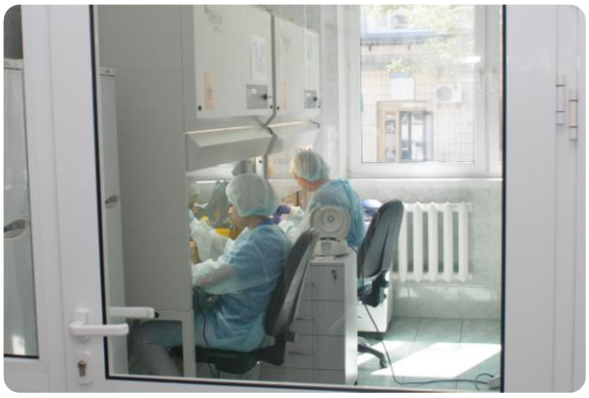
World Health Organization
REGIONAL OFFICE FOR Europe

Assessment of the viral hepatitis response in Ukraine

6–9 June 2017






Mission Report

Assessment of the viral hepatitis response in Ukraine

Mission report

6–9 June 2017

Address requests about publications of the WHO Regional Office for Europe to:

Publications
WHO Regional Office for Europe
UN City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office website (http://www.euro.who.int/pubrequest).

Contents

Acknowledgements

We are very grateful to the staff of the Ukrainian Ministry of Health and of the institutions and health care facilities visited, representatives of nongovernmental organizations, and all other people we met for providing the data and opinions necessary for preparation of this report.

Technical input and review were provided by:

Dr Liudmila Mosina, Technical Officer, Vaccine-preventable Disease and Immunization, WHO Regional Office for Europe

Ms Ana Paula Coutinho Rehse, Technical Officer, Infection Prevention and Control, Health Emergencies Programme, WHO Regional Office for Europe

Dr Yvan J. Hutin, Strategic Information, Global Hepatitis Programme, WHO headquarters.

Abbreviations

AD	auto-disable (syringe)
CDC	Centers for Disease Control and Prevention (USA)
CSW	commercial sex worker
DAA	direct-acting antiviral
HBsAg	HBV surface antigen
HBV	hepatitis B virus
HCV	hepatitis C virus
HIV	human immunodeficiency virus
HTS	HIV testing services
IBBS	integrated biological–behavioural surveillance
IPC	infection prevention and control
MoH	Ministry of Health
MSF	Médecins Sans Frontières
MSM	men who have sex with men
NGO	nongovernmental organization
NIP	National Immunization Programme
NSP	needle and syringe programme
OST	opioid substitution therapy
PHC	Public Health Center of the Ministry of Health of Ukraine
PLWH	people living with HIV/AIDS
PSM	procurement and supply management
PWID	people who inject drugs
TTI	transfusion-transmissible infection
USAID	United States Agency for International Development
WHO	World Health Organization

Executive summary

Acknowledging an urgent need to strengthen the national response to viral hepatitis in the context of the global goal of eliminating hepatitis as a public health problem by 2030, the Ministry of Health (MoH) of Ukraine requested that a WHO mission to the country be carried out. The purpose of the mission was to review the current hepatitis control system in the country, including prevention, diagnosis, treatment and strategic information related to hepatitis; and to provide recommendations for developing the national action plan to combat viral hepatitis.

The WHO Regional Office for Europe conducted an assessment mission in Kyiv between 6 and 9 June 2017. The assessment was carried out in collaboration with the Division of Viral Hepatitis of the United States Centers for Disease Control and Prevention (CDC) and the WHO Country Office in Ukraine, and with the support of the MoH and Public Health Center of Ukraine (PHC); the mission included field visits to various institutions involved in the response to viral hepatitis and interviews with key stakeholders.

Main findings

The mission team recognized increasing awareness and commitment to responding to viral hepatitis by the majority of government and non-government stakeholders. Still, at the national level hepatitis response is currently fragmented. There is no clear and empowered focal point, nor well-defined and functioning lines of responsibility, for proper planning and decision-making with respect to hepatitis control. Procurement and supply management (PSM) remains a serious challenge in the task of ensuring timely provision of high-quality and effective pharmaceuticals and health products.

The viral hepatitis surveillance system is based on an outdated normative base that has changed little since the Soviet period and is not capable of providing the strategic information needed for a focused response. There is a lack of reliable and agreed estimates of the burden of disease, and there is no systematic collection and analysis of chronic hepatitis treatment and care cascade data.

With respect to prevention measures, the mission team acknowledged that a relatively robust harm reduction programme was in place, although opioid substitution therapy (OST) coverage was low. More gaps were identified in the areas of blood safety and infection prevention and control (IPC), related primarily to the outdated normative base and fragmented governance. Blood safety might be compromised by lack of adequate oversight by a competent national authority and high-level decentralization, resulting in poor enforcement of proper guidelines and a functional haemovigilance programme. Poor compliance with standard IPC rules and precautions may be a consequence of an insufficient supply of single-use/disposable equipment, e.g. vacuum blood collection tubes and, possibly, single-use gloves, together with a lack of proper training for medical personnel.

The most alarming situation was observed with respect to hepatitis B vaccination, where coverage was very low for various complex reasons (problems with supply in the past; poor planning and stock monitoring; misconceptions among doctors; vaccine hesitancy among the general population): coverage with hepatitis B birth-dose and third-dose vaccine was 37% and 26%, respectively, in 2016.

All hepatitis diagnostics are widely available, at least in major cities. However, most of the diagnostics are paid for by patients themselves and are not generally included in the established treatment programmes. Concerns were also raised over quality assurance.

Access to the new hepatitis C virus (HCV) treatments (direct-acting antiviral drugs (DAAs)) has been increasing since 2015 through several small-scale treatment programmes funded from various sources and sometimes using different treatment protocols. The government programme gives access to HCV treatment via vertical programmes; spending on HCV drugs procurement in 2016 was around US$ 5 million, through an external procurement agency. Concerns were raised about lack of transparency in the process of selecting medicines and estimating required volumes. Various additional programmes of access to HCV medicines are conducted by nongovernmental organizations (NGOs), notably by the Alliance for Public Health and the All-Ukrainian Network of People Living With HIV/AIDS (PLWH). Such programmes vary in terms of scope and the populations targeted, but generally they are not large-scale and have a limited impact on the overall situation. Importantly, the majority of the programmes funded from other sources (international technical assistance) provide access to HCV treatment only to vulnerable populations: men who have sex with men (MSM), commercial sex workers (CSWs), people who inject drugs (PWID).

