality estimates, HBsAg prevalence ranged from 0.1% in Ireland to 4.4% in Romania (Figure 1). Anti-HCV prevalence in the general population ranged from 0% in Croatia to 3.9% in Italy (Figure 1). Many countries do not have prevalence data of sufficient quality, highlighting the urgent need to improve viral hepatitis monitoring efforts in many areas of Europe.

**Figure 1. Map of hepatitis B and C prevalence in the adult general population in the EU/EEA and the UK\***



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  $\geq 4$ .

### Route of transmission

Hepatitis B virus and HCV infections have multiple routes of transmission and affect a variety of key populations, leading to a complex prevention landscape. Figure 2 identifies the reported route of transmission for acute hepatitis B and C infections in the EU/EEA and the UK in 2018. Acute infections reflect new transmissions in the EU/EEA and the UK which are the main target for prevention measures.

Data on likely route of transmission of HBV were only available for 26% of acute cases reported in 2017, representing 22 countries [3]. The incompleteness of the data is a major challenge for the interpretation of the results.

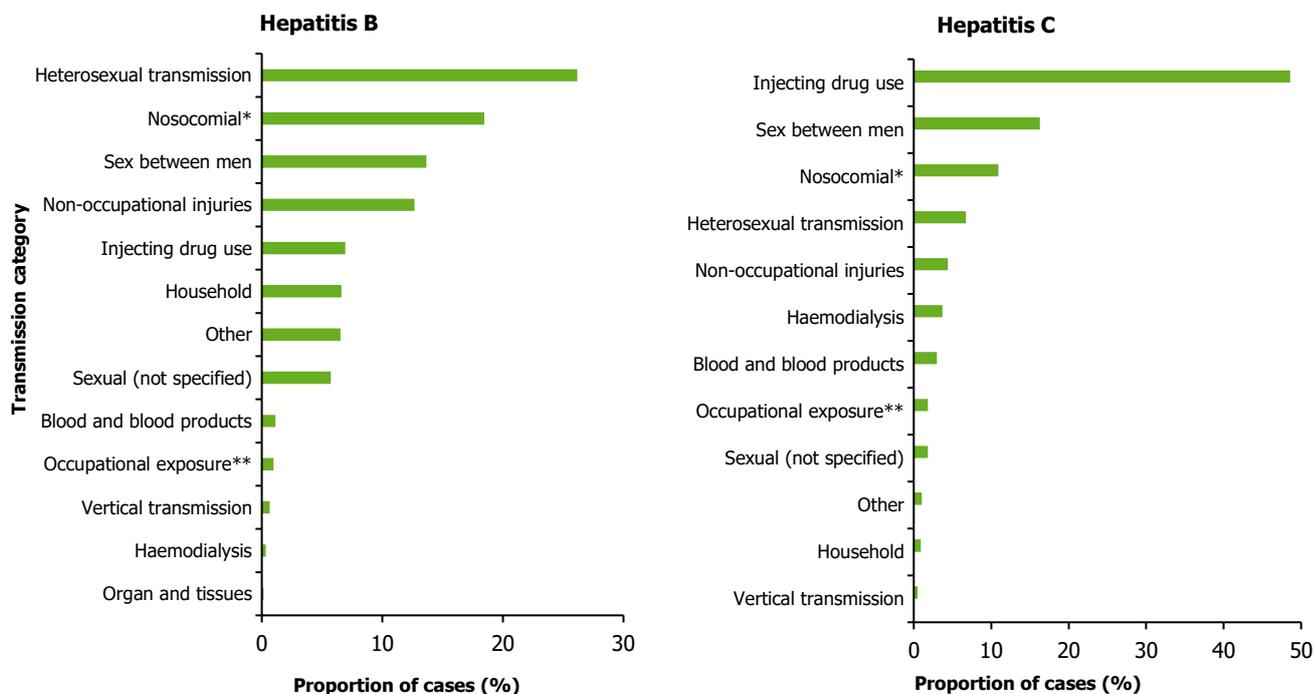
Available data show that heterosexual transmission (26%), patient infections in healthcare settings (nosocomial transmission) (18%), and sex between men (14%) account for over half of acute case transmissions (Figure 2). Italy, Poland, and Romania accounted for 67% of acute cases attributed to nosocomial transmission, indicating marked variation between countries. The most common transmission route for chronic HBV cases was vertical transmission, accounting for 37% of cases, with the vast majority (92%) of these classified as imported from outside the reporting country. Vertical transmission of HBV is not commonly reported as occurring within EU/EEA countries and the UK, but strategies to prevent transmission via this route are still vital as the majority of newborns who become infected perinatally become chronically infected.

