

## Rapid communications

# INCREASE IN HEPATITIS A CASES IN THE CZECH REPUBLIC IN 2008 – AN UPDATE

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In 2008, 1,616 cases of hepatitis A were reported in the Czech Republic, more than a 10-fold increase compared with the annual number of cases registered in 2003-2007. The infection was initially associated with injecting drug users, most probably by person-to-person contact or parenteral transmission, and in the second half of the year continued to spread among the general population with increased susceptibility.

### Introduction

Since the end of May 2008, an increase in reported cases of hepatitis A virus (HAV) infection has been observed in the Czech Republic. From 1 January to 31 December 2008, a total of 1,616 laboratory-confirmed cases were reported. The objective of this paper is to provide basic information on hepatitis A morbidity and outbreak control measures taken by the Public Health Protection Authorities (PHPA) in the Czech Republic.

### Methods

In the Czech Republic, hepatitis A is a reportable disease. The attending physician (most often the general practitioner) recommends quarantine of the patient with confirmed or suspected hepatitis A and reports the case to the respective PHPA without delay. The hospital infectious disease departments report admission of each patient with the indication of diagnosis at admission to the respective PHPA. Any patient quarantined or placed under medical

supervision with suspected hepatitis A is examined clinically, biochemically and by laboratory tests for the detection of diagnostic markers of HAV. In the Czech Republic, the laboratory tests include the screening of sera for the presence of specific antibodies against HAV (anti-HAV IgM).

Hepatitis A prevention in the Czech Republic is specified in the Guidelines of the Ministry of Health [1]. A confirmed case of hepatitis A is defined as a person who meets the clinical and laboratory criteria in accordance with the European Union (EU) case definition [2].

The confirmed cases of hepatitis A are reported by the respective PHPA to the national reporting system for infectious diseases EPIDAT. Identification data and standardised results of the epidemiological investigation and laboratory analyses are entered into the EPIDAT system.

### Results

From 1 January to 31 December 2008, 1,616 laboratory-confirmed cases of hepatitis A were reported in the Czech Republic, i.e. 15.7 cases per 100,000 population. This is a 10.6 fold rise in comparison with the annual average number of cases reported in 2003 to 2007 (mean 153 cases, range 70 – 322 cases) (Figure 1).

FIGURE 1

Annual incidence rates of viral hepatitis A per 100,000 population, Czech Republic, 2003-2008

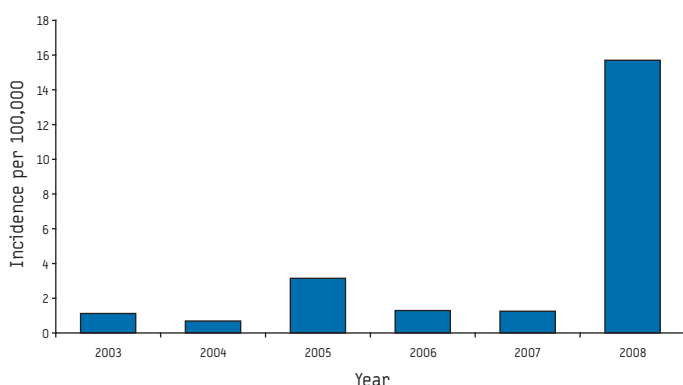
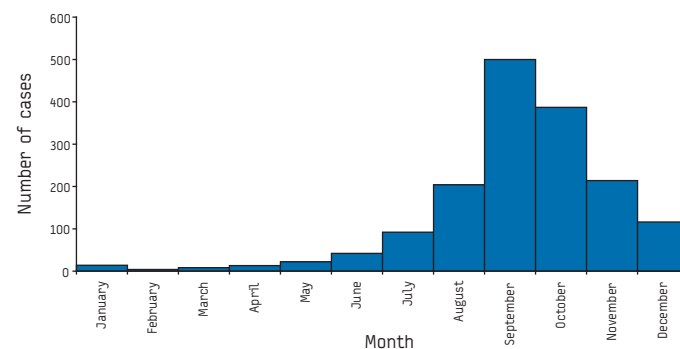


FIGURE 2

Cases of viral hepatitis A reported in the Czech Republic, in 2008, by month of onset (n=1,616)

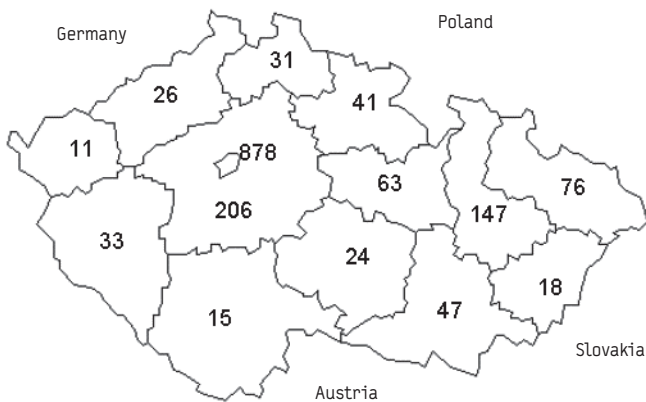


A marked increase in hepatitis A cases had been observed since the end of May 2008 [3], with a total of 61 cases reported in the first five months of the year, compared to 1,555 cases in the period June to December 2008 (Figure 2).

