



# Measurement of Burden of Disease of Hepatitis A in Europe: EURO-HEP.NET surveillance project

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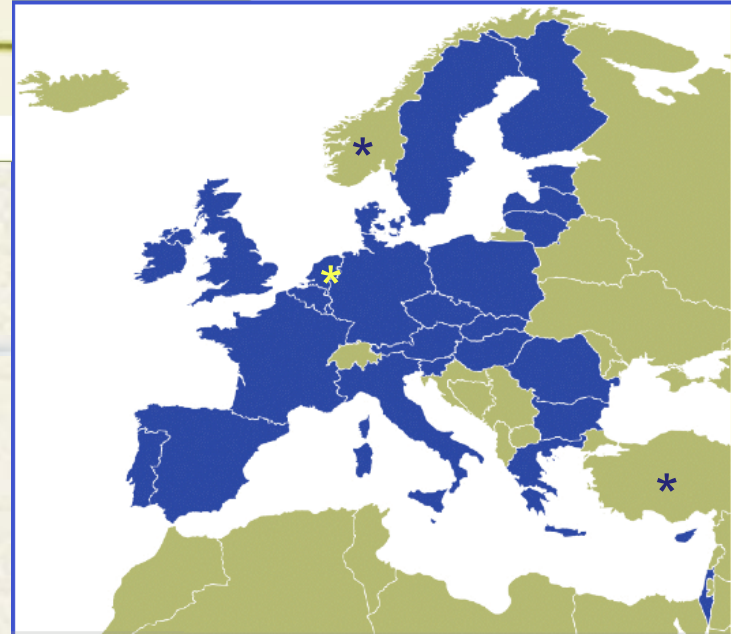
The EUROHEP.NET Project is a European Commission-funded feasibility study for a future network on surveillance and prevention of vaccine-preventable hepatitis

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Twenty-eight countries were invited to participate in this study through their Ministries of Health and/or National Institutes of Public Health. An online survey was available from the project's website ([www.eurohep.net](http://www.eurohep.net)).



The questions concerned the organisation of the surveillance system, case definition, burden of disease, epidemiology, and vaccination strategies.

Twenty countries agreed to actively collaborate and completed the EUROHEP.NET online survey (2003) for hepatitis A.

Norway and Turkey joined the project in May 2004.



We analysed the measurement and reporting of burden of disease for hepatitis A in the participating countries

The aim of the study was to provide evidence of the current systems of data collection for the burden of disease for hepatitis A, in order to propose and to implement European guidelines for a uniform data collection in the field of vaccine-preventable viral hepatitis.



# THE SURVEILLANCE SYSTEM OF DISEASE BURDEN INSIDE THE HEPATITIS SURVEILLANCE SYSTEM FOR EACH INVOLVED COUNTRY

Is hepatitis A included in the national surveillance system?

## Type

Mandatory  
Voluntary reporting  
Sentinel  
Laboratory  
Passive  
Active  
Other

## Clinical information reported

Symptoms  
Date of onset of symptoms  
Hospitalisation  
Outcome  
Other

## Who

Clinicians  
Laboratories  
Other

## Data source based on

Reports of acute clinical cases  
Hospitalisation data  
Laboratory reports  
Other

Aggregated data for clinical reports

Individual data for clinical reports

Electronically?

## To whom

Ministry of Health  
National Surveillance Centre  
Regional authority  
Local authority  
Other

Hospital admission data

Mortality data related to hepatitis A



EUROHEP.NET

Surveillance of vaccine preventable hepatitis

# Analysis of disease burden of hepatitis A in each involved country

1. **Incidence of hospitalised cases per 100.000** (Total number of hospitalised cases / population per 100.000)
2. **Hospitalisation rate** (Total number of hospitalised cases / total number of reported cases per 100)
3. **Days per cases** (Total number of hospitalisation days / total number of reported cases)
4. **Days per admission** (Total number of hospitalisation days / total number of hospitalised cases)
5. **Mortality due to hepatitis A per 100.000** (Total number of deaths due to hepatitis A / population per 100.000)
6. **Case-fatality rate** (Total number of deaths due to hepatitis A / total number of reported cases per 100)
7. **Incidence of liver transplants per 100.000** (Total number of liver transplants / population per 100.000)
8. **Proportion of liver transplants due to hepatitis A**