**Snapshot: Key populations for prevention**

- Pregnant women and newborns
- Patients in healthcare settings
- Healthcare workers
- Those receiving blood/blood products
- Men who have sex with men
- People who inject drugs
- People in prisons
- Migrants from areas with high prevalence
- People living with HIV

Data on likely route of transmission of HCV were only available for 21% of cases reported in 2018, representing 17 countries [4], again making interpretation difficult. Common routes of transmission for acute cases were injecting drug use (49%), sex between men (16%), and nosocomial transmission (11%) (Figure 2). Sixty-one percent of chronic HCV cases were attributed to injecting drug use. With low rates of data on route of transmission and substantial variation between countries, data are not likely to be fully representative. However, it is clear that PWID are a key risk group in the region.

**Figure 2. Transmission category of hepatitis B and C acute cases in the EU/EEA and the UK in 2018 [3, 4]**



\*Nosocomial refers here to patient infections in healthcare settings.

\*\* Occupational exposure includes needle-stick and other occupational injuries.

Source: European Centre for Disease Prevention and Control (ECDC). Hepatitis B: Annual Epidemiological Report for 2017; European Centre for Disease Prevention and Control (ECDC). Hepatitis C: Annual Epidemiological Report for 2017.

Some population groups, such as people living with HIV, people in prison and people migrating from intermediate/high endemicity countries, belong to more than one transmission route. Robust data on sizes of key populations and prevalence in key populations are often lacking, but estimates are available for some European countries. It is important to note that prevalence estimates are likely biased and reflect the intensity of local testing and screening policies.

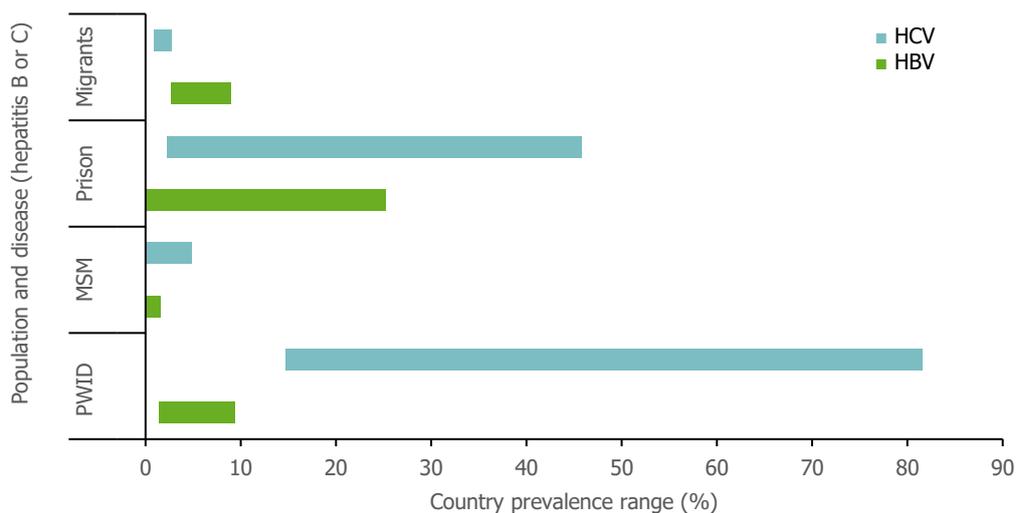
Among PWID, national estimates of the prevalence of HBV were available for six countries in 2016–2017 [5]. The national prevalence estimates for HBsAg from these countries ranged from 1.4% in Latvia to 9.4% in Spain. National estimates of the prevalence of anti-HCV among PWID were available for 13 countries in 2016–2017. The national prevalence estimates for anti-HCV in these countries ranged from 14.7% in the Czech Republic to 81.5% in Portugal. In eight of the 13 countries with national data in 2016–17, more than half of PWID were reported to be infected with HCV.