Main recommendations and next steps

Ministry of Health

1. Establish a dedicated **focal point for leading and coordinating the hepatitis response**, preferably within the MOH, to ensure strong leadership; and an **interdisciplinary strategic technical working group** that would include the main national stakeholders, including NGOs.

2. Develop and endorse a **National Action Plan**, aligned with the European Action Plan on viral hepatitis and adapted to the country context.

3. Conduct a **national disease burden estimation** exercise for hepatitis B virus (HBV) and HCV; plan a **population-based serosurvey** that will provide a robust estimate of the prevalence of HBV and HCV infections.

4. **Revise the existing viral hepatitis surveillance system**, including case definitions and normative base, to align with the WHO-recommended approach to hepatitis surveillance and monitoring and evaluation framework.

5. Urgently **address hepatitis B vaccination programme gaps**, by implementing priority recommendations from the assessment conducted in 2012–2016; conduct a vaccine management assessment. Take steps to strengthen the immunization programme at central and local levels as recommended.

6. The National Immunization Schedule needs to be optimized, particularly through implementation of **5-valent or combination vaccine with hepatitis B component**.

7. **Introduce auto-disable (AD) syringes** and other safe injection equipment for vaccination.

8. Conduct a thorough **assessment of the implementation of injection safety and IPC programmes** at national and local levels; revise the IPC programme normative base in line with WHO guidelines.

9. Promote strong leadership to implement a **unified national policy and operational system for blood donation and transfusion**, e.g. appoint an MoH deputy minister to lead a blood safety taskforce to develop an action plan for strengthening blood safety in the country.

10. **Reduce the number of blood donation sites** to those that meet minimum international quality standards, to ensure that universal screening for transfusion-transmissible infections (TTIs) is applied effectively and consistently.

11. Strengthen harm reduction programmes, to **increase access to a comprehensive package of harm reduction services** to PWID, including OST coverage, needle and syringe programmes (NSPs), testing for viral hepatitis and other infections, and linkage to care.

12. Develop and publish **national viral hepatitis testing guidelines**, including a national testing strategy and diagnostic algorithm.

13. Develop **educational programmes for laboratory specialists** on quality control for laboratory diagnostics.

14. Ensure a stringent **certification process for diagnostic test systems** that enter the market and are registered in the country.

15. **Update national hepatitis guidelines** and treatment protocols regularly to align with the WHO guidelines, including criteria for treatment initiation, choice of treatment regimens and monitoring.

16. Conduct an **independent review of the government hepatitis treatment programme**, to ensure transparency with respect to selection and purchase of medicines; equitable access to the programme, including eligibility criteria; and systems to report annually on outcomes and effectiveness.

17. Conduct an **independent assessment of public funding for the hepatitis programme**, currently limited to procurement of HCV medicines; this can be done as part of an overall assessment of efficiency of public financing of infectious disease treatment.

18. **Strengthen oversight of the pharmaceutical sector**, with particular emphasis on adherence to the principles of good distribution practice.

International partners

19. **Provide technical support/assistance**, upon request of the MoH, in the development and implementation of the National Action Plan, disease burden estimation exercise, surveillance system review, immunization programme evaluation, etc.

20. Upon request and under the leadership of the MoH, participate in an **international stakeholders' partners group** that should serve as a platform for coordination of activities related to viral hepatitis.

1 Introduction

Ukraine, as a Member State of the United Nations, has pledged to implement the 2030 Agenda for Sustainable Development, and, within Goal 3, to improve measures on combating viral hepatitis by 2030, through a comprehensive national response encompassing awareness-raising, surveillance, prevention of transmission, testing strategies, and ensuring access to good-quality and safe medicines. In May 2016, the 69th World Health Assembly endorsed the first Global Health Sector Strategy on Viral Hepatitis, which calls for elimination of viral hepatitis as a public health threat by 2030.[1] Later, in September 2016, the Action Plan for the Health Sector Response to Viral Hepatitis in the WHO European Region, reinforcing the global goal of elimination and identifying priority actions adapted for the regional context, was adopted by all 53 Member States of the Region.[2]

In Ukraine, in the period 2013–2016, a series of comprehensive measures were introduced to ensure public access to prevention, diagnostics and treatment of viral hepatitis. However, as of today, the Ukrainian Ministry of Health (MoH) identifies the following challenges in its response to viral hepatitis: low levels of awareness; weak epidemiological surveillance; barriers preventing access to diagnostics; and high cost of treatment.

In view of such challenges, the MoH acknowledged an urgent need to develop a modern system of epidemiological surveillance of viral hepatitis in the country and to strengthen the national response in the context of the global goal of eliminating hepatitis as a public health problem by 2030. To help meet this need, the MoH asked WHO to conduct a mission in Ukraine to review the current hepatitis control system in the country; this review would include prevention, diagnosis, treatment, and strategic information related to viral hepatitis, and provide recommendations for developing a national action plan to combat the disease.

The US Centers for Disease Control and Prevention (CDC), as WHO Collaborating Centre for Reference & Research on Viral Hepatitis and as one of the leading global technical public health agencies, participated in the mission to provide its expertise in devising a response to viral hepatitis.

The mission assessed Ukraine's response to viral hepatitis with a particular focus on hepatitis B virus (HBV) and hepatitis C virus (HCV) infections, given the high public health burden they represent in the country.

---

[1] Global health sector strategy on viral hepatitis, 2016–2021. Geneva: World Health Organization; 2016 (http://www.who.int/hepatitis/strategy2016-2021/ghss-hep/en).

[2] Action plan for the health sector response to viral hepatitis in the WHO European Region. Copenhagen: WHO Regional Office for Europe; 2017 (http://www.euro.who.int/en/health-topics/communicable-diseases/hepatitis/publications/2017/action-plan-for-the-health-sector-response-to-viral-hepatitis-in-the-who-european-region-2017).