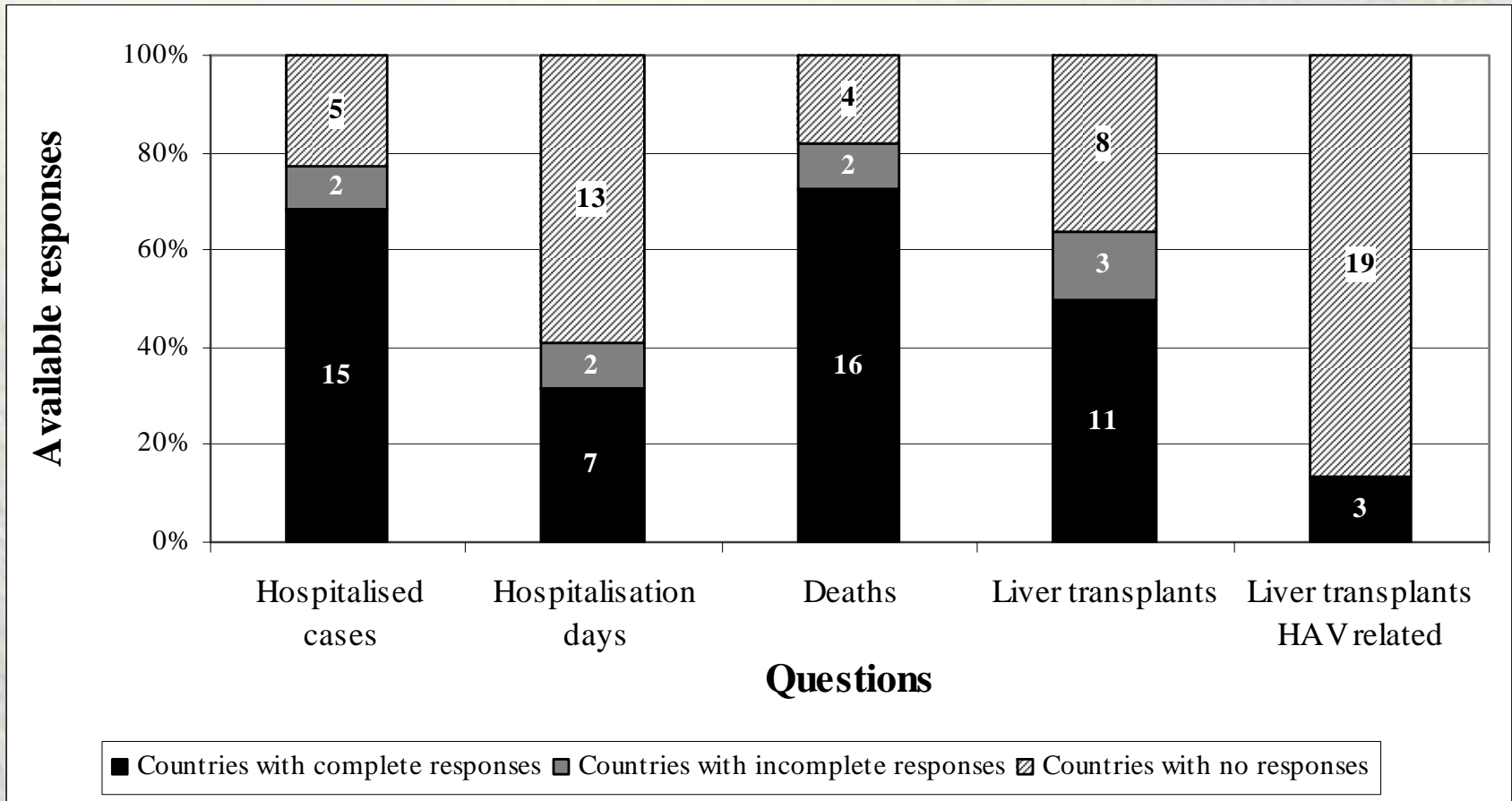
# Kind of available data sources on hospital admission and mortality