While transmission of acute hepatitis B and C infections through sex between men is commonly reported, the prevalence of hepatitis infection among this population group is relatively low for both infections. Ten studies on the prevalence of HBV in MSM, published between 2008–2017, were identified from seven countries. The prevalence ranged from 0% in studies from Glasgow (UK) and Estonia to 1.6% in Barcelona (Spain). Fourteen studies representing eight countries were published in the same time period on the prevalence of anti-HCV in MSM. The prevalence ranged from 0% in a study in Sicily (Italy) to 4.8% in a study in the Netherlands.

The prison population is a key population, with a high burden of HBV and HCV infection throughout Europe. Thirteen studies representing 11 countries published between 2008 and 2017 reported a prevalence ranging up to 25.2% in a study undertaken in Bulgaria. During the same period, 32 studies from nine countries were published on anti-HCV prevalence. The prevalence ranged from 2.3% in a study in London (UK) to 45.8% in a study in Finland.

Finally, populations who migrate from countries with intermediate/high-endemicity to the EU/EEA and the UK are estimated to account for 25% of hepatitis B cases and 14% of hepatitis C cases [6]. The estimated prevalence of chronic hepatitis B infection among migrants from intermediate/high-endemicity countries in EU/EEA countries and the UK ranged from 2.7% in Poland to 9.0% in Portugal [6]. The estimated prevalence of chronic hepatitis C infection among migrants ranged from 0.9% in Croatia to 2.7% in Estonia [6].

**Figure 3. Range of country prevalence estimates by key population for hepatitis B and C (i.e. highest and lowest prevalence estimate for each population/disease combination)**



Source: *Monitoring the responses to hepatitis B and C epidemics in the EU/EEA Member States 2019.*

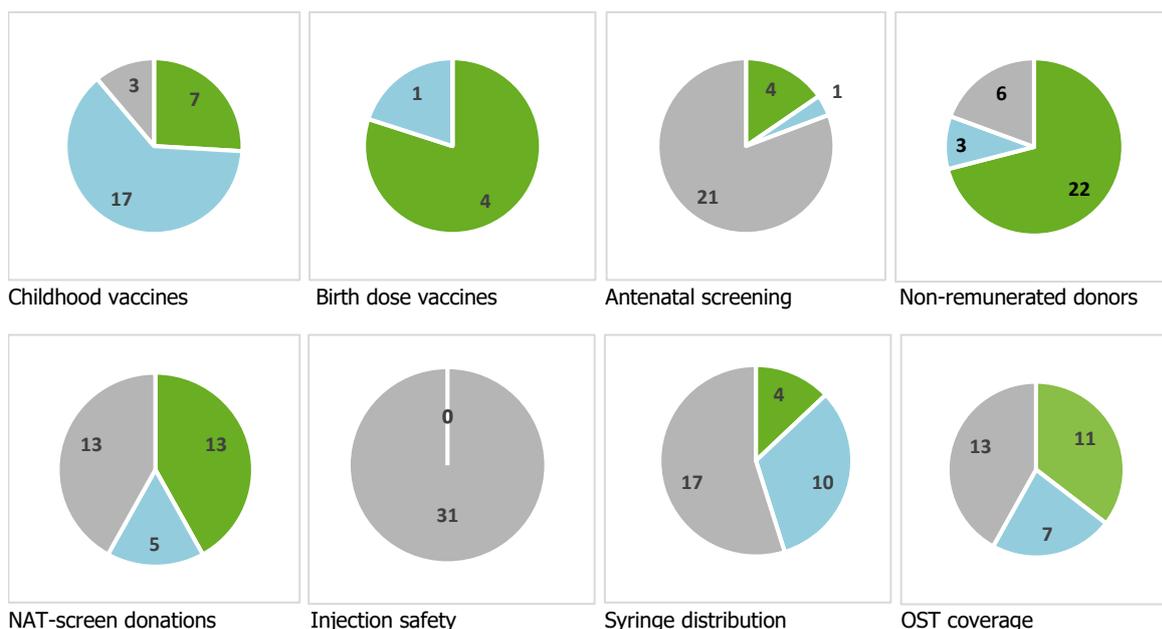
<https://www.ecdc.europa.eu/en/publications-data/monitoring-responses-hepatitis-b-and-c-epidemics-eueea-member-states-2019>

## Prevention measures: progress in the EU/EEA and the UK

A visual summary of progress towards the European Action Plan 2020 targets for hepatitis elimination is presented in Figure 4. These charts indicate the number of countries meeting the target, not meeting the target, or with no data reported for each target. The charts reflect data from countries where the indicator is relevant because there is a corresponding policy or programme in place, which explains why a different number of countries are represented in some charts. Figure 4 highlights the large gaps in reported data for some targets. Data may be unavailable, or it may not have been reported to ECDC.