2 Methodology of assessment

The assessment comprised a number of activities, both before and during the visit; these included a range of field visits and interviews with key informants, as detailed below.

- Desk review of relevant publications and reports prior to arrival.
- Review of national policies and status of their implementation.
- Field visits to the following (all based in Kyiv):
    - Ministry of Health (MoH)
    - Centre of Medical Statistics of the MoH
    - Public Health Center (PHC) of the MoH
    - Kyiv City Blood Centre
    - Infectious disease department of the National Medical University based in Hospital No. 15
    - Kyiv City Clinical Hospital No. 5 (infectious inpatient department for viral hepatitis, outpatient department of Kyiv AIDS Centre for treatment of HIV and viral hepatitis, and laboratory facilities)
    - Institute of Epidemiology and Infectious Diseases named after L.V. Gromashevsky
    - Centre of Primary Medical Care No. 1, Obolon district of Kyiv city
    - Department of Pharmaceutical Products and Quality of the MoH
    - Drop-in centre and mobile ambulatory for PWID
    - Laboratory centre of the OKHMADIT clinic
    - Alliance for Public Health (NGO)
    - Network of People Living With HIV/AIDS (PLWH) (NGO).
- Interviews with the following key informants:
    - Oksana Sivak, Deputy Minister of Health, MoH
    - Natalia Piven, Head of Public Health Department, MoH
    - Oksana Mulyarchuk, Head Specialist of Department of Specialized Medical Care, MoH
    - Sergey Platov, Head of the Programme and Project Department, MoH
    - Olexandr Zaika, Head Specialist of the Programme and Project Department, MoH
    - Natalia Nizova, General Director, PHC
    - Roman Rodyna, Deputy Director, PHC
    - Larisa Getman, Deputy Director, PHC
    - Oksana Mischenko, PHC
    - Olga Golubuvskaya, Head of the infectious disease department of the National Medical University
    - Viktoria Zadorozhna, Director, Institute of Epidemiology and Infectious Diseases named after L.V. Gromashevsky
    - Svetlana Antonyak, Research Specialist of the HIV and hepatitis department, Institute of Epidemiology and Infectious Diseases named after L.V. Gromashevsky
    - Valentina Zabolotko, Head of Centre of Medical Statistics of the MoH
    - Olexandr Yurchenko, Head of Kyiv AIDS Centre
    - Tetiana Egorova, Head of the viral hepatitis department, Clinical Hospital No. 5, Head infectious disease specialist of Kyiv
    - Olena Martinenko, Head of the outpatient department, Clinical Hospital No. 5
    - Oksana Marinjuk, Deputy Head of Kyiv City Blood Centre

- Nina Mikolaenko, Head of Laboratory, Kyiv City Blood Centre
- Sergey Filipovich, Head of the treatment and procurement department, Alliance for Public Health
- Olga Burgay, Manager of treatment programmes, Alliance for Public Health
- Volodimir Kurpita, Network of PLWH
- Sergey Dmitriev, Network of PLWH
- Oksana Savenko, Network of PLWH.

The mission team comprised the following members:

- Antons Mozalevskis, WHO Regional Office for Europe
- Martin Donoghoe, WHO Regional Office for Europe
- Alexey Bobrik, WHO Country Office in Ukraine
- Francisco Averhoff, Division of Viral Hepatitis, Centers for Disease Control and Prevention (CDC), Atlanta, USA
- Natalia Podolchak, CDC, Kyiv, Ukraine
- Guillaume Dedet, WHO Regional Office for Europe
- Vusala Allahverdiyeva, WHO Country Office in Ukraine.

Preparation of this report was coordinated by the WHO Regional Office for Europe with the support of the WHO Country Office in Ukraine and the Division of Viral Hepatitis of the CDC.

3 Findings and recommendations

The findings of the mission team and related recommendations are grouped under four main headings: **3.1** Governance and programme management; **3.2** Data for policy and action; **3.3** Prevention of transmission; and **3.4** Diagnosis and treatment, including access to HCV medicines.

3.1 Governance and programme management

Good governance and programme management are crucial for an effective and efficient national health programme. At each management level, staff should be given adequate authority for appropriate decision-making, along with responsibility and accountability. Effective human resource planning is also paramount, as are job definitions at each level. Care should be taken to ensure effective collaboration and communication between relevant health programmes. This could be a significant cost-saving measure as well as a means to increase programme effectiveness.

The national planning process should be based on the best available data generated by strategic information systems. The process should allow input from all key stakeholders – including civil society – on policy development, service planning and resource allocation, and should ensure coordination and alignment of the viral hepatitis response with the broader health sector. It should also advocate for political commitment to sustained financing and national ownership.

Findings

The mission team recognized increasing awareness and commitment to responding to viral hepatitis by the majority of government and non-government stakeholders (a commitment shown, initially, by the MoH's request for the current mission to take place). Many stakeholders (as well as donors) are already engaged in various projects and initiatives that constitute the existing response.

However, at the national level, the hepatitis response is currently fragmented: it is not based on the actual epidemiological situation; development of guidelines and protocols and procurement are not under the direct responsibility of the MoH; and there is poor linkage between testing, treatment and care services provided by the private, public and NGO sectors. There is no clear and empowered focal point, nor well-defined and functioning lines of responsibility, for proper planning and decision-making with respect to hepatitis control.

The current response, especially in the areas of epidemiological surveillance, blood safety, and infection prevention and control (IPC), is constrained by outdated orders (*prikaz*) from the Soviet period; these prevent change and transition to a response based on a public health approach.

Procurement and supply management (PSM) remains a serious challenge in the task of ensuring timely provision of high-quality and effective pharmaceuticals and health products. In 2015 state PSM was transferred, for a transitional period until the end of March 2019, from the MoH to various international organizations, including the United Nations Development Programme (UNDP), the United Nations Children's Fund (UNICEF) and the Crown Agents (an international development

company with its head office in the United Kingdom).[3] The MoH is planning to establish a national procurement agency and to develop a new PSM strategy.

The National Immunization Programme (NIP) has been seriously damaged by intermittent implementation of health reform, inefficiencies in vaccine procurement, and unpredictable funding from the state budget, as well as by public concerns about vaccination and administrative difficulties. The country experienced significant vaccine shortages between 2012 and 2015. Immunization coverage for most of the NIP antigens declined sharply between 2010 and 2015, and still remains among the lowest at both global and regional levels.

