



Epidemiologia

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- 350 milioni di persone portatori cronici di HBsAg più di 600.000 morti all'anno
- 170 milioni di portatori di HCV-Ab più di 300.000 morti all'anno

XII ISVHLD, Parigi 2006

Types of Viral Hepatitis

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	A	B	C	D	E
Source	feces	blood, body fluids	blood	blood, body fluids	feces
Route*	1	2, 3	2, (3)	2, 3	1
Chronic	no	yes	yes	yes	no
Vaccine	yes	yes	no	(yes, B)	no

* Route

1 = fecal-oral (poor hygiene, sex, drugs, contaminated water/food)

2 = into blood stream (injecting drugs, transfusion, sharing items with blood)

3 = across mucous membranes (sex, mother to infant at birth)

Modalità di trasmissione

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	HIV	HBV	HCV	HDV
Sangue (apparente/inapparente)	+	+++	++	++
Sessuale	++	+++	+/-	+
Verticale	++	+++	+	+
% Cronicità	100%	5%	70%	5% ^o ; 90%*

*Co-infezione HBV-HDV; * HDV Superinfezione in HBsAg+

Fields; Virology 2000

Infettività relativa

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	HBV	HCV	HIV
Copie di virus	10^{8-9}	10^5	10^3
Stabilità ambientale	xxxx	xx	-
Infettività dopo essiccamento a t° ambiente	≥ 7 gg	≥ 16 h	0

Principali caratteristiche

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		HBV	HCV	DELTA
Clinica	Incubazione gg	40-120	30-150	21-909
	Inizio	Insidioso	Aspecifico	Acuto
	Ittero (%)	15-20%	25%	vario
Trasmissione	Oro-fecale	-	-	-
	Parentale	Consueta	Consueta	Consueta
	Sessuale	Si	Si	Si
	Congenita	Si	Si	Si
	altre	Secreti vari		
Decorso	Portatore cronico	Si	50%	Si
	Epatite cronica	++++	++++	++
	Mortalità %	1>3%	1>3%	30%
Virus		Hepadna	Flavi	viroide
Antigeni		HBs,HBc,HBe	env, core, pol	HDV

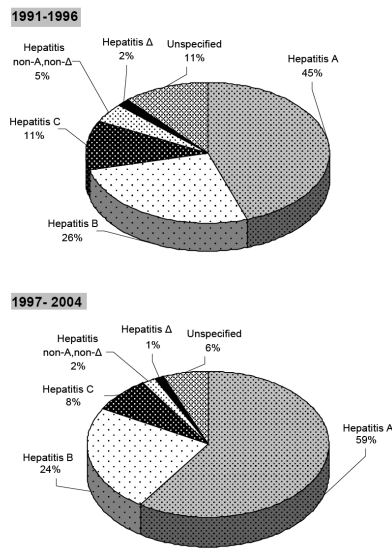
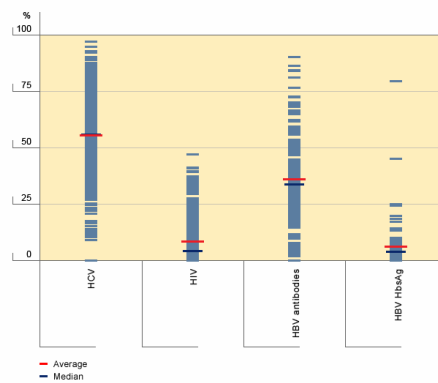


Figure 3. Distribution of notified cases by hepatitis type
SEIEVA 1991-1996 and SEIEVA 1997-2004

Estimated HIV, HCV and HBV prevalence among injecting drug users – studies with national and sub-national coverage. Summary of all available data across EU Member States, candidate countries and Norway, 2000 to 2004



Review articles

SURVEILLANCE AND EPIDEMIOLOGY OF HEPATITIS B AND C IN EUROPE – A REVIEW

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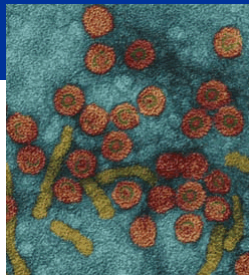
Merja Rantala (merja.rantala@ecdc.europa.eu)^{1,2}, M JW van de Laan¹
 1. European Centre for Disease Control and Prevention (ECDC), Stockholm, Sweden
 2. Országos Epidemiológiai Központ (National Centre for Epidemiology), Budapest, Hungary

Hepatitis B virus (HBV) and hepatitis C virus (HCV) infections are frequent causes of acute and chronic hepatitis worldwide and leading causes for hepatic cirrhosis and cancer. There is a distinct geographical variation in HBV and HCV incidence and prevalence in the European Union (EU) and European Economic Area/European Free Trade Association (EEA/EFTA) member states and neighbouring countries.