**Figure 4. Progress towards the 2020 targets at a glance: proportion of countries that reported reaching the 2020 target, not reaching the target, or that did not report data for each indicator.**

■ Reached target ■ Did not reach target ■ No data reported



Source: Monitoring the responses to hepatitis B and C epidemics in the EU/EEA Member States 2019 [5]

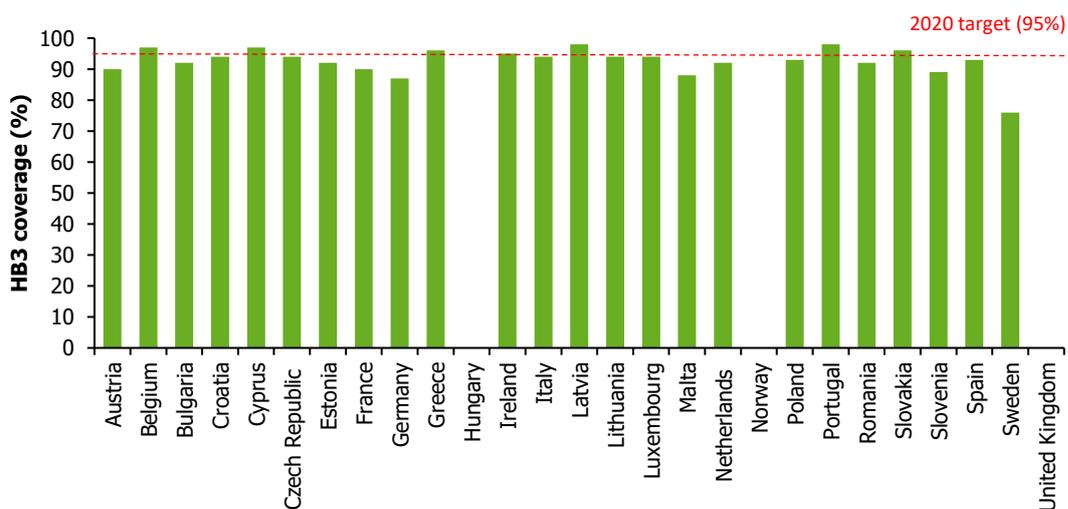
(OST: opioid substitution therapy; NAT: nucleic acid test)

## Hepatitis B vaccination

**2020 target:** 95% coverage with three doses of HBV vaccine in countries that implement universal childhood vaccination

A total of 27 out of 31 EU/EEA countries and the UK recommend universal childhood vaccination against hepatitis B [5]. Three countries do not have a national policy for universal vaccination (Denmark, Finland and Iceland) and one country (Sweden) has regional implementation of universal hepatitis B vaccination. Data on vaccine coverage in 2017 were available from 24 countries. Of these, seven countries (29%) have reached the 2020 target of 95% coverage (Figure 5).

**Figure 5. Coverage (%) of three doses of HBV vaccine in EU/EEA countries that implement universal HBV vaccination in 2017 [5]**



Source: WHO/UNICEF coverage estimates <sup>1</sup>

<sup>1</sup> [https://www.who.int/immunization/monitoring\\_surveillance/data/en/](https://www.who.int/immunization/monitoring_surveillance/data/en/)

Hepatitis B vaccination of adults in key populations is also a vital part of a hepatitis prevention strategy in the EU/EEA and the UK. Robust data on vaccination coverage in key populations, including prisoners, healthcare workers, haemodialysis patients, sexual partners and household contacts of HBsAg positive persons, PWID, sex workers, prison staff, and patients with chronic liver disease, were not available. This highlights another critical gap in hepatitis prevention monitoring. Available information suggests gaps in local policies targeting these groups, with sizeable unprotected cohorts of adults who were not vaccinated in childhood and a lack of vaccination programmes for adult MSM, PWID, prisoners, and healthcare workers in most countries [5]. Twenty-one countries with data for 2016–2017 reported HBV vaccination programmes in prisons, with 12 countries reporting that the vaccine was offered to all eligible prisoners [7]. Results from a survey of MSM in Europe [8] showed that when men with a past history of viral hepatitis were excluded, 49% reported a full course of HBV vaccination.