Priority recommendations

1. Establish a dedicated **focal point for leading and coordinating the hepatitis response**, preferably within the MoH, to ensure strong leadership; and an **interdisciplinary strategic technical working group** that would include the main national stakeholders, including NGOs.

2. Develop and endorse a **National Action Plan**, aligned with the European Action Plan on viral hepatitis and adapted to the country context.

Other recommendations

3. Establish an interdisciplinary **strategic technical working group**, to include the main relevant national stakeholders and to have clear terms of reference, clearly defined tasks and a time-bound workplan. The main deliverables of this working group could include:
    - an assessment of the hepatitis situation and responses;
    - a budgeted national hepatitis plan with evidence-based estimates, well-defined goals, responsibilities assigned, and targets aligned with the WHO European Action Plan tailored to the Ukrainian situation.
4. Establish a **partners group** that would include the main international stakeholders (WHO, CDC, USAID, etc.) to support and advise the strategic working group. Such a group could be created merely by extending the responsibilities of entities that already exist – e.g. the partners meetings currently conducted under WHO auspices and covering the TB and HIV areas could become TB/HIV/viral hepatitis partners meetings and serve as a platform for coordination of activities in the hepatitis area as well. Such a group should be chaired by an MoH representative.

5. Recommendations for governance and programme management of hepatitis should be seen in the **context of the ongoing public health reforms in Ukraine**, including the structural reforms that established the PHC in 2016. The PHC is responsible for leadership and governance of public health programmes at the national level and should strengthen that role with regard to hepatitis governance.

3.2 Data for policy and action

Accurate data enable policy-makers and decision-makers at all levels to understand the burden of disease caused by viral hepatitis and to develop prevention and control strategies accordingly. Viral

[3] Crown Agents [website] (www.crownagents.com).

hepatitis surveillance systems are needed to detect outbreaks; monitor trends in incidence and risk factors; assess the burden of chronic hepatitis and disease outcomes (e.g. cirrhosis and liver cancer), including deaths; monitor treatment coverage and its impact on chronic liver disease; and evaluate the efficacy of interventions to prevent, control and treat viral hepatitis. Implementing surveillance systems for viral hepatitis complies with International Health Regulations (2005) to strengthen disease detection.[4] Furthermore, a viral hepatitis surveillance system can improve the country's overall performance in numerous other synergistic areas, such as water and sanitation, blood safety, injection safety, and surveillance of other communicable diseases.

Findings

The viral hepatitis surveillance system in Ukraine is based on an outdated normative base that has changed little since the Soviet period and is not capable of providing the strategic information needed for a focused response. There is a lack of reliable and agreed estimates of the burden of disease, and there is no systematic collection and analysis of chronic hepatitis treatment and care cascade data.

The current viral hepatitis surveillance system is better suited to detecting outbreaks than providing strategic information to inform the national response. It is unable to record all diagnosed cases (e.g. those diagnosed in private laboratories) and there is no systematic reporting from the complex network of state laboratories.

There is no systematic collection of sentinel surveillance or integrated biological–behavioural surveillance (IBBS) data on viral hepatitis among key and vulnerable populations.

Finally, the mission team concluded that there is a lack of systematic collection and analysis of treatment outcome data, and there is no unified electronic data collection in place.

Priority recommendations

1. Conduct a **national disease burden estimation** exercise for HBV and HCV; plan a **population-based serosurvey** that will provide a robust estimate of the prevalence of HBV and HCV infections.

2. **Revise the existing viral hepatitis surveillance system**, including case definitions and normative base, to align with the WHO-recommended approach to hepatitis surveillance[5] and monitoring and evaluation framework.[6]

---

[4] International health regulations (2005), 3rd edition. Geneva: World Health Organization; 2016 (http://www.who.int/ihr/publications/9789241580496/en).

[5] Technical considerations and case definitions to improve surveillance for viral hepatitis. Technical report. Geneva: World Health Organization; 2016 (http://www.who.int/hepatitis/publications/hep-surveillance-guide-pub/en).

[6] Monitoring and evaluation for viral hepatitis B and C: recommended indicators and framework. Technical report. Geneva: World Health Organization; 2016 (http://www.who.int/hepatitis/publications/hep-b-c-monitoring-evaluation/en).

Other recommendations

3. Include hepatitis testing in the IBBS planned for HIV.

4. Plan for a **population-based serosurvey**, representative of the relevant age groups. This would provide a best estimate of the prevalence of HBV and HCV infections, which in turn would allow estimates of the hepatitis disease burden and costs to society. Such a serosurvey would also be useful to assess the effectiveness of hepatitis B immunization. Since serosurveys are costly, consider adding a hepatitis component to any other population-based survey.

5. Consider establishing an electronic strategic information system based on existing system(s), e.g. eHealth (note that countywide electronic systems have been introduced for tuberculosis – eTB manager – and HIV).

6. Introduce an **electronic registry of HBV and HCV patients**, to monitor and evaluate a national programme of testing and treatment of viral hepatitis. When a person is diagnosed (i.e. identified as a new case of chronic infection), their record is added to the registry (essentially, a database of patients with certain given characteristics). Personal data in the registry should be secured at different levels of access to avoid discrimination and compromising patient confidentiality.

7. Recommendations for hepatitis surveillance should be seen in the context of the ongoing public health reforms in Ukraine; these include reform of the overall health sector system of data collection analysis and reporting of communicable disease data under the responsibility of the PHC.

3.3 Prevention of transmission

Preventing new cases of infection remains the basis of any public health programme, including viral hepatitis, even in the presence of effective and accessible medication. Governments have a responsibility to prevent transmission of infection to populations using all available means, including provision of vaccinations, safe injections and safe medical interventions, safe blood and blood products, tissues and organs, and harm reduction services to PWID. Hepatitis B vaccine remains one of the most effective public health tools to prevent infection and – in the final analysis – millions of deaths due to liver cancer worldwide. Collaboration, integration and linkage between hepatitis services and other health programmes – for example, HIV, tuberculosis and drug dependence services – can strengthen health systems and improve efficiencies.

