

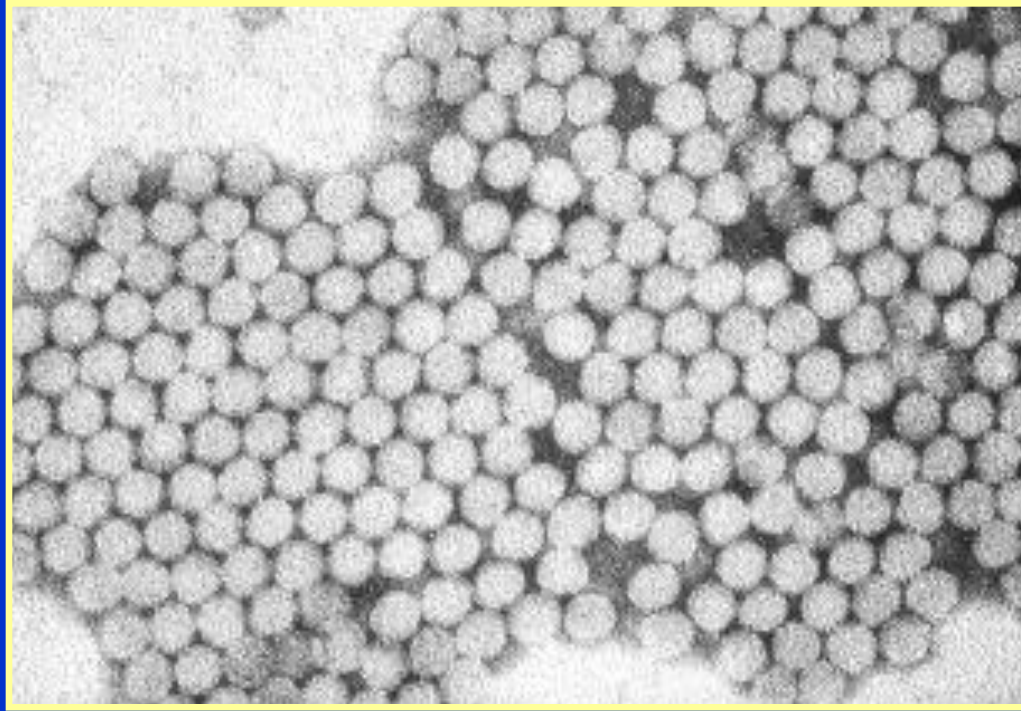
VIRUSNI HEPATITIS A

**INSTITUT ZA JAVNO ZDRAVLJE NIŠ
CENTAR ZA KONTROLU I PREVENCIJU BOLESTI**

VIRUSNI HEPATITIS A

VIRUSNI HEPATITIS A JE FEKALNO-ORALNA INFEKCIJA KOJA MOŽE DA PROTIČE U VIDU ANIKTERIČNOG HEPATITISA, AKUTNOG I SUBAKUTNOG IKTERIČNOG HEPATITISA, REĐE FULMINANTNOG HEPATITISA, DOK SE HRONIČNI TOK OBOLJENJA NE UOČAVA.

ETIOLOGIJA



**FAMILIA PICORNA VIRIDAE,
ENTEROVIRUS TIP 72**

**DIFERENCIRAO KRUGMAN - 1967.
VIRUS OTKRIO FAINSTONE - 1973.**

**DUGO PREŽIVLJAVA U VODI ZA PIĆE,
OTPADNIM VODAMA, ZEMLJIŠTU,
SASUŠENOM FECESU,**

OTPORAN U KISELOJ SREDINI,

OTPORAN NA DEJSTVO ETRA,

**BIOLOŠKI AKTIVAN I POSLE
IZLAGANJA JEDAN ČAS NA 60°C,**

**OSETLJIV NA FORMALIN, HLOR i UV
ZRAKE.**

- **IZVOR ZARAZE**

ČOVEK JE JEDINI REZERVOAR,
RETKO i ZATVORENE ŠIMPANZE

- **PUTEVI PRENOŠENJA**

KONTAKT (FEKALNO-ORALNI MEHANIZAM)
ALIMENTARNI,
HIDRIČNI,
RESPIRATORNI i
PARENTERALNI

- **ULAZNA VRATA**

SLUZOKOŽA DIGESTIVNOG TRAKTA

Opšti putevi prenošenja Hepatitis A Virusa

Endemičnost	Stopa obolenja	Pik infekcije po starosti	Put prenošenja
Visoka	Niska do visoke	Rano detinjstvo	Kontakt; retke epidemije
Srednja	Visoka	Kasno detinjstvo/ mlađi adulti	Kontakt; Epidemije hranom i vodom
Niska	Niska	Mlađi adulti	Kontakt; Epidemije hranom i vodom
Veoma niska	Veoma niska	Adulti	Putnici; retke epidemije

Koncentracija Hepatitis A Virusa u različitim telesnim izlučevinama



Izvor: Viral Hepatitis and Liver Disease 1984;9-22
J Infect Dis 1989;160:887-890

OSETLJIVOST

**OSETLJIVOST JE OPŠTA, A POSEBNO VEĆA
KOD TRUDNICA (POVEĆAN Mb i Le)
NISKA INCIDENCA U MALE i PREDŠKOLSKE
DECE (BLAGE i ANIKTERIČNE INFEKCIJE)**

**DECA U PRVOJ GODINI ŽIVOTA
RASPOLAŽU PASIVNO STEČENIM
IMUNITETOM (anti-HAV IgG ANTITELA
MAJKE PRENETA PREKO POSTELJICE i
anti-HAV IgA ANTITELA PRENETA
DOJENJEM)**

OTPORNOST

**IMUNITET POSLE BOLESTI VEROVATNO
DOŽIVOTAN**

NOSILAŠTVO UZROČNIKA

**NE POSTOJI HRONIČNO NOSILAŠTVO ZA
RAZLIKU OD OSTALIH TIPOVA HEPATITISA**

KLINIČKE KARAKTERISTIKE

Inkubacioni period:

Prosečno 30 dana

Između 15 i 50 dana

**Žutica po
starosnoj grupi:**

<6 god. <10%

6-14 god. 40%-50%

>14 god. 70%-80%

Komplikacije:

Fulminantni hepatitis

Holestazni hepatitis

Relapsni hepatitis

Hronične sekvele:

Nema

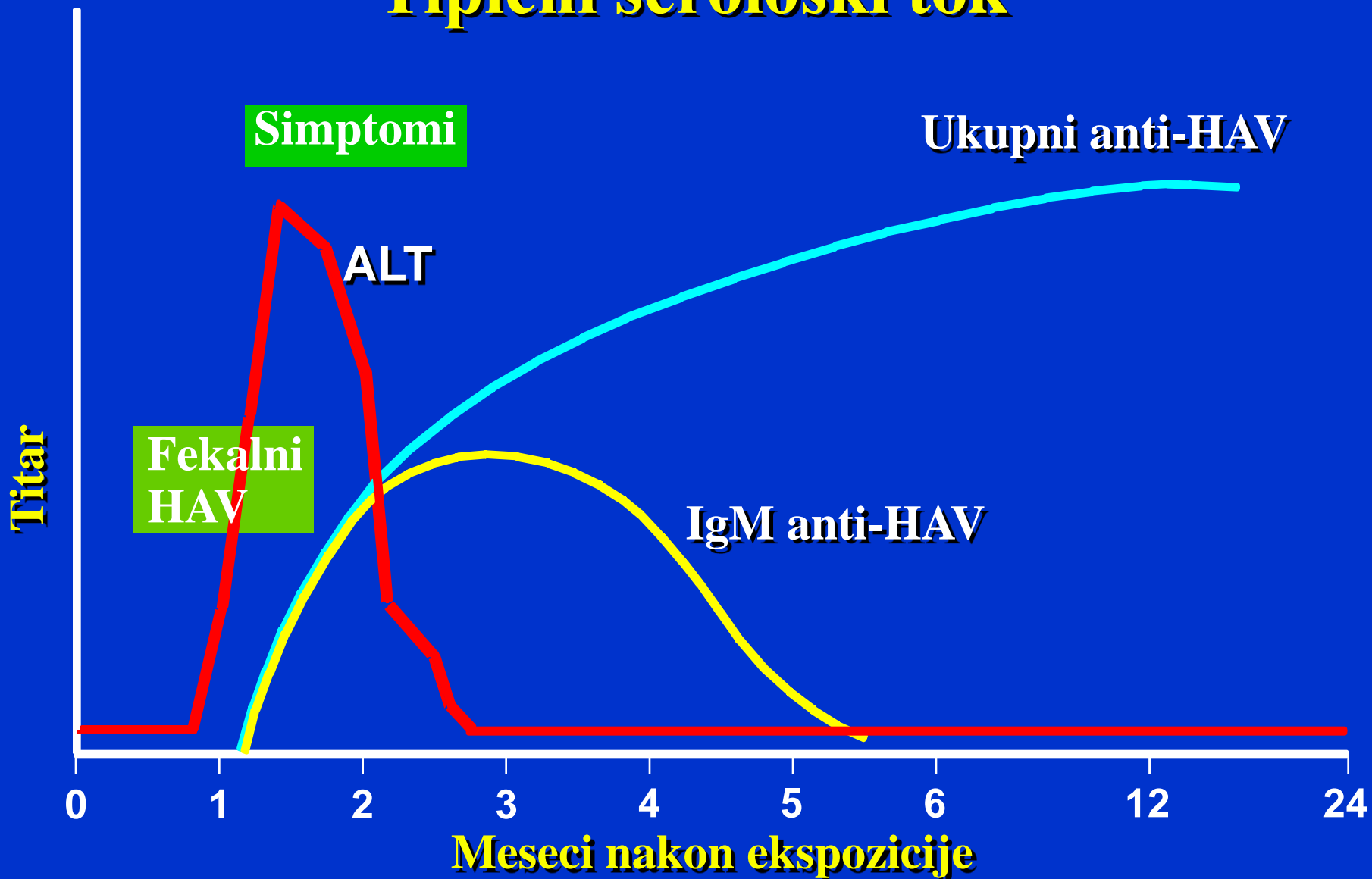
KLINIČKA SLIKA AKUTNOG VIRUSNOG HEPATITISA A

a) IKTERIČNI OBLIK (PRODROMALNI STADIJUM, IKTERIČNI STADIJUM, STADIJUM REKONVALESCENCIJE)

b) ATIPIČNI OBLICI (SUBKLINIČKI OBLIK, ANIKTERIČNI OBLIK, HOLESTAZNI OBLIK, PRODUŽENI i BIFAZIČNI OBLIK, FULMINANTNI OBLIK, KOMPLIKACIJE)

Hepatitis A

Tipični serološki tok



LABORATORIJSKA DIJAGNOZA

- BIOHEMIJSKE

UKAZUJU NA HEPATITIS,

- SEROLOŠKE

DAJU DEFINITIVNU DIJAGNOZU

BIOHEMIJSKE ANALIZE:

- POVEĆANJE ALT i AST,**
- POVIŠENJE CELOKUPNOG i KONJUGOVANOG BILIRUBINA - KOD IKTERIČNIH OBLIKA,**
- POVIŠENJE SAMO KONJUGOVANOG BILIRUBINA KOD ANIKTERIČNIH OBLIKA;**

***UROBILINOGEN POVIŠEN U POČETKU BOLESTI, A SMANJUJE SE NA VRHUNCU BOLESTI, DOK SE PONOVO POJAVLJUJE U FAZI OPORAVKA;
POVIŠEN NIVO ŽUČNIH BOJA U SERUMU U POČETKU BOLESTI;***

VIRUSOLOŠKA DIJAGNOZA

POSTAVLJA SE VIRUSOLOŠKOM POTVRDOM:

- OTKRIVANJEM HAV U KRV I STOLICI
OBOLELOG - RADI SE RETKO
- DOKAZIVANJEM SPECIFIČNIH anti HAV
antitela IgM KLAS E U SERUMU
OBOLELIH OSOBA - RADI SE IZUZETNO
- ELISA - POSTAVLJA SE DIJAGNOZA NA
OSNOVU NALAZA anti HAV antitela IgM
KLASE - RADI SE RUTINSKI

SPECIFIČNA STOPA MORTALITETA PO UZRASTU

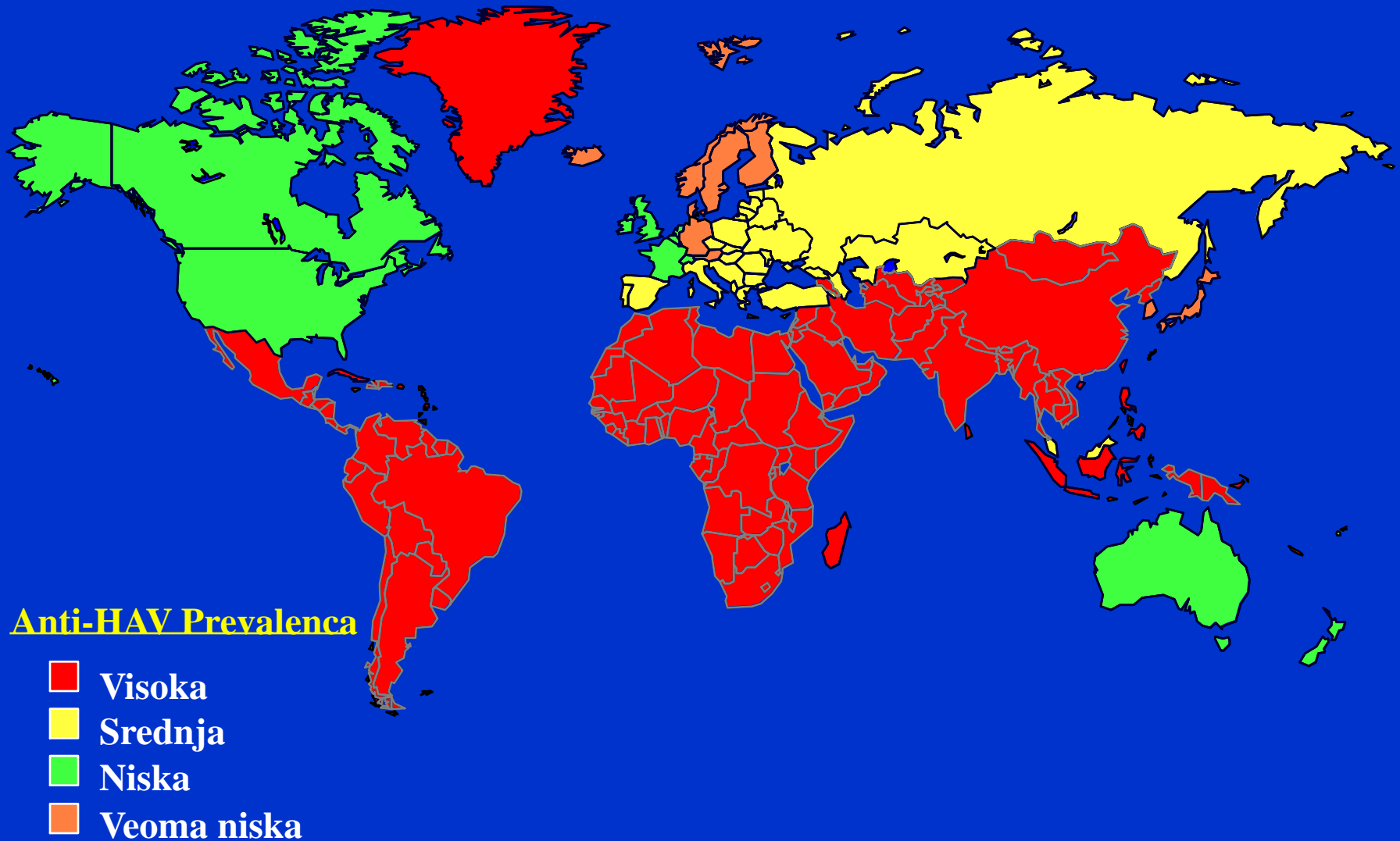
Starosna grupa (godine)	Stopa smrtnosti (na 1000)
<5	3.0
5-14	1.6
15-29	1.6
30-49	3.8
>49	17.5
Srednja vrednost	4.1

Izvor: Viral Hepatitis Surveillance Program, 1983-1989

RAŠIRENOST

U SVIM DELOVIMA SVETA SPORADIČNO
i EPIDEMIJSKI, DOK ENDOEPIDEMIJSKI
U NERAZVIJENIM ZEMLJAMA
(SEVERNA AFRIKA, BLISKI i DALEKI
ISTOK, CENTRALNA i JUŽNA AMERIKA)

Geografska distribucija HAV infekcije



CIKLIČNOST

U SRBIJI NA 7 GODINA,
U DANSKOJ NA 10 GODINA,
U IZRAELU NA 4 GODINE,
U RUMUNIJI NA 4 GODINE,
U SAD NA 7 GODINA.

SEZONOST

**MAKSIMUM OBOLEVANJA U OKTOBRU i
NOVEMBRU KADA ZAVRŠAVA SEZONA
CREVNIH ZARAZA ZBOG DUŽINE
INKUBACIJE, A MINIMUM U JUNU
MESECU**

**CELE GODINE - OBIČNO SE JAVLJA
SPORADIČNO,
A KADA POSTOJE POVOLJNI USLOVI
i EPIDEMIJSKI**

- EPIDEMIJE SU PRE SVEGA KONTAKTNOG, REĐE ALIMENTARNOG i HIDRIČNOG POREKLA
- KONTAKTNE EPIDEMIJE SU NAJČEŠĆE U DEČJIM KOLEKTIVIMA, A POSEBNO U NASELJIMA SA NEREŠENIM SANITARNO-HIGIJENSKIM USLOVIMA; PO PRAVILU SU RAZVUČENE i TRAJU VIŠE MESECI
- Mb OBIČNO NIJE VISOK, ALI AKO SE NADOVEŽU i DRUGI PUTEVI PRENOSA MOŽE BITI i VISOK

- **HIDRIČNE EPIDEMIJE SU MAHOM MASOVNE, EKSPLOZIVNE, SA VISOKIM Mb i MOGU BITI PRODUŽENE SA JEDNIM ILI VIŠE TALASA**
- **ALIMENTARNE EPIDEMIJE SU RETKE i PO PRAVILU EKSPLOZIVNE**
- **PARENTERALNE (INOKULACIONE) EPIDEMIJE NEMAJU ZNAČAJA (SPORADIČNI SLUČAJEVI)**

PROFILAKSA

OPŠTE MERE ZAŠTITE SVODE SE PRE
SVEGA NA SPROVOĐENJE OPŠTIH i
LIČNIH HIGIJENSKIH MERA,

- **OBEZBEĐENJE:**

ZDRAVE VODE ZA PIĆE,
ZDRAVSTVENO ISPRAVNE HRANE,
PRAVILNE DISPOZICIJE OTPADNIH
MATERIJA,

- NAJVAŽNIJE JE PODIZANJE
ZDRAVSTVENE i OPŠTE KULTURE
STANOVNIŠTVA

SPECIFIČNA PROFILAKSA

SA HUMANIM IMUNOGLOBULINOM

PREPORUČUJE SE KOD TRUDNICA, A MOŽE SE PREMA MEDICINSKIM INDIKACIJAMA PRIMENITI I KOD FAMILIJARNIH KONTAKTNIH PRENOŠENJA KOD DECE U DOMAĆINSTVU ILI OBDANIŠTU, HIPOTROFIČNE DECE, KOD LICA KOJA PUTUJU U VISOKO ENDEMIČNE KRAJEVE, INTERNATSKIH KONTAKATA, KAO I SEKSUALNIH KONTAKATA.