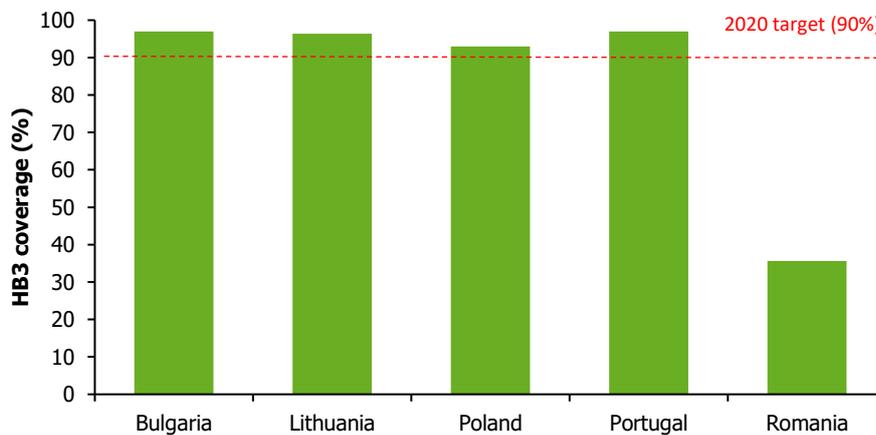
## Prevention of vertical transmission

**2020 target:** In countries implementing these strategies, 90% coverage with timely HBV birth dose vaccine; 90% coverage with screening in pregnant women and 95% coverage with post-exposure prophylaxis in infants born to infected mothers

Countries implement different strategies to prevent vertical transmission, including universal newborn vaccination and antenatal screening combined with post-exposure prophylaxis.

There are currently only five EU/EEA countries that provide universal birth dose of HBV vaccine. Four (80%) of these countries have reached the 2020 target of 90% coverage (Figure 6).

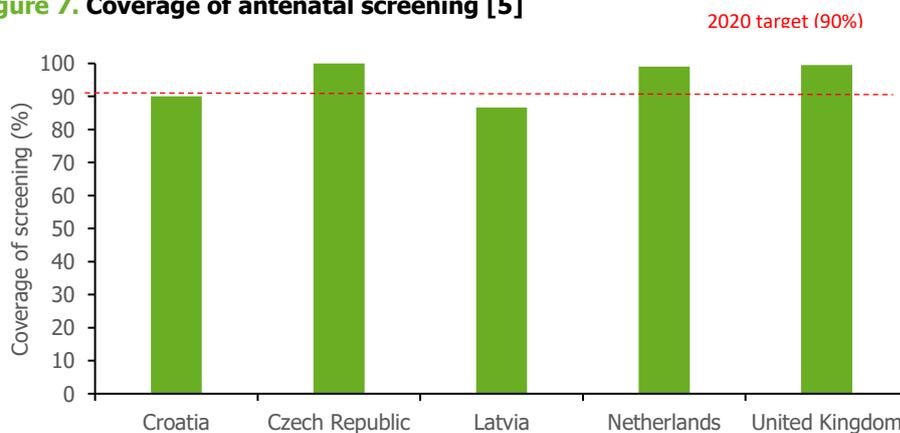
**Figure 6. Coverage (%) of birth dose vaccine in EU/EEA countries that implemented universal newborn vaccination in 2017 [5]**



Source: WHO/Europe survey 2019 and WHO/UNICEF coverage estimates

Data on coverage of antenatal screening programmes for pregnant women were available from five out of the 26 EU/EEA countries reporting universal screening programmes. Four countries (80%) have reached the 2020 target of 90% coverage of antenatal screening (Figure 7). Of the 26 countries reporting an antenatal screening programme, 25 reported that there was a policy on post-exposure prophylaxis for children born to mothers who have HBV.

**Figure 7. Coverage of antenatal screening [5]**



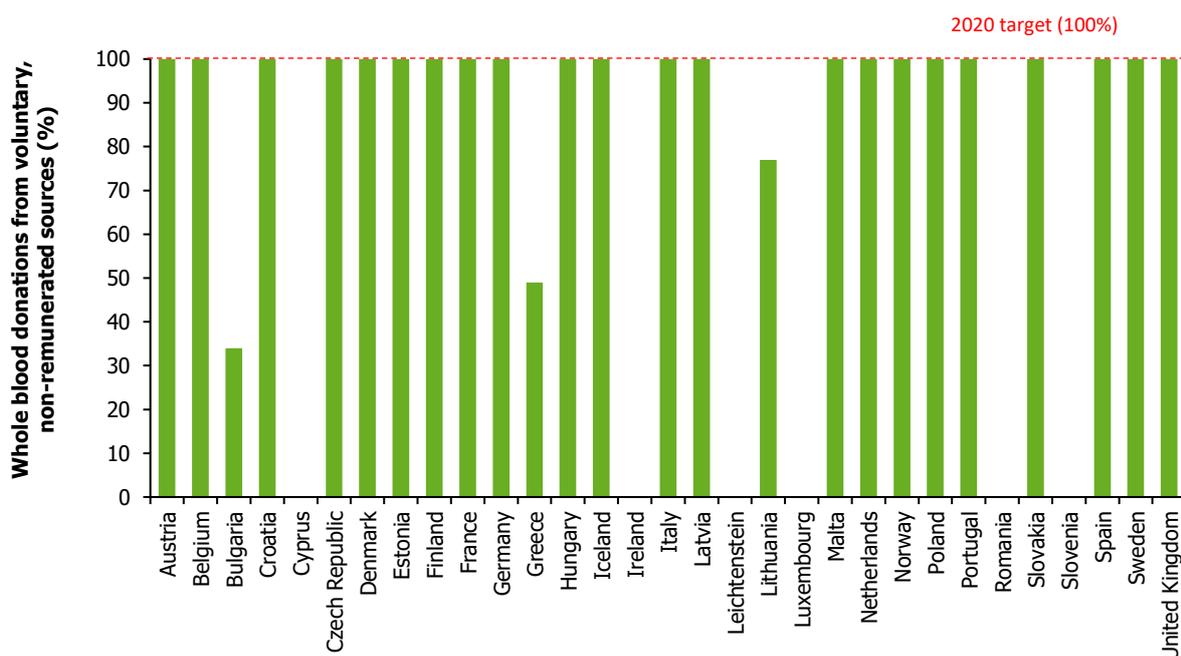
Source: WHO Europe survey 2019

## Blood safety and haemovigilance

**2020 target:** All donated blood tested with nucleic acid test (NAT) screening methods for hepatitis B and C virus; all donated blood donated from non-remunerated donors

Haemovigilance refers to surveillance of the blood transfusion chain. All EU/EEA countries and the UK screen blood donations using quality assured methods according to EU standards. They have haemovigilance systems in place to test donations with at least serological methods for HBV and HCV infections. Reflecting progress towards the targets, 13 out of 18 countries reporting data on NAT-screening (72%) reported that all donated blood was tested with NAT-screening methods for HBV and HCV. Additionally, 25 countries provided data on the profile of blood donors and 22 (88%) reported that all donated blood is from voluntary, non-remunerated donors (Figure 8). The prevalence of HBV and HCV infections among first time blood donors is low and the number of transfusion-associated HBV and HCV infections reported by EU/EEA countries is low.

**Figure 8. Proportion of whole blood donations from voluntary, non-remunerated sources (%) in EU/EEA countries and the UK, 2015\*[5]**



\*100% of whole blood donations are voluntary in Slovenia according to data submitted to the International Haemovigilance Network (<https://www.ihn-org.com/contact/>).

Source: Janssen and Rautmann, 2015 [9]