<b>HEPATITIS A*</b>	<b>HOSPITAL ADMISSION</b>	<b>MORTALITY DUE TO HAV</b>
<b>Official notification</b>	8 countries	15 countries
<b>Hospital statistics</b>	8 countries	1 country
<b>Clinical records</b>	1 country	0 country
<b>Unspecified</b>	1 country	3 countries
<b>Not available</b>	4 countries	3 countries

\* Total number of participating countries: 22



# Availability of numeric data on burden of disease for hepatitis A: questions of the EUROHEP.NET survey\*



\* Total number of participating countries: 22

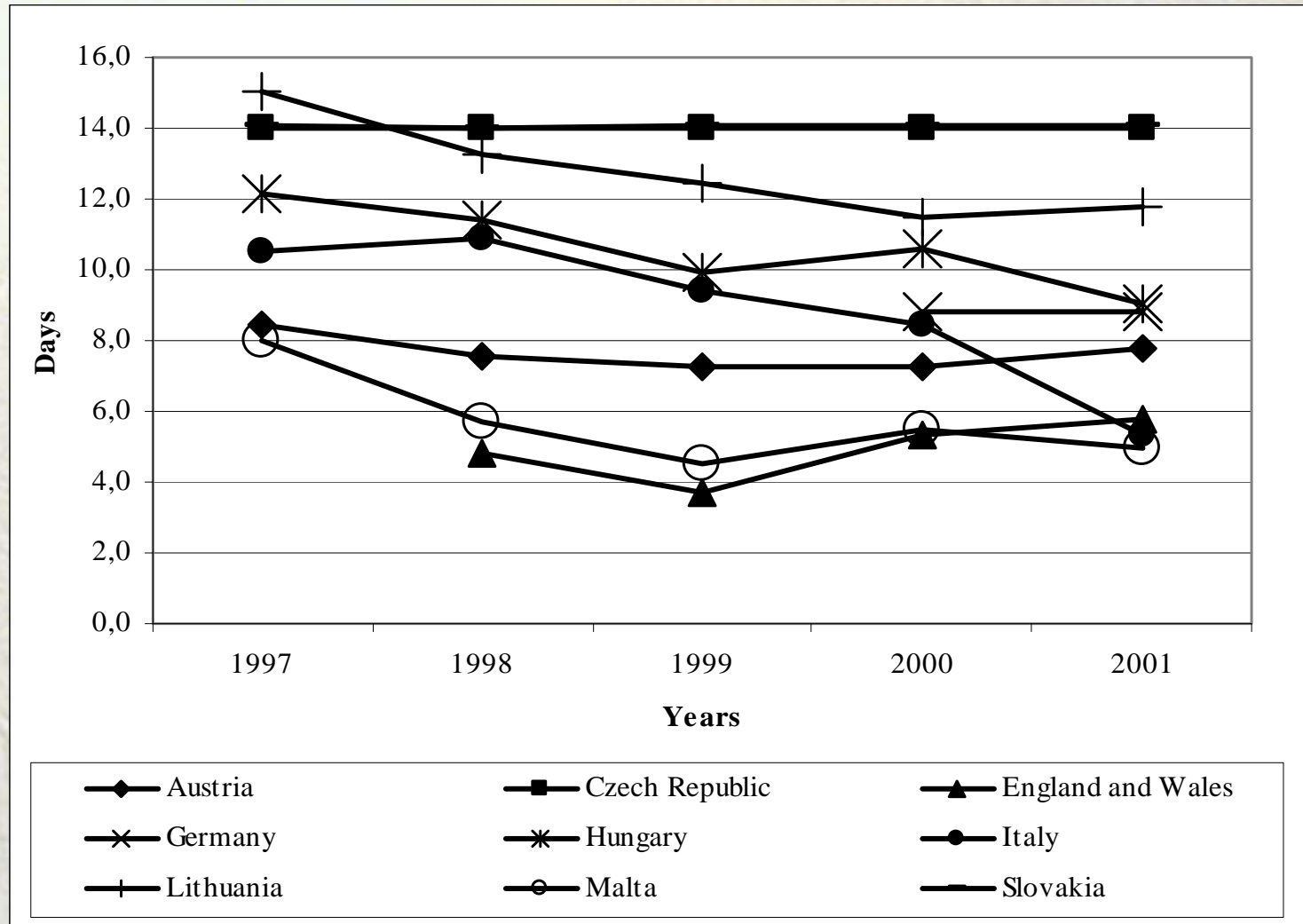


# Hospitalised cases for hepatitis A

	HOSPITALISED CASES /100,000					HOSPITALISATION RATE (100%)				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
AUSTRIA	4.8	2.7	3.5	2.2	1.5	84.9	83.3	82.7	81.5	92.5
BELGIUM	4.2	4.0	4.0	4.2	3.6	92.3	79.3	102.5	98.2	102.2
BULGARIA	81.1	72.0	88.8	87.4	82.2	100.0	100.0	100.0	100.0	100.0
CZECH REP.	11.6	8.8	9.1	6.0	3.2	100.0	100.0	100.0	100.0	100.0
ENGLAND/WALES		0.7	0.7	0.7	0.7		24.6	23.3	30.4	33.8
ESTONIA	8.2	43.9	14.6	3.6	3.7	66.1	64.5	55.8	62.0	62.2
GERMANY				1.6	2.0				49.6	70.5
HUNGARY	11.4	11.3	8.7	3.8	3.0	91.2	97.1	96.8	98.4	96.2
ISRAEL	6.9	5.0	4.5	2.3	2.0	9.9	15.5	13.6	12.8	
ITALY	15.6	3.7	2.0	2.4	2.8	88.5	85.1	83.1	85.9	87.7
LITHUANIA	73.7	40.4	8.1	2.1	1.9	90.2	100.1	107.9	97.4	101.6
MALTA	0.3	1.8	0.5	0.5	0.3	33.3	77.8	100.0	33.3	
POLAND	10.0	5.2	2.7	0.7	1.9	95.9	99.3	99.9	98.1	98.9
ROMANIA	68.2	52.1	78.0	97.8	94.2	99.9	100.0	100.0	100.0	100.0
SLOVAKIA	22.4	12.5	17.1	20.0	13.8	100.0	100.0	100.0	100.0	100.0
SLOVENIA	3.2	2.1	2.3	1.2	0.9	64.7	66.1	77.6	60.0	70.8
NETHERLANDS	0.0	0.0	0.2	0.2	0.2	0.0	0.1	4.9	4.4	4.6

No data available for: Greece, Latvia, Luxembourg, Norway and Turkey.

# Hospitalisation days per hepatitis A cases (available data)





# Total number of deaths due to hepatitis A

	TOTAL NUMBER OF DEATHS					MORTALITY PER 100,000					CASE FATALITY RATE PER 100				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
AUSTRIA	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BELGIUM	2					0.02					0.43				
BULGARIA	2	1	2	2	2	0.02	0.01	0.02	0.03	0.03	0.03	0.02	0.03	0.03	0.03
CZECH REP.	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENGLAND/WALES	2	0	4	1	6	0.00	0.00	0.01	0.00	0.01	0.11	0.00	0.24	0.08	0.53
GERMANY	15	9	13	11	17	0.02	0.01	0.02	0.01	0.02	0.33	0.23	0.41	0.41	0.75
HUNGARY	0	1	0	1	0	0.00	0.01	0.00	0.01	0.00	0.00	0.09	0.00	0.26	0.00
ISRAEL	0	1				0.00	0.02				0.00	0.05			
ITALY	0	1	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
LATVIA	0	3	0	0	0	0.00	0.12	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00
LITHUANIA	0	1	0	0	0	0.00	0.03	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
MALTA	0	1	0	0	0	0.00	0.26	0.00	0.00	0.00	0.00	11.1	0.00	0.00	
POLAND	0	3	2	2	0	0.00	0.01	0.01	0.01	0.00	0.00	0.15	0.20	0.76	0.00
ROMANIA	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SLOVAKIA	0	1	1	0	0	0.00	0.02	0.02	0.00	0.00	0.00	0.15	0.11	0.00	0.00
SLOVENIA	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NETHERLANDS	0	0	1	2	1	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.16	0.31	0.14
TURKEY	10	8	8	4	3	0.02	0.01	0.01	0.01	0.00	0.07	0.06	0.06	0.04	0.03

**No data available for: Estonia, Greece, Luxembourg, Norway.**

## Total number of liver transplants (not hepatitis A specific)

	TOTAL NUMBER OF LIVER TRANSPLANTS (proportion of liver transplants due to hepatitis A)					INCIDENCE OF LIVER TRANSPLANTS PER 100,000				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
AUSTRIA	134	134	151	151	128	1.7	1.7	1.9	1.9	1.6
BELGIUM		97	168	161	167		1.0	1.6	1.6	1.6
BULGARIA	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
ENGLAND/WALES	470 (0)	465 (0.2%)*	505 (0)	510 (0)	(0)	0.9	0.9	1.0	1.0	
ESTONIA	0	0	1	1	1	0.0	0.0	0.1	0.1	0.1
GERMANY	762	722	757	780	757	0.9	0.9	0.9	1.0	0.9
HUNGARY	16	19	22	23	19	0.2	0.2	0.2	0.2	0.2
ISRAEL	28	51	38	54	53	0.5	0.9	0.6	0.9	
ITALY	425	478	564			1.4	1.4	1.7		
LATVIA	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
LITHUANIA	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
MALTA	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
SLOVAKIA	0 (0)	0 (0)	0 (0)	0 (0)	2 (0)	0.0	0.0	0.0	0.0	0.1
SLOVENIA	0 (0)	4 (0)	9 (0)	10 (0)	9 (0)	0.0	0.1	0.2	0.2	0.2

No data available for: Czech Republic, Greece, Luxembourg, Norway, Poland, Romania, The Netherlands and Turkey.

\* One case of liver transplant due to hepatitis A.





## OBSTACLES:

1. Different data sources for hospital admission and mortality
2. Different names for the same data sources among involved countries.
3. Underreporting data for non-specified jaundice.
4. Data related to hepatitis NANB.
5. Some data refer to different periods of time (i.e. from April to March in the UK).



## In summary:

1. All countries have surveillance systems for burden of disease in place but a wide diversity of surveillance systems exists among them due to different local situations.
2. The surveillance data on burden of disease are not collected in a standardized way: different data sources for hospital admission and mortality due to HAV and HBV are in place.
3. In some countries the data on total number of hospital admissions and deaths due to HAV and HBV are not available. Sometimes the data sources are present, but data are not immediately accessible or complete.
4. Data on days of hospitalization, total number of liver transplants and the proportion due to hepatitis A, B and C are not often included in the current surveillance systems of burden of disease.





5. There is not a unique adoption of ICD-10 code to report the diagnosis of hepatitis for hospital admission or death. ICD-10 came into use in WHO Member States since 1994,. Many countries had not yet adopted this standard several years later (more countries adopted it since then)
6. In some countries, available data on burden of disease are gathered only for remuneration reasons, not for epidemiological purposes. Sometimes only data from extemporary studies are available, without a routine registration system
7. In a number of countries, data are collected regionally and there is no centralised national data collection, or their aggregation at the central level is not timely
8. Blanks or missing data in the answers to the EUROHEP.NET survey, unless otherwise specified, can either be due to non-available/traceable information in the country or to non-availability of such information to the country correspondent at the time of the survey. In the latter case, this does not necessarily mean that the information does not exist.




## BURDEN OF DISEASE FOR HEPATITIS A AND B

**Analysis of data sources for  
burden of disease**

**Analysis of numeric data of  
burden of disease**



**Comments and  
suggestions for each  
country**



**Proposal of a uniform  
surveillance system of  
burden of disease**





## Rationale of the proposed guidelines

- A wide diversity on surveillance systems on burden of disease for hepatitis A and B are in place among the participating countries.
- Identification of possible hurdles towards harmonisation of the surveillance systems and introduction of standardisation at the enlarged European Union level (respecting the current practices in the different countries as much as possible) is a primary need, especially for those data that should be collected in all countries.
- In particular, all countries should make an effort to systematically collect burden of disease data on hospital admission, mortality and liver transplantations related to hepatitis A and B, according to ICD-10. The burden of complications for chronic hepatitis B (cirrhosis cases and patients with hepatocellular cancer) should be collected also.
- If possible, the data on burden of disease should be (electronically) linked to the case identification in the surveillance databases.





The EURO-HEPNET database has now been handed to the European Centre for Disease Prevention and Control, that will hopefully continue the activities and set up a common European surveillance system on vaccine-preventable hepatitis in the near future

# Measurement and reporting of burden of disease for hepatitis A: results of the EUROHEP.NET feasibility survey

P. Bonanni, S. Boccalini and A. Bechini, on Behalf of the EUROHEP.NET Team\*

## Acknowledgements

The authors thank the expert panellists for their invaluable contribution: Austria: J. P. Klein, C. Hain; Belgium: R. Vranckx, L. De Cock; Bulgaria: M. Kojouharova, A. Kurchatova; Czech Republic: B. Kriz; England/Wales: N. Crowcroft; Estonia: N. Kerbo; Germany: K. Alpers, D. Radun; Greece: C. Psychogiou, A. Roumeliotou; Hungary: A. Csohán; Israel: R. Dagan, E. Anis; Italy: L. Vellucci, M. Pompa, T. Stroffolini, S. Iannazzo, A. Mariano; Latvia: I. Jansone, E. Pujate; Lithuania: V. Bakasenas; Luxembourg: P. Huberty-Krau; Malta: C. Gauci, M. Micallef; Norway: H. Blystad; Poland: W. Magdzik, A. Zielinski; Romania: A. Pistol, A. Rafila; Slovakia: Z. Kristufkova; Slovenia: A. Kraigher, L. Pahor; The Netherlands: Y. Van Duynhoven; Turkey: E. Usta, MA. Torunoglu.

Since light is faster than  
sound, will it be for this that  
many people

appear brilliant until you listen  
to them?

**THANK YOU FOR YOUR ATTENTION!**



# Data on hospital admission source, hepatitis A

	3.1	HOSPITAL ADMISSION SOURCE	COMMENTS ON THIS SOURCE
AUSTRIA	1	National hospital admission data base	Established for remuneration reasons, not for epidemiological purpose
BELGIUM	1	Hospital statistics	Minimum data, only used for studies
GERMANY	1	Hospital statistics	Dependent on the quality of reporting in hospitals
ITALY	1	SEIEVA notification	
LUXEMBOURG	0		
UK	1	Hospital Episode Statistics (HES)	Not timely.
BULGARIA	1	Official notification	
CZECH REPUBLIC	1	Official notification	
ESTONIA	1	Clinical records	
HUNGARY	1	Case report forms for notification, case investigation	
LATVIA	1	Official notification and epidemiological investigation	Still not a subject for national data collection
LITHUANIA	1	Official notification	Data of Lithuanian Health Information Centre
MALTA	1	Hospital Activity Analysis	
POLAND	1	Official notification	Reliable data based on mandatory epidemiological reports
ROMANIA	1	Infectious diseases hospitals	
SLOVAKIA	1	Special report forms are sent from hospitals	
SLOVENIA	1	Clinical records	
ISRAEL	1	Ministry of Health - Information Centre	To add additional 30-50% non-specified Jaundice
ITALY 2	1	Official notification	

# Mortality data sources, hepatitis A

	3.2	SOURCE
AUSTRIA	1	Aggregated data
BELGIUM	1	Mortality data register
GERMANY	1	National mortality statistics
ITALY	1	SEIEVA
LUXEMBOURG	1	Regime des décès
UK	1	ONS and HES
BULGARIA	1	Official data: Infectious Disease Wards
CZECH REPUBLIC	1	Czech statistical Office through MOH
ESTONIA	0	
HUNGARY	1	Case report, case investigation
LATVIA	1	Information is included in special form
LITHUANIA	1	Acute hepatitis A related mortality
MALTA	1	Department Health Information
POLAND	1	Central Statistical Office
ROMANIA	1	National Statistical Commission
SLOVAKIA	1	Clinical records
SLOVENIA	1	Mortality database
ISRAEL	1	Report by code ICD 9
ITALY 2	0	