Preporučene doze i šema davanja Hepatitis A vakcine

HAVRIX^â

Grupa	Starost	Br. doza	Doze EL.U.* (ml)	Šema davanja (meseći)
Deca i adolescenti	2-18 godina	3	360 (0.5)	0, 1, 6-12
Odrasli	>18 godina	2	1,440 (1.0)	0, 6-12

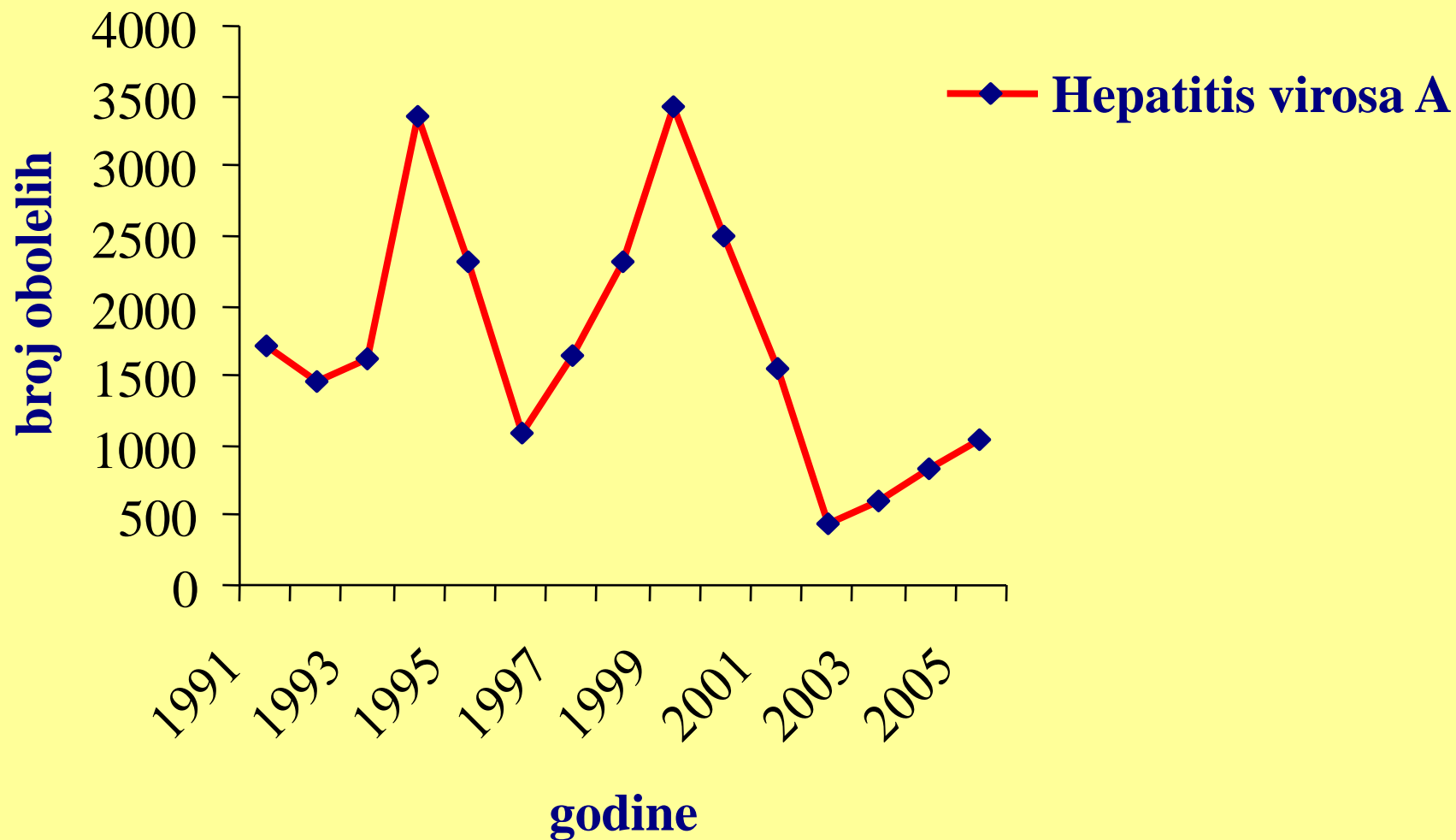
**ELISA units*

SUZBIJANJE

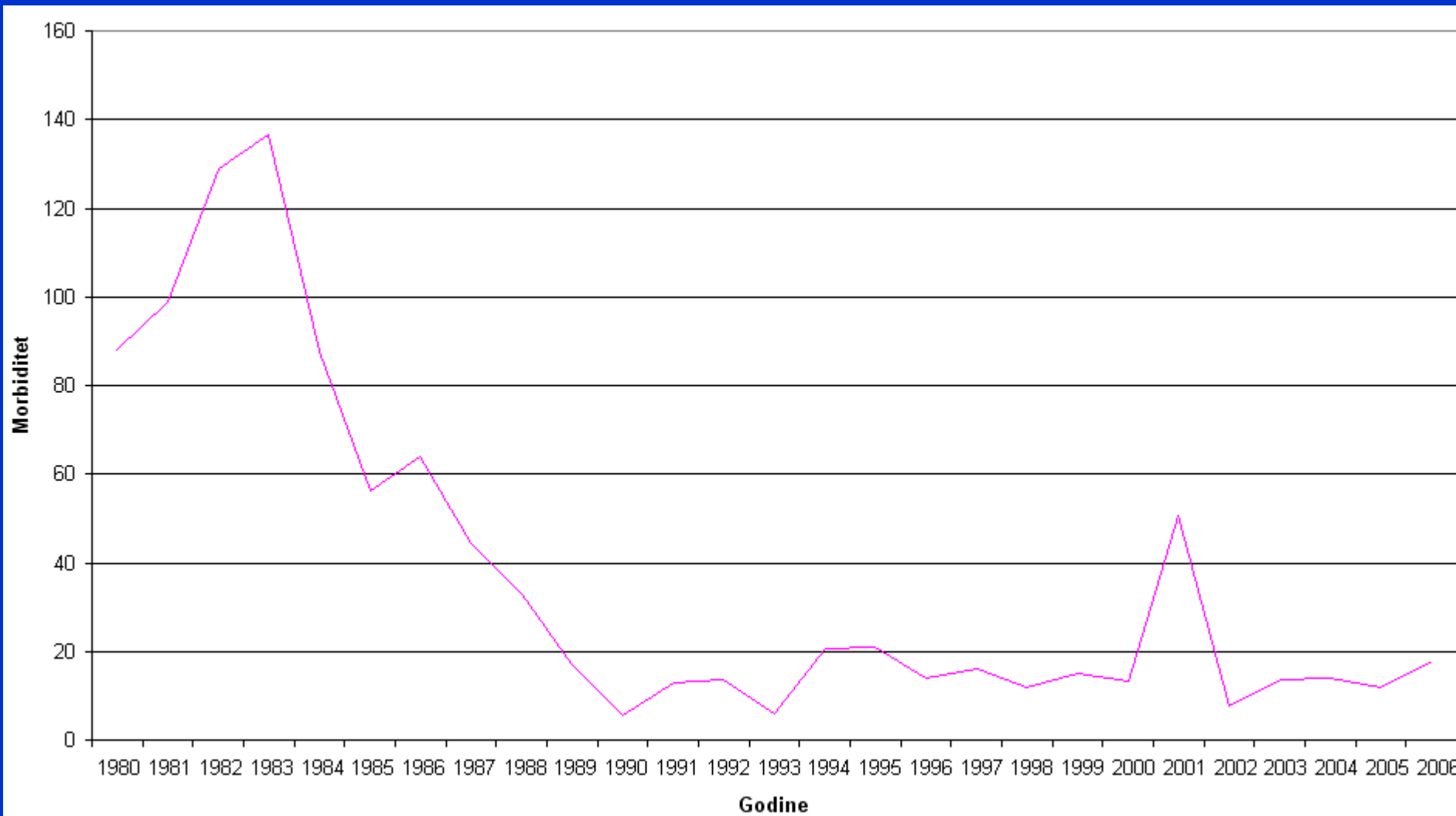
- **PODLEŽE OBAVEZNOJ PRIJAVI**
- **HOSPITALIZACIJA NIJE OBAVEZNA
(MERA OPREZA i POJAČANE
ZDRAVSTVENE KONTROLE
PREPORUČUJU SE U PRVE DVE
NEDELJE BOLESTI)**

- **OBAVEZNA JE TEKUĆA DEZINFEKCIJA UZ HIGIJENSKU DISPOZICIJU FEKALIJA, MOKRAĆE i KRV**
- **AKTIVNIM EPIDEMIOLOŠKIM ISTRAŽIVANJEM OTKRIVATI ANIKTERIČNE i LAKE SLUČAJEVE OBOLJENJA NAROČITO U EPIDEMIJI.**

Incidenca Hepatitis virosa A na teritoriji Srbije

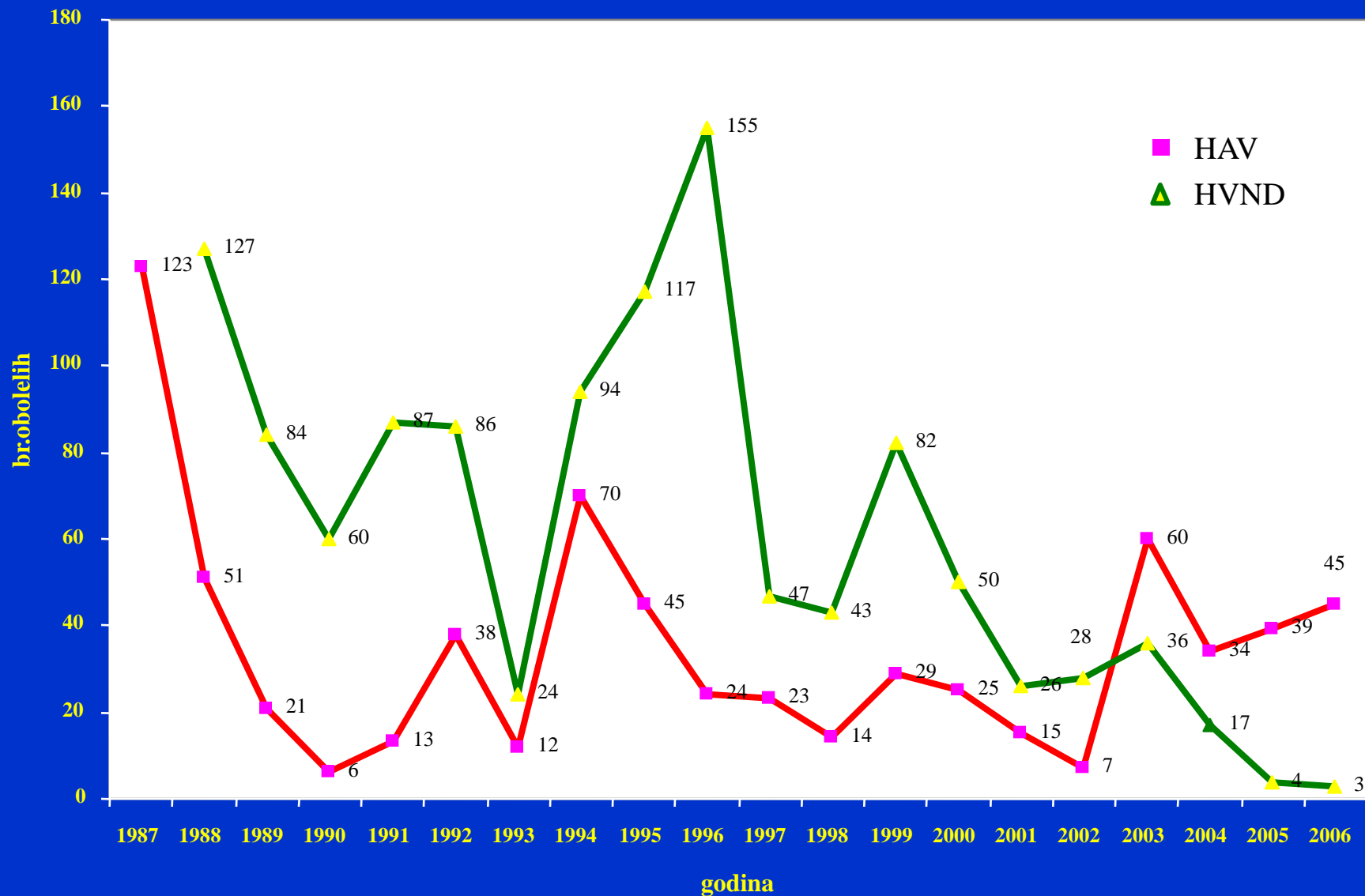


Kretanje stope obolevanja od HAV- (Nišavski, Toplički i Pirotski okrug) - 1980 do 2006. godine

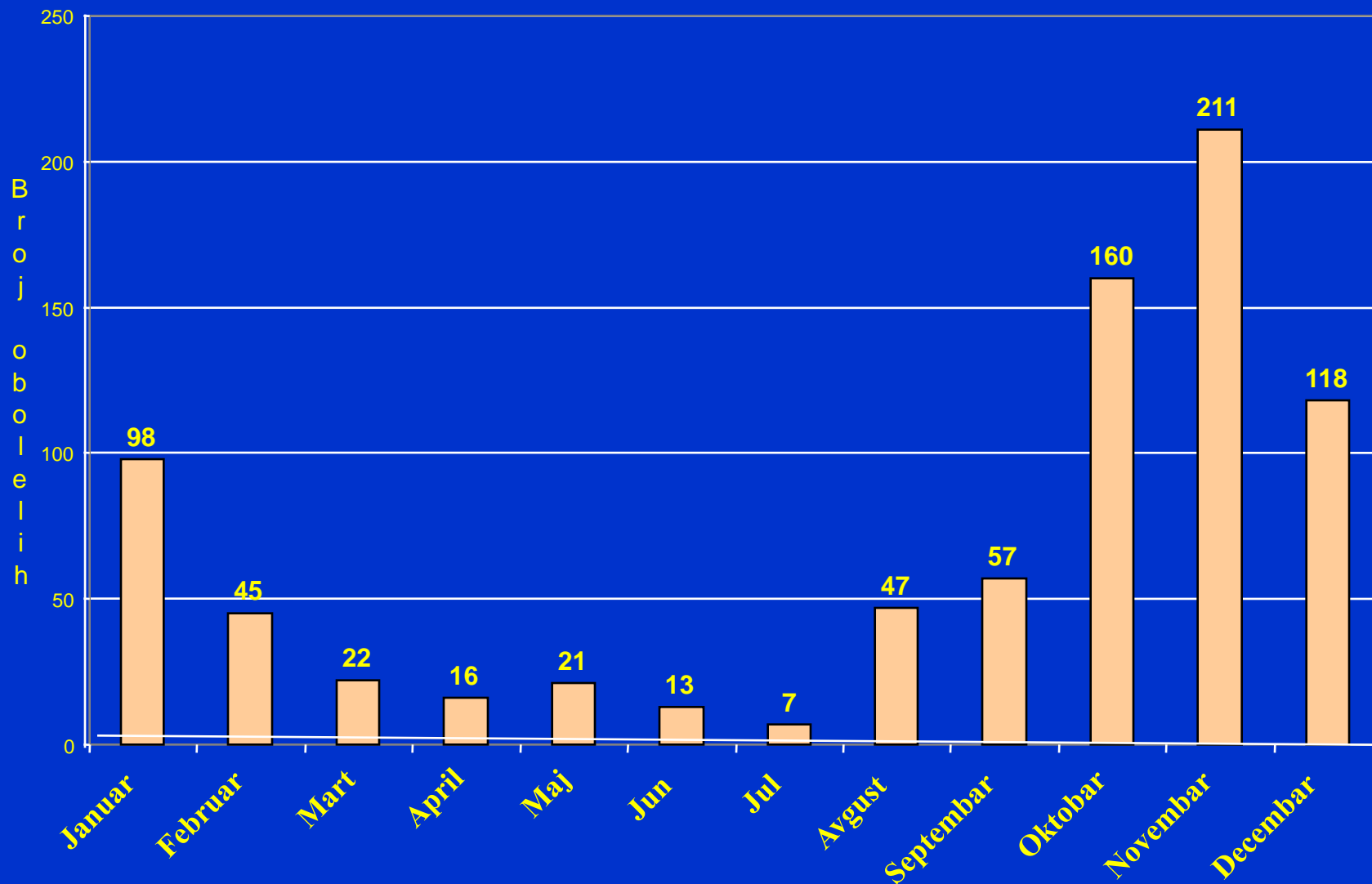


***2006.-ne obuhvata Pirotski okrug**

Kretanje obolelih od HAV i HVND na teritoriji grada Niša u poslednjih 20 god.



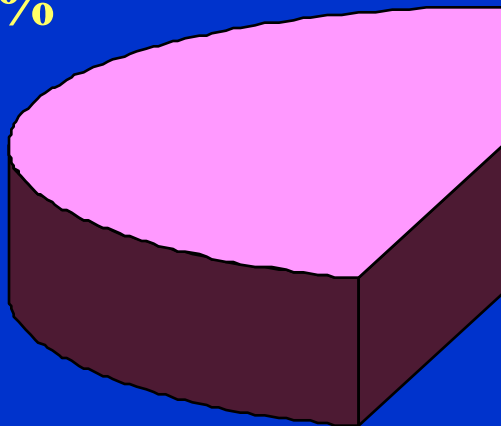
REGION NIŠ, oboleli od HAV - sezonost 1980-2006 god.



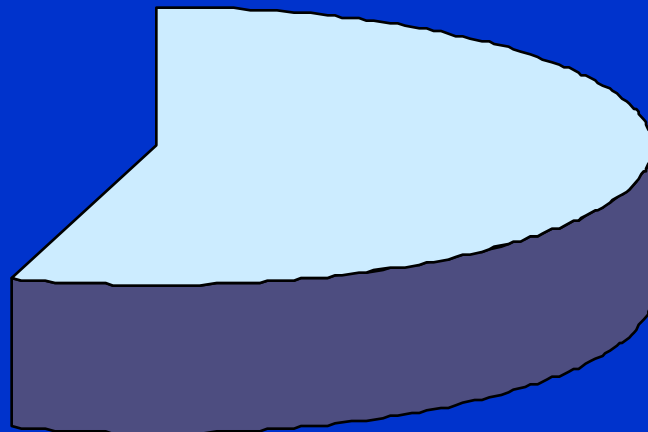
Oboleli po polu od HAV na področju Niškega regiona 1980 - 2006.

Muški
Ženski

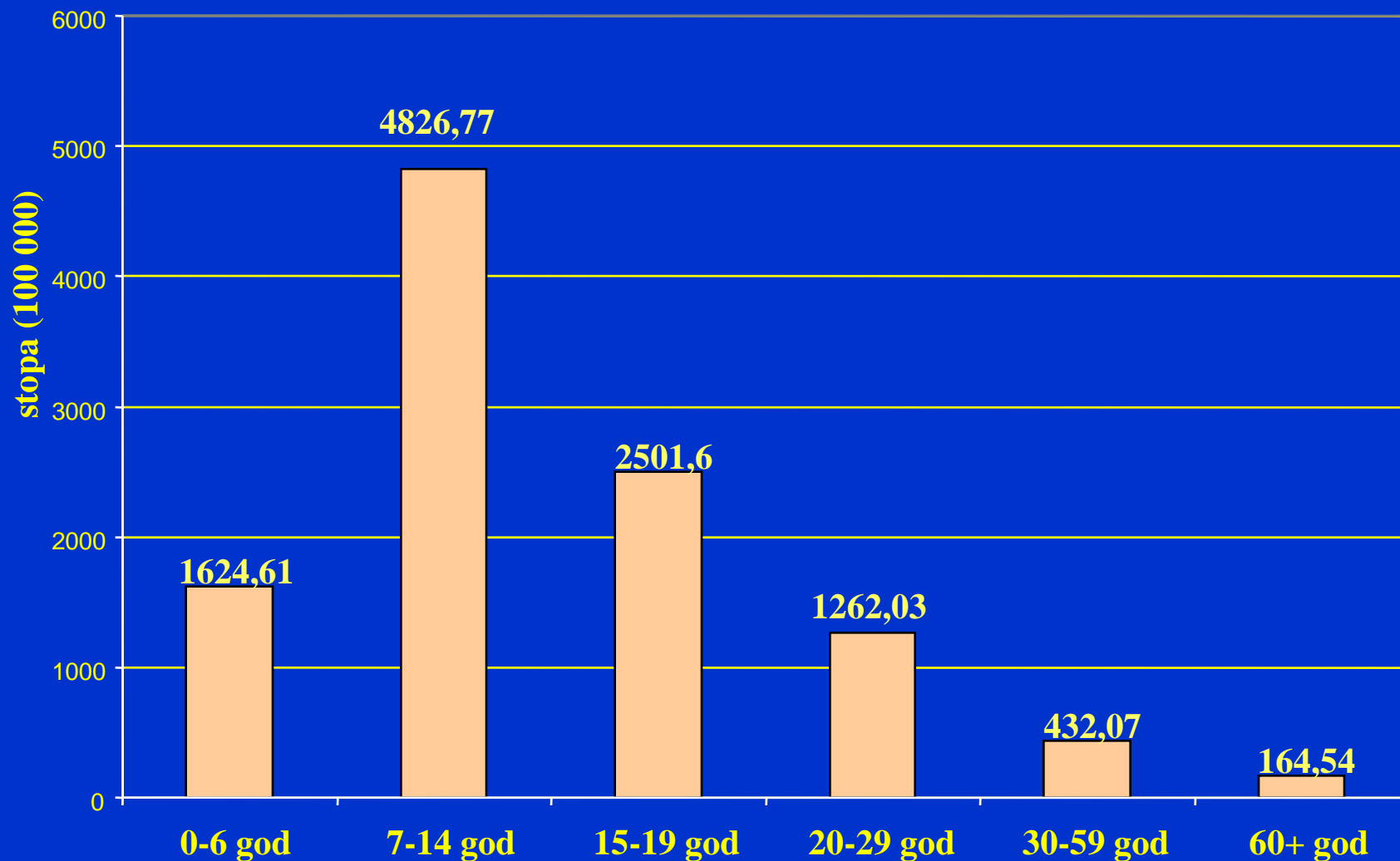
45,17%



54,83%



REGION NIŠ Oboleli od HAV po uzrastu, 1980-2006



EPIDEMIJA HAV U NIŠU

BROJ STANOVNIKA: 250 158 (popis 2002.)

**EPIDEMIOLOŠKA SITUACIJA PRE POJAVE EPIDEMIJE I KRETANJE ZARAZNIH
BOLESTI dato grafički i tabelarno**

POSEBNI DOGAĐAJI PRE EPIDEMIJE: Izrazito sušno leto

**EPIDEMIJA OTKRIVENA - NA OSNOVU PREDHODNIH PRIJAVA IZ DOMA
ZDRAVLJA NIŠ**

DATUM POČETKA EPIDEMIJE: 7.9.2007,

NEDELJNI BROJ OBOLELIH – 5-10,

UKUPAN BROJ OBOLELIH DO POČETKA ISTRAŽIVANJA – 64,

OBOLJENJE – Hepatitis virosa A: B 15.9,

OBOLELI SE LEČE – na Infektivnoj klinici u Nišu,

ZAHVAĆENO PODRUČJE – Područje Grada Niša,

PREDUZETE PROTIVEPIDEMIJSKE MERE: U prilogu.

IZVOR INFEKCIJE: pretpostavljeni veći broj

INKUBACIJA: srednja i maksimalna (20 do 50 dana)

PUT PRENOŠENJA: kontaktni, alimentarni,
kontrolne grupe (izloženi oboleli, zdravi, neizloženi
oboleli, zdravi)

KLINIČKA SLIKA: muka, povraćanje, povišena
telesna temperatura, bolovi u mišićima, glavobolja,
žutilo beonjača, kože i sluzokože

TERAPIJA: simptomatska i hepatoprotektivna

LABORATORIJSKI REZULTATI: visoki nalazi
transferaza (AST, ALT), bilirubina, IgM+ antitela,

Laboratorijski potvrđen broj: preko 1.000*

HRONOLOGIJA DOGAĐANJA

PRETHODNE EPIDEMIJE HAV:

- 13.10.2006. Prokuplje, 140 obolelih, epidemija odjavljena
- 15.3.2007. Bela Palanka, 90 obolelih,
- 23.3.2007. Pirot, 60 obolelih,
- 30.7.2007. Aleksinac, 70 obolelih, epidemija odjavljena

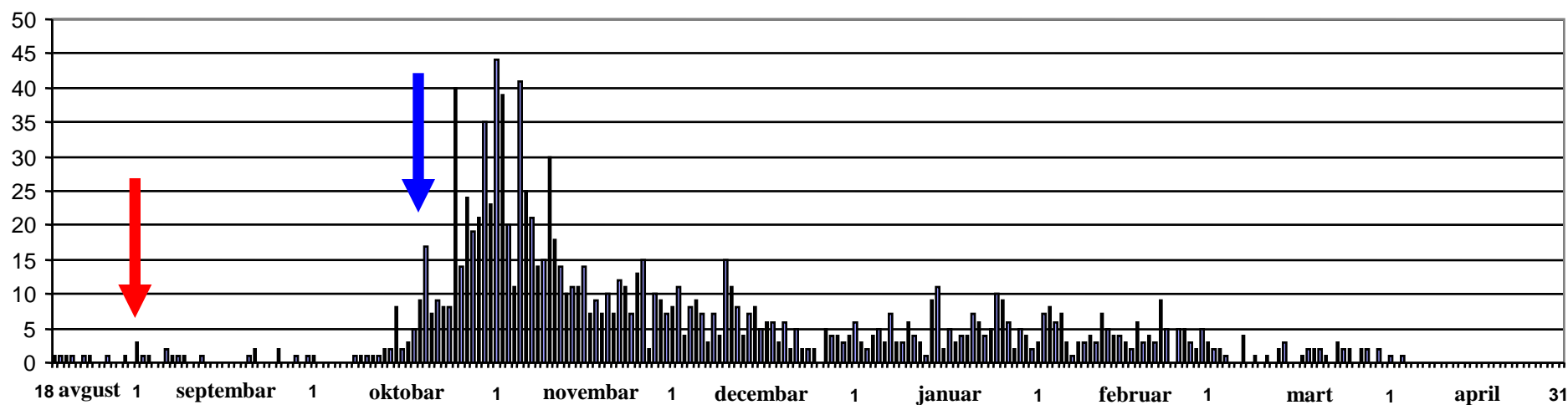
PRIJAVE EPIDEMIJA HAV NA PODRUČJU GRADA NIŠA:

- 9.7. Uže područje Grada, kontaktna, porodica, 3 obolela, (2 hosp.)
- 20.8. Niška Banja, nas. Nikola Tesla, hidrični (?), kontakt, različito, 5 (svi hosp.)
- 12.10. selo Trupale, kontakt, porodica, 6, (2 hosp.)
- 19.10. Grad Niš, kontakt-hrana, 64, (30 hosp.) POČETAK????!!

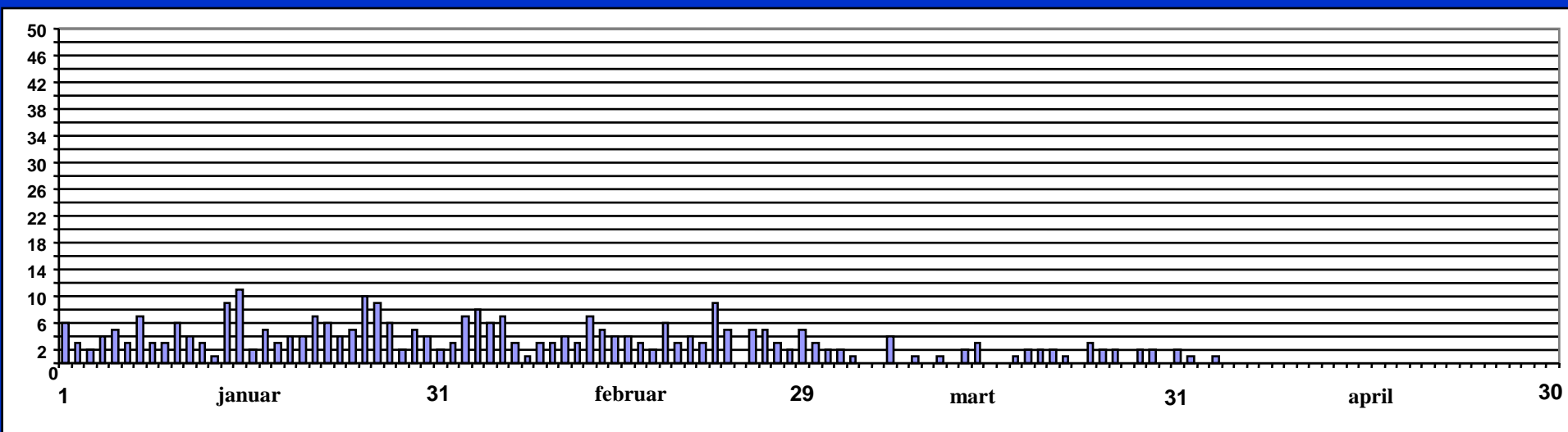
DOPIS IZJZ - NIŠ GRADONAČELNIKU NIŠA - 1.11.2007.

**FORMIRAN OPERATIVNI ŠTAB ZA SUZBIJANJE EPIDEMIJE -
2.11.2007.**

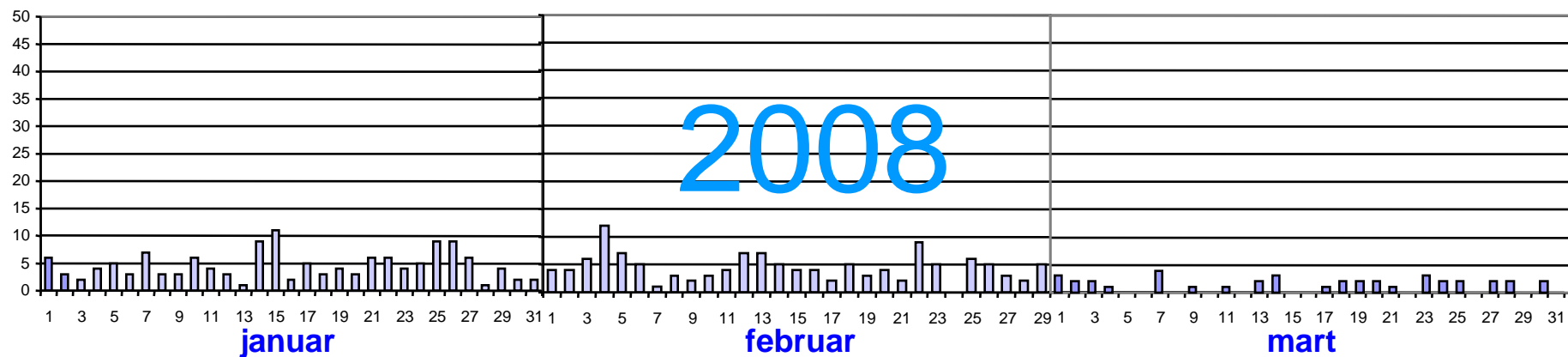
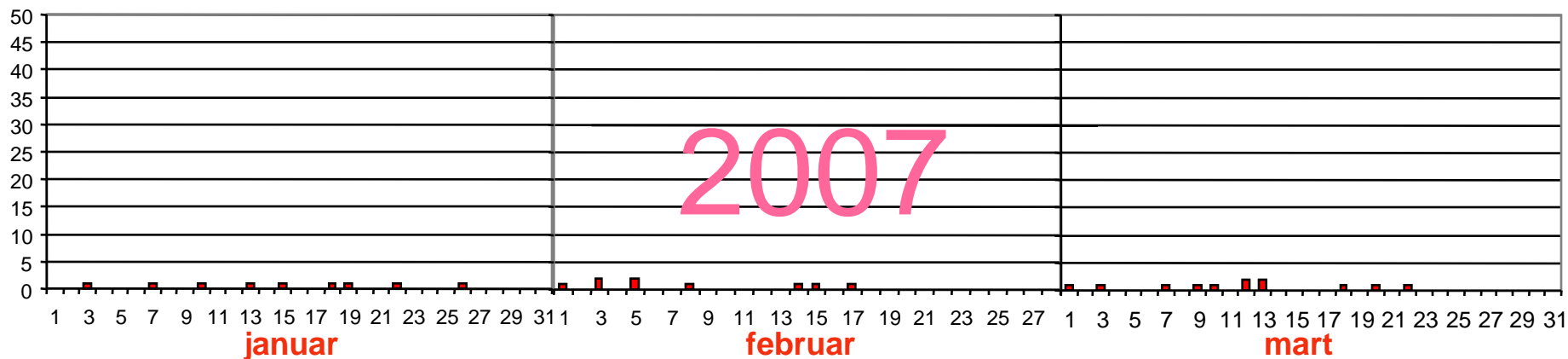
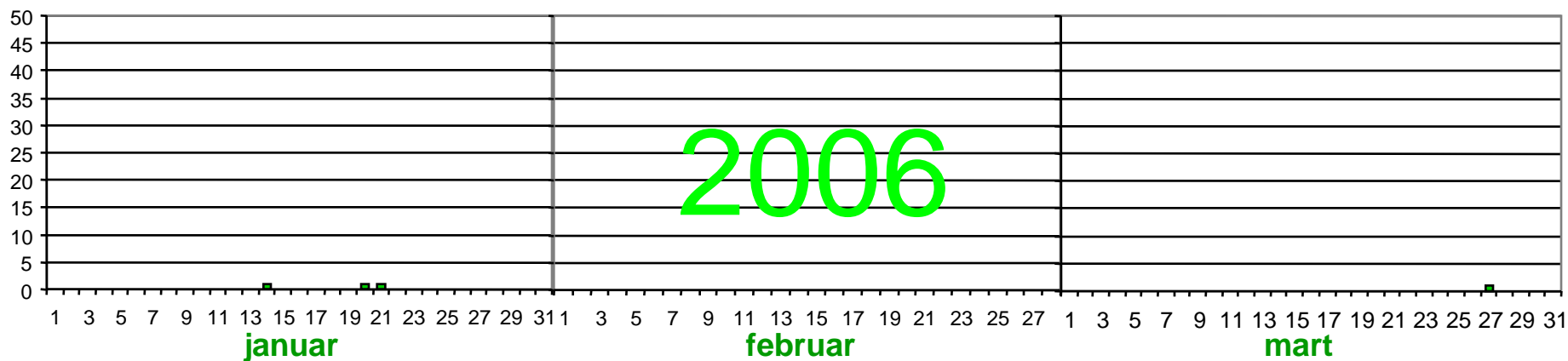
Broj obolelih - po datumu obolevanja - od HAV u Nišu od 18.8.07. do 7.4.08.



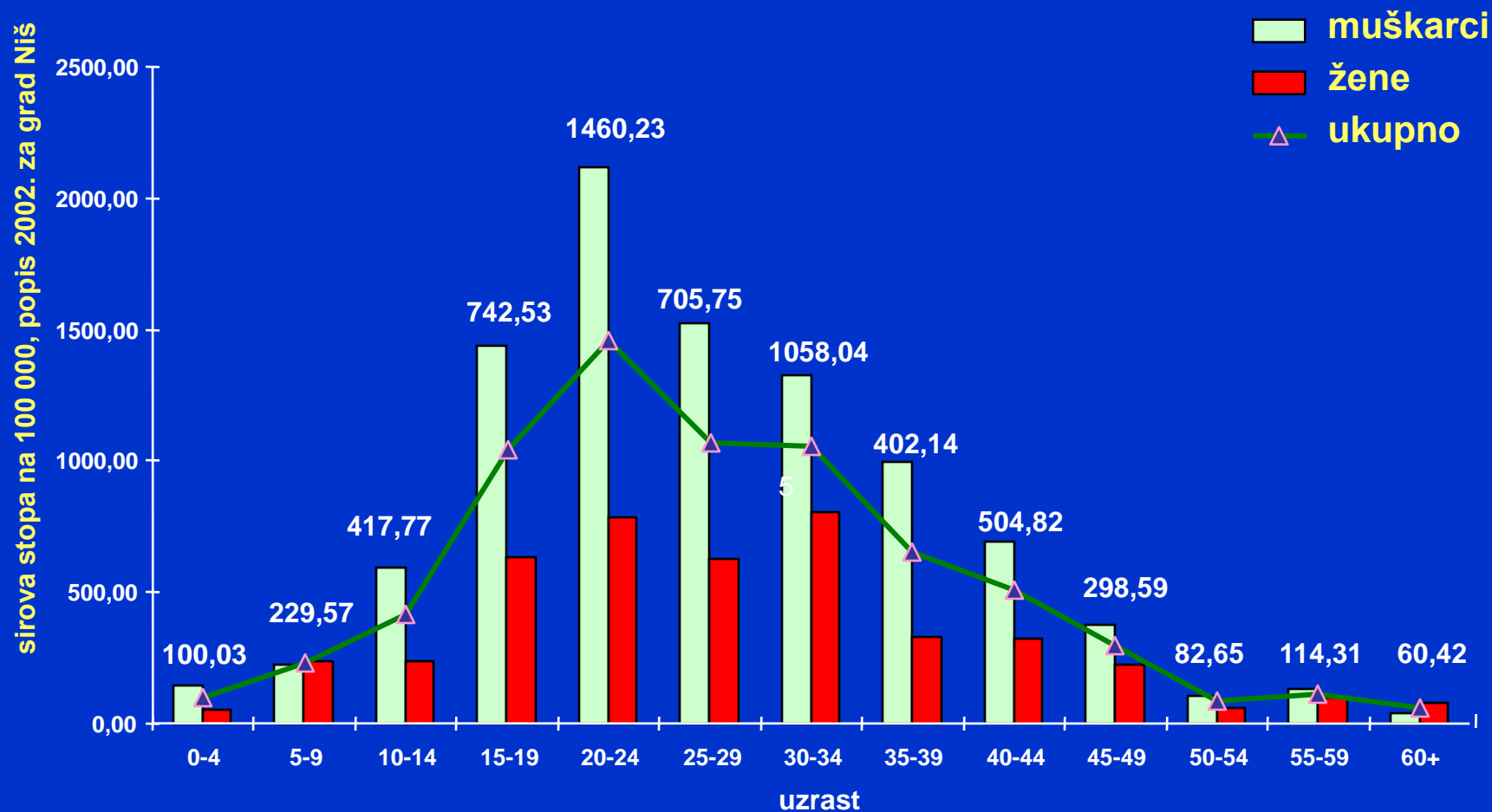
Broj obolelih - po datumu obolevanja - od HAV u Nišu od 1.1. - 7.4.08.



Distribucija bolesnika po danima u 2006, 2007 i 2008 god. od 1. januara do 20. marta

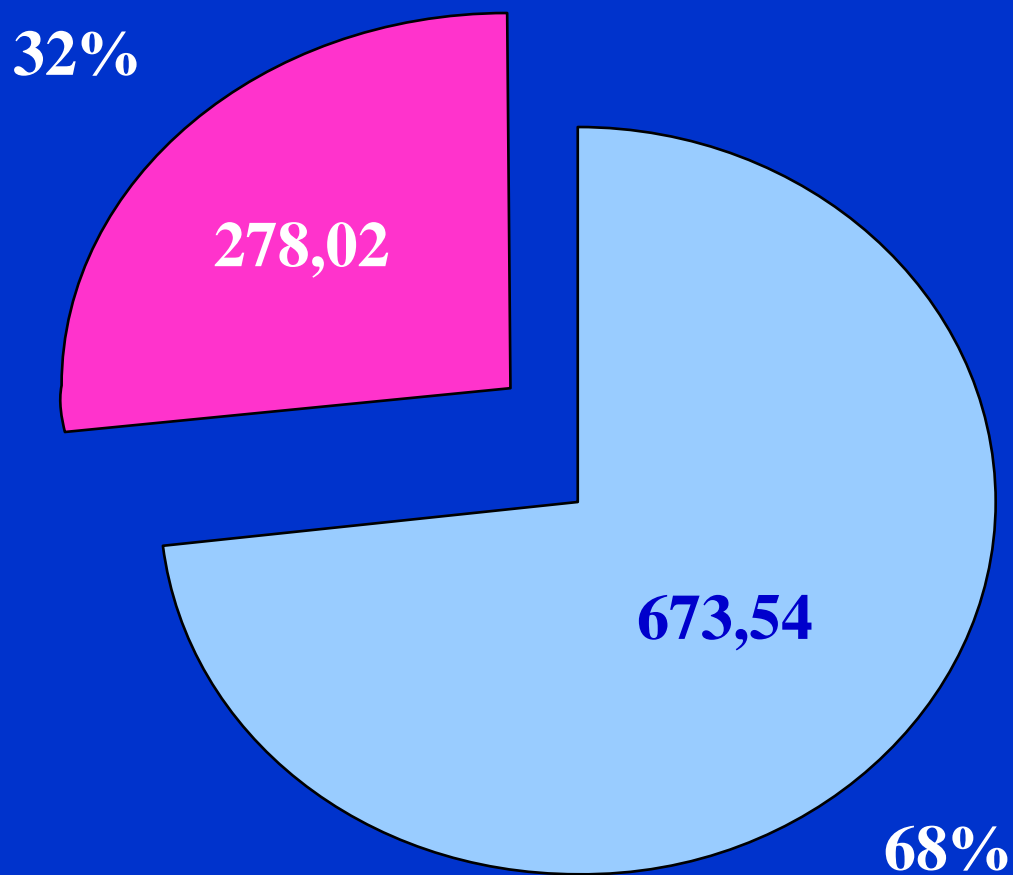


Distribucija obolelih po polu i uzrastu od 18.8.2007. do 7.4.2008.



Učešće po polu

april 2008.

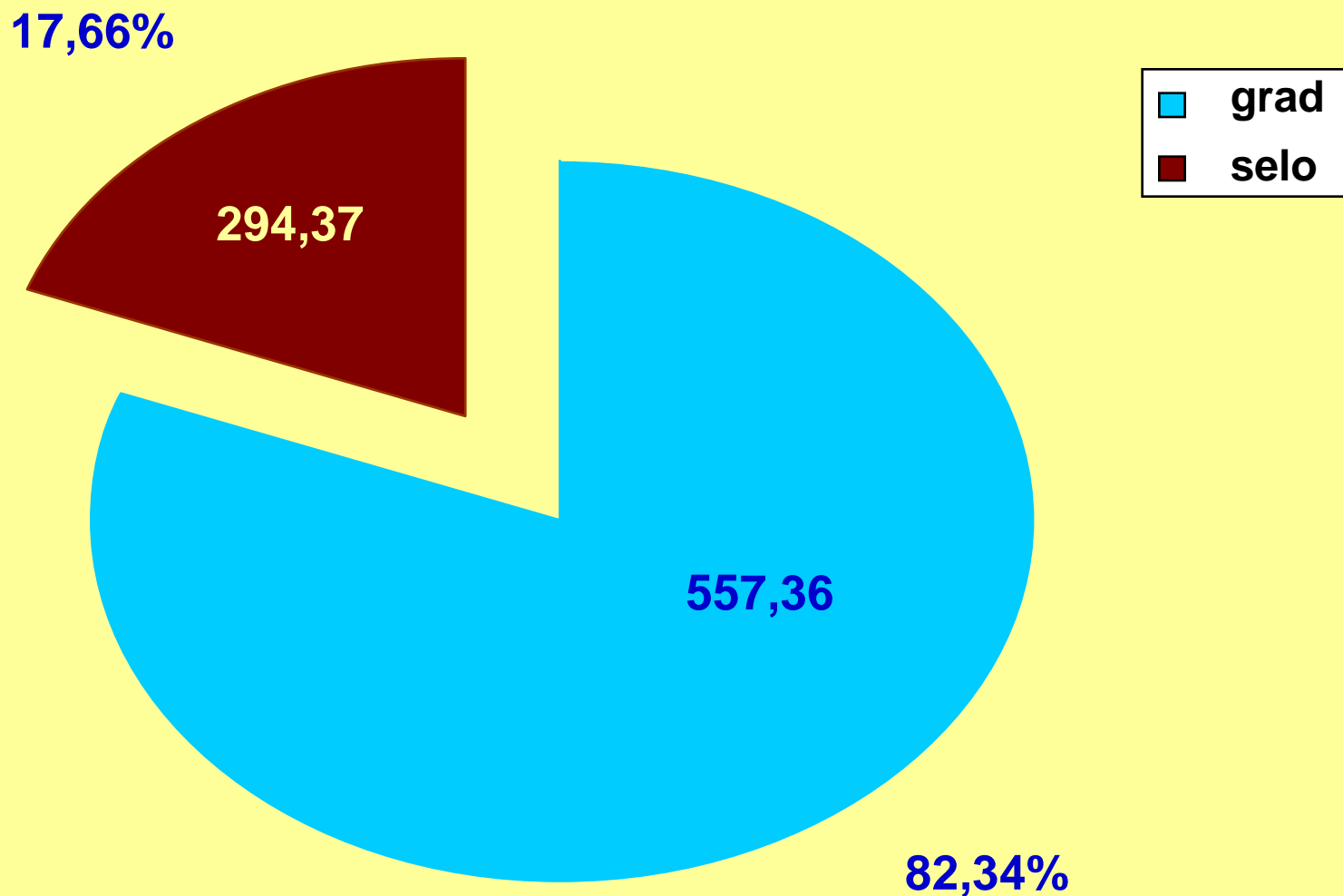


srednja stopa:

481,40

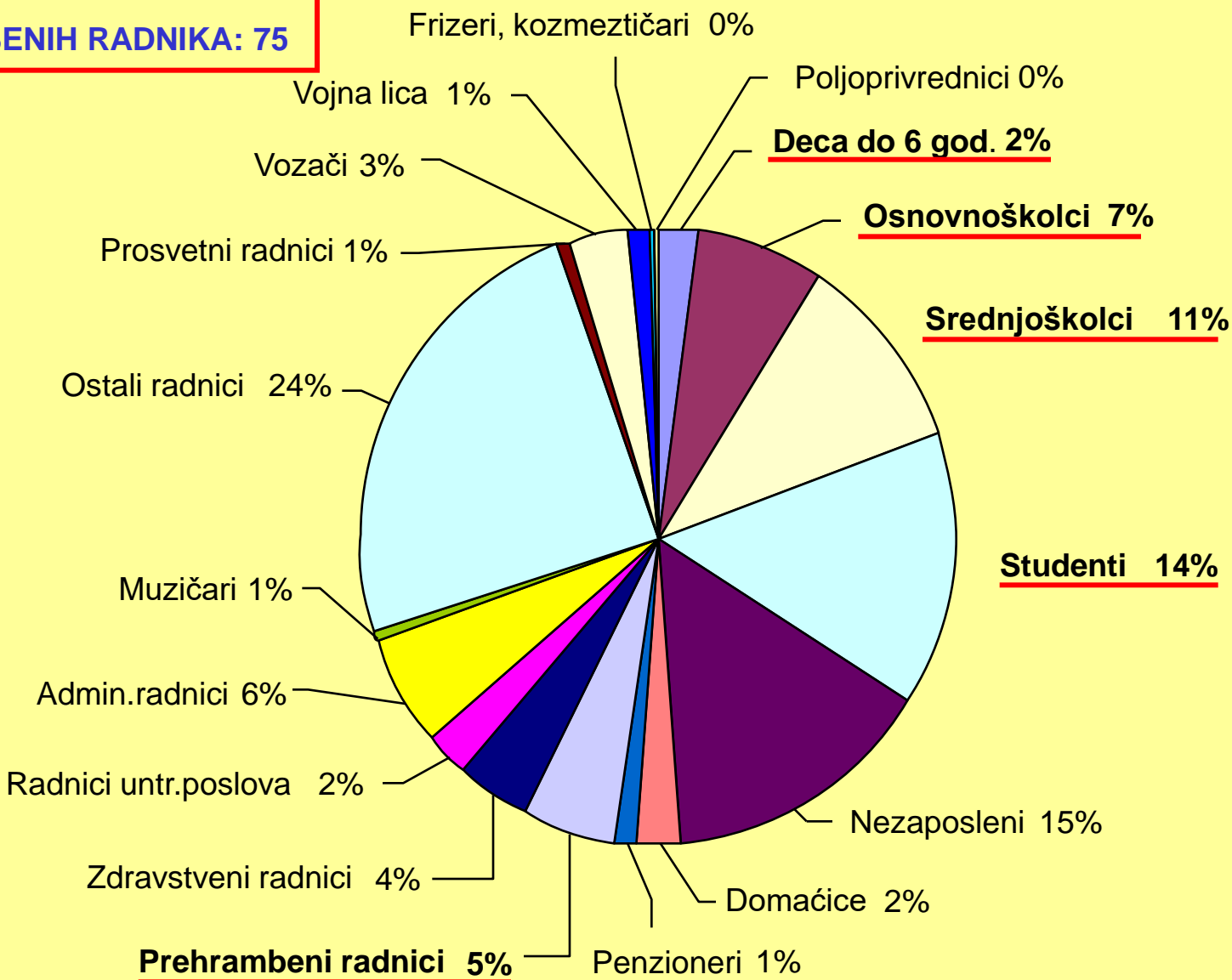
na 100.000

Učešće prema mestu stanovanja (grad-selo)



Distribucija obolelih od HAV po zanimanju od 18.8.2007 do 7.4.2008. god.

**OBOLELO UGOSTITELJSKIH I
PREHRAMBENIH RADNIKA: 75**



PREHRANBENI OBJEKTI – BLIŽE LOKACIJE

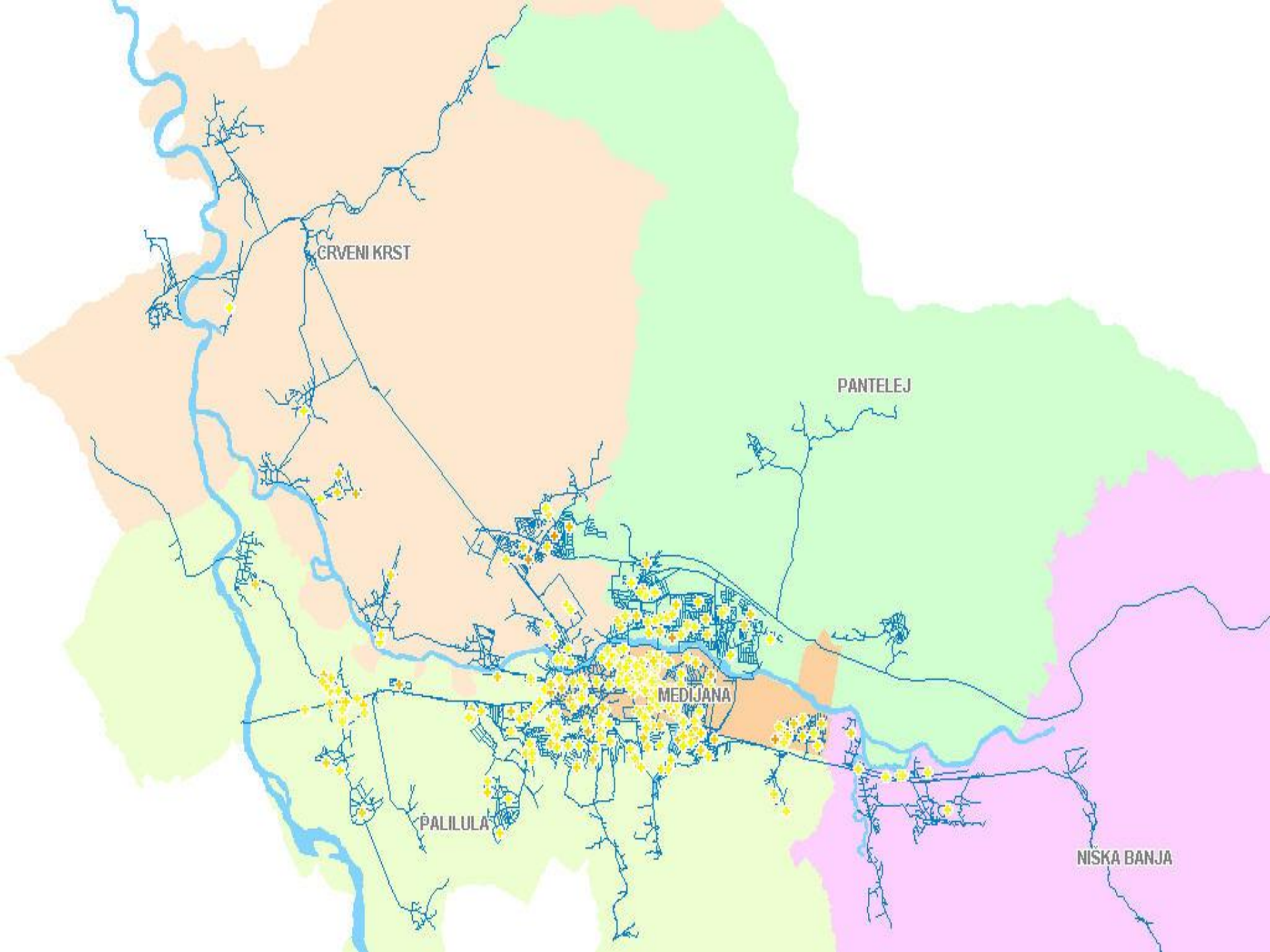
The map displays the city of Zadar with numerous red dots representing food objects. Yellow icons indicate specific locations: a yellow circle for Ćevabdžinica, a yellow cross for Peka, and a yellow triangle for Restoran. A blue circle highlights a specific area in the city center, near the river and the old town. The map includes various neighborhood names and a legend in the bottom right corner.

Legend:

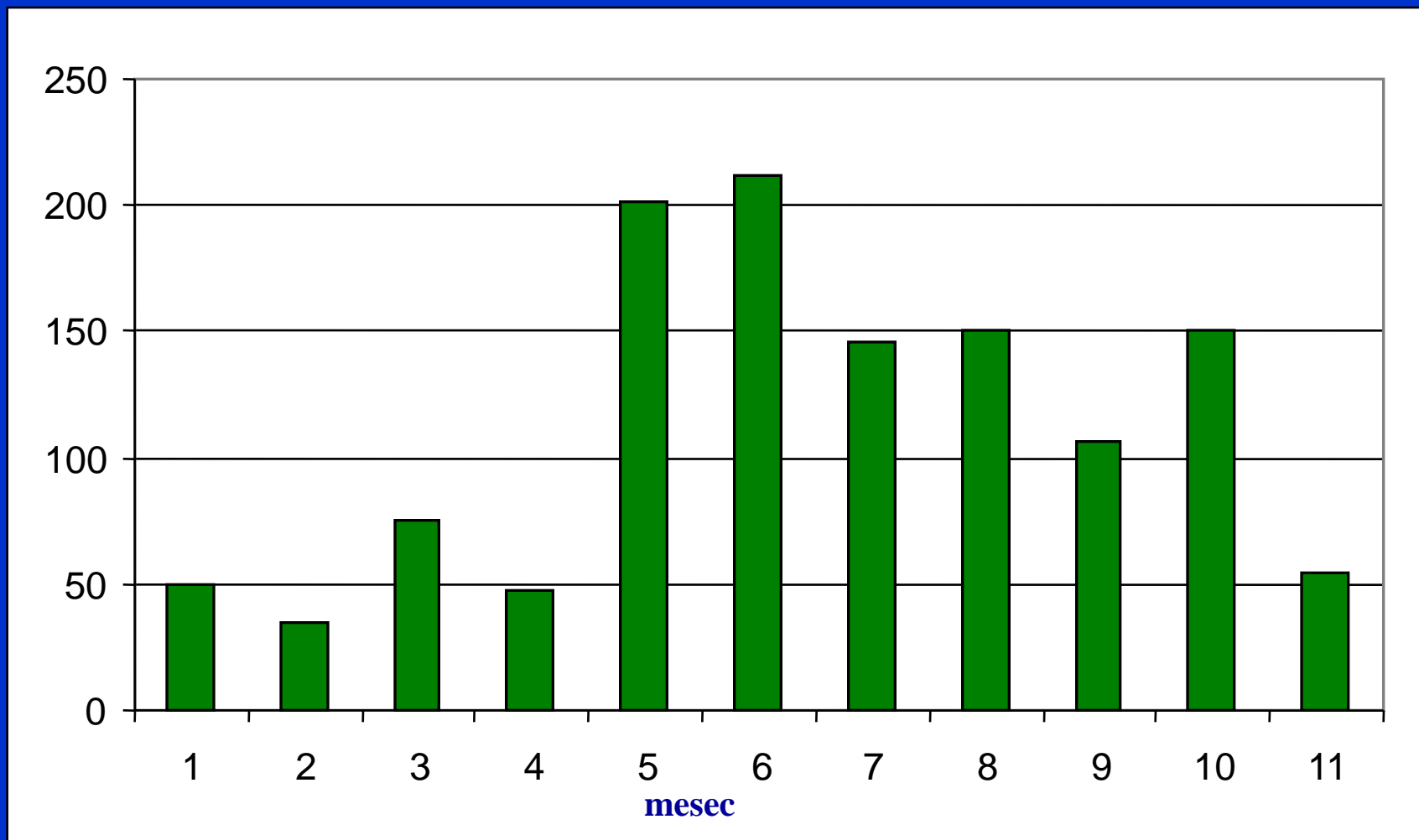
- Ćevabdžinica
- Peka
- Restoran

HIDRIČNA EPIDEMIJA?

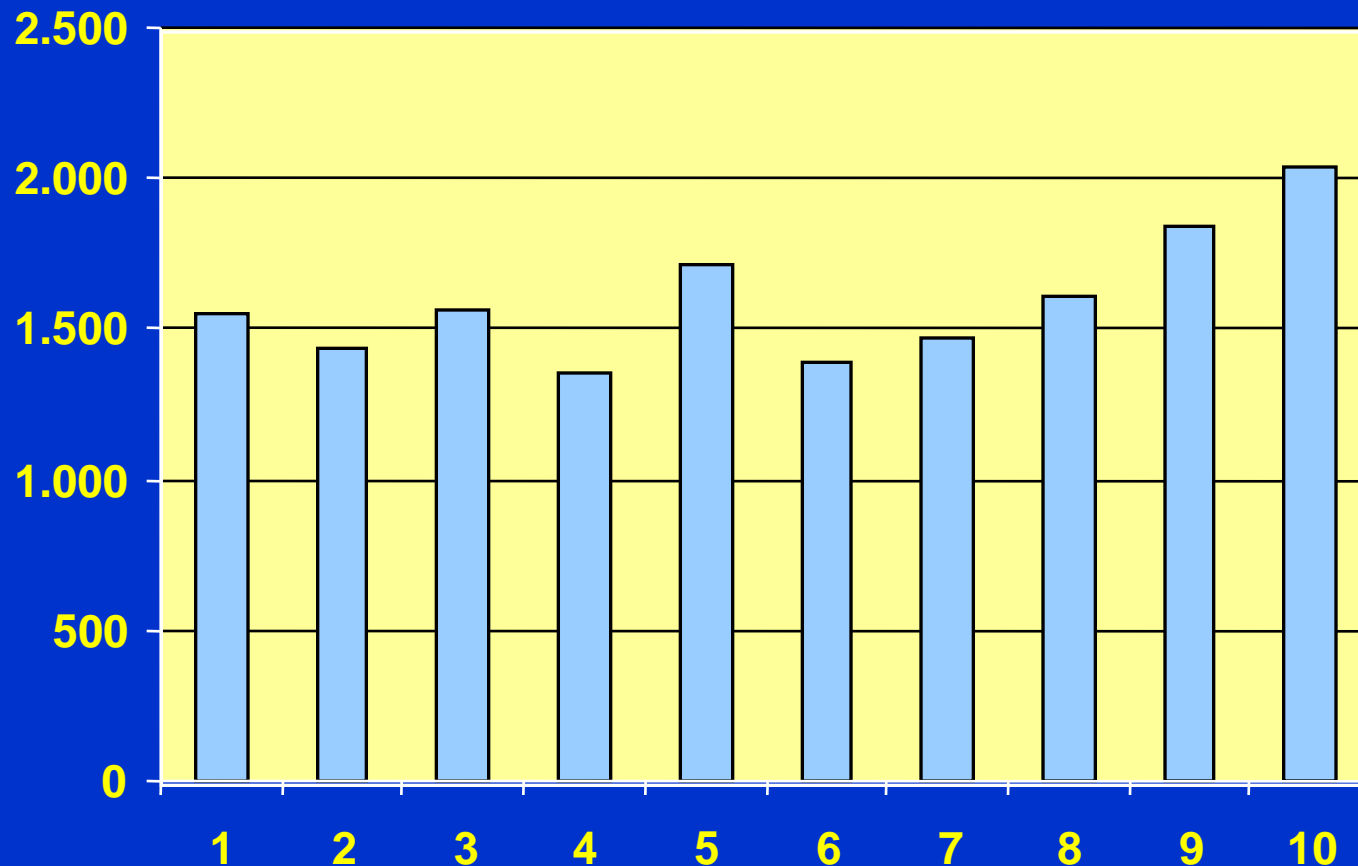
- *Broj prijava crevnih zaraznih bolesti u Gradu Nišu tokom jula, avgusta i septembra – NE POKAZUJE IZRAZITI SKOK,
Nema seroznih meningita
- *Uzrasna struktura obolelih - udeo:
 - 0 do 14 godina: 6,98%,
 - dominira uzrast 20 do 35 godina : oko 60%,
- *Polna struktura: u eksplozivnoj fazi - 78% muška populacija,
- *Nema obolelih u KP Domu,
- *Nema obolelih u “Engleskom domu”,
- *Nema obolelih u internatu Bogoslovije,
- *Obolela samo 4 vojnika, kod porodica vojnih osiguranika 18,
- *Laboratorijski nalazi VODE u periodu juni - oktobar - UREDNI



Broj obolelih od crevnih zaraznih bolesti (osim HAV) na teritoriji grada Niša od 1.1. do 31.11. 2007.



*Dom zdravlja Niš – dijagnoze nezaraznih
gastroenteritičnih obolenja po mesecima
januar - oktobar 2007 godina*



Rezultati higijenske ispravnosti uzoraka vode za piće sistema NIVOS (period juni-oktobar 2007. god.)

FIZIČKO - HEMIJSKE ANALIZE				MIKROBIOLOŠKE ANALIZE		
MESEC	broj uzoraka	broj neispravnih / %	razlog neispravnosti	broj uzoraka	broj neispravnih / %	razlog neispravnosti
VI	270	/	/	270	/	/
VII	285	2 / 0.70%	Boja:10 Fe: 0.34; 0.38; NTU: 1.6; 8.1	285	/	/
VIII	279	/	/	279	/	/
IX	298	1 / 0.34%	Elektroprovodljivost 1036	298	/	/
X	279	2 / 0.72%	Boja:12; Mutnoća: 1.2; 1.3	279	/	/
UKUPNO	1411	5 / 0.35%	Mutnoća (4), Gvožđe(2), Boja (2), Elektroprovodljivost (1)	1411	/	/

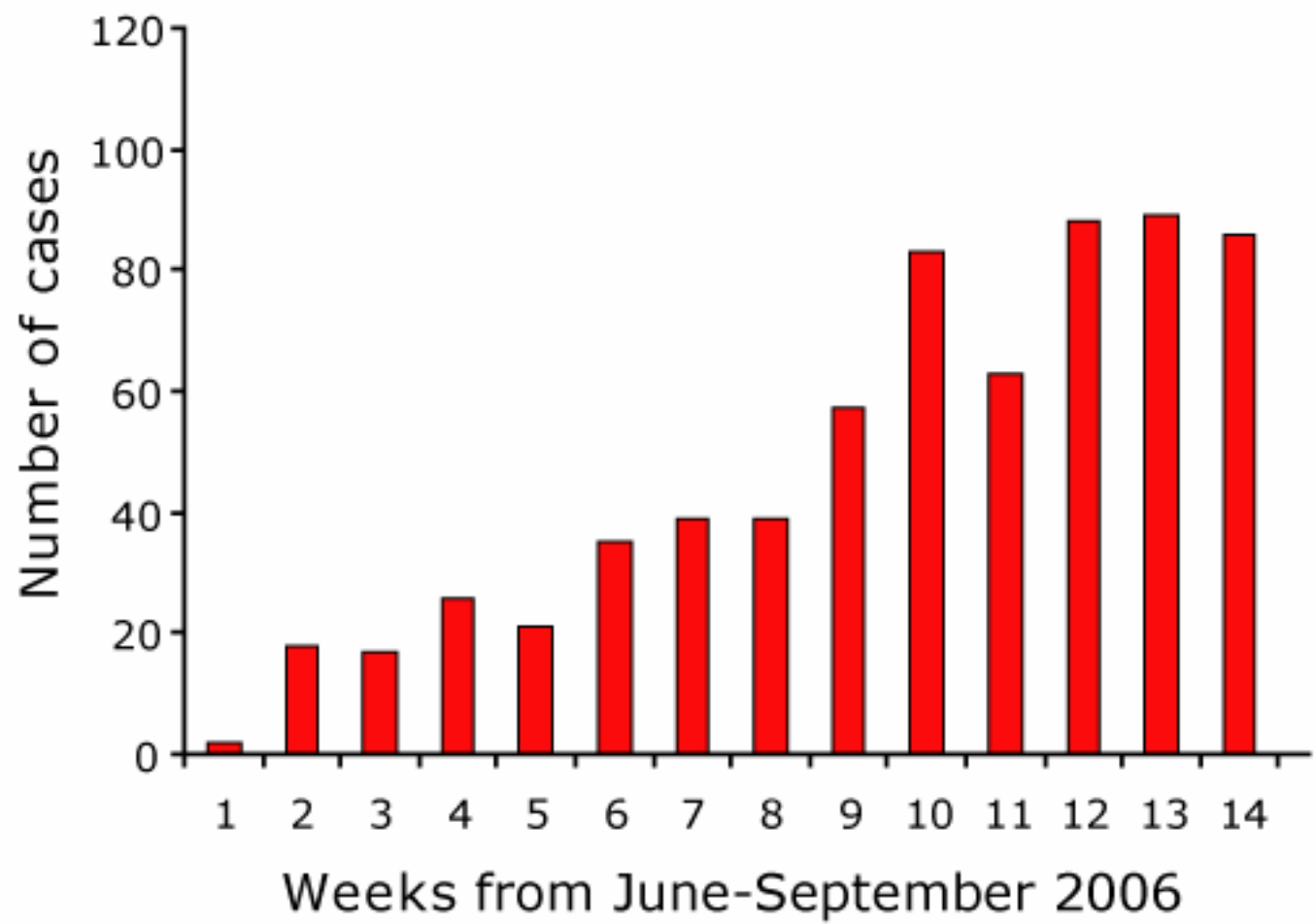
27 September 2006 - Hepatitis A in Bulgaria, Plovdiv Region - Update 1

From 23 June 2006 to 25 September 2006, 1,364 cases of acute jaundice syndrome were notified to the Ministry of Health of Bulgaria by Regional Inspectorate for Public Health Protection and Control of Plovdiv.

Nine-hundreds-and-fifty-three cases (953) were reported in Plovdiv City. Eighty-one percent (81%) of the them were reported among residents of two Roma neighbourhoods, Stolipinovo (682 cases) and Sheker Mahala (92 cases), with a total estimated population of 40,000 inhabitants. In Stolipinovo neighbourhood, 507 of the cases (74%) were recorded among those aged 1 to 9 years.

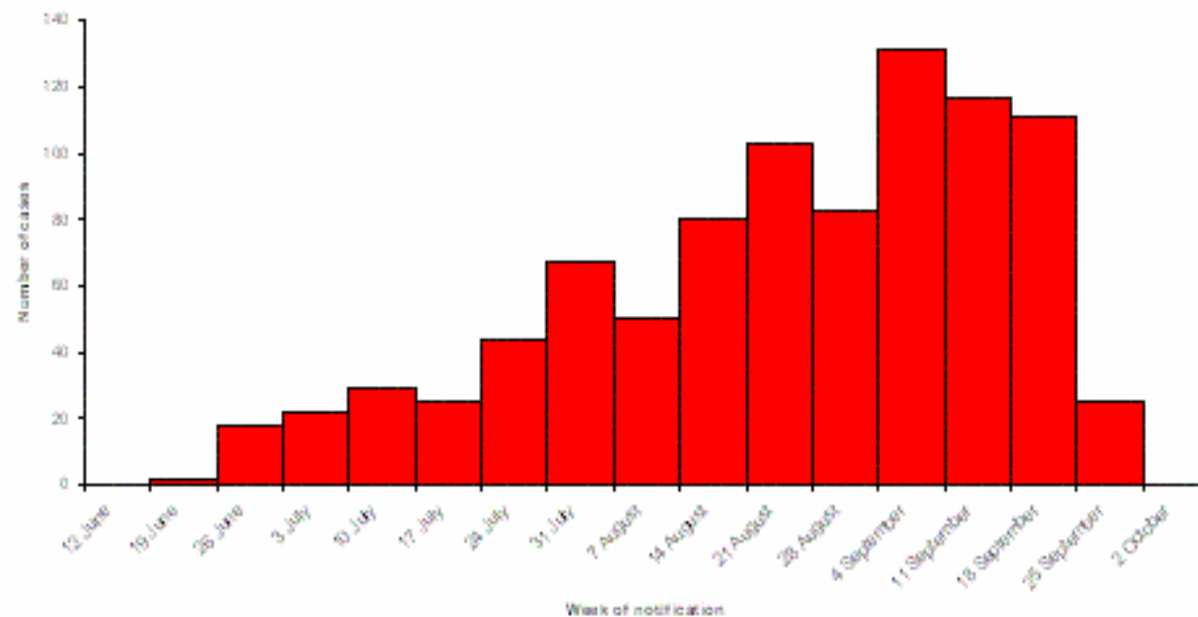
The evolution of the outbreak over time in Plovdiv City is presented in Figure 1.

Figure 4. Weekly number of cases of acute viral hepatitis in Stolipinovo, Plovdiv, June – September 2006



The evolution of the outbreak over time in Plovdiv City is presented in Figure 1.

Figure 1: Number of Cases of Acute Jaundice Syndrome by Week of Notification (n=907)
Plovdiv City, Bulgaria
23 June - 25 September 2006



One-hundred-and-ninety patients are currently admitted to health care facilities in the Region.

The ongoing spread of the outbreak is associated with poor sanitary and hygienic conditions in the area.

Outbreak in Sofia Region, 2006: probably waterborne

The first outbreak occurred in Svoge municipality (Sofia region) in July – August 2006, and was probably associated with contamination of the drinking water supply. The incidence in the area has now returned to pre-outbreak levels (Figure 2).

Figure 2. Number of cases of acute hepatitis in Sofia region, 2005 and 2006

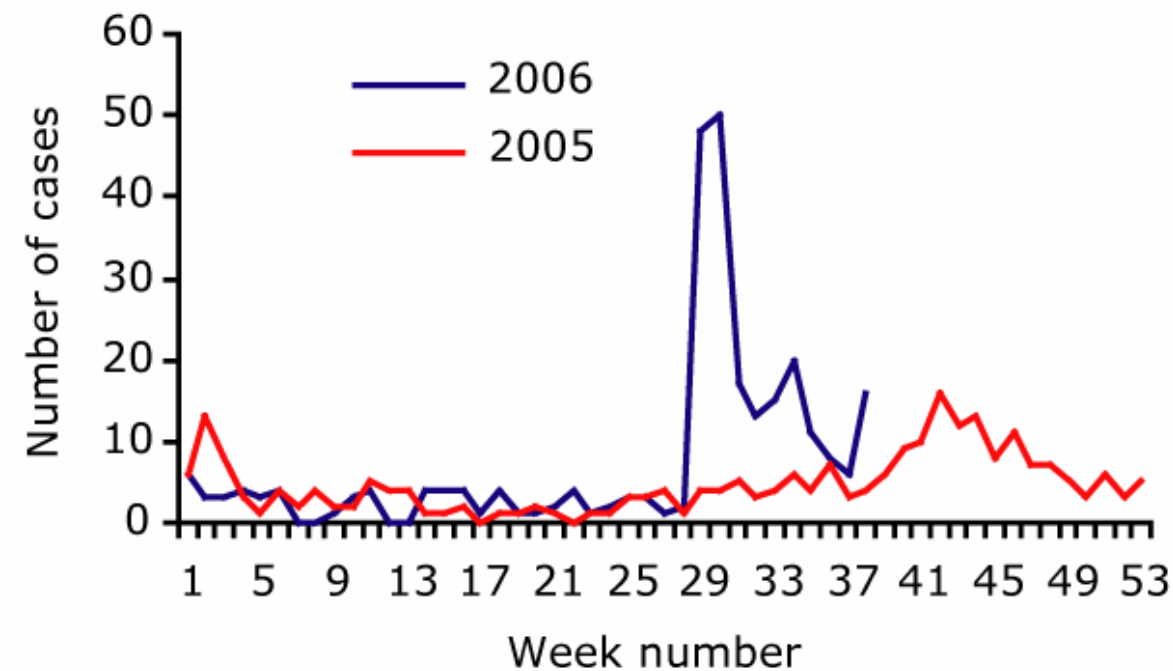


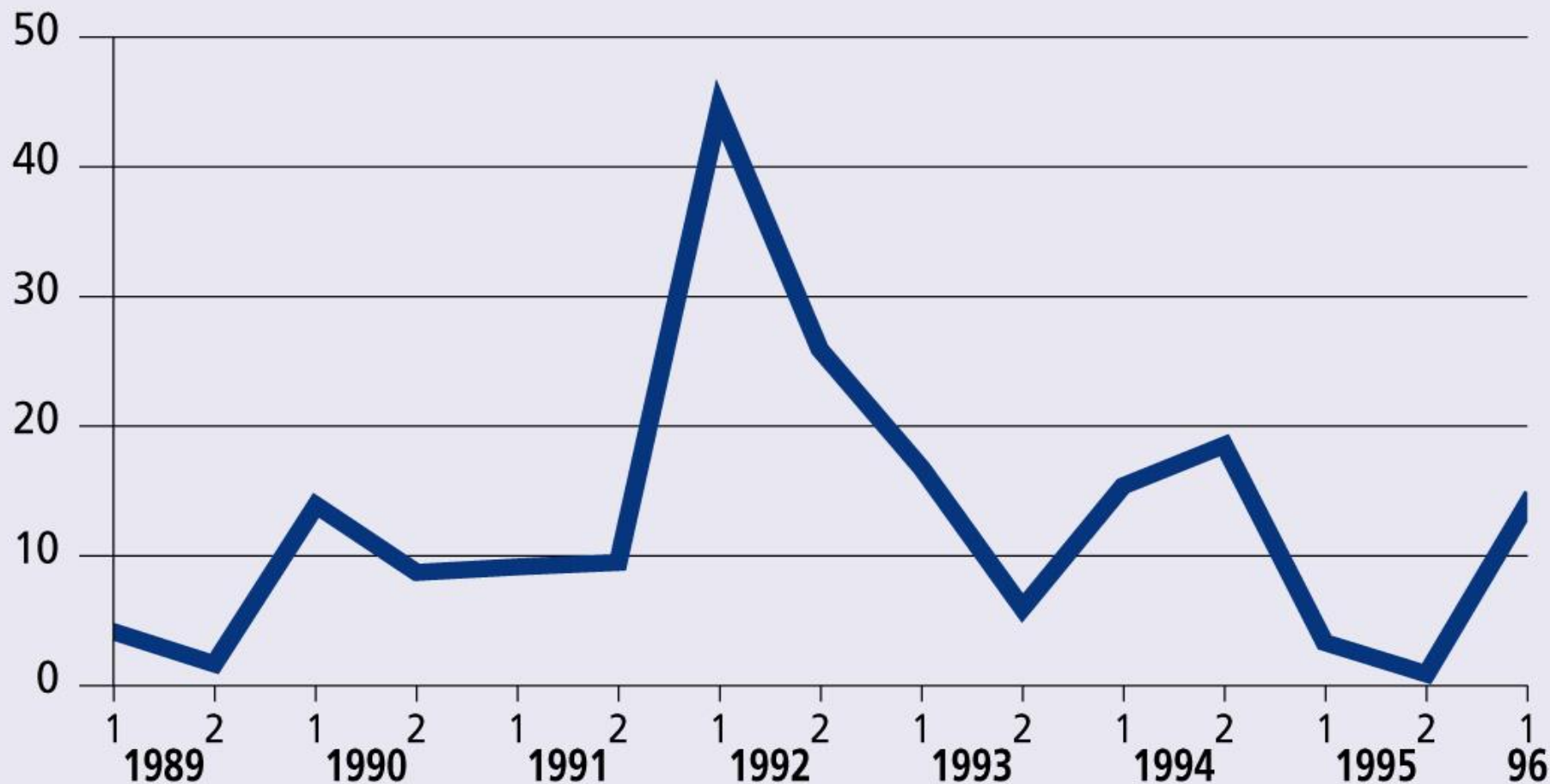
Figure 1

Cas d'hépatite A pour 100 000 par semestre.

Région des Pouilles, Italie, 1989-1996*

Cases of hepatitis A per 100.000 per 6 months period.

Puglia region, Italy, 1989-1996*



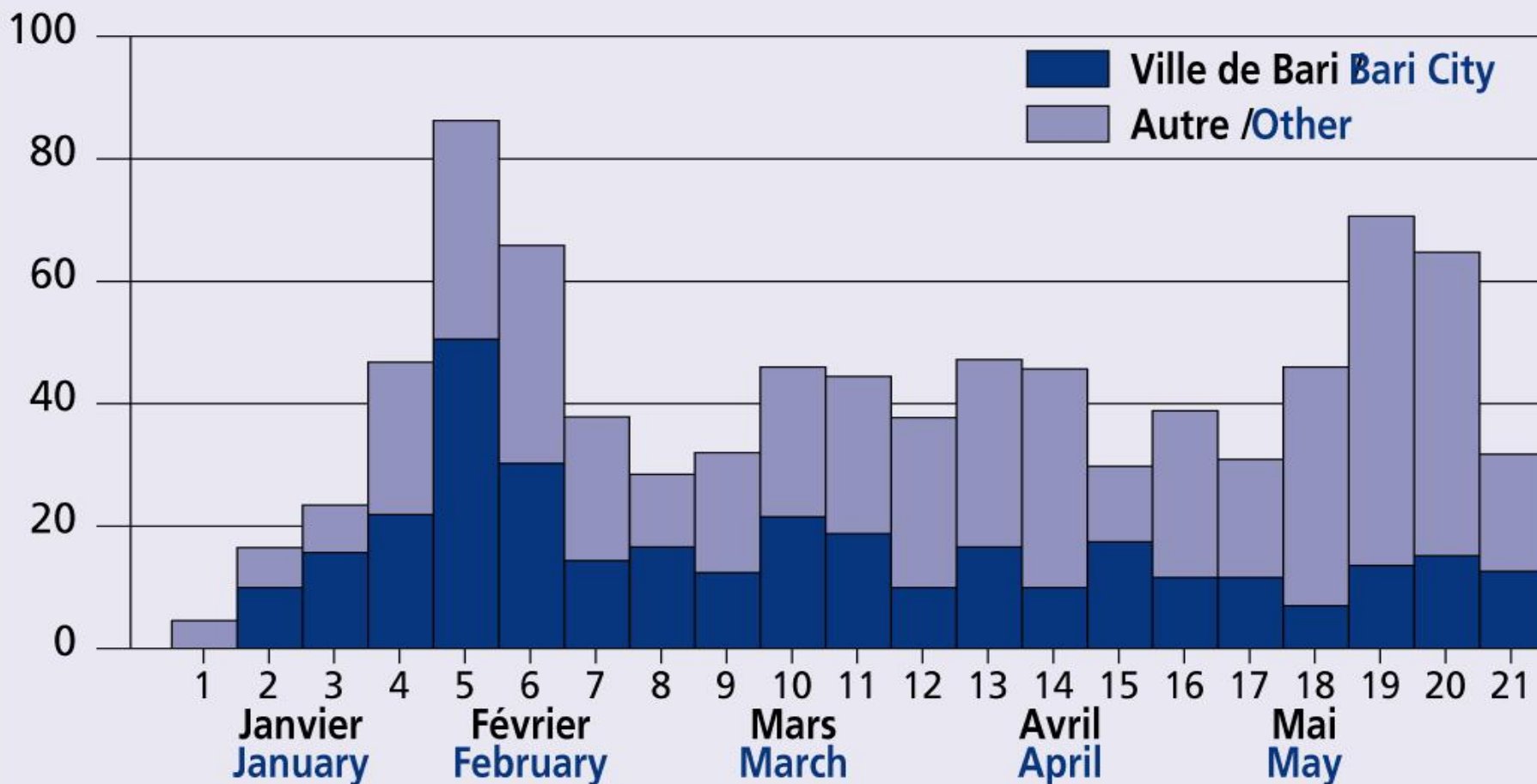
* 1996 : 4 premiers mois 4 first months

Figure 2

Cas d'hépatite A par semaine de survenue à Bari et dans le reste de la région des Pouilles, Italie, 01/01/96-31/05/96*

Number of hepatitis A cases per week of onset in Bari city and in the rest of Puglia region, Italy, 01/01/96-31/05/96*

Nombre de cas Number of cases (n=886)



* Données incomplètes au moment de l'analyse / Data incomplete at time of analysis

Figure 1

HOLANDIJA

Déclarations d'hépatites A par année et mois de déclaration,
Pays-Bas, 1993-97 / Notifications of hepatitis A by year and month
of notification, the Netherlands, 1993-97

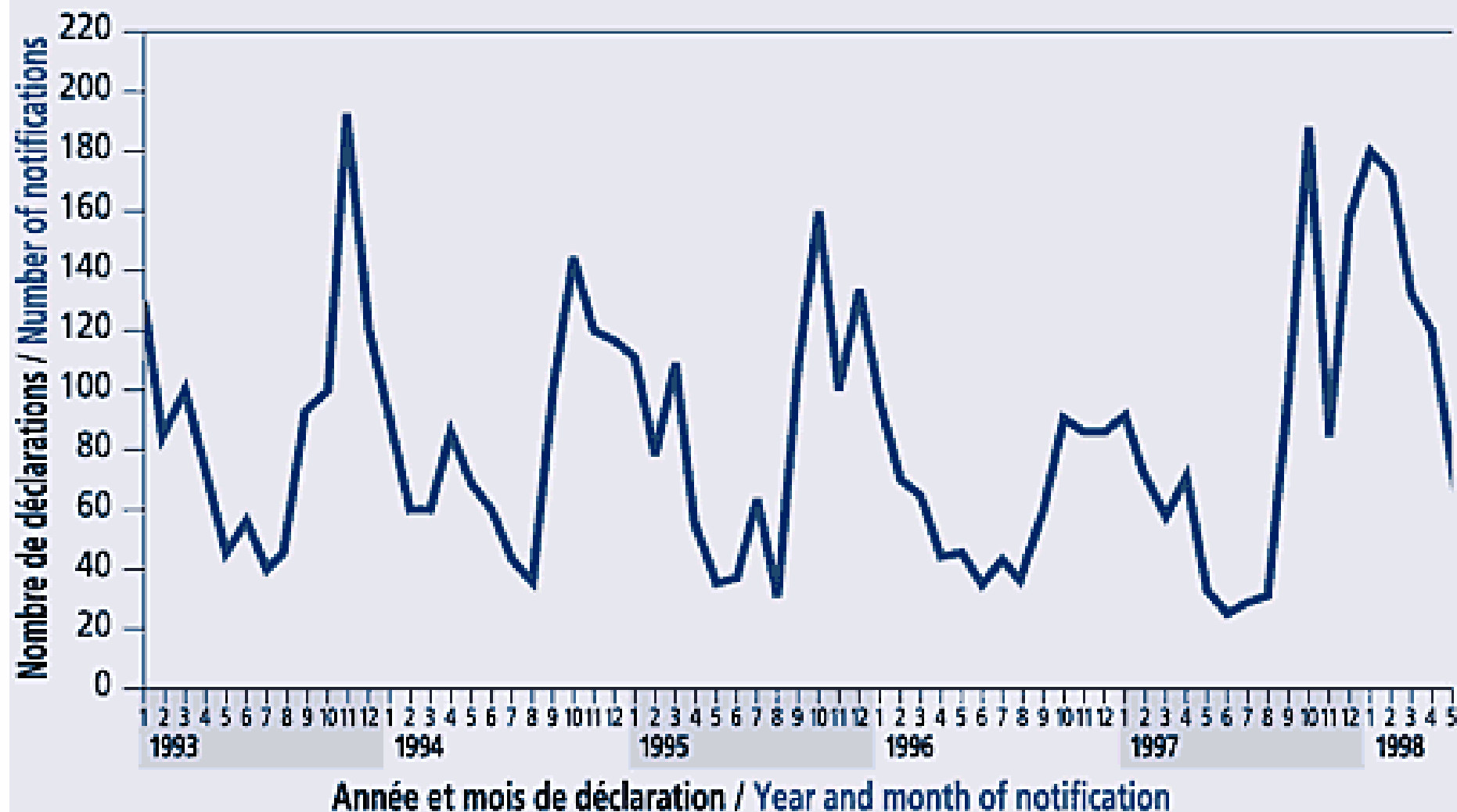


Figure 2b

Nombre de cas d'hépatite A par âge et par sexe, selon le pays d'infection et la nationalité : janvier à mai 1993-97 (moyenne des cinq années)

Notifications of hepatitis A by age and sex, country of infection, and nationality: January to May 1993-97 (mean numbers of the five years)

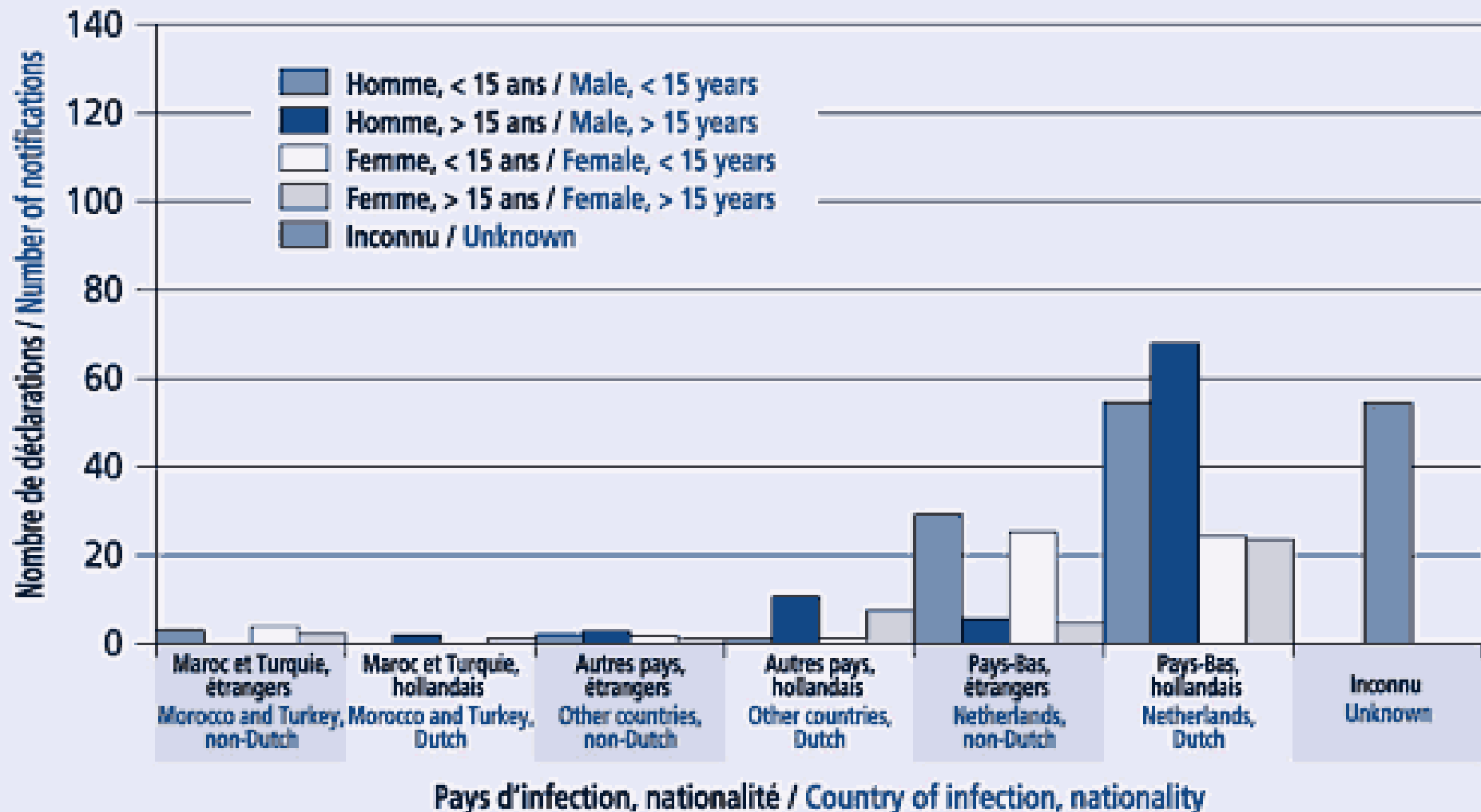


Figure 2b

Distribution par âge et sexe des cas autochtones d'hépatite A en Suède sans exposition connue / Age and sex distribution of domestic cases in Sweden with no known exposure

Cas déclarés / reported cases : 01 JAN 1998 - 31 OCT 2000

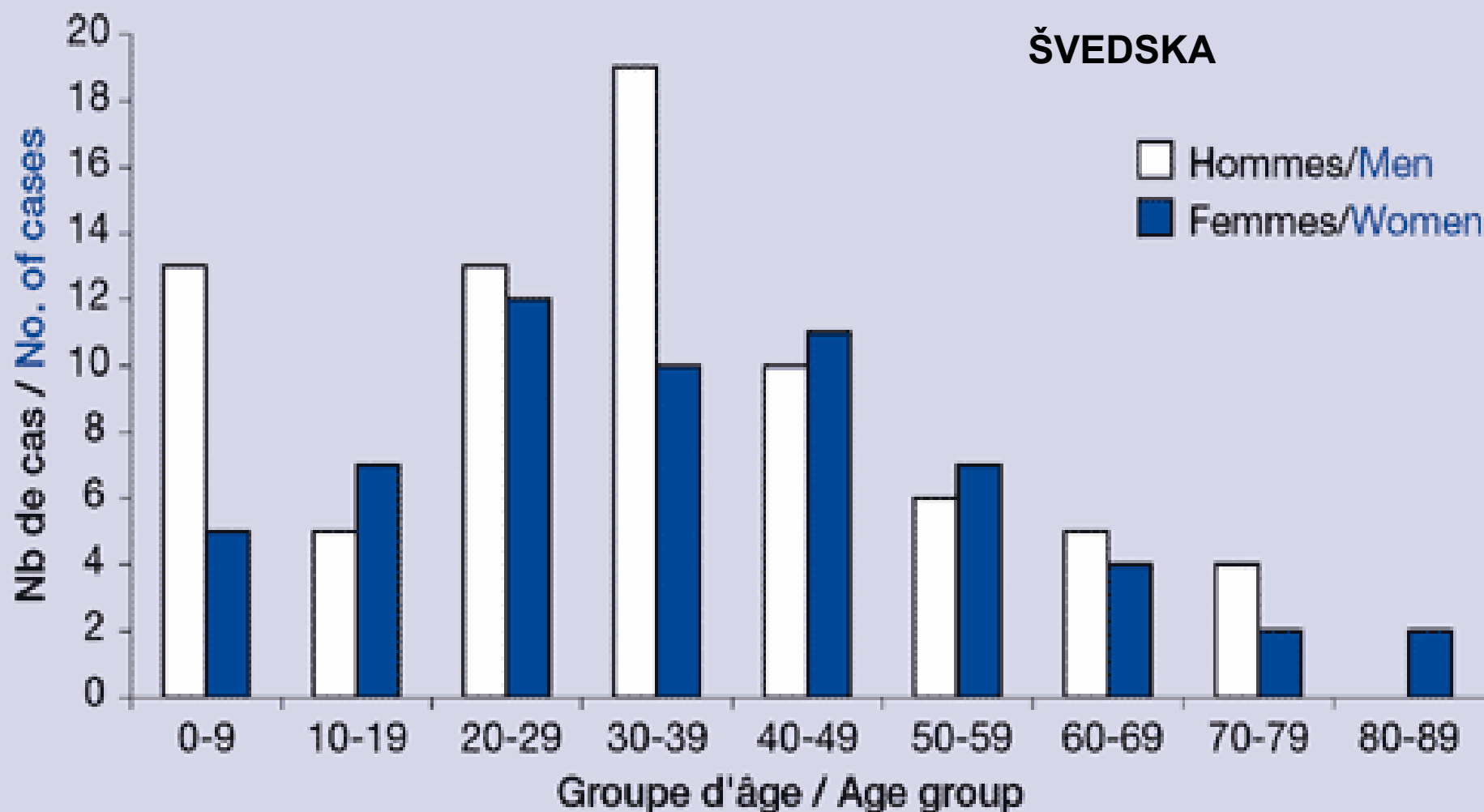
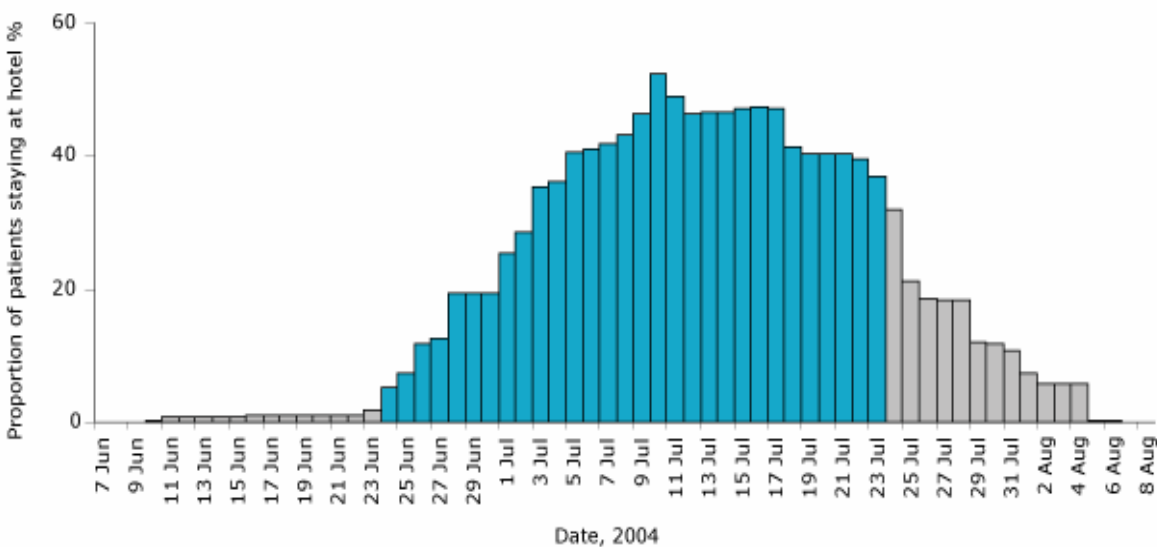


Figure 1. Proportion of infected guests staying at hotel X on any respective date. The time period between the earliest patient's last day and the latest patient's first day in the hotel (minimum period during which infections occurred) is shown in blue.



Nemački turisti-Egipat

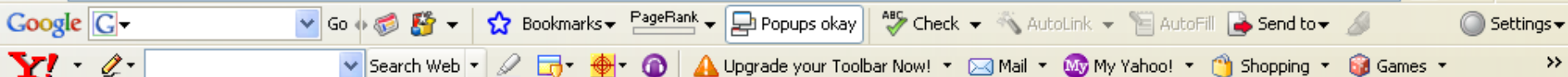
Other affected countries

The RKI informed other European countries in August about the outbreak via the European Union’s Early Warning and Response System (EWRS) and reports in *Eurosurveillance Weekly* [1,2]. The European Programme for Intervention Epidemiology Training (EPIET) was invited to join the investigation and provided a network of contacts to other potentially affected countries in this outbreak. The following European countries reported primary cases associated with this outbreak: Austria (18), Sweden (10), Denmark (9), the Netherlands (9), Belgium (6), the United Kingdom (5), Italy (2) and Switzerland (1). Secondary cases were noted only in Austria, where an outbreak with 13 cases occurred due to an infected tourist who returned to her job in commercial food preparation after staying at the hotel [3].

Case-control study of German patients



Address C:\My Documents\HAVDanska-Turska.htm



Only a few food items had been consumed outside the resort, and after analysis, eating outside the resort was shown not to be a significant risk factor for infection.

The two risk factors significantly associated with illness were: ice cream served from open containers and dried fruit (Table). The patient sample sent for genotyping was found to be **genotype 1B**. To our knowledge, no environmental investigation has been conducted at the resort, but information from the questionnaire indicated that ice cream was served at the resort's buffet in large plastic containers, and guests at the resort were invited to serve themselves with ice cream using a communal spoon that was placed in an adjacent container of water.

Table. Selected exposure factors, hepatitis A outbreak in a group of Danish tourists returning from Turkey, October, 2005

Food	Exposed			Unexposed			Relative risk	95% CI	P value	% cases exposed
	Cases	Total	Attack rate %	Cases	Total	Attack rate %				
Ice cream served in open containers	4	6	67	0	8	0	Infinite		0.02	100
Dried Fruit	3	4	75	1	12	8	9	1.3-63.9		
Nuts and other unpackaged snacks	3	5	60	1	11	9	6.6	0.9-48.8		75
Cocktails	4	8	50	0	8	0	Infinite		0.08	100
Food outside the resort	4	13	31	0	3	0	Infinite		0.53	100

Discussion

Our results suggest that ice cream served in open containers and dried fruit were the potential vehicles of transmission of hepatitis A in this outbreak, but interpretation of the results is limited by the small number of cases. The dates of onset of illness point toward a common source (that may be ongoing) but not to person-to-person transmission.

The genotype 1B found in one sample is not a common type in Denmark, and is predominantly seen in cases imported from outside Europe.

In Denmark, it is recommended that tourists travelling to Turkey are vaccinated against hepatitis A before travelling. This outbreak demonstrates the importance of this recommendation.

We encourage other countries to remain vigilant for cases in tourists returning from Turkey, and suggest an environmental investigation by Turkish

Thumbnails

kind of press?

A link to hepatitis A can destroy an establishment, even if no one falls seriously ill. One recent hepatitis A outbreak blamed on an infected food handler ran up costs of over \$800,000 including the price of giving immune globulin shots to some 5000 customers who could have been exposed. How do you protect your food service establishment from such a nightmare?

The good news is hepatitis A is preventable. A few years ago, two vaccines against hepatitis A came on the market. The vaccinations are available through your physician or at a "traveler's clinic" and can cost up to \$150 for a two shot series. Currently, the Environmental Health Department is working on a Hepatitis A Vaccination program for food service workers that would provide the vaccination series at a reduced cost. Although vaccinating all employees could be expensive, compared with the cost of an outbreak, vaccination of employees can be a very wise investment.

risk of hepatitis A outbreak.

What you need to know about Hepatitis A

Agent: Hepatitis A virus which infects up to 200,000 Americans a year, is a highly contagious virus that attacks the liver.

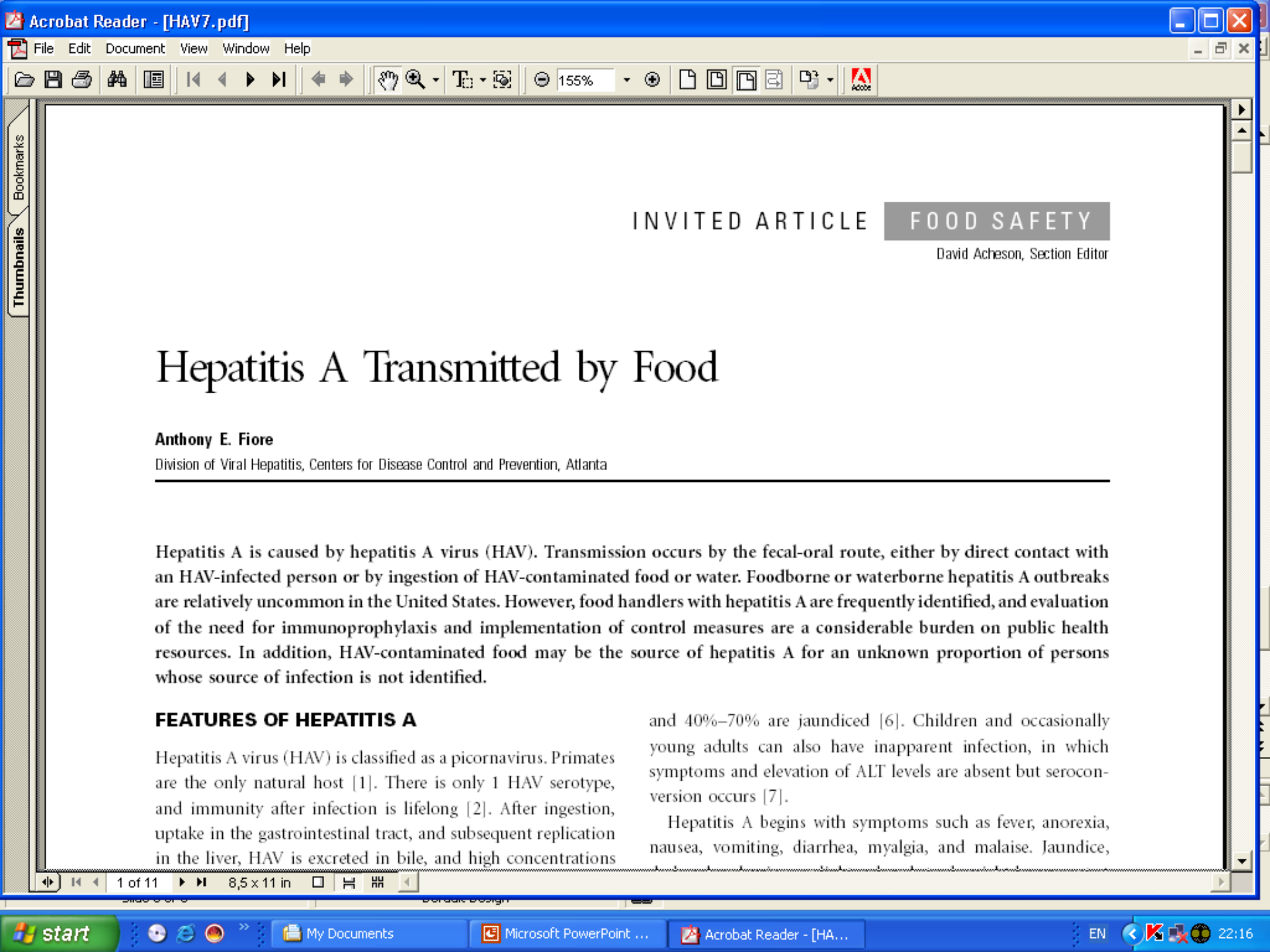
Symptoms/Onset: A month or more may pass before someone infected with hepatitis A shows symptoms; these initially include fever, fatigue and nausea often followed by jaundice. Infected individuals can unknowingly infect others two weeks prior to feeling ill themselves. Up to 22% of adult Americans who contract hepatitis A require hospitalization.

Common Causes: Hepatitis A is spread by the fecal-oral route, and contamination of a variety of foods by infected workers in food processing plants and food service facilities is common.

Treatment: Hepatitis A vaccines are available. Immune globulin shots can be given within two weeks after exposure to prevent infection. Most people who contract the infection develop a life-long immunity to re-infection.

Prevention: Wash hands and practice good personal hygiene and avoid raw seafood.

1 of 6 8,5 x 11 in



Hepatitis A Transmitted by Food

Anthony E. Fiore

Division of Viral Hepatitis, Centers for Disease Control and Prevention, Atlanta

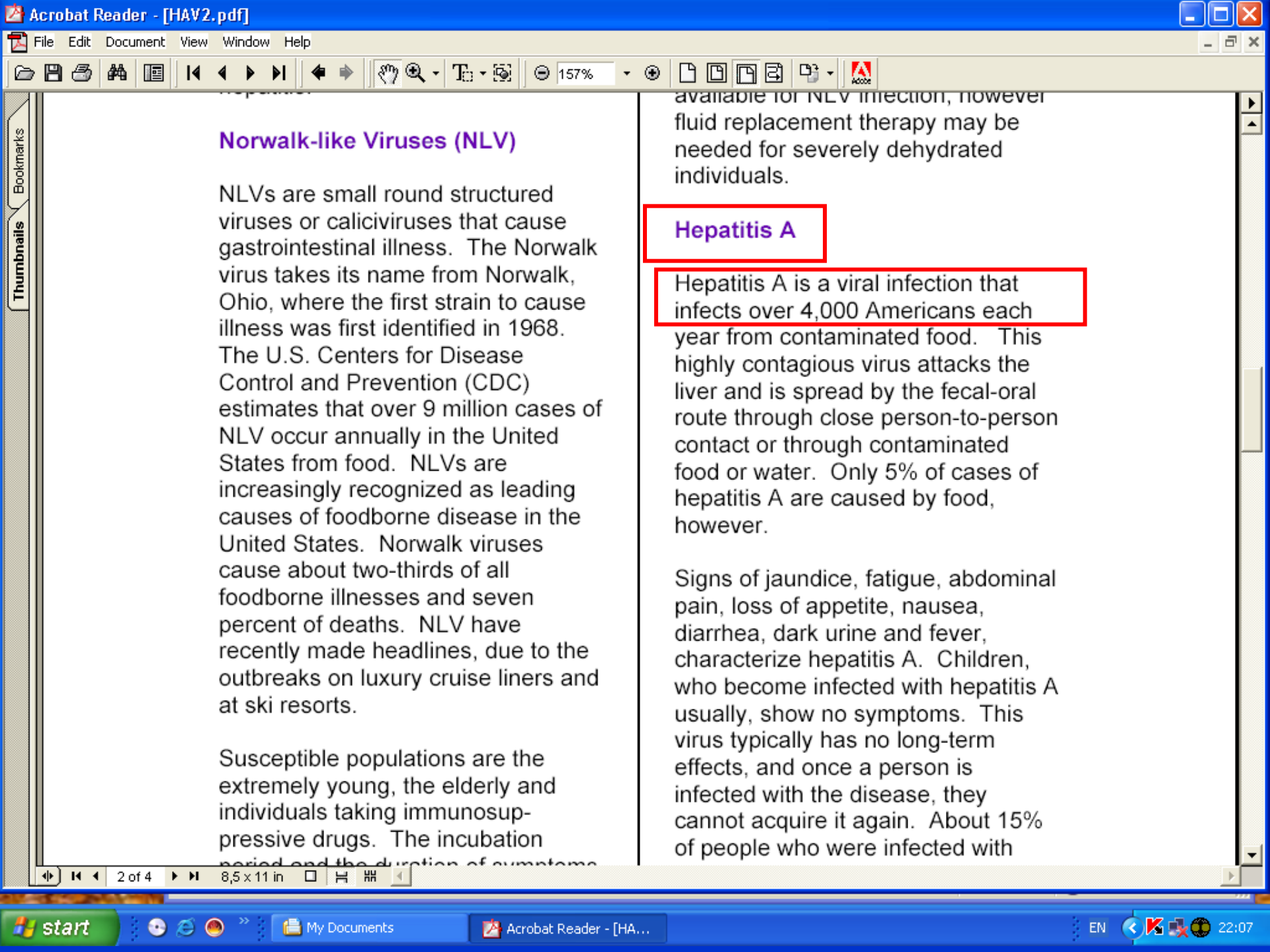
Hepatitis A is caused by hepatitis A virus (HAV). Transmission occurs by the fecal-oral route, either by direct contact with an HAV-infected person or by ingestion of HAV-contaminated food or water. Foodborne or waterborne hepatitis A outbreaks are relatively uncommon in the United States. However, food handlers with hepatitis A are frequently identified, and evaluation of the need for immunoprophylaxis and implementation of control measures are a considerable burden on public health resources. In addition, HAV-contaminated food may be the source of hepatitis A for an unknown proportion of persons whose source of infection is not identified.

FEATURES OF HEPATITIS A

Hepatitis A virus (HAV) is classified as a picornavirus. Primates are the only natural host [1]. There is only 1 HAV serotype, and immunity after infection is lifelong [2]. After ingestion, uptake in the gastrointestinal tract, and subsequent replication in the liver, HAV is excreted in bile, and high concentrations

and 40%–70% are jaundiced [6]. Children and occasionally young adults can also have inapparent infection, in which symptoms and elevation of ALT levels are absent but seroconversion occurs [7].

Hepatitis A begins with symptoms such as fever, anorexia, nausea, vomiting, diarrhea, myalgia, and malaise. Jaundice,



Norwalk-like Viruses (NLV)

NLVs are small round structured viruses or caliciviruses that cause gastrointestinal illness. The Norwalk virus takes its name from Norwalk, Ohio, where the first strain to cause illness was first identified in 1968. The U.S. Centers for Disease Control and Prevention (CDC) estimates that over 9 million cases of NLV occur annually in the United States from food. NLVs are increasingly recognized as leading causes of foodborne disease in the United States. Norwalk viruses cause about two-thirds of all foodborne illnesses and seven percent of deaths. NLV have recently made headlines, due to the outbreaks on luxury cruise liners and at ski resorts.

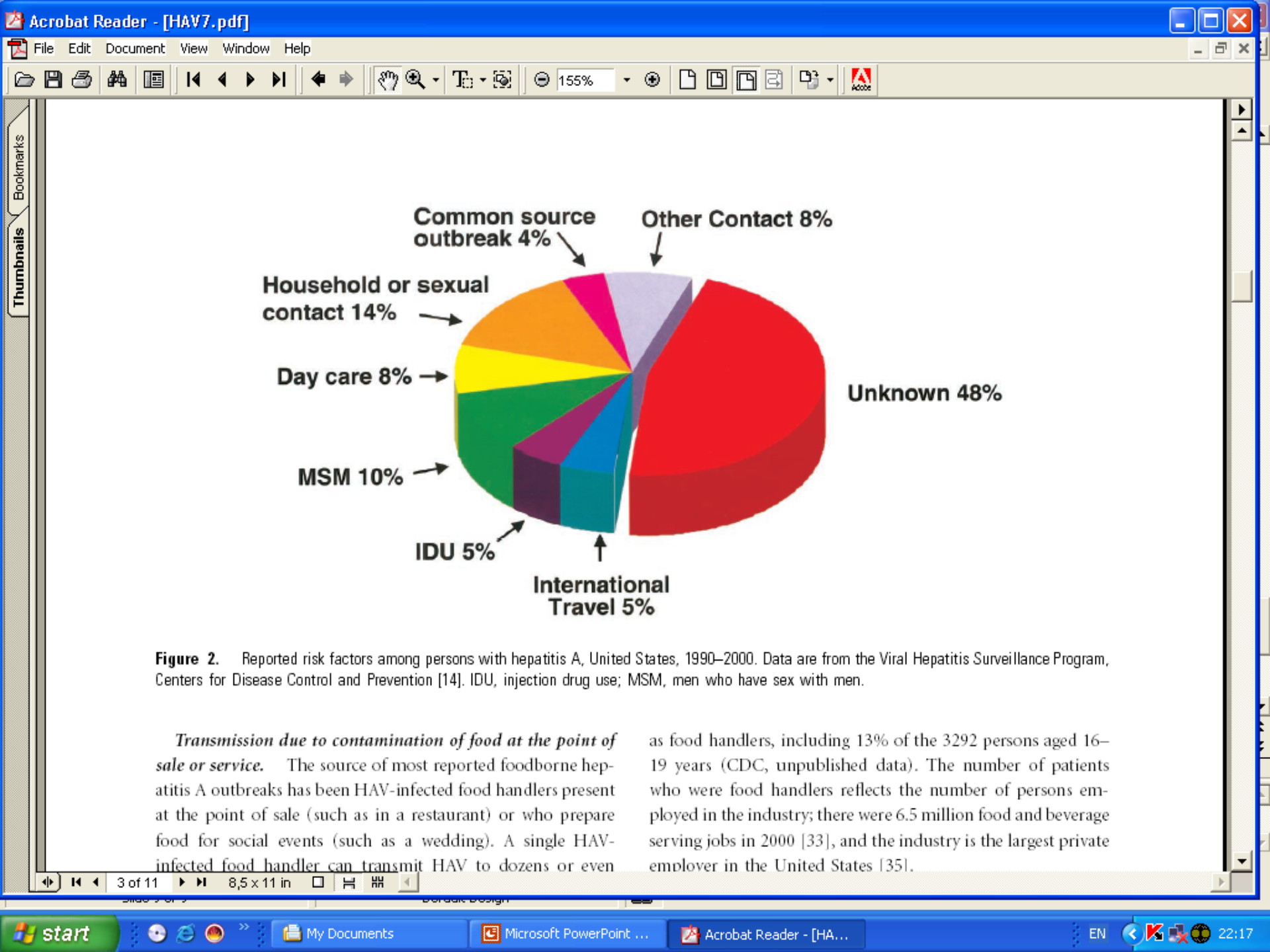
Susceptible populations are the extremely young, the elderly and individuals taking immunosuppressive drugs. The incubation period and the duration of symptoms

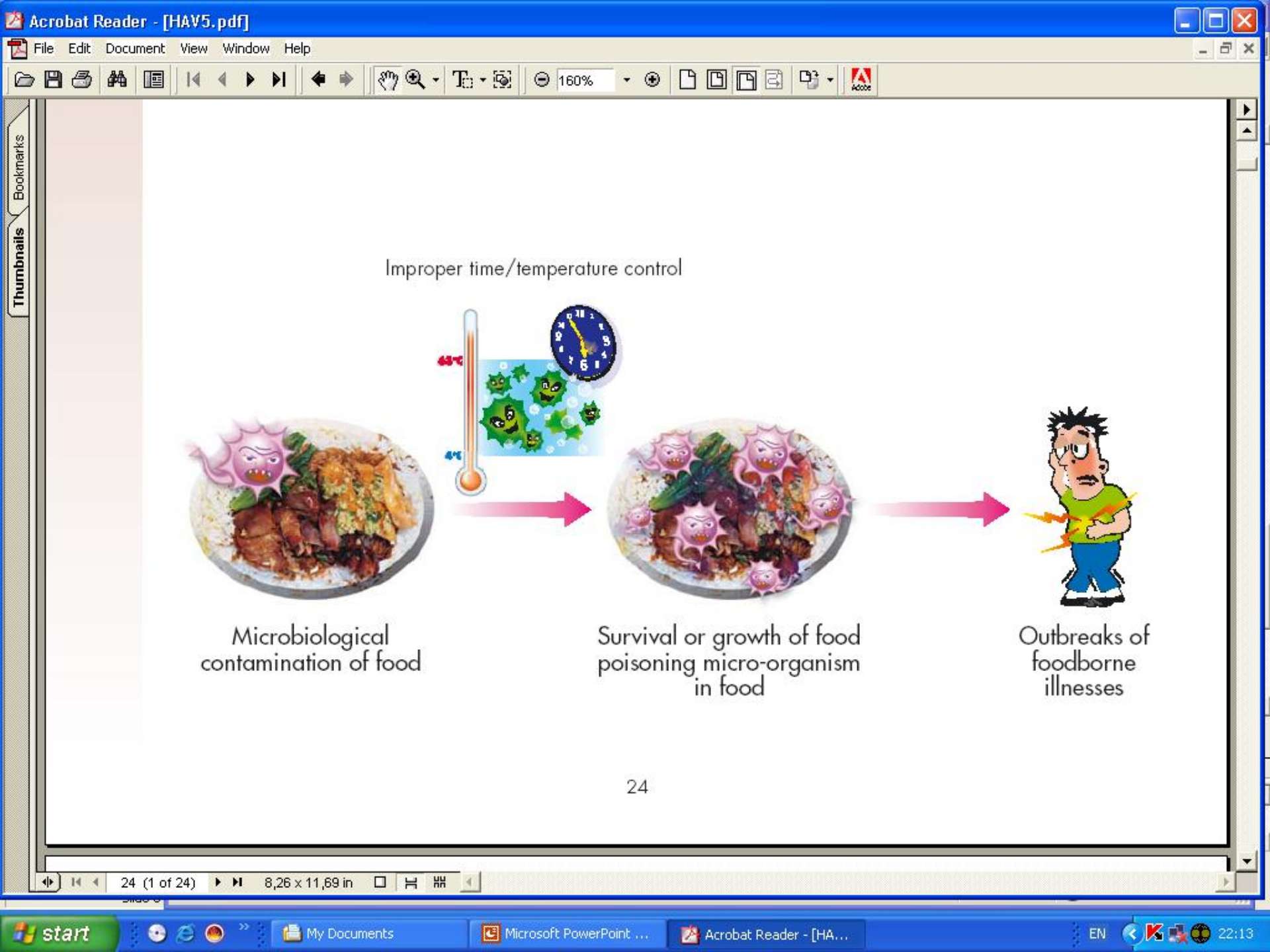
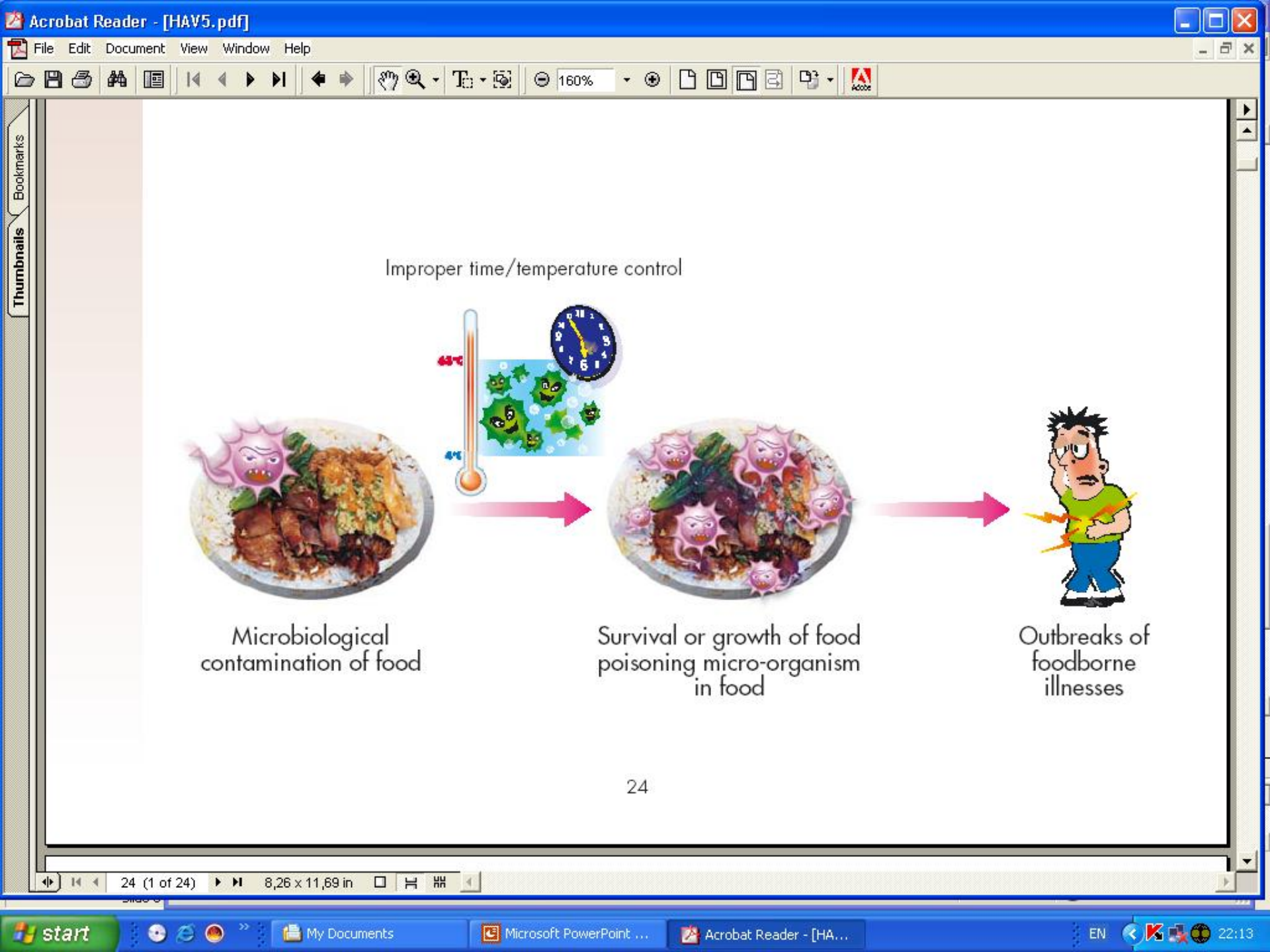
available for NLV infection, however fluid replacement therapy may be needed for severely dehydrated individuals.

Hepatitis A

Hepatitis A is a viral infection that infects over 4,000 Americans each year from contaminated food. This highly contagious virus attacks the liver and is spread by the fecal-oral route through close person-to-person contact or through contaminated food or water. Only 5% of cases of hepatitis A are caused by food, however.

Signs of jaundice, fatigue, abdominal pain, loss of appetite, nausea, diarrhea, dark urine and fever, characterize hepatitis A. Children, who become infected with hepatitis A usually, show no symptoms. This virus typically has no long-term effects, and once a person is infected with the disease, they cannot acquire it again. About 15% of people who were infected with





Acrobat Reader - [HAV5.pdf]

File Edit Document View Window Help

87%

Appendix 1(i)

Temperature danger zone

100°C

High Temperature
(Not suitable for food poisoning bacteria to survive)

63°C

Temperature Danger Zone
(Food poisoning bacteria grow rapidly)

4°C

Low Temperature
(Food poisoning bacteria grow slowly)*

Food should be stored at 4°C or below or 63°C or above to retard the growth of food poisoning bacteria.

time/temperature control

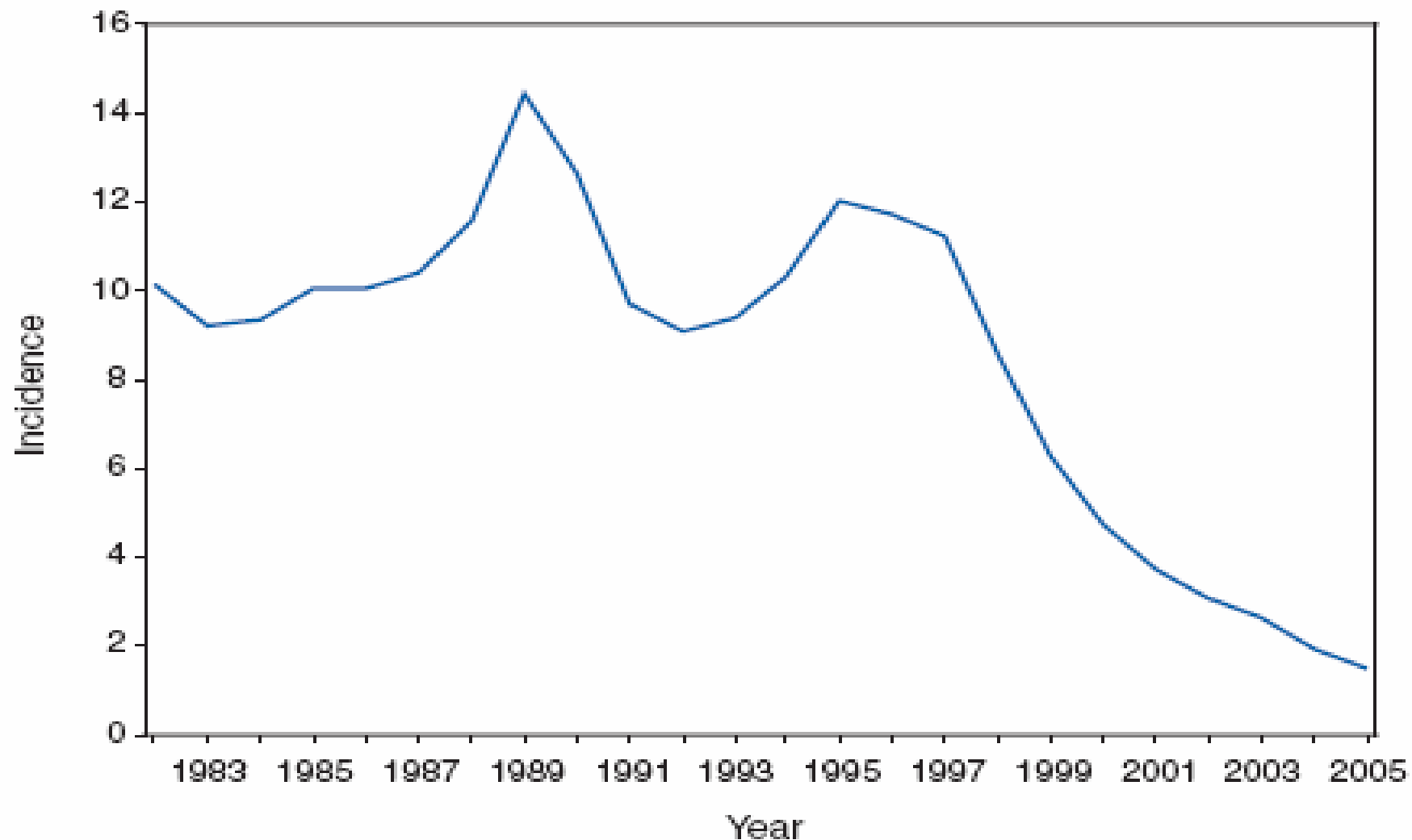
Survival or growth of food poisoning micro-organism in food

Outbreaks of foodborne illnesses

24

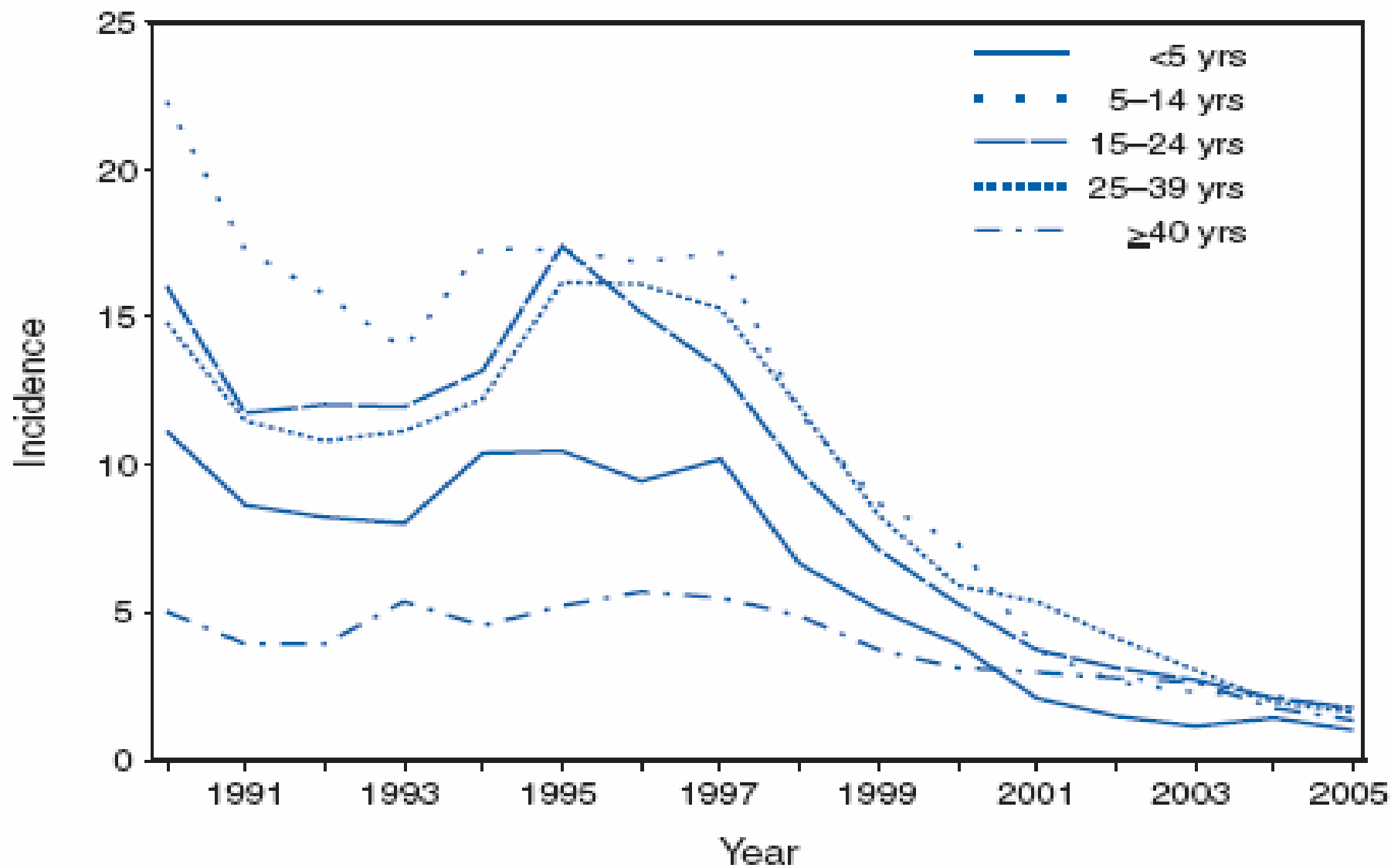
Figure 1

FIGURE 1. Incidence* of acute hepatitis A, by year — United States, 1982–2005



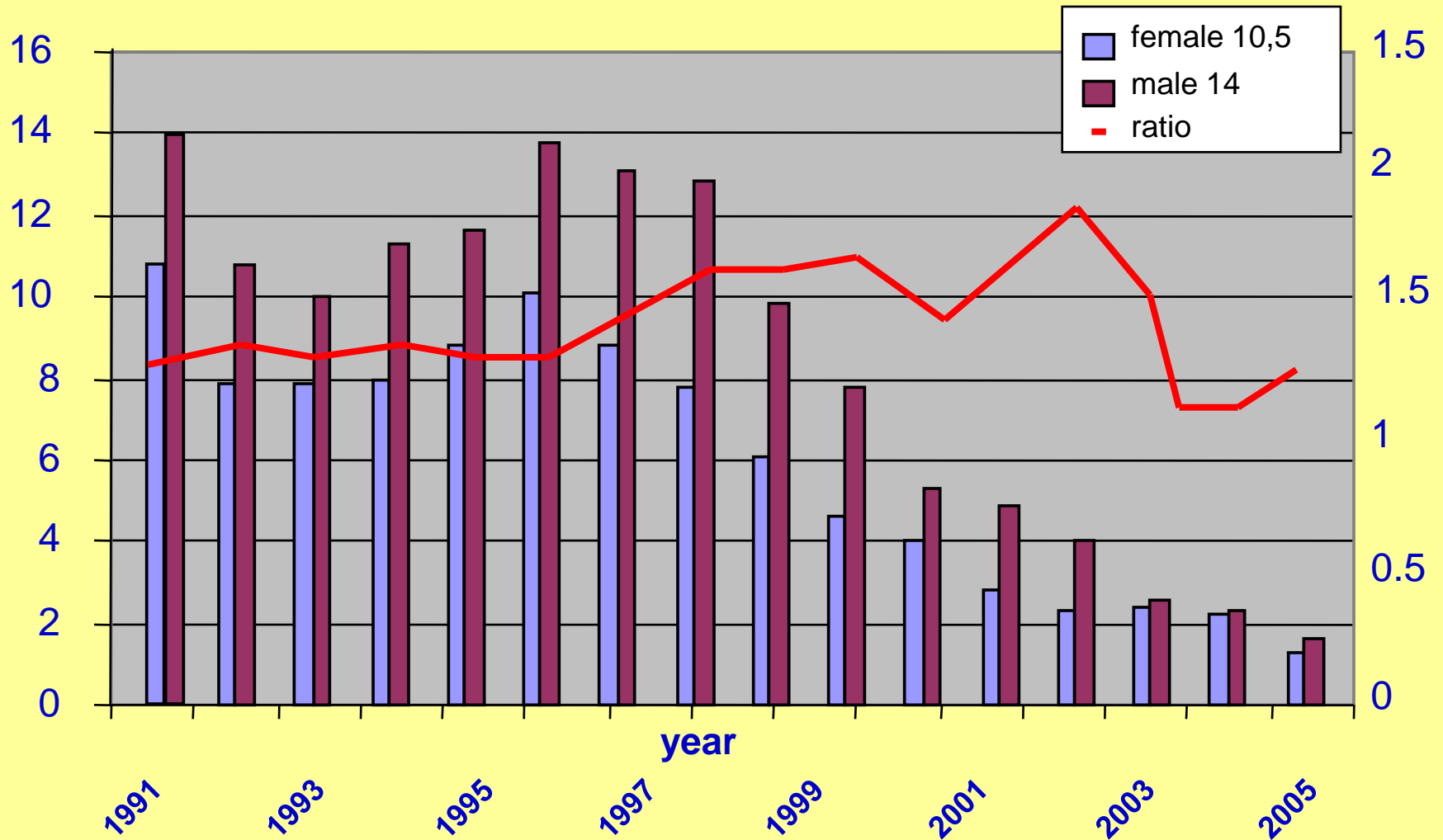
* Per 100,000 population.

FIGURE 4. Incidence* of acute hepatitis A, by age group and year — United States, 1990–2005



* Per 100,000 population.

Incidence of acute hepatitis A, by sex and year – United States, 1990-2005



Per 100.000 population

The bars indicate the rate per 100.000

УЧЕСНИЦИ У СУЗБИЈАЊУ ЕПИДЕМИЈЕ

ДОМ ЗДРАВЉА НИШ

Основна здравствена заштита,

Патронажна служба и

Кућна нега,

РЕПУБЛИЧКА САНИТАРНА ИНСПЕКЦИЈА

ЈКП ЗА ВОДОВОД И КАНАЛИЗАЦИЈУ

“НАИСУС”

ЈКП “МЕДИАНА”

**ОБДАНИШТА,
ОСНОВНЕ И СРЕДЊЕ ШКОЛЕ И
ФАКУЛТЕТИ**

**ОРГАНИ И СЛУЖБЕ ГРАДА НИША
РЕПУБЛИЧКА ФИЛИЈАЛА ФОНДА
ЗДРАВСТВЕНЕ ЗАШТИТЕ НИШАВСКОГ
ОКРУГА**

**ИНСТИТУТ ЗА ЈАВНО ЗДРАВЉЕ НИШ
СРЕДСТВА ЈАВНОГ ИНФОРМИСАЊА**





КАКО СЕ ЛЕЧИ ЗАРАЗНА ЖУТИЦА?

Нема посебних лекова.

Препоручује се строго мировање у лежећем положају до краја жуте пребојености беоњача, слузокожа и коже. Препоручује се узимање до 1 литра течности дневно у облику супе од поврћа, обраног млека, јогурта, воћних сокова и компота.

Када се врати апетит уводи се нормална исхрана са доста беланчевина и угљених хидрата.

Треба избацити из употребе алкохол, газирана пића, јаке зачине и заборавити на тешко физичко оптерећење.



МЕРЕ КОЈЕ ЈЕ ПОТРЕБНО СПРОВЕСТИ У ШКОЛИ:

- Обезбедити средства за чишћење и дезинфекцију
- Потребно је да сви мокри чворови буду исправни и да постоји течни сапун са дозером и дезинфекционо средство
- Свако дете после употребе тоалета треба да опере руке сапуном и потопаи их у дезинфекционо средство
- Санитарне чворове треба чистити 4 пута дневно и после сваког чишћења треба их дезинфиковати
- Подове и намештај у учионицама треба чистити два пута дневно и након тога пребрисати дезинфекционим средством
- Вода из градског водовода је исправна и нема потребе за доношењем воде од куће.



ЗАРАЗНА ЖУТИЦА



ИНСТИТУТ ЗА ЈАВНО
ЗДРАВЉЕ НИШ
Ниш, Булевар др Зорана Ђинђића 50

ЧУВАЈТЕ ХРАНУ НА БЕЗБЕДНИМ МЕСТИМА:

- Не остављајте кувану храну на собној температури дуже од 2 часа
- Чувајте у фрижидеру сву кувану и храну која се брзо квари
- Пре него што сервирате храну пустите да се крчка изнад 60°C
- Не чувајте храну предуго, чак ни у фрижидеру
- Не отапајте залеђену храну на собној температури

ЗАШТО?

Микроорганизми могу да се размножавају веома брзо ако се храна чува на собној температури. Уколико се чува на температури испод 5 °C и изнад 60 °C, размножавање микроорганизама је успорено или заустављено. Неки опасни микроорганизми се ипак размножавају на температури испод 5 °C.

КОРИСТИТЕ ИСПРАВНУ ВОДУ И СВЕЖЕ НАМИРНИЦЕ:

- Користите исправну воду или је филтрирајте да би била исправна за пиће
- Бирајте свеже и хранљиве намирнице
- Бирајте намирнице, као што је пастеризовано млеко, које су предвиђене да дуже трају
- Перите воће и поврће, поготову ако се једе свеже
- Не користите намирнице после истека рока

ЗАШТО?

Свеже намирнице, укључујући воду и лед, могу да буду заражене опасним микроорганизмима и хемикалијама. Токсичне материје могу да настану у оштећеној и плеснивој храни. Пажљиво одабирање свежих намирница и примена једноставних мера, као што су прање и љуштење, смањују ризик од заразе.



ПЕТ КЉУЧНИХ СТВАРИ ЗА БЕЗБЕДНИЈУ ХРАНУ



**ИНСТИТУТ ЗА ЈАВНО
ЗДРАВЉЕ НИШ**
Ниш, Булевар др Зорана Ђинђића 50

HIGIJENA RUKU



PRANJE RUKU VODOM i SAPUNOM

- **Nakvasiti ruke (izbegavati vrelu vodu)**
- **Staviti 3-5 ml. sapuna na ruke**
- **Trljati ruke jednu o drugu bar 15 sec.**
- **Trljati sve površine ruku (posebnu pažnju obratiti na prste i nokte)**
- **Isprati ruke**
- **Sušiti ih papirnim ubrusom**
- **Zatvoriti slavinu papirnim ubrusom ili laktom**



A close-up photograph of two human hands held open, palms facing upwards. The hands are positioned centrally, with fingers slightly spread. The skin tone is light. The background is a blurred, dark blue-grey fabric. Overlaid on the image is text in various styles and colors.

RUKE

Često se ***PERU...***

...ali retko ***DEZINFIKUJU.***

❖ *Da li verujemo da pranje ruku ima efekta?*

„Ako ne verujemo da možemo preneti oboljenje prljavim rukama, zašto onda tako brzo prihvatamo nošenje rukavica kada radimo sa HIV obolelim? Razlozi koji mi padaju na pamet nisu mnogo kompatibilni sa našom profesionalnom etikom i zakletvom”.

Peter Heseltine, MD

Infection Control and Hospital Epidemiology