- ▶ The HBV carrier prevalence ranges from 0.1 to 8.0% and that of HCV from 0.1 to 6.0%.
- ▶ Within the last few years, the HBV incidence has decreased while the HCV incidence has increased.
- ▶ Both diseases are concentrated in certain subpopulations, such as injecting drug users, with tens of times higher prevalence than in the general population.

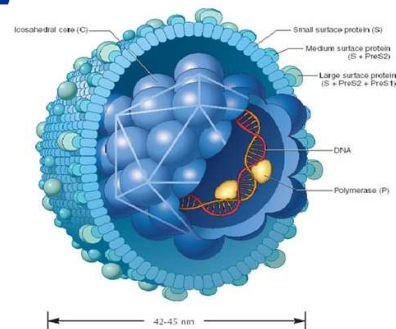
Most EU and EEA/EFTA countries have a surveillance system for HBV and HCV infections, but due to differences in system structures, reporting practices, data collection methods and case definitions used, the surveillance data are difficult to compare across countries. The harmonisation and strengthening of HBV and HCV surveillance at the European level is of utmost importance to obtain more robust data on these diseases.

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HBV

- Famiglia Hepadnaviridae
- Particelle rotondeggianti di 42 nm (Dane) + 2 tipi di particelle defettive (20-22nm)
- Capside icosaedrico, pericapside glicolipidico
- Genoma DNA bicatenario (parziale perché mancano 700 nucleotidi) e circolare con 3200 nucleotidi
- La famiglia comprende anche virus simili che causano epatite in vari animali



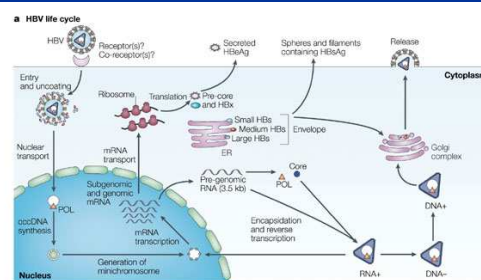
How Old is HBV?

- HBV associated with humans for >1,000 years but no definitive evidence
- Recent evidence establishes ≥500 years
- Naturally mummified body of a Korean child found virtually intact
- Laparoscopy: Large organ in RUQ and biopsies sent for pathology and HBV DNA testing
 - HBV DNA genotype C isolated from the liver
 - Pathology: Appeared to be normal liver



Klein A, et al. 58th AASLD; Boston, MA; November 2-6, 2007. Poster 925.

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- Il virus dell'Epatite B deve la sua notevole efficienza di trasmissione anche ad una sua particolare resistenza ambientale:
 - a - 20°C resiste per 15 anni
 - a 21°C resiste per 6 mesi
 - a 60°C resiste per 4 ore
- Il virus sembra resistere inoltre sulle superfici per almeno una settimana nel sangue secco a temperatura ambiente.
- Il virus dell'HBV è presente in alta concentrazione nel sangue, nel siero e negli essudati ed in moderata concentrazione nel liquido seminale e nel fluido vaginale.

Global Burden of HBV

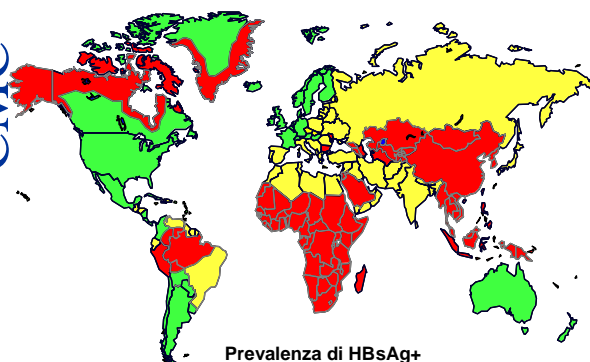
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- >2 billion current or past infections
- 4 million acute cases per year
- 1 million deaths per year
- 350 - 400 million with chronic HBV disease (compare with 40 millions living with HIV)
- 25%-40% of persons with chronic HBV disease die from cirrhosis or HCC
 - Over 300,000 cases/year of HBV-related HCC
 - Causes 60% to 80% of all primary liver cancer
 - HBV is second most important carcinogen behind tobacco
- HBV is 100 times more contagious than HIV

World Health Organization. Fact sheet. Available at: <http://www.who.int>. Accessed January 31, 2006; Centers for Disease Control. Fact sheet. Available at: <http://www.cdc.gov>. Accessed January 31, 2006; Lai CL, et al. Lancet. 2003;362:2089-2094; WHO. Hepatitis B. 2002; Maynard JE, et al. In: Viral Hepatitis and Liver Disease. New York: Alan R. Liss, Inc. 1988; CDC. Epidemiology & prevention of vaccine-preventable diseases. The Pink Book. 8th ed.; CDC. MMWR. 2001;50:RR-11.

Distribuzione geografica

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Prevalenza di HBsAg+

- ≥8% - alta
- 2-7% - Intermedia
- <2% - bassa

	HBsAg + (%)
Taiwan	10.0 - 13.8
Vietnam	5.7 - 10.0
China	5.3 - 12.0
Africa	5.0 - 19.0
Philippines	5.0 - 16.0
Thailand	4.6 - 8.0
Japan	4.4 - 13.0
Indonesia	4.0
South Korea	2.6 - 5.1
India	2.4 - 4.7
Russia	1.4 - 8.0
US	0.2 - 0.5

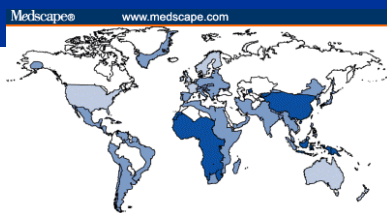
Geographic Diversity of HBV Infection: Clinical/Epidemiologic Correlations

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	North America/ Western Europe	Sub-Sahara Africa/ Far East
Endemicity	Low	High
Age of infection	Early adulthood	Birth, toddler
Primary mode of transmission	Percutaneous sexual	Perinatal horizontal
Chronicity	Rare	Likely
Risk of end-stage liver disease	Low	High
Risk of hepatocellular carcinoma	Low	High

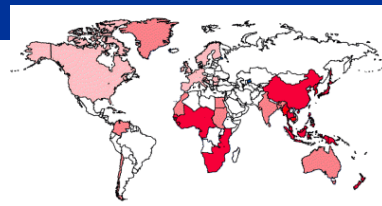
Mast EE, et al. MMWR Recomm Rep. 2006;55:1-33.
Custer B, et al. J Clin Gastroenterol. 2004;38(10 suppl):S158-S168.

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World prevalence of hepatitis B carriers

HBs Ag carriers prevalence
 ● <2%
 ● 2-7%
 ● >8%
 ○ Poorly documented



Annual incidence of primary hepatocellular carcinoma (HCC)

Cases/100 000 population
 ● 1-3
 ● 3-10
 ● 10-150
 ○ Poorly documented

Source: J Viral Hepat © 2004 Blackwell Publishing

10 Leading Causes of Infectious Disease Deaths Worldwide (2000)

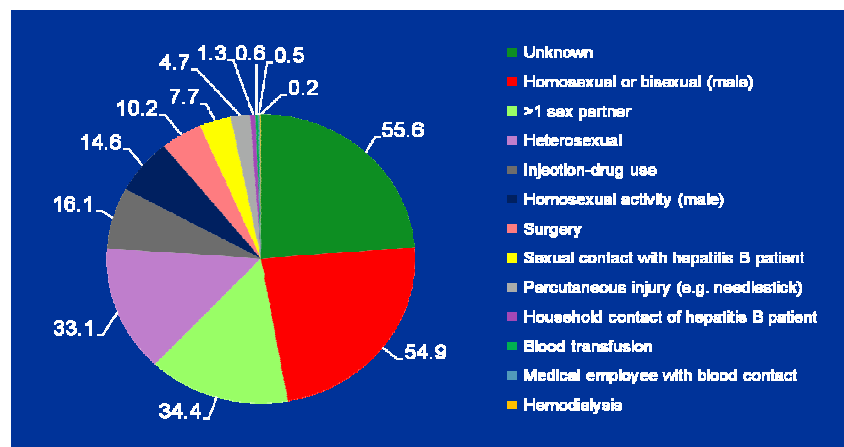
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Disease	Deaths per Year
Lower respiratory tract infections	~ 3.5 million
HIV/AIDS	~ 3.0 million
Diarrheal diseases	~ 2.2 million
Tuberculosis	~ 2.0 million
Malaria	~ 1-3 million
Measles	~ 888,000
Hepatitis B	~ 500,000-750,000
Pertussis	~ 355,000
Neonatal tetanus	~ 300,000
Hepatitis C	~ 250,000

WHO. Hepatitis B. 2002. Maynard JE, et al. In: Viral Hepatitis and Liver Disease. New York: Alan R. Liss, Inc. 1988. CDC. Epidemiology & prevention of vaccine-preventable diseases. The Pink Book. 8th ed. CDC. MMWR. 2001;50:RR-11.

Risk Factors Associated With Acute HBV Infection: US (2006)

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MMWR: Surveillance Summary March 21, 2008 / Vol. 57 / No. SS—2.

Vie di trasmissione

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- percutanea (mucosa-sangue/saliva)
- sessuale
- aghi infetti
 - emodialisi
 - tatuaggi
 - piercing
 - agopuntura
 - tossicodipendenza
 - incidente professionale
- materno fetale
- inapparente o intrafamiliare

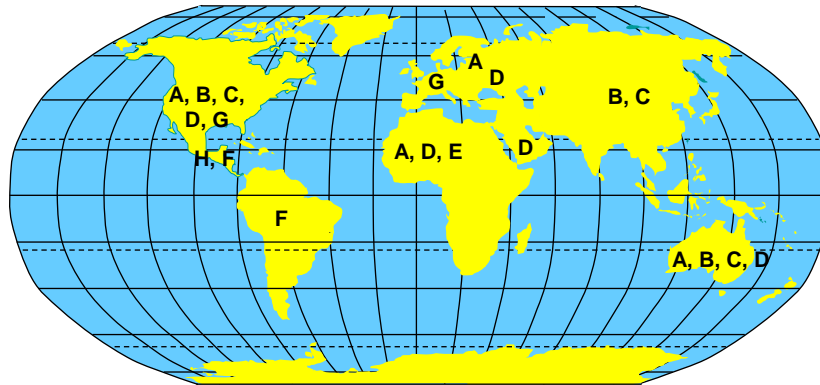
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- Il virus è ubiquitario nei liquidi biologici
- Fluidi biologici con capacità evidente di trasmettere l'infezione:

Alta	Intermedia	Bassa/Dubbia
Sangue	Seme	Urine
Siero	Fluido vaginale	Feci
Essudato	Saliva	Sudore (da ferite aperte)
		Lacrime
		Latte materno

Genotipi dell'HBV

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Arauz-Ruiz P, et al. J Gen Virol. 2002;83:2059-2073. Bell SJ, et al. J Clin Virol. 2005;32:122-127.
Chu CJ, et al. Gastroenterology. 2003;125:444-451. Kidd-Ljunggren K, et al. J Gen Virol. 2002;83:1267-1280. Keefe EB, et al. Clin Gastroenterol Hepatol. 2004;2:87-106.

Clinical Consequences of HBV Acquisition

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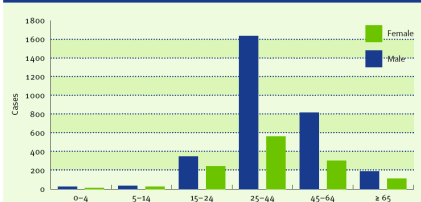
- Acute Infection
 - Major risk of death related to development of fulminant liver failure (rare)
- Chronic Infection
 - Progressive liver disease
 - Risk of cirrhosis, liver failure, hepatocellular carcinoma (HCC)
 - Rarely extrahepatic manifestations

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- In 2006, 7.494 cases of hepatitis B were confirmed by 28 EU and EEA/EFTA Member States, a rate of 1.7 per 100.000 inhabitants.
- The most affected age groups are those between 25 and 44 years old with 48.4 % of cases (2.4 cases per 100.000), and the 15–24 year-olds (2.3 cases per 100.000).
- The overall number seems to be lower than for 2005, but trends are difficult to conclude because of the huge differences in the sensitivity of each country's surveillance system for this disease. Also, there have been recent changes in reporting systems and testing practices.

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Figure 3.2.4. Distribution of hepatitis B cases by age and gender in EU and EEA/EFTA countries, 2006 (n = 4 296)



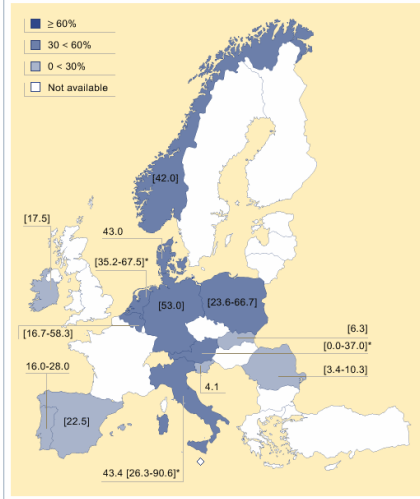
Source: Country reports: Austria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, Spain, Sweden and Norway.

Table 3.2.3. Number and notification rate of reported cases of hepatitis B virus infection in the EU and EEA/EFTA, 2006

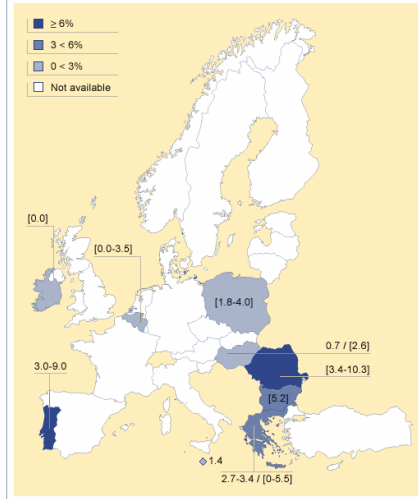
Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	59	59	0.71
Belgium	A	401	401	3.8
Bulgaria	A	773	773	10.0
Cyprus	C	7	7	0.91
Czech Republic	C	307	306	3.0
Denmark	C	20	20	0.37
Estonia	A	45	45	3.4
Finland	C	37	37	0.70
France	C	182	182	0.29
Germany	C	1179	1179	1.4
Greece	C	86	67	0.60
Hungary	C	83	83	0.82
Ireland	C	94	94	2.2
Italy	C	1068	1068	1.8
Latvia	A	167	167	7.3
Lithuania	A	107	107	3.1
Luxembourg	C	9	9	1.9
Malta	C	2	2	0.49
Netherlands	C	240	240	1.5
Poland	A	508	362	0.95
Portugal	C	42	40	0.38
Romania	C	1279	1279	5.9
Slovakia	C	123	123	2.3
Slovenia	C	26	26	1.3
Spain	C	778	496	1.1
Sweden	C	162	162	1.8
United Kingdom	U	—	—	—
EU total		7784	7334	1.70
Iceland	C	11	11	3.7
Liechtenstein	U	—	—	—
Norway	C	149	149	3.2
Total		7944	7494	1.71

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: unspecified.

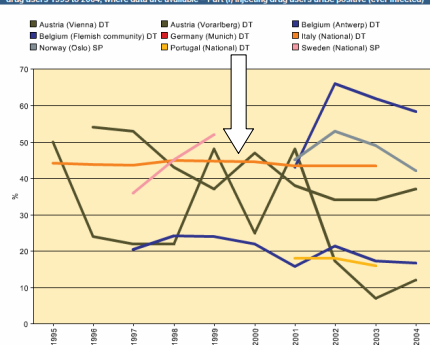
Prevalence of markers of HBV infection estimated among national and sub-national samples of injecting drug users 2003 to 2004, where data are available – Part (ii)
Percentage positive for aHBc (ever infected) – map of EU



Prevalence of markers of HBV infection estimated among national and sub-national samples of injecting drug users 2003 to 2004, where data are available – Part (iii)
Percentage positive for HBsAg (current infection) – map of EU



Trends in prevalence of markers of HBV infection estimated from national and sub-national samples of injecting drug users 1995 to 2004, where data are available – Part (i) injecting drug users aHBc positive (ever infected)





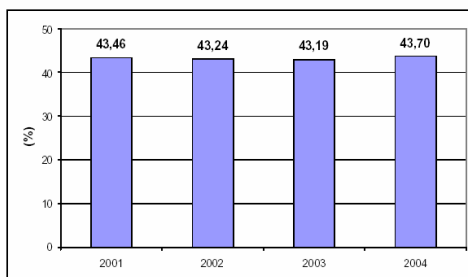
2005 NATIONAL REPORT TO THE EMCDDA by the Reitox National Focal Point

Viral hepatitis B

The percentage of subjects testing positive for hepatitis B between 2001 and 2004 among the users of the Ser.T. is basically unchanged from preceding years, with figures of around 43%.

No significant difference in contagiousness either among new users or those already under treatment is noticeable in the period between 2001 and 2004. The first are constantly positive with values close to 23%, while the second reach percentages close to 50%.

Percentage distribution of those testing positive for hepatitis B among users being treated at Ser.T. between 2001 and 2004



Based on data from the Ministry of Health

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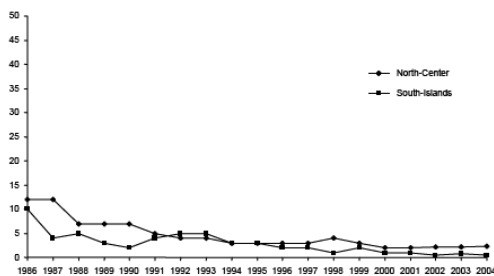


Figure 5. Incidence rates of reported B acute hepatitis cases by geographic area in Italy. SEI/FVA 1986-2004

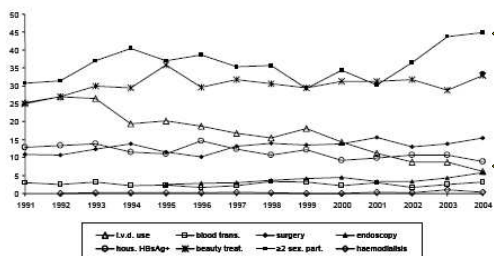


Figure 6. Frequency (%) of not mutually exclusive risk factors reported by hepatitis B cases during the six months before disease onset, in Italy, by year. SEI/FVA 1991-2004

Table 5. Frequency (%) per age groups of not mutually exclusive risk factors reported by hepatitis B cases during the six months before disease onset, in Italy. SEIEVA 1997-2004

Risk factors	0-14 (n. 64)	15-24 (n. 813)	25-39 (n. 2,713)	≥ 40 (n. 1,623)	Total (n. 5,213)
Blood transfusion	7.4	0.4	0.6	6.7	2.6
Surgical intervention	5.4	9.3	11.6	20.1	13.9
Endoscopy	4.2	1.6	2.0	8.2	4.0
Hemodialysis	0.0	0.4	0.1	0.5	0.3
Hospitalization	20.7	10.4	9.8	24.4	14.7
Beauty treatment*	15.2	32.6	33.4	27.0	31.0
Dental therapy	14.6	28.4	33.0	27.8	30.4
Intravenous drug use	0.0	23.8	17.1	1.4	13.0
Household of IV drug users	4.6	6.2	3.5	0.7	3.0
≥ 2 sexual partners (last year)	0.0	35.6	41.3	24.7	34.9
Household of HBsAg+ carrier	18.6	17.1	9.4	9.4	10.6

* Piercing, tattooing, attendance to manicurist/chiropractist, barber shop shaving

Trasmissione dell'HBV nei pazienti TD

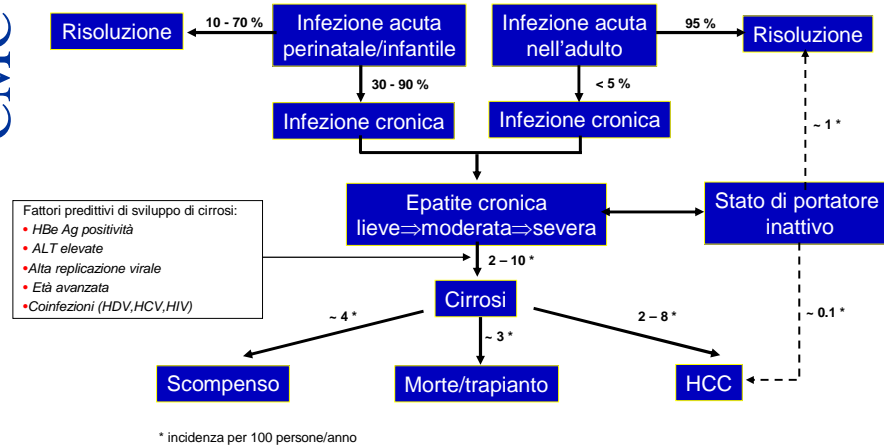
Nel paziente tossicodipendente i maggiori fattori di rischio per l'infezione da HBV risultano essere dati

- dalle abitudini sessuali (rapporti sessuali con più partner, mancato uso del condom)
- dalla maggiore durata del periodo di tossicodipendenza
- dall'iniezione più di 4 volte al giorno di droghe ev
- dalla condivisione con più di 2 persone degli oggetti usati per la preparazione della droga.

[Bialek SR](#), J Urban Health. 2005 Sep;82(3):468-78.

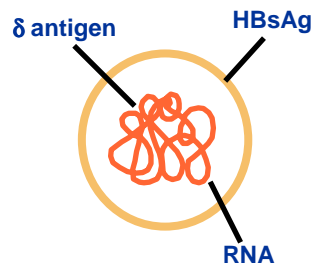
Outcomes dell'infezione da HBV

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HDV

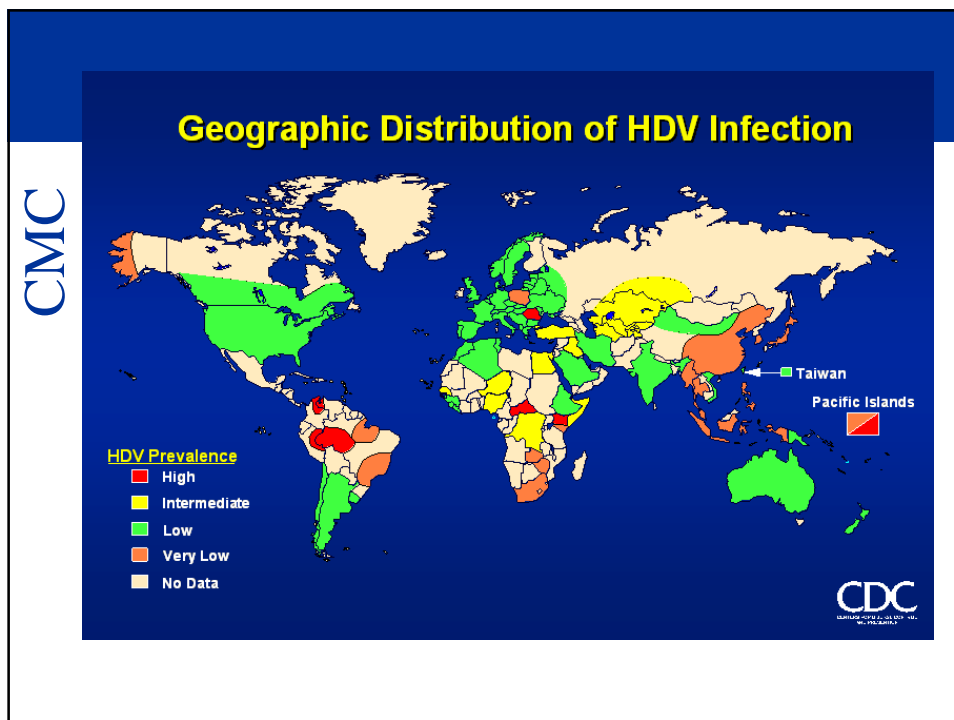


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- Scoperto nel 1977 a Torino da Rizzetto.
- Particella sferica diametro 36 nm
- Genoma **RNA monocatenario circolare, (-),** 680 nm, con associate 2 proteine virali di 27 e 29 Kd
- Con peplos ———▶ HbsAg
- Si moltiplica nel nucleo degli epatociti infettati da HBV
- HDV è endemico nel bacino del Mediterraneo, Europa dell'Est, America Latina.
- Infezione per trasmissione parentale (sessuale??)
- La sovrainfezione di un soggetto con epatite B, con HDV porta ad un aggravamento dell'epatite e ad una più probabile cronicizzazione dell'infezione di HBV.
- Profilassi —▶ profilassi anti HBV

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- Il 5% degli HBsAg sono infetti con HDV
 - 20% in Italia
 - 15 milioni in tutto il mondo



- ### Modalità di trasmissione
- CMC
- esposizione percutanea
 - utilizzo di droghe endovena
 - incidenti professionali
 - politrasfusi, emofilici
 - esposizione mucosa
 - contatti sessuali
 - rara la via materno-fetale e perinatale

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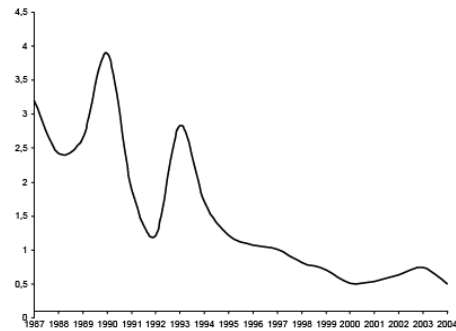
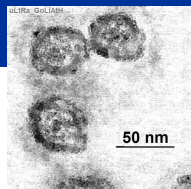


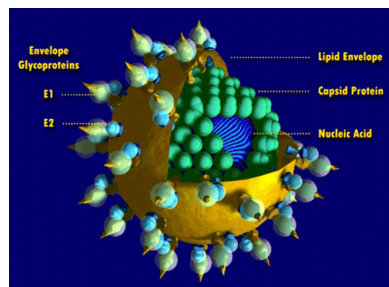
Figure 7. Incidence rates per 1 million of acute hepatitis Delta infection. SEIEVA 1987-2004

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HCV

- FLAVIVIRUS
- Virioni rotondeggianti, 40-50 nm di diametro
- RNA(+) monocatenario lineare di 10 Kb con pericapside
- Replicazione citoplasmatica



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- Nearly 4 million persons in United States infected
- Approximately 35,000 new cases yearly
- 85% of new cases become chronic
- Leading cause of
 - Chronic liver disease
 - Cirrhosis
 - Liver cancer
 - Liver transplantation

20

EPATITE C



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- Paesi industrializzati 1-2% della popolazione
- Percentuali molto più elevate in Africa e Europa dell'Est
 - Egitto 15% popolazione generale (legame con schistosomiasi)
- USA 0,5% donatori di sangue
- USA 4 milioni di HCV positivi

Review

Epidemiology of Hepatitis C Virus (HCV) Infection

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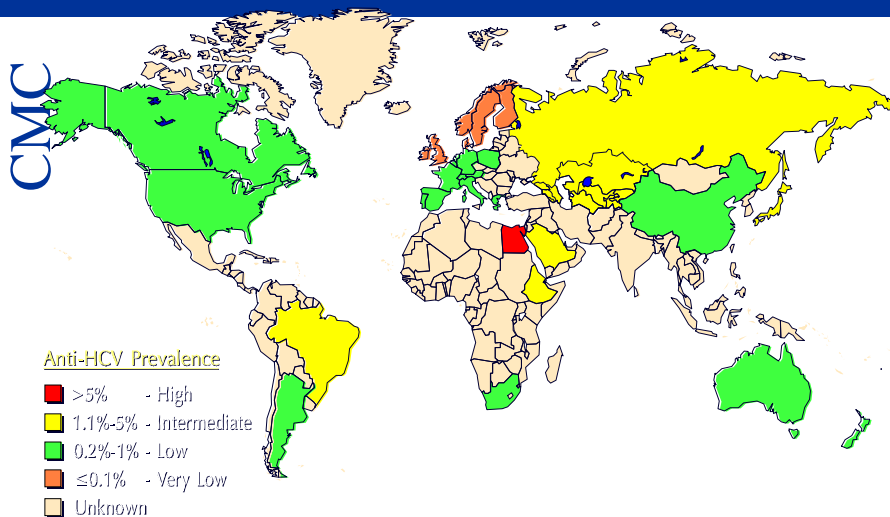
Received: 2005.12.30, Accepted: 2006.03.23, Published: 2006.04.01

Hepatitis C virus remains a large health care burden to the world. Incidence rates across the world fluctuate and are difficult to calculate given the asymptomatic, often latent nature of the disease prior to clinical presentation. Prevalence rates across the world have changed as well with more countries aware of transfusion-related hepatitis C and more and more evidence supporting intravenous drug use as the leading risk factor of spread of the virus. This article reviews current hepatitis C virus prevalence and genotype data and examines the different risk factors associated with the virus.

Table 1: Hepatitis C estimated prevalence and number infected by WHO Region. Source: Weekly Epidemiological Record. N° 49, 10 December 1999, WHO.

WHO Region	Total Population (Millions)	Hepatitis C prevalence Rate %	Infected Population (Millions)	Number-of countries by WHO Region where data are not available
Africa	602	5.3	31.9	12
Americas	785	1.7	13.1	7
Eastern Mediterranean	466	4.6	21.3	7
Europe	858	1.03	8.9	19
South-East Asia	1 500	2.15	32.3	3
Western Pacific	1 600	3.9	62.2	11
Total	5 811	3.1	169.7	57

Prevalence of HCV Infection Among Blood Donors*

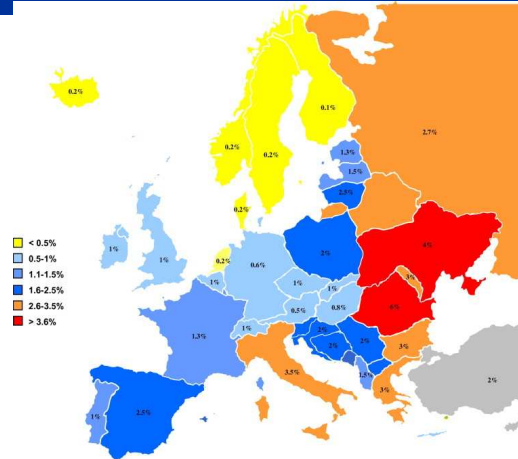


* Anti-HCV prevalence by EIA-1 or EIA-2 with supplemental testing; based on data available in January, 1995.

Estimated current prevalence of HCV infