



EPIDEMIOLOGICAL FEATURES OF HEPATITIS B IN UKRAINE

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The Institute has almost 120-year history of struggle against infectious diseases.

At present the Institute is a leading research institution in the country for the epidemiology, diagnosis, prevention and treatment of infectious diseases.

Research Laboratories

- 1.Laboratory of medical microbiology with the Museum of human pathogens;**
- 2.Laboratory of immunology and prevention by vaccine;**
- 3.Laboratory of epidemiology parenteral viral hepatitis and HIV-infection;**
- 4.Department of respiratory and other viral infections;**
- 5. Department of HIV and HIV-associated infections;**
- 6.Laboratory of intestinal infections;**
- 7.Laboratory of disinfectology;**
- 8.Laboratory of experimental chemotherapy of viral infections**

**3 clinical science departments, including the
Department of parenteral viral hepatitis and AIDS**

Clinic of Institute

2 clinical sites



1. Division of intensive therapy and detoxication - **17 beds.**
2. Division of neuroinfections – **23 beds.**



1. **Division of Viral Hepatitis – 32 beds.**
2. Division of AIDS with intensive care - **38 beds.**

- Clinic-diagnostic laboratory;
- Consultative polyclinic

The following forms of viral hepatitis are officially registered in Ukraine (ICD-10):



Acute hepatitis A (B15)

Acute hepatitis B (B16) from 1970

Acute hepatitis C (B17) from 2003

Chronic viral hepatitis B (B18.0-1, without delta agent) from 2010

Chronic viral hepatitis C (B18.2) from 2010

- Morbidity recorded by regions, including urban and rural populations, and in different age groups: adults, children under 17 years (total), children under 1 year, 1-4, 5-9, 10-14 and 15-17 years;
- Registration of all variants of hepatitis B with delta-component and the after-effects of viral hepatitis are not available;

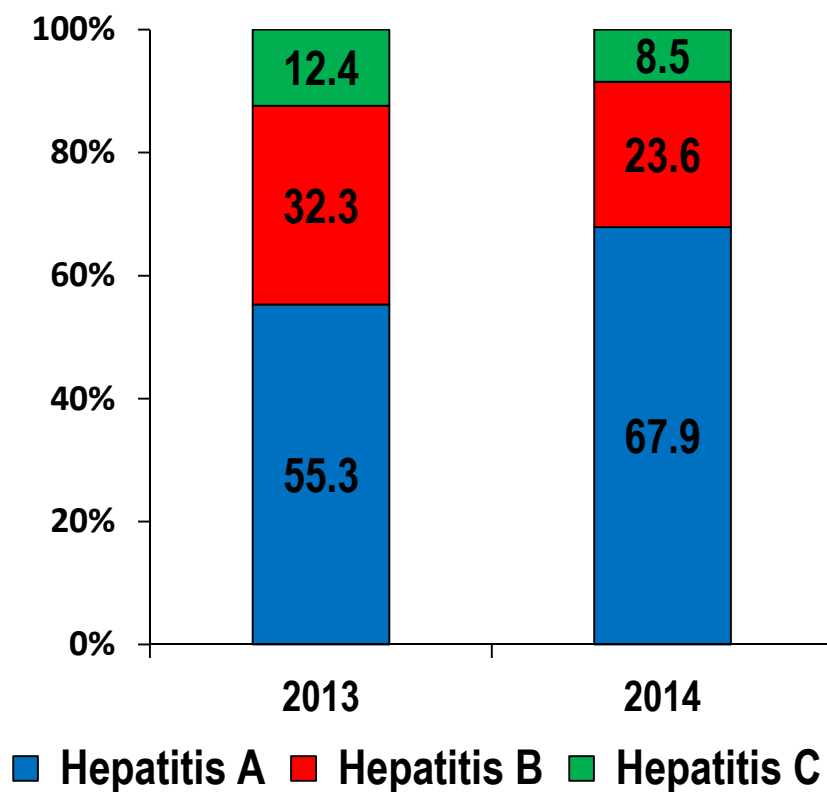
So, we have not official information about the numbers of virus carriers, cirrhosis and liver cancer, which are etiologically associated with HBV.

STRUCTURE OF VIRAL HEPATITIS INCIDENCE

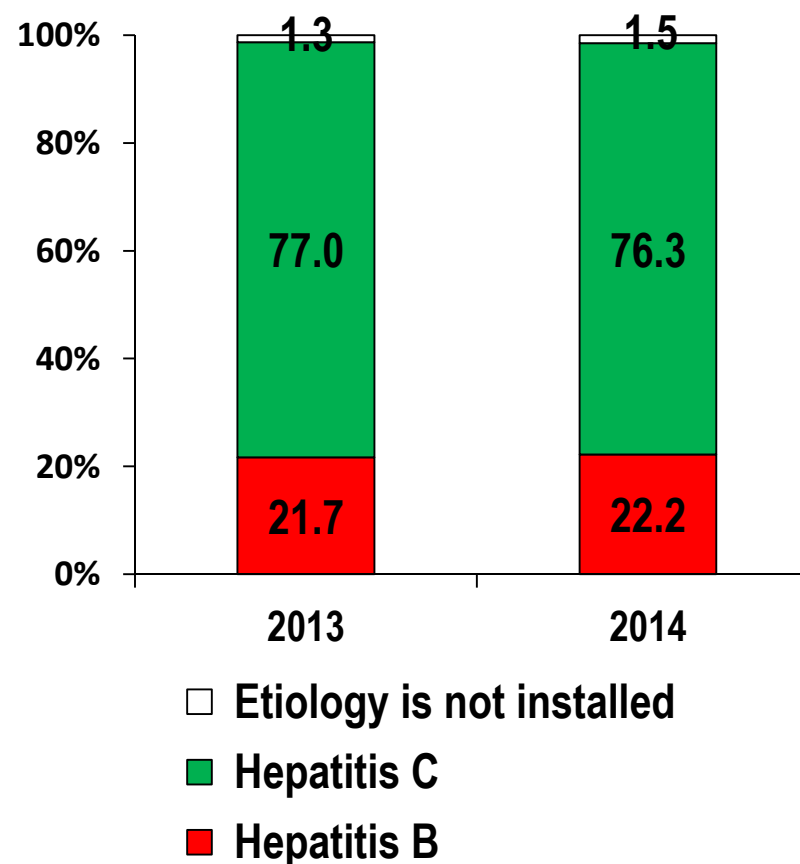
Among viral hepatitis acute hepatitis B is 23-32%, chronic hepatitis B - 21-22%.



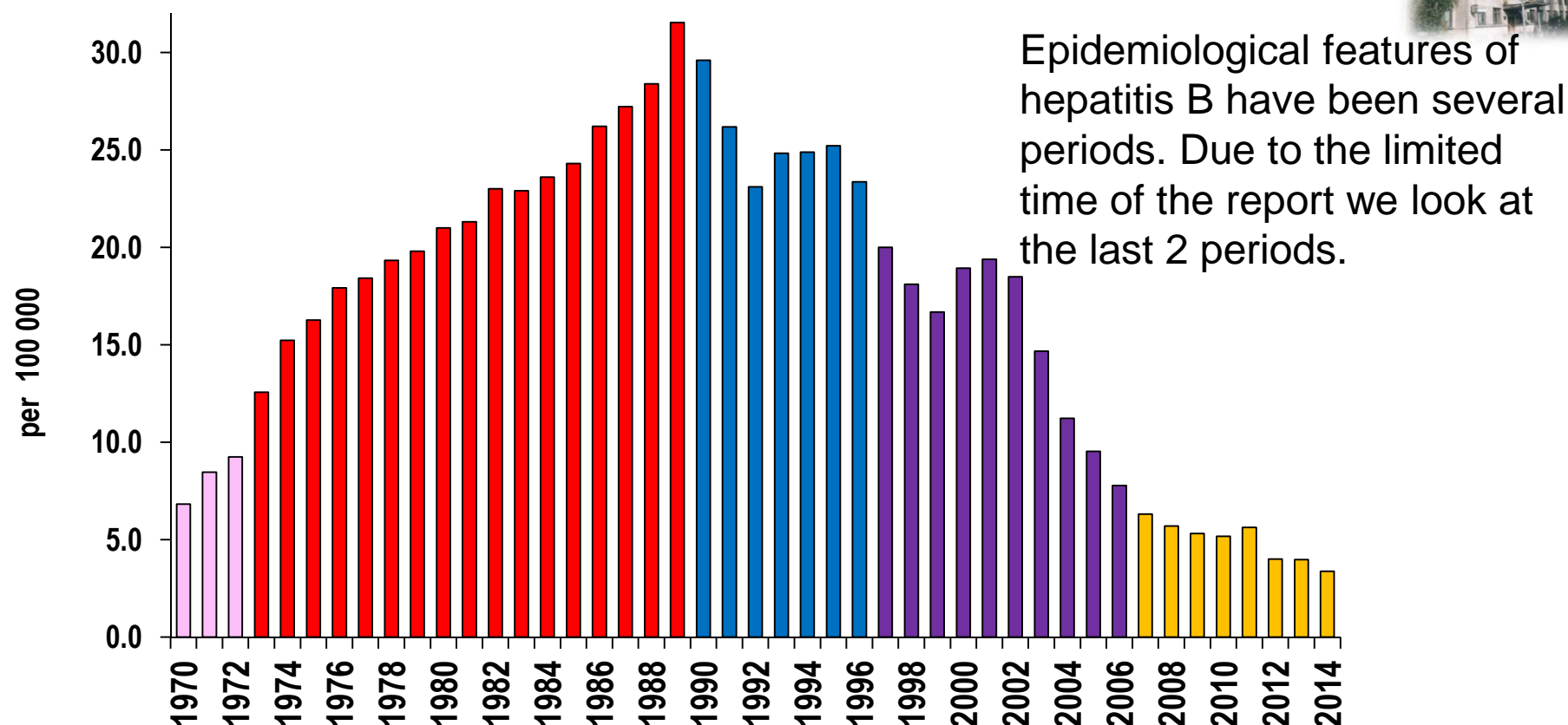
Acute forms



Chronic forms

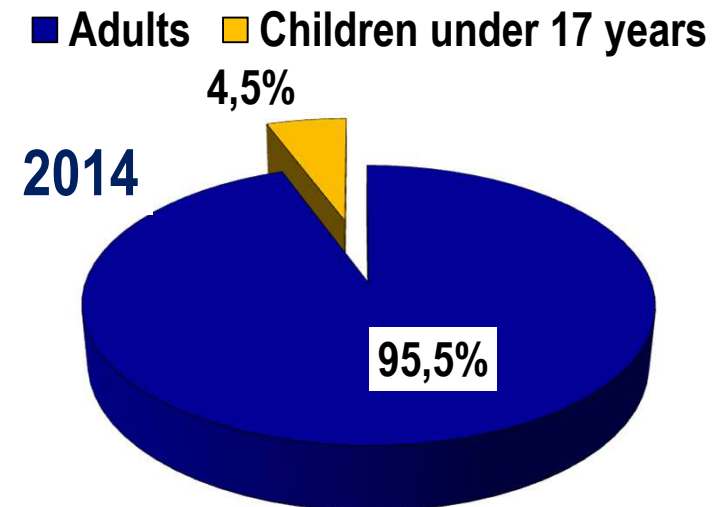
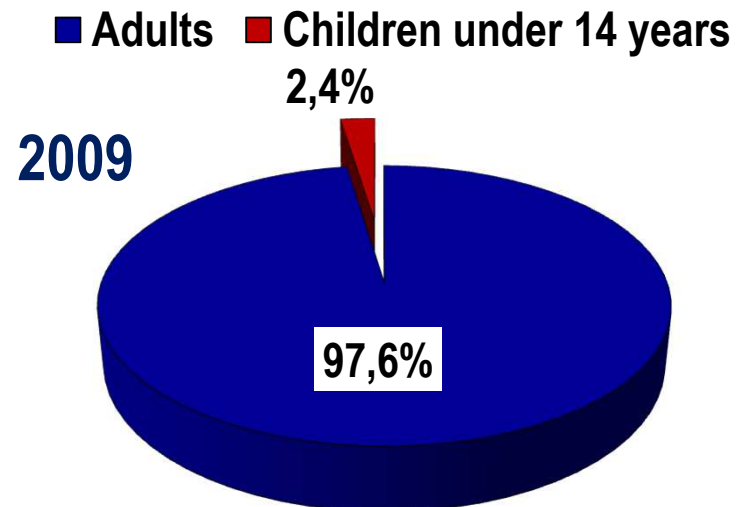
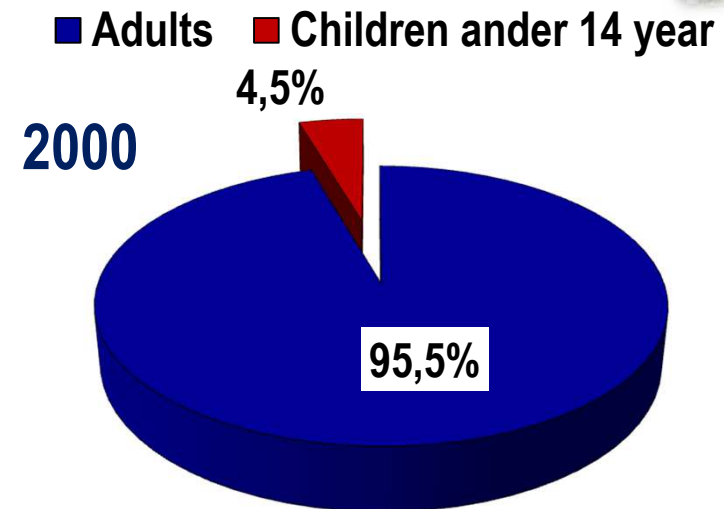
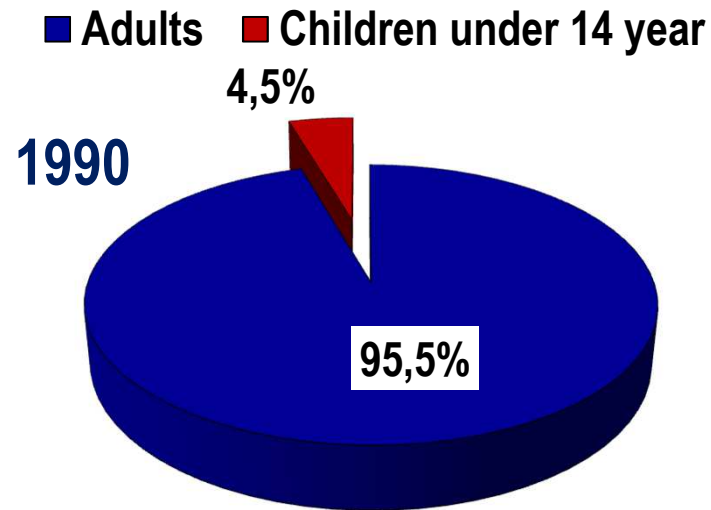


MORBIDITY DYNAMICS OF ACUTE FORMS OF HBV-INFECTION



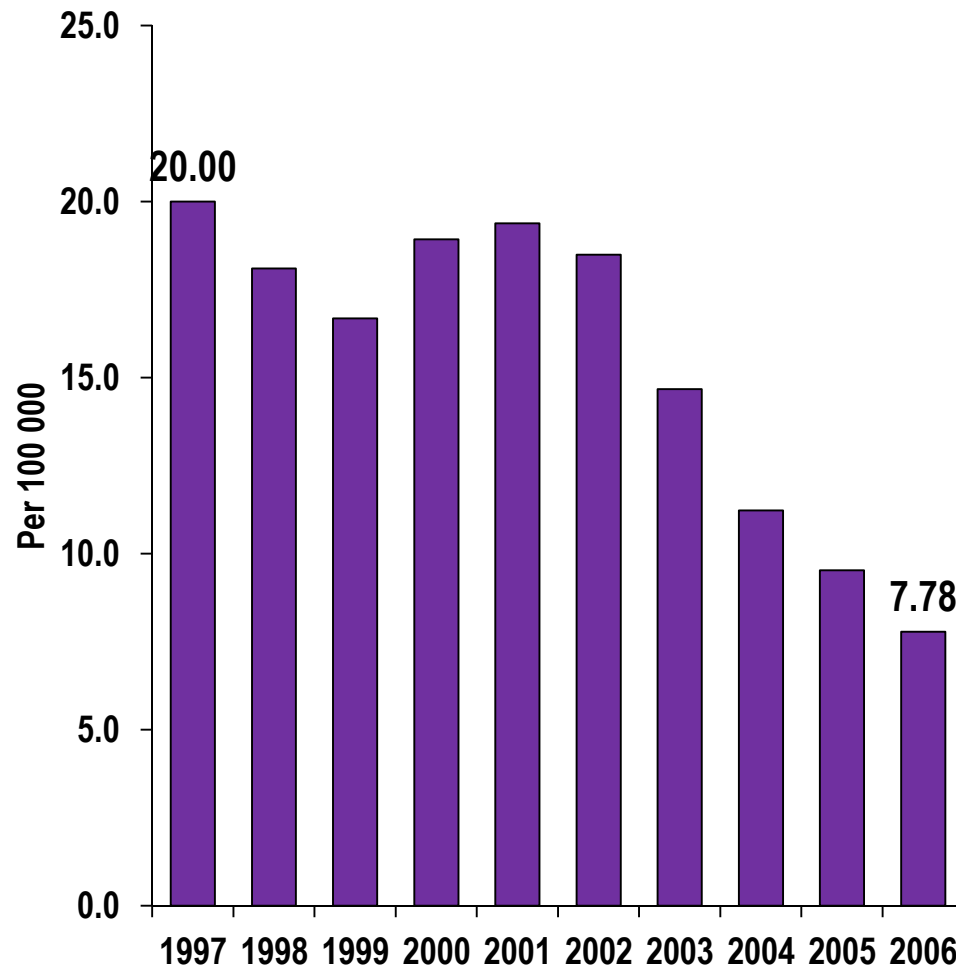
In 1970-2014 there were significant changes in the hepatitis B dynamics, specifically, a critical increase of cases in 1970-1989, a gradual decline in 1990-1996, fluctuation in the HB incidence and a lytic decrease in recent years. Epidemic process was different in quantities and activity of HBV transmission routes, territorial distribution of HBV-infection, the age groups of patients.

AGE STRUCTURE OF HEPATITIS B PATIENTS



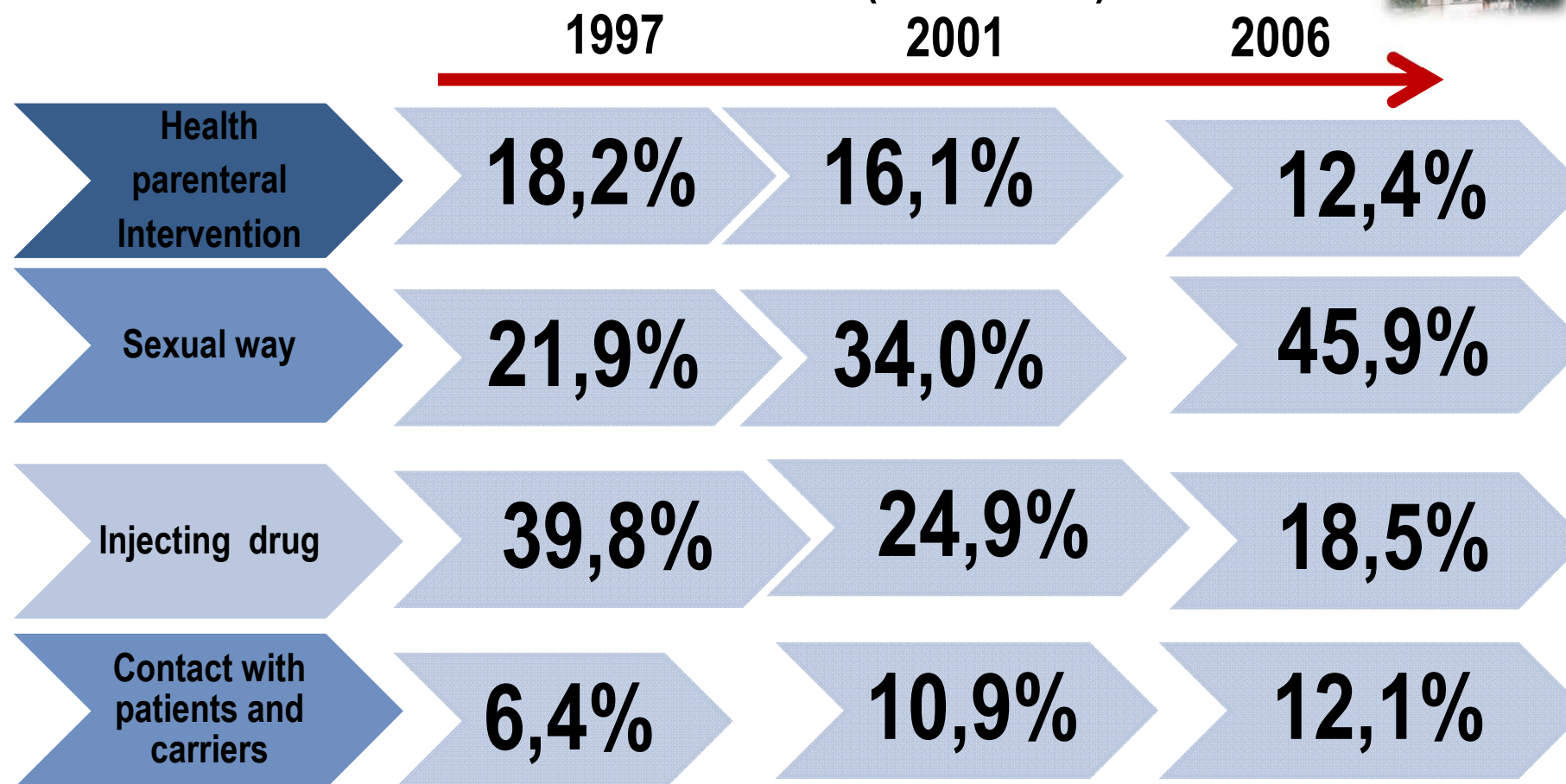
During the whole period of acute hepatitis B registration was dominated by adults.

HEPATITIS B IN UKRAINE: 1997-2006



- Continued decline in the incidence in all population groups.
- "Fixing" the incidence in industrialized South-Eastern regions, a high proportion of the adult urban population among the HB cases.

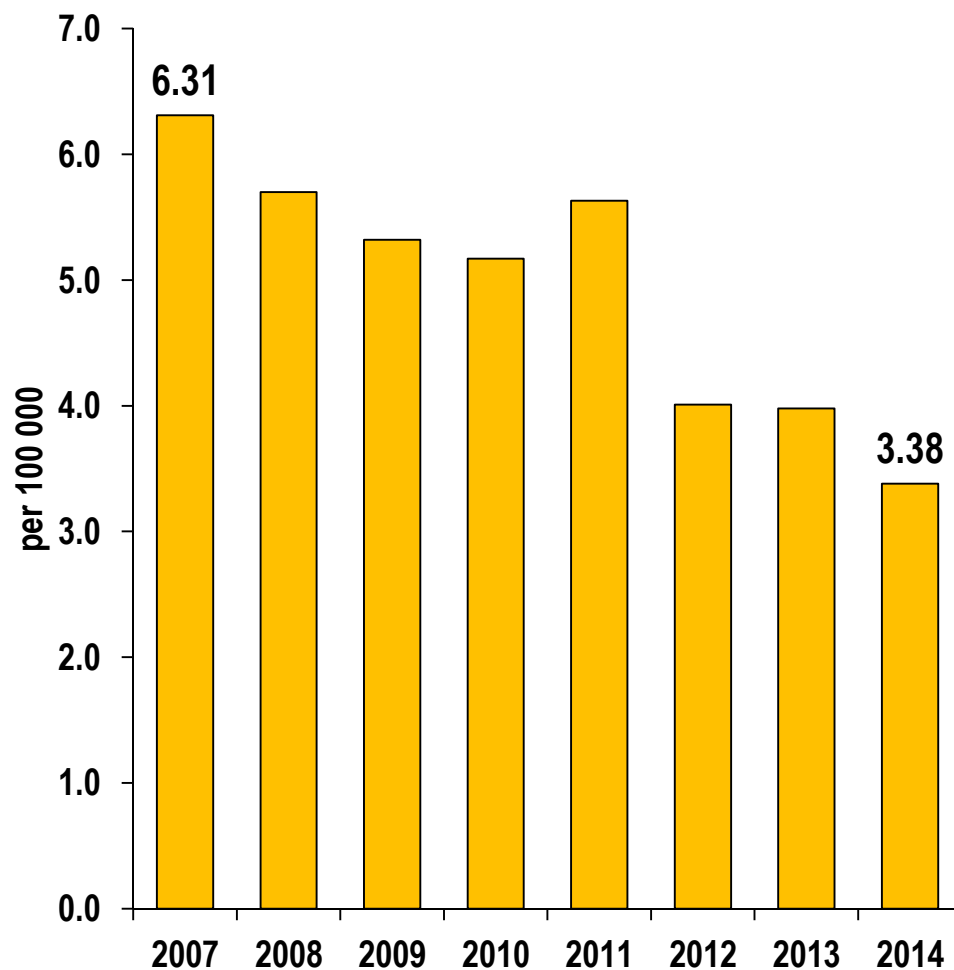
THE CHANGES IN ACTIVITY OF HBV TRANSMISSION ROUTES: THE EXAMPLE OF KYIV (1997-2006)



During this period there were:

- increase of hepatitis B incidence as a result of sexual and household contacts;
- decrease of cases HBV-infection due to medical interventions and parenteral injection drug use.

HEPATITIS B IN UKRAINE: 2007-2014



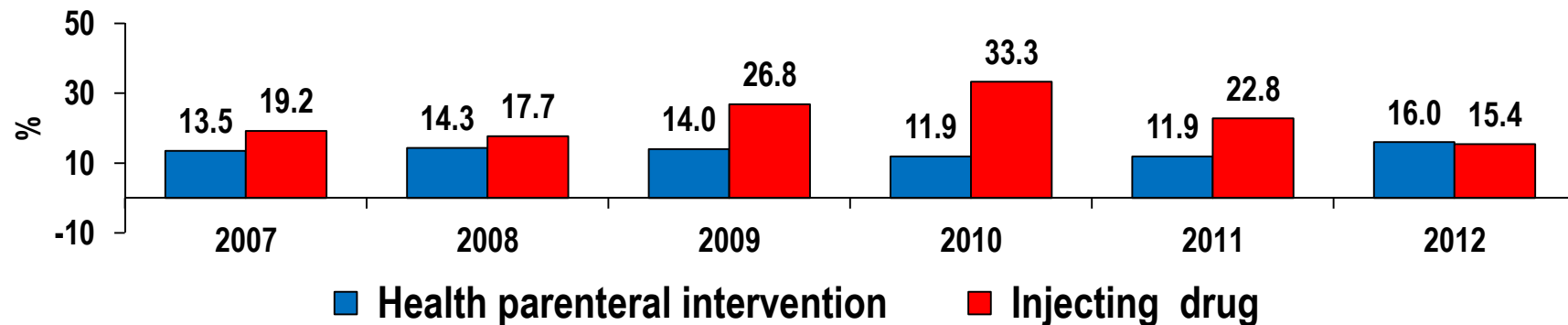
- **Stabilization of acute hepatitis B incidence. The average rate was 4.9 per 100,000 population;**
- **The increase of acute hepatitis B incidence among adolescents 15-17 years old;**
- **The decrease of vaccination coverage levels of children under 1 year old and risk groups;**
- **The increase of hepatitis B cases with unknown routes and factors of HBV transmission;**
- **The increase in the number of people infected with HBV among those persons who were in the foci of acute hepatitis B or among HBsAg carriers.**

THE CHANGES IN ACTIVITY OF HBV TRANSMISSION ROUTES: THE EXAMPLE OF KYIV (2007-2012)

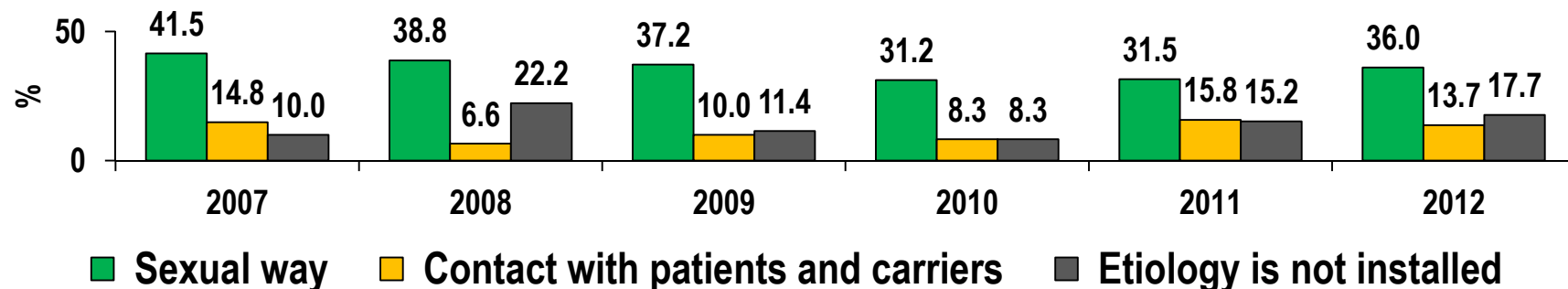


During this period, an increase in the role of some natural routes of HBV transmission and decrease in the role of some artificial transmission routes

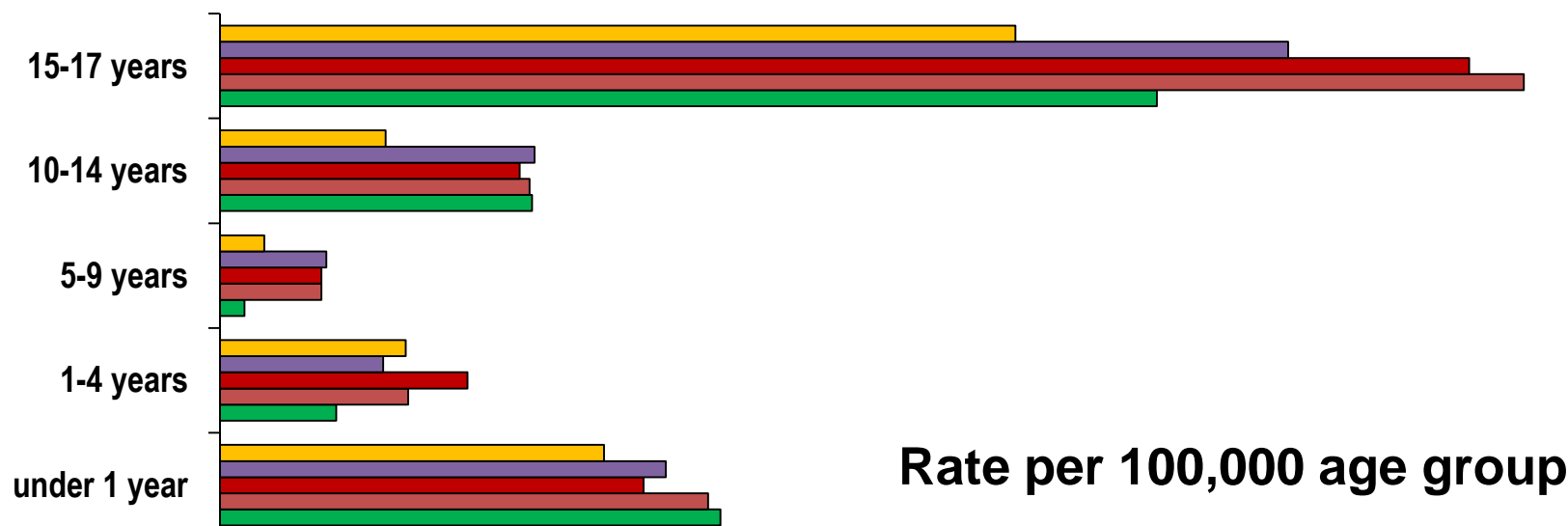
Artificial routs of HBV transmission



Natural routs of HBV transmission



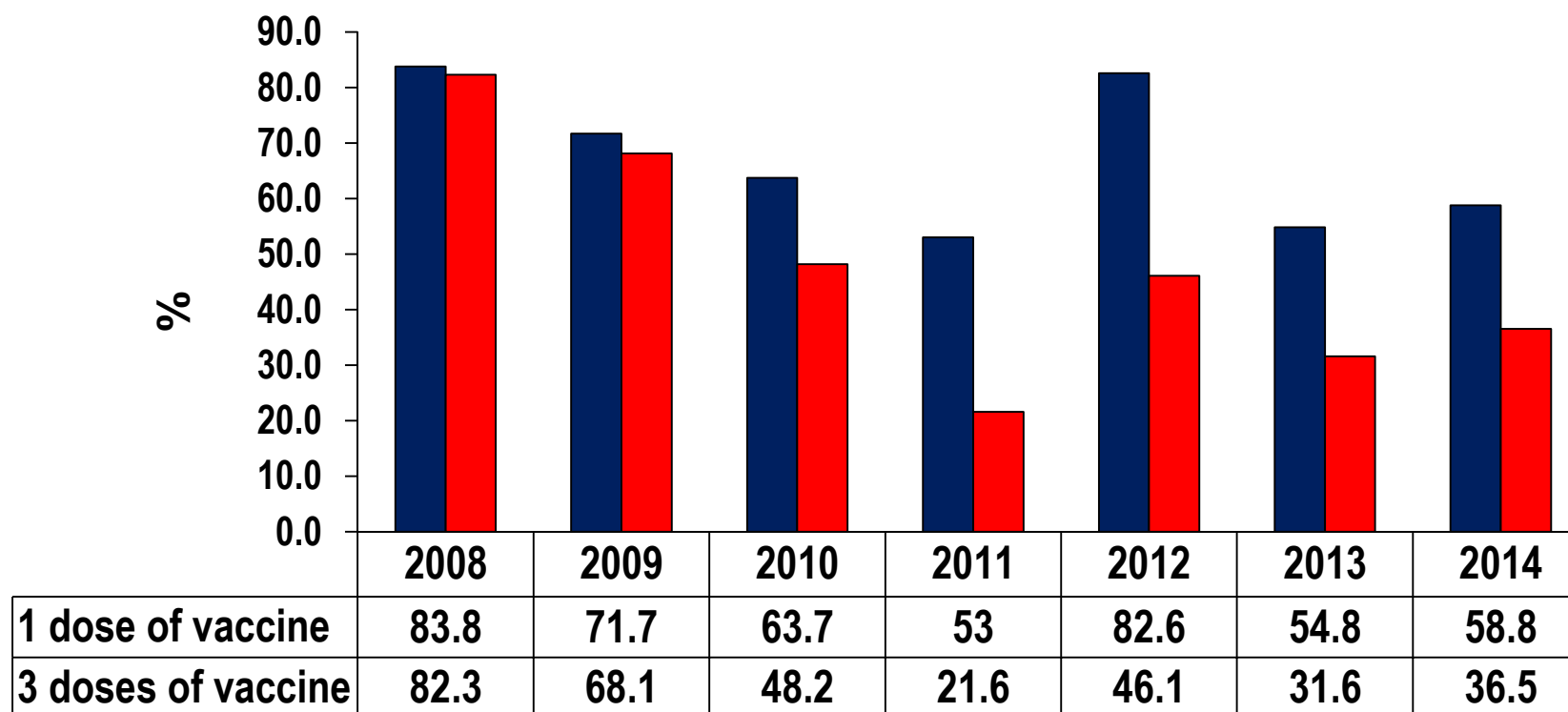
Acute HBV-infection incidence among children of different age groups: 2010 - 2014



	under 1 year	1-4 years	5-9 years	10-14 years	15-17 years
2014	1.55	0.75	0.18	0.67	3.21
2013	1.8	0.66	0.43	1.27	4.31
2012	1.71	1	0.41	1.21	5.04
2011	1.97	0.76	0.41	1.25	5.26
2010	2.02	0.47	0.1	1.26	3.78

During the past 5 years, the highest incidence was recorded among children 15-17 years old. Children under 1 year old are in second place. It is this age group should be vaccinated according to the national immunization schedule.

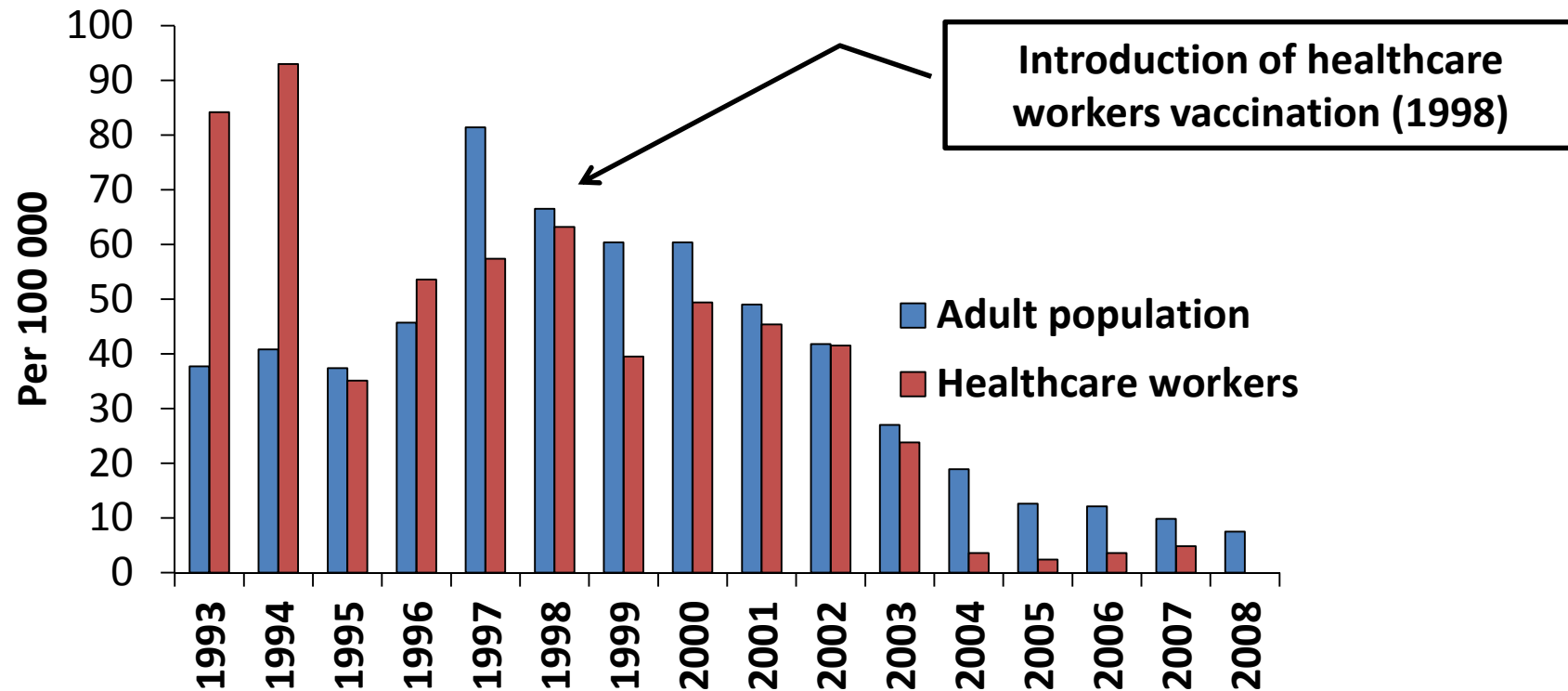
HEPATITIS B VACCINATION COVERAGE AMONG CHILDREN UNDER 1 YEAR OLD: 2008-2014



At the same time, in recent years there has been a strong decrease in immunization coverage of children under 1 year old (as well as the risk groups). This particularly concerns of receipt of 3 vaccine doses.

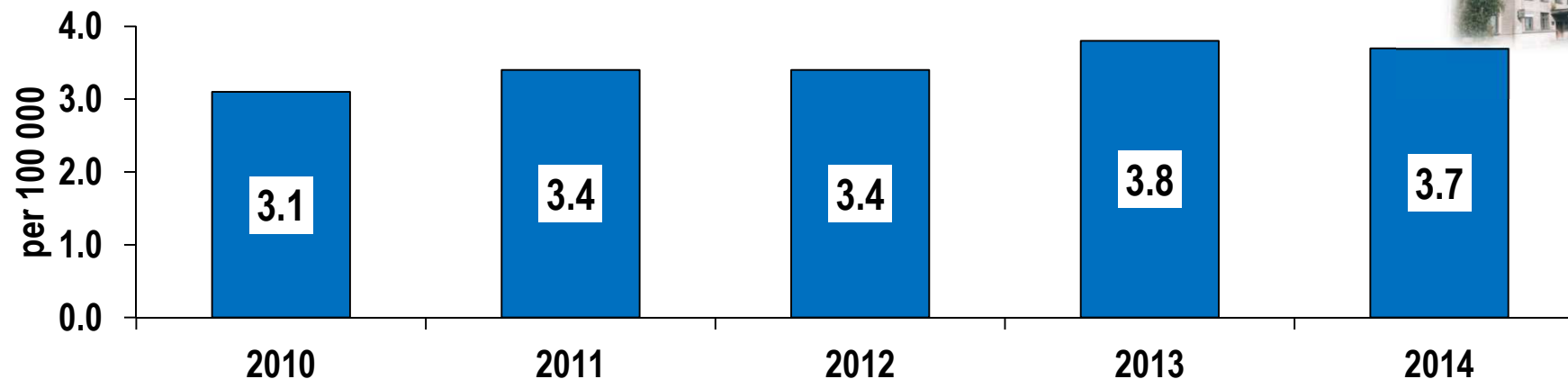
HEPATITIS B INCIDENCE AMONG ADULT POPULATION AND HEALTH WORKERS: 1993-2008 (Kyiv)

In contrast children under 1 year old, vaccination of health workers showed high efficiency.



In the 1993-1999 the incidence of hepatitis B in health workers was 1.2-2.2 times higher than the adult population of Kyiv. In 2005-2007 the percentage of vaccinated healthcare workers B was 87-88%, which contributed to a significant reduction in HBV-infection incidence. In 2001-2008 there were not cases of hepatitis B among vaccinated health workers.

CHRONIC HEPATITIS B: 2010-2014



absolute values	
2010	1424 cases
2011	1558 cases
2012	1564 cases
2013	1730 cases
2014	1697 cases

At the present time material on the epidemiology of chronic HBV-infection is incomplete. It is still in the accumulation stage.

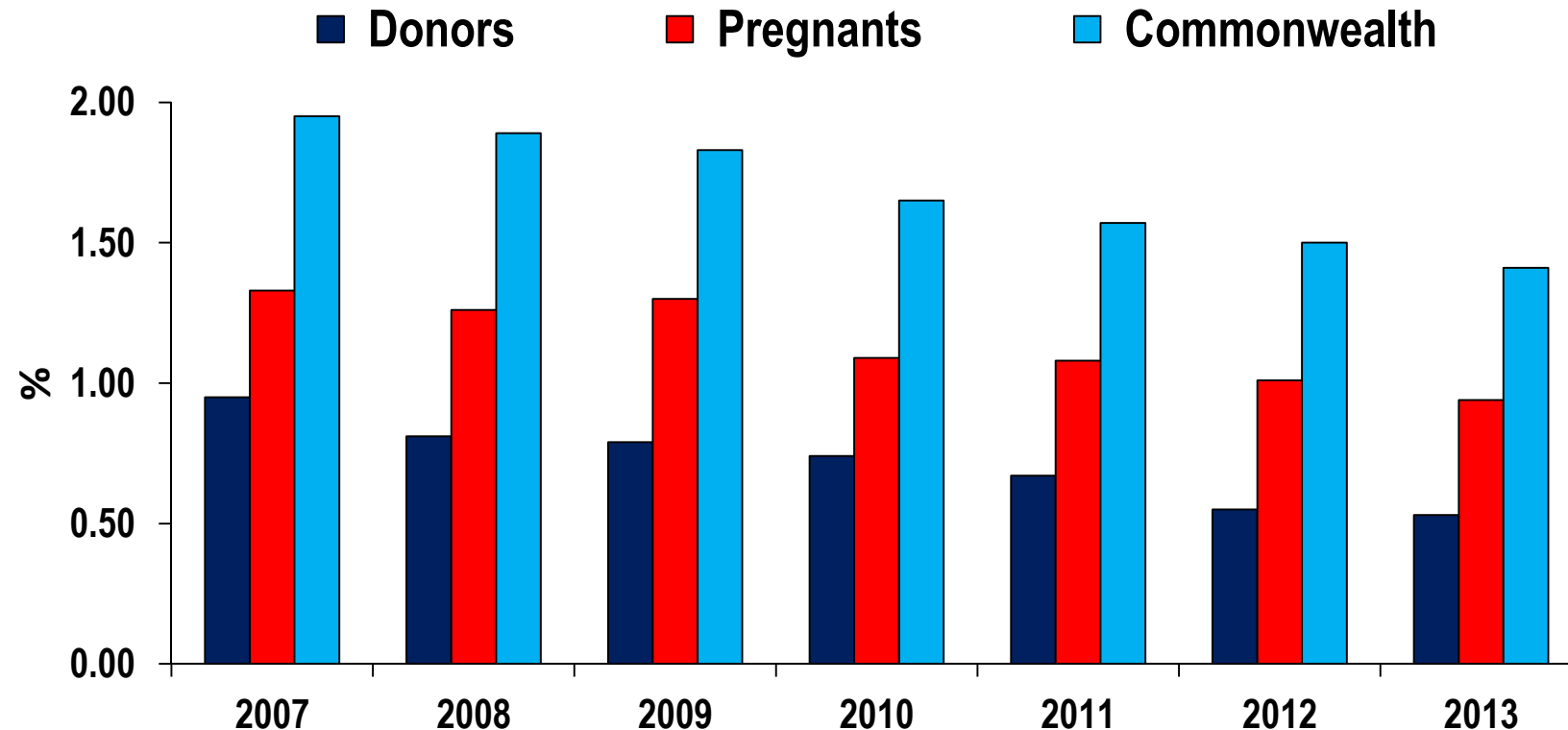
SEROLOGICAL SURVEY FOR MARKERS OF HBV INFECTION



The main contingents to be regulated survey for HBsAg	
For diagnostic purposes:	For the purpose of epidemiological surveillance:
Patients with acute viral hepatitis	Carriers
Patients with chronic liver disease	Contacts
Patients with diseases of the gastrointestinal tract	Recover from viral hepatitis
Other patients	Donors
	Pregnant
	Children of orphanages and special boarding schools
	Medical workers
	Patients on long-term treatment
	Patients of narcological dispensaries
	Patients with sexually transmitted diseases
	Other healthy individuals
	Children 1 year old - the recipients of blood and blood components
	Children born from mothers - HBsAg carriers
	Persons who have been tested for the immunity state

In Ukraine, for HBsAg are examined more than 2 millions people annually. This study are conducted both purposes: diagnostics and epidemiological surveillance. In parallel with a decrease in cases of acute HBV-infection (from about 3000 to 1500 in the period 2007-2014), there is a decrease in the cases of detection of this marker (from about 50 to 30 thousands).

HBsAg DETECTION RATE



Based on the frequency of HBsAg detection among blood donors (on the average 0.72%), pregnant women (1.14%) and all surveyed groups (1.69%), Ukraine can be attributed to areas with low prevalence of HBV-infection.

sAg detection rate was higher 2% only at 6 of the 27 administrative territories.

Legend:

- under 1,0%
- 1,1 – 2,0%
- 2,1 – 3,0 %
- > 3,1

Administrative territories labeled on the map:

- Львів
- Тернопіль
- Хмельницький
- Вінниця
- Чернівці
- Івано-Франківськ
- Ужгород
- Луганськ
- Донецьк
- Запоріжжя
- Херсон
- Миколаїв
- Одеса
- Кіровоград
- Дніпропетровськ
- Полтава
- Харків
- Суми
- Чернігів
- Київ
- Житомир
- Рівне
- Луцьк
- Сімферополь
- Севастополь

FREQUENCY OF DETECTION OF INFECTION HBV MARKERS AMONG DIFFERENT POPULATION GROUPS



Seroprevalence among certain populations significantly higher than the national average and among the so-called "healthy" population.

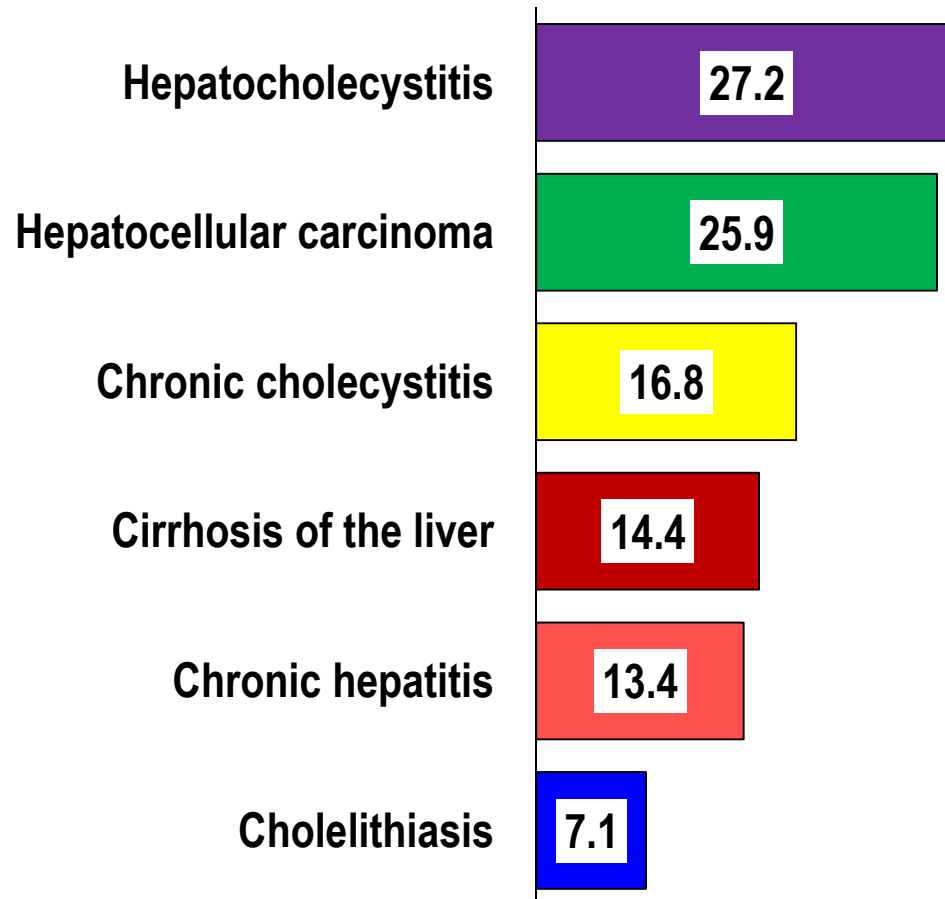
Groups	n	HBsAg		AbHBc	
		n	% ($\pm m$)	n	% ($\pm m$)
HIV positive, including	1183	224	18,9 \pm 1,1	590	49,9 \pm 1,4
• <i>injecting drug users</i>	610	113	18,5 \pm 1,6	331	54,3 \pm 2,0
• <i>sexual route</i>	286	31	10,8 \pm 1,8	101	35,3 \pm 2,8
Injecting drug users	1429	194	13,6 \pm 0,9	625	43,7 \pm 1,3
sex workers	793	94	11,9 \pm 1,0	284	35,8 \pm 1,7
TB patients	552	57	10,3 \pm 1,3	321	58,1 \pm 2,1
Patients with sexually transmitted diseases, including	1274	96	7,5 \pm 0,7	261	20,5 \pm 1,1
• <i>patients with syphilis</i>	151	30	19,9 \pm 3,2	76	50,3 \pm 4,1
Those surveyed on their own initiative	383	12	3,1 \pm 0,9	68	17,8 \pm 1,9

The frequency of the markers was highest among HIV-positive persons, injecting drug users, commercial sex workers, patients with tuberculosis, venereal diseases (especially syphilis).

THE FREQUENCY OF HBV MARKERS DETECTION (HBsAg and / or AbHBc) AMONG PATIENTS WITH CHRONIC LIVER DISEASE AND BILIARY TRACT (%)



Diagnosis:



The frequency HBV markers had higher values among patients with chronic diseases of the liver and biliary tract, who did not consider themselves sick with hepatitis B: from 7% of patients hospitalized with cholelithiasis, up to 27% of patients with cholecystitis. In this case, we should talk not only about the potential of nosocomial spread of hepatitis B, but also on the shortcomings in the treatment and the need for its correction.

Conclusions

- According to the frequency of HBsAg among the adult population of Ukraine can be attributed to the regions with a low prevalence of HBV-infection.
- Epidemiological features of hepatitis B have been several periods. A significant increase in the incidence before the 1990s is associated with predominantly nosocomial transmission.
- The subsequent decrease in the notification rate was due to the establishment of a system of infection control in hospitals, to improve the quality of laboratory screening of blood donors.
- Currently, the most important is sexual transmission and injecting drug use, which corresponds to the trends characteristic for most European countries.
- Despite the decline in the incidence of acute hepatitis B and stabilization of chronic hepatitis B rate, we believe that the epidemic situation of HBV-infection in Ukraine should be seen as unstable, especially against a background of deteriorating of the socio-economic conditions.

THANK YOU FOR YOUR ATTENTION!

Acknowledgement

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