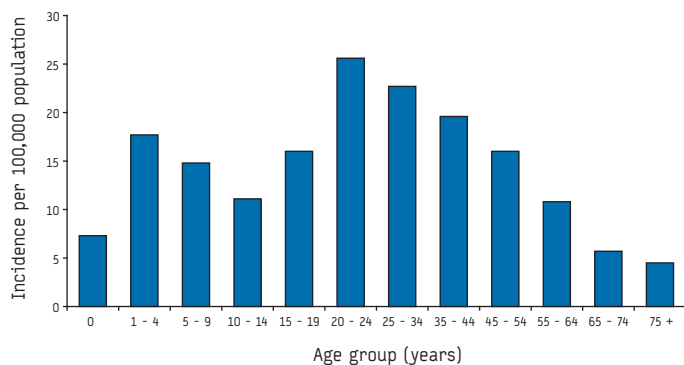
Two cases were fatal. One was a 33-year-old non-vaccinated drug addict co-infected with hepatitis A, B and C and the other was a 75-year-old man vaccinated as a family contact one day prior to the onset of disease. The latter patient was hospitalised because of relapsed hepatitis. In accordance with the International Classification of Diseases (ICD 10) [4], the final diagnosis was B15.9: hepatitis A without hepatic coma.

The majority of cases were reported in the following three of the 14 administrative regions: Prague region (878 cases, i.e. 54.3% of the reported total), Central Bohemian region (206, i.e. 12.7%) and Olomouc region (147, i.e. 9.1%). In the remaining regions, sporadic cases and small, mostly family outbreaks were reported. The family outbreaks included 382 hepatitis A cases (23.6 % of the total). The absolute numbers of cases are shown in Figure 3.

**FIGURE 3**  
Cases of viral hepatitis A in the Czech Republic, in 2008, by region (n=1,616)



**FIGURE 4**  
Cases of viral hepatitis A reported in the Czech Republic, in 2008, incidence rate per 100,000 population, by age (n=1,616)



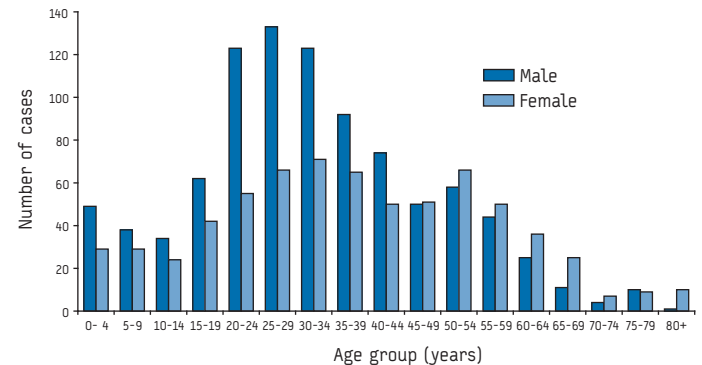
As for age distribution, most hepatitis A cases (82.7 %) were reported in patients aged 15 to 64 years. The most affected age group was that of 25-34 years (393 cases). The highest age-specific incidence rate was reported in the age group of 20-24 years (25.7 cases per 100,000 population). In children aged 0-14 years, 203 cases (12.3% of the total) were diagnosed (Figure 4). As expected, increase in hepatitis A cases in children was observed in September and October 2008 with the start of the new school year and the return of children to school and preschool communities.

Of the total of 1,616 cases of hepatitis A, 931 (57.6%) were reported in males and 685 (42.4%) in females. The greatest difference in sex distribution of cases was found in young adults, with up to 2.5 times more affected males than females (Figure 5).

At the very beginning, the increase in hepatitis A cases was significantly associated with injecting drug users (IDUs), with the highest contribution of the age group of 25-34 years, particularly in the administrative regions of Prague and Central Bohemia where epidemic outbreaks were reported. In the first weeks, IDUs accounted for 2/3 of the cases. HAV transmission in high-risk groups was due to sub-standard hygiene. In the second half of 2008, hepatitis A spread significantly among the adult general population and the proportion of cases in IDUs considerably decreased. In 2008, 226 hepatitis A cases (i.e. 14.0% of the total) were reported in IDUs. Altogether 421 (26.1%) cases were reported in persons considered to be at a higher risk of infection (homeless individuals, prisoners, drug users, alcoholics and persons engaging in high-risk sexual behaviour).

The number of imported cases of hepatitis A in 2008 was 68, about twice as high as reported annually during the last decade, but as a proportion of the total number of cases it was as low as 4.2%. The largest number of imported cases from a single country came from Egypt (20 cases), followed by Slovakia (9 cases), Greece and Croatia (5 cases per country), Tunisia (4 cases), Spain (3 cases), Ukraine, Turkey, France, Italy and Canary Islands (2 cases per country) and 10 other countries (single cases). None of the imported cases came from Latvia where a large outbreak has been ongoing [5,6].

**FIGURE 5**  
Cases of viral hepatitis A reported in the Czech Republic, in 2008, by age group and sex (n=1,616)



### Measures and recommendations

Standard outbreak control measures coordinated by the Ministry of Health continue to be taken. They include particularly isolation of patients, medical supervision of close contacts. Medical supervision that consisted in clinical and laboratory follow-up of contacts throughout the maximum incubation period was provided to more than 7,000 persons. Close contacts involved in epidemiologically significant activities (e.g. in food industry) have been instructed to stop such activities and to remain under enhanced surveillance for 50 days after the last contact with the hepatitis A patient. Other measures are disinfection and targeted vaccination in the focus of infection. Post-exposure prophylaxis with vaccine was provided to 7,519 known or probable contacts. The vaccination was fully covered by the state through the Ministry of Health. As many as 100 of the vaccinated contacts developed hepatitis A. These cases are currently analysed in detail from the point of view of the used vaccine, number of administered doses and interval between vaccination and onset of disease.

Vaccination was also offered to IDUs and homeless persons in Prague and Central Bohemia; 2,002 were vaccinated of whom four developed hepatitis A. This vaccination can be characterised as combined pre- and post-exposure prophylaxis. The costs were covered by the respective PHPA. In addition, 7,900 children from the first classes of elementary schools in the Central Bohemian region were vaccinated, with no case of hepatitis A reported in this population. The expenses were covered by the Regional Authority of Central Bohemia.

In addition, PHPA issued information on hepatitis A for school facilities and general practitioners (GPs). Information for the general public has been available primarily at the websites of the National Institute of Public Health and Ministry of Health of the Czech Republic, regional PHPA and in the mass media. Active surveillance of viral hepatitis in the Czech Republic continues.

### Conclusion

The European Centre for Disease Prevention and Control (ECDC) organised a technical meeting on hepatitis A held in Riga on 11 November 2008 with the participation of representatives from Latvia, Slovakia, Estonia, Germany, Italy, the Netherlands, United Kingdom and the Czech Republic. The conclusions drawn at the meeting are also relevant to the Czech Republic which is true particularly of the statement that hepatitis A outbreaks are associated with increase in the susceptible population with improved standard of hygiene as documented by higher numbers of hepatitis A cases not only in children and youth but also in adults. Other contributing factors are increase in imported cases coming from endemic countries and higher incidence of hepatitis A in IDUs and other individuals with high-risk behaviour. It was suggested that ECDC should recommend general immunisation against hepatitis A across the EU. The significance of post-exposure prophylaxis with vaccine included in the Guidelines of the Ministry of Health of the Czech Republic was discussed [1]. In a longer perspective, the implementation of serological surveys is considered important to determine susceptibility of the EU population to HAV infection. Results of serological surveys would provide background data for the development of the vaccination strategy guidelines.

HAV RNA sequencing and phylogenetic analysis of HAV isolates from outbreaks would be of relevance. In the Czech Republic, serum and stool samples are being collected in the most affected

areas. The kind offer of the National Institute of Public Health and Environment in Bilthoven, the Netherlands (RIVM) to analyse a part of samples and to provide the guidance for the completion of analyses in the National Reference Laboratory for Viral Hepatitis in the Czech Republic will be accepted.

Based on the available data, it is possible to exclude water- or food-borne and sexual transmission of HAV in the Czech Republic in 2008. The spread of hepatitis A in 2008 started among IDUs, most probably by person-to-person contact or parenteral transmission, and continued among other high-risk groups (homeless persons) in conditions of sub-standard hygiene. Subsequently, the infection spread among the general population with increased susceptibility. Higher susceptibility to HAV is likely to result from long-term low prevalence of hepatitis A.

### Acknowledgements

The authors thank all epidemiologists, clinicians and laboratory professionals involved in the active surveillance of viral hepatitis A in the Czech Republic in 2008.

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