Integration of prevention, treatment and care services is of particular relevance to Ukraine, which is characterized by a high prevalence of HIV and TB, as well as a high burden of HCV, HIV and TB among key groups. IBBS in key groups conducted in 2015 reported an HCV prevalence of 55.9% in PWID and 11.2% in female sex workers.

3.3.1 Vaccination

Findings

Vaccination against hepatitis B was included in the National Immunization Schedule in 2000. Countrywide immunization with hepatitis B birth-dose vaccine started in 2001 with the support of

Gavi, the Vaccine Alliance.[7] Financing for hepatitis B vaccination was approved by Gavi for 2001–2005, then gradually (by 2009) replaced by state budget financing.

The mission team has expressed serious concerns about very low hepatitis B vaccine coverage due to various complex factors: problems with supply in the past; poor planning and stock monitoring; misconceptions among doctors; vaccine hesitancy among the general population. Coverage with hepatitis B birth-dose and third-dose vaccine was 37% and 26%, respectively, in 2016.[8] Reported coverage rates for birth-dose and third-dose vaccine for 2003–2016 are provided in Table 1.

Table 1. Reported hepatitis B (HepB) birth-dose and third-dose vaccine coverage rates for Ukraine (2003–2016)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
HepB birth-dose coverage (%)		99	96	88	89	82	73	64	63	51			57	37
HepB third-dose coverage (%)	77	98	97	96	92	84	66	48	21	46			22	26

Source: UNICEF-WHO

No nationally representative serosurvey for HBV surface antigen (HBsAg) has been carried out among vaccinated cohorts of children; data are therefore insufficient to evaluate the effectiveness and impact of the NIP for HBV. The ongoing assessment of serological protection against polioviruses, measles, rubella, diphtheria, tetanus and HBV, conducted by WHO with CDC support, is expected to deliver data required for decision-making.

Ukraine has no national strategy for routine hepatitis B vaccination of persons belonging to key risk populations; it should be noted that vaccination for viral hepatitis is part of the comprehensive harm reduction package for all PWID recommended by the Joint United Nations Programme on HIV/AIDS (UNAIDS) and WHO.

Alongside its application for hepatitis B vaccine, Ukraine also applied to Gavi for injection safety support, including AD syringes, reconstitution syringes and safety boxes, for the NIP. The application was approved for support during 2003–2006. One of the key conditions of Gavi injection safety support – sustainable takeover by the government – has not been achieved in Ukraine. Lack of national instruction on injection safety and serious gaps in IPC practices in the NIP have been noted. Centralized procurement of safe injection equipment is reflected in the recently developed NIP strategy and roadmap, but both documents are pending government endorsement.

[7] Gavi, the Vaccine Alliance [website] (http://www.gavi.org).

[8] Immunization, vaccines and biologicals: data, statistics and graphics. Geneva: World Health Organization (www.who.int/immunization/monitoring_surveillance/data/en).

The country also lacks a national strategy for routine hepatitis A vaccination of higher-risk groups (e.g. travellers to areas of high endemicity; military personnel; ecological and sanitary workers; people with HIV or chronic HBV or HCV infection).

Priority recommendations

1. Urgently **address hepatitis B vaccination programme gaps**, by implementing priority recommendations from the assessment conducted in 2012–2016; conduct a vaccine management assessment. Take steps to strengthen the immunization programme at central and local levels as recommended.

2. The National Immunization Schedule needs to be optimized, particularly through implementation of **5-valent or combination vaccine with hepatitis B component.** This should:
    - reduce the number of injections;
    - improve delivery of hepatitis B vaccine; and
    - reduce costs.

3. **Introduce AD syringes** and other safe injection equipment for vaccination.

Other recommendations

4. Birth-dose vaccine implementation should be the joint responsibility of health care workers in the Expanded Programme on Immunization (EPI) and maternal and child health programmes.

Ukraine established the National Immunization Technical Advisory Group of Experts in January 2017, and this mechanism should be effectively utilized to make evidence-based decisions within the NIP and to align its implementation to meet European Vaccine Action Plan 2015–2020 targets, including those related to universal hepatitis B vaccine coverage.[9]

3.3.2 Infection prevention and control (IPC) activities

IPC is a universally relevant component of all health systems and affects the health and safety of both those who use services and those who provide them. Effective IPC is a key strategy for dealing with public health threats of local, regional, national and international concern. IPC is a contributor to safe, effective, high-quality health service delivery – in particular, services related to water, sanitation and hygiene and to high-quality and universal health coverage. IPC strategies in health care facilities are commonly based on early recognition and source control, administrative controls, environmental and engineering controls, and personal protective equipment.

Findings

The normative base for IPC is outdated and fragmented, built largely on norms dating back to the Soviet period and characterized by significant regional and local variation. It is likely that enforcement of even these inadequate regulations is weak.

[9] European vaccine action plan 2015–2020. Copenhagen: WHO Regional Office for Europe; 2014 (http://www.euro.who.int/__data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf).

Inadequate procurement of single-use/disposable equipment, e.g. vacuum blood collection tubes, leads to multiple use and reuse of laboratory glassware in the public health sector. Use of AD syringes and safety-engineered injection devices is extremely limited.

With some exceptions, observations by the mission team in health facilities generally confirm that IPC is often a neglected area marked by poor compliance with standard precautions. During the visits it was noted (for instance) that some laboratory technicians handling blood did not wear gloves even when they were available in the laboratory.

Key informants mentioned registered cases and outbreaks of bloodborne hepatitis transmitted within heal care facilities, e.g. among chronically ill children receiving multiple invasive procedures. Informally, the mission team was informed about elevated risk of health care-associated transmission among military personnel in the war conflict zone in the eastern part of Ukraine;[10] however, concrete figures or supporting documentation were not presented.

There is no incentive to report potential outbreaks caused by bloodborne pathogens, reportedly because there is a so-called "culture of punishment/castigation" and insufficient training on safety for medical personnel.

According to a study conducted in 2016 among 597 health workers in Kyiv city and Kyiv region, one third (33%) self-reported that they had not been vaccinated against HBV, while 36% of those working in intensive care units and 23% of those working in infectious disease departments self-reported that they had experienced occupational exposure (medical sharps injuries).[11]

Priority recommendations

1. Conduct a thorough **assessment of the implementation of injection safety and IPC programmes** at national and local levels; revise the IPC programme normative base in line with WHO guidelines.[12]

Other recommendations

2. Enforce IPC and occupational safety standards (proper work algorithms, standard precautions, consistent use of protective equipment, etc.).
3. Provide regular staff training on IPC through graduate, postgraduate and on-the-job training.

---

[10] Hepatitis C: war in the east of Ukraine is a driver of the epidemic! [press release]. Alliance for Public Health. 28 July 2015 (http://www.aidsalliance.org.ua/ru/news/pdf/01-12_2015/07/dayc_en.pdf).

[11] Гетьман Л.І., Щербінська А.М., Бобрик О.В., Шагінян В.Р., Рябоконь С.В., Соболєва Я.В., Гриценко Т.В., Старіченко І.М., Міщенко О.Л. Ризики інфікування медичних працівників збудниками гемотрансмісивних захворювань. Профілактична медицина, No. 3–4 (27)/2016; 106–112.

[12] Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level. Geneva: World Health Organization; 2016 (http://apps.who.int/iris/bitstream/10665/251730/1/9789241549929-eng.pdf).

4. Improve supply of single-use consumables, personal protective equipment and waste management equipment.
5. Expand use of AD syringes and safety-engineered injection devices, starting with child vaccination programmes.
6. Provide strong leadership and supportive supervision to encourage continued behavioural change among medical workers.
7. Prioritize hepatitis B vaccination of health care workers.
8. Address "punishment epidemiology" approach applied to investigation of cases of nosocomial infections.

3.3.3 Blood safety

Findings

Thorough assessments of Ukrainian blood services were conducted in 2013 by the CDC and the American International Health Alliance (AIHA), and in 2015 by the European Commission (DG Health and Food Safety).[13] The conclusion they reached is that blood supply in Ukraine is not safe for the following reasons:

- The governance of the current system is fragmented and lacks critical functions and institutions to provide a link between regional and national levels.
- Critical functions and institutions are missing, such as a competent national authority to provide oversight; this should include an inspection and enforcement system and a haemovigilance programme.
- Key quality and safety steps in donor selection and testing are inadequately controlled.
- Testing for viral markers as well as blood grouping is frequently carried out in an uncontrolled and inadequate manner using locally produced test kits, without quality control and with poor/unknown specificity and sensitivity.

The mission team identified the following additional critical issues with the blood services:

- Ukraine has a highly decentralized system comprising 25 regional blood centres and 385 blood collection posts with little administrative subordination.
- 70.4% of all blood donations in Ukraine in 2015 were made by paid donors.[14]
- There is a lack of adequate external quality control and reference laboratory facilities for hepatitis.

---

[13] Technical report of the assessment mission on blood services in Ukraine. European Commission (DG Health and Food Safety); 2015.

[14] Activities of the institutions of the blood service of Ukraine in 2015 [Діяльність закладів службы крові України у 2015 році]. Kyiv: Ministry of Health of Ukraine, National Academy of Science of Ukraine, State Enterprise "Institute of Haematology and Transfusiology"; 2016.

- Periodic stockouts of certain commodities occur; these are addressed by transitions to other test systems (potentially of lower quality).
- Donor databases are decentralized, with no national donor registry.
- Automation of the pre-analytical stage is generally low, with potential for human error.
- Lack of enforcement of proper guidelines leads to unacceptable practices. For example, in one region, in the first quarter of 2017 alone, there were reportedly 60 direct blood transfusions performed, suggesting that only rapid tests were used. (It might suggest that the local health authorities, instead of proper blood supply management, prefer to use a large pool of donors who are easily available on demand, at the risk of compromising the quality of TTIs testing.)
- According to data supplied by the Institute of Blood Pathology and Transfusion Medicine of Ukraine, of 1902 haemophilia patients registered in the country, 390 (20.5%) had HBV and/or HCV markers in 2013.

Priority recommendations

1. Promote strong leadership to implement a **unified national policy and operational system for blood donation and transfusion**, e.g. appoint an MoH deputy minister to lead a blood safety taskforce to develop an action plan for strengthening blood safety in the country.

2. **Reduce the number of blood donation sites** to those that meet minimum international quality standards, to ensure that universal screening for TTIs is applied effectively and consistently.

Other recommendations

3. Consider centralized procurement of reagents with appropriate quality control.

4. Promote voluntary blood donations and aim to phase out paid donors.

5. Include a representative of the blood services in the working group set up to develop the national viral hepatitis programme.

3.3.4 Harm reduction

Findings

Interventions for PWID currently in harm reduction programmes in Ukraine include:

- needle and syringe programmes (NSPs)
- information, education and counselling (IEC)
- distribution of condoms and lubricants
- HIV testing services (HTS); very limited HBV and HCV testing services
- opioid substitution therapy (OST).

Harm reduction programmes are widely implemented in the country. However, low OST coverage was noted: it is currently estimated that only 3% of people who use opioids and 22% of people registered with an opioid use disorder receive OST. Also, the number of syringes distributed to PWID through NSPs is relatively low (though this is partly compensated by easy access to syringes through pharmacies).

Most harm reduction services are currently delivered by NGOs and funded by international donors. Since 2017, financing of the OST programme has been transferred to the state, while transfer of funding for HIV prevention services among vulnerable groups is currently being discussed.

Priority recommendations

1. Strengthen harm reduction programmes, to **increase access to a comprehensive package of harm reduction services** to PWID, including OST coverage, NSPs, testing for viral hepatitis and other infections, and linkage to care.

Other recommendations

2. Strengthen staff training with a focus on hepatitis; continue to raise hepatitis awareness among clients.
3. Consider routine offer of hepatitis rapid test, combined with strengthening of linkage to care and referral to hepatitis treatment.
4. Promote hepatitis B vaccination for PWID and other key groups.
5. Increase state provision and domestic support/funding for long-term sustainability of harm reduction services.
6. Consider integration of harm reduction services in both primary health care facilities and in specialized (e.g. drug dependence treatment) facilities.
7. Consider harm reduction services for sentinel surveillance and IBBS for hepatitis.

3.4 Diagnosis and treatment, including access to HCV medicines

Effective clinical management of viral hepatitis reduces the individual, social and health burden related to the infection. Effective antiviral agents against HBV and HCV have the potential to dramatically reduce morbidity and mortality, including among people coinfected with HIV. Direct-acting antivirals (DAAs) for the treatment of chronic HCV infection have cure rates exceeding 95%, with pan-genotypic regimens becoming available. Effective treatment is available for chronic HBV infection.

WHO has published and will regularly update guidelines for the care and treatment of people with HBV and HCV. It is important that countries develop or adapt clinical treatment guidelines for these infections.

3.4.1 Testing, diagnosis and linkage to care

Findings

All hepatitis diagnostics are widely available, at least in major cities; however, most of the laboratory tests are carried out at the patient's expense.

Many diagnostic test kits are registered in the country, although concerns were raised about quality assurance, since there is no efficient external quality assurance (EQA) system in the country.

Currently there are no national guidelines/strategies or other regulatory documents on viral hepatitis screening and diagnosis in the country.

Priority recommendations

1. Develop and publish **national viral hepatitis testing guidelines**, including a national testing strategy, a diagnostic algorithm, and strategies to ensure referral and linkage to care.

2. Develop **educational programmes for laboratory specialists** on quality control for laboratory diagnostics.

3. Ensure a stringent **certification process for diagnostic test systems** that enter the market and are registered in the country.

Other recommendations

4. Consider offering routine testing to populations at higher risk, including outreach and use of rapid tests or dried blood spot tests.

5. Include diagnostic test systems and reagents in the state procurement.

6. Consider common platforms for disease-specific testing – for example, a single device can be used to measure HIV and HCV viral load.

3.4.2 Treatment of chronic hepatitis, including access to HCV medicines

Findings

In 2015 the national guidelines on HCV treatment were updated for the first time, and on 18 July 2016 the MoH approved the updated Unified Clinical Protocol and Adapted Clinical Guidelines "Viral hepatitis C".[15] New, up-to-date treatment regimens using combinations of highly effective DAAs were added to the list of drugs recommended to be prescribed to all patients, including sofosbuvir, sofosbuvir/ledipasvir, simeprevir, and ombitasvir/paritaprevir/ritonavir.

In terms of registration in Ukraine, most medicines recommended for HCV treatment have a valid market authorization in the country. However, the mission noted the absence of registration for any version of daclatasvir (branded or generic) or for the latest drug combination from Gilead (velpatasvir + sofosbuvir).

There are currently two legal streams granting access to HCV treatments in Ukraine.

a. *Government programme*

The Ukrainian government gives access to HCV treatments via its vertical programmes. In 2016, 136 million Ukrainian hryvnia (around US$ 5 million) was spent on procurement of these medicines. Since 2015 procurement has been undertaken by the Crown Agents, based on a list of international nonproprietary names (INNs) and volumes prepared by the MoH. Once procured, medicines are dispatched to the oblast-level storage facilities, and from there to the regional specialized clinical units. Medicines under this programme are dispensed free of charge. Some informants to the

[15] Наказ Міністерства охорони здоров'я України 18.07.2016 № 729 УНІФІКОВАНИЙ КЛІНІЧНИЙ ПРОТОКОЛ ПЕРВИННОЇ, ВТОРИННОЇ (СПЕЦІАЛІЗОВАНОЇ), ТРЕТИННОЇ (ВИСОКОСПЕЦІАЛІЗОВАНОЇ) МЕДИЧНОЇ ДОПОМОГИ ВІРУСНИЙ ГЕПАТИТ С У ДОРОСЛИХ. 2016 рік [Order of the MoH of Ukraine No. 729 of 18 July 2016, "Unified clinical protocol for primary, secondary (specialized) and tertiary (highly specialized) clinical care for HCV infection in adults". 2016].

mission reported that the government programme has been corrupted, particularly at point of care, resulting in extortion of payments and effectively limiting access to the most vulnerable populations.

The mission also wished to draw attention to the following features of the government programme:

- The overall amount allocated to procurement of HCV medicines is insufficient to provide the coverage needed in the country.
- On the list of medicines procured, the majority of funds are spent on first-generation therapeutics (interferon and ribavirin) and very little is dedicated to new DAAs. This goes against WHO clinical recommendations, as the former are often more expensive, more difficult to administer, have a greater side effect profile, and have lower effectiveness to cure HCV.
- The process of selecting medicines to be procured and estimating necessary volumes is opaque.

b. *Other programmes*

There are various programmes of access to medicines conducted by NGOs and development partners. The mission identified activities currently being conducted by the Alliance for Public Health (hereafter "Alliance"), as well as two programmes due to be launched shortly by Médecins Sans Frontières (MSF) and USAID. Such programmes vary in terms of scope and populations targeted, but they are not large-scale programmes.

Alliance is implementing a pilot community-based HCV treatment model with the use of sofosbuvir and ledipasvir/sofosbuvir for vulnerable groups (PWID, CSWs, MSM); providing support and access to laboratory diagnostics to ensure treatment monitoring and further follow-up; conducting research to define the most effective model of sofosbuvir and ledipasvir/sofosbuvir-based HCV treatment for populations that are most vulnerable; and integrating sofosbuvir and ledipasvir/sofosbuvir-based treatment regimens into the national HCV treatment guidelines.

In 2014, Alliance negotiated a significant price reduction with the manufacturer, which allowed it to bring sofosbuvir to the country in 2015 and ledipasvir/sofosbuvir in 2017 at the price of US$900 per standard 12-week treatment course. As of 1 May 2017, almost 1700 patients were involved in the Alliance HCV treatment programme, with 94% cure rates reported.

The patent situation of HCV medicines

The intellectual property rights situation with respect to HCV medicines in Ukraine is as follows:

- **Sofosbuvir** In 2015, the pharmaceutical company Gilead submitted its patent application in Ukraine. Three of the submitted patents are blocking the possibility of generic entry. One of these patent applications has been rejected by the authorities, and the two others are likely to be rejected as well in the near future. A generic producer of sofosbuvir had already received a market authorization from the authorities, and its product was being legally sold in the country. However, Gilead threatened to sue the government for non-respect of its data exclusivity period. In January 2017, the Ukrainian government and Gilead reached an agreement: the market authorization of the generic company was withdrawn and the originator company committed to market sofosbuvir

and the combination sofosbuvir + ledipasvir at low prices. The details of the deal are not known. Therefore, Gilead is in a monopoly situation in Ukraine until 2020.

- **Daclatasvir** No patent application in the country.
- **Simeprevir** Primary and secondary patents granted.
- **AbbVie combo** Primary patents granted.

MSF will soon be launching an access programme in which it will import and dispense 1000 courses of sofosbuvir produced by a generic manufacturer. This is inconsistent with the agreement signed with Gilead in early 2017 (see box). There is also a lack of proper understanding of the possible courses of action available to the authorities to grant access to medicines despite patent protection (TRIPS flexibilities, for instance).

Finally, it has been reported to the mission that there is an active black market for hepatitis medicines. Precise information about, and quantification of, such a market is by its nature impossible, but it appears that any medicine – both generic and originator versions – can be purchased (even those, like daclatasvir, without proper market authorization in the country). Prescribers appear to be part of this general phenomenon, as they can act as intermediaries in some transactions. Internet purchasing is the preferred means to procure such medicines.

This situation is very concerning from a public health point of view. Indeed, no proper quality control of the products circulating is possible, and surveillance of efficacy and adverse events is impossible.

Priority recommendations

1. **Update national hepatitis guidelines** and treatment protocols regularly to align with the WHO guidelines, including criteria for treatment initiation, choice of treatment regimens and monitoring.

2. Conduct an **independent review of the government hepatitis treatment programme**, to ensure transparency with respect to selection and purchase of medicines; equitable access to the programme, including eligibility criteria; and systems to report annually on outcomes and effectiveness.

3. Conduct an **independent assessment of public funding for the hepatitis programme**, currently limited to procurement of HCV medicines; this can be done as part of an overall assessment of efficiency of public financing of infectious disease treatment.

4. **Strengthen oversight of the pharmaceutical sector**, with particular emphasis on adherence to the principles of good distribution practice.[16]

[16] WHO good distribution practices for pharmaceutical products. WHO technical report series, No. 957, Annex 5. Geneva: World Health Organization; 2010 (http://apps.who.int/medicinedocs/en/d/Js18678en).

Other recommendations

5. The government needs to take a steering role in the various access campaigns launched in the country and to ensure that they accord with the national strategy and health priorities.

6. Recommendations for procurement and supply management (PSM) should be seen in the context of the ongoing public health reforms in Ukraine, including the proposed establishment of a national procurement agency.

7. Consider implementation and use of patient registries to ensure continuity of hepatitis care and treatment with assured personal data security.

8. Negotiate with industry (to remove regulatory barriers, agree direct prices, etc.) and accelerate registration, inclusion in treatment guidelines, and use of pan-genotypic HCV treatment regimens.

4 Conclusions and next steps

WHO and the CDC, together with partners, are ready to provide further technical support in 2018 and beyond, and suggest the following next steps to be discussed with national counterparts:

1. In order to better understand the burden of viral hepatitis and to estimate its cost to the Ukrainian economy, as well as the relative cost of effective interventions, a data triangulation exercise/disease burden modelling should be conducted, possibly followed by an assessment of cost-effectiveness of the treatment programme of viral hepatitis and economic analysis (the so-called investment case). WHO and the CDC can support Ukraine by coordinating such an exercise and attracting an external expert team to conduct modelling work.

2. The viral hepatitis surveillance system in Ukraine needs to be reviewed and aligned with WHO recommendations, including adopting WHO case definitions and the WHO-recommended viral hepatitis monitoring and evaluation framework.

3. WHO, upon request of the MoH, could conduct immunization programme evaluation and provide recommendations for improvement.

4. The new national programme (national action plan) on viral hepatitis control should be developed and adopted. It is recommended that it be aligned with the European Action Plan on viral hepatitis, endorsed by the WHO Regional Committee for Europe in September 2016. WHO and the CDC would provide technical support in the development of the new national programme.

5. WHO, upon request of the MoH, could continue to advise on integration and linkage of prevention, treatment and care services for hepatitis, HIV and tuberculosis, particularly with respect to key vulnerable populations and in the context of ongoing public health and health system strengthening reforms.

Annex
Agenda of the WHO/CDC viral hepatitis mission to Ukraine, 6–9 June 2017

Date	Time	Meeting (place)	Meeting (place)
Day 1			
		Group 1	**Group 2**
Tuesday 6 June 2017	10:30–11:00	Introductory meeting at the MoH for presentation of the mission scope and purpose	
	11:00–12:00	Centre of Medical Statistics of the MoH	
	12:00–12:30	Transfer	
	12:30–13:30	Department of infectious diseases, National Medical University named after Bogomolets	
	13:30–14:30	Lunch, transfer	
	14:30–17:30	Public Health Center, MoH	
Day 2			
Wednesday 7 June 2017	9:30–11:30	Kyiv City Blood Centre	Centre of Primary Health Care No. 1, Obolon district of Kyiv city
	11:30–12:30	Transfer	
	12:30–17:30	Kyiv City Clinical Hospital No. 5 – Infectious disease department – Outpatient department of Kyiv AIDS Centre – Clinical laboratory – Regional projects of Network of PLWH	
Day 3			
Thursday 8 June 2017	09:30–12:00	Institute of Epidemiology and Infectious Diseases named after L.V. Gromashevsky	MoH, Departments of procurement and quality of pharmaceutical products
	12:00–13:00	Lunch, transfer	
	13:00–15:00	Alliance for Public Health (NGO)	NGO “Drop-in centre” – Mobile laboratory – Outreach to high-risk population groups
	15:00–15:30	Transfer	
	15:30–17:00	Network of PLWH (NGO)	
Day 4			
Friday 9 June 2017	09:30–12:00	Ukrainian reference centre of clinical laboratory and metrology at OKHMADIT clinic of the MoH	
	12:00–16:00	Transfer	
	16:00–17:30	Exit presentation of the preliminary results of the mission at the Ukrainian Public Health Center	

World Health Orgzanization
Regional Office for Europe

UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01
Email: euwhocontact@who.int
Website: www.euro.who.int