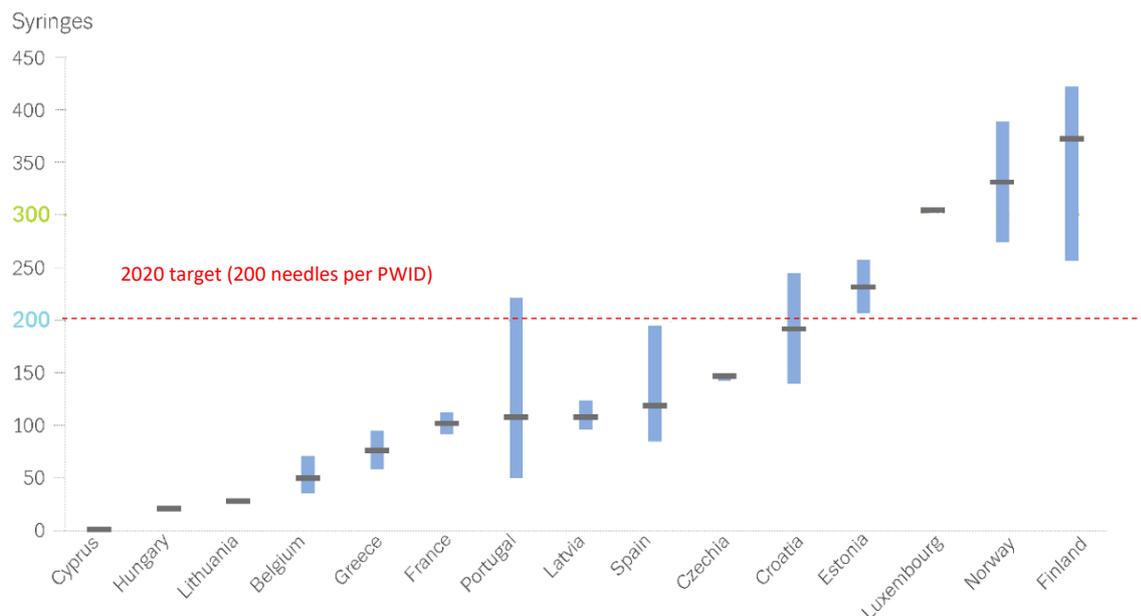
## Prevention among people who inject drugs

**2020 target:** A comprehensive package of harm reduction services to all persons who inject drugs including: at least 200 syringes distributed per PWID per year; at least 40% of opioid dependent PWID receive opioid substitution therapy (OST); and HBV and hepatitis A virus (HAV) vaccination

People who inject drugs are disproportionately affected by HBV and HCV infections due to the sharing of injecting equipment and drug paraphernalia. Data show a high prevalence of both infections, but especially HCV, and ongoing transmission in this group. Data on coverage of prevention programmes targeting PWID are lacking from half the countries in the EU/EEA and the UK.

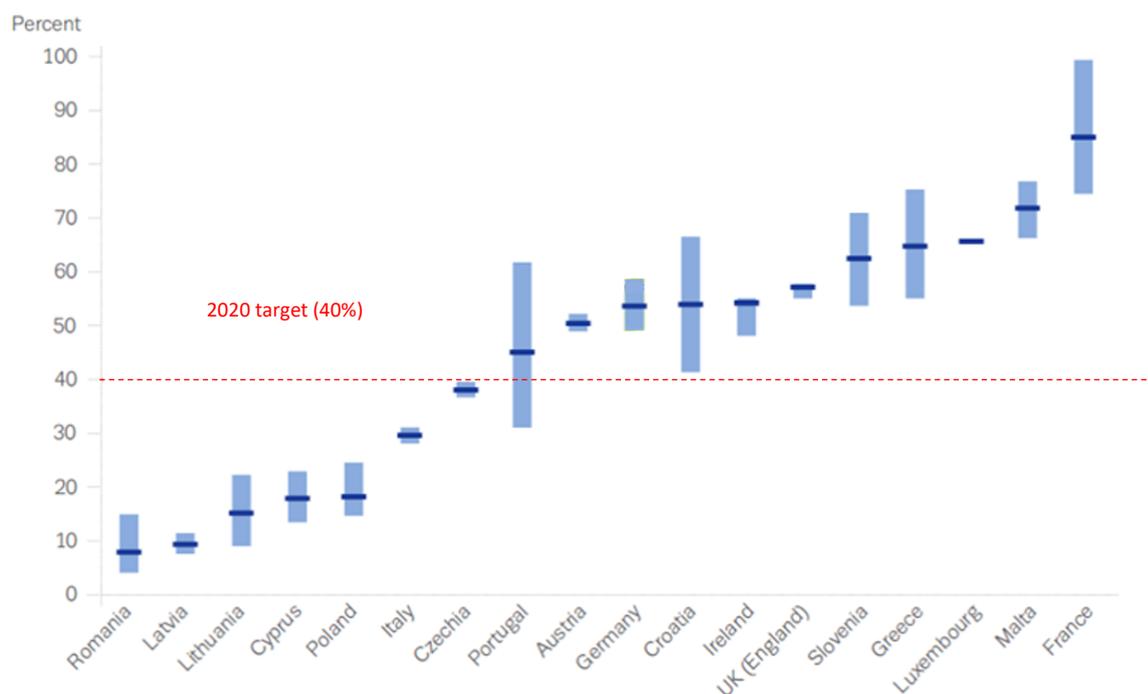
Four out of 14 (29%) of countries with data have coverage of at least 200 syringes distributed per PWID per year (Figure 9). Eighteen countries had estimates of the population of high-risk opioid users. Eleven of these countries (61%) reported 40% coverage or more of OST to the 2020 target (Figure 10).

**Figure 9. Coverage of syringe programmes: estimated number of syringes provided per person who injects drugs in 2017**



Source: EMCDDA. The elimination barometer for viral hepatitis among PWID in Europe, 2019 [10]

**Figure 10. Coverage of opioid substitution treatment (% of estimated high-risk opioid users receiving treatment with uncertainty interval) in 2017 or most recent year**



Source: EMCDDA. The elimination barometer for viral hepatitis among PWID in Europe, 2019 [10]

## Prevention of sexual and nosocomial transmission

**2020 target:** 50% of injections administered with safety-engineered injection devices; integrated into broader infection prevention and control

Data on viral hepatitis infection prevention and control for patients in healthcare settings (nosocomial transmission) in the EU/EEA and the UK are severely lacking. Data on prevention of sexual transmission of viral hepatitis are lacking as well. While some proxy measures exist for both modes of transmission, improving data quality in these areas is critical to making progress on the prevention of new hepatitis infections and measuring progress towards the 2020 targets.

## Conclusions

Urgent action is required to improve efforts to prevent hepatitis B and C infections in the EU/EEA and the UK if the region is to meet the 2020 targets for the elimination of viral hepatitis as a serious threat to public health.

Significant gaps in the reported data in relation to prevalence and prevention of HBV and HCV in EU/EEA and the UK present a major challenge to monitoring progress towards the targets for elimination of hepatitis. In order to guide national responses to hepatitis B and C, countries should prioritise improving the quality of their monitoring systems. The epidemics of HBV and HCV are complex and dynamic, and the currently available epidemiological evidence is insufficient to provide a clear understanding of the epidemiological situation. There is a need for high-quality epidemiological information on the burden of HBV and HCV to guide the scaling-up of prevention services.

There is evidence of suboptimal HBV vaccination coverage across EU/EEA countries and the UK, indicating a need to strengthen universal vaccination programmes for children and targeted vaccination programmes for adults.

Programmes for the prevention of vertical transmission for HBV infection are not well monitored, and data from these programmes should be collected routinely to assess their delivery. Given the importance of harm reduction services tailored to PWID in most EU/EEA countries and the UK, there remains a need to scale up both prevention and testing services, as there is evidence of suboptimal implementation.

## Priority areas for action

- All countries that have not yet reached the 2020 European Action Plan targets for 2020 should consider developing and implementing a plan.
- There should be a focus on improved implementation of harm reduction programmes for PWID, along with improved hepatitis prevention, testing, and treatment services in harm reduction settings.
- Gaps in HBV vaccination for children and key adult populations should be addressed, along with improved data collection and reporting of vaccination coverage.
- Prevention of vertical transmission, including antenatal screening and birth dose vaccination for babies born to mothers with HBV infection, should be better monitored and gaps in programme coverage should be addressed.
- There should be efforts to align viral hepatitis and HIV prevention efforts, integrating services for key populations where co-infection is common. These populations include MSM, PWID, and people in prisons.
- A lack of robust, reliable data on hepatitis B and C prevention is a significant barrier to monitoring progress towards the WHO European Action Plan targets. There is an urgent need for better systems to monitor progress at the national level. Improved data collection for monitoring is a top priority, especially in the following areas:
  - Hepatitis B and C prevalence in general populations and among key populations, PWID and people in prisons, along with sizes of key populations.
  - Vaccination policies and coverage in key adult populations, including PWID, people in prisons, people living with HIV, MSM, and healthcare workers.
  - Data on prevention of hepatitis via sexual and nosocomial transmission routes.
  - Coverage of programmes for antenatal hepatitis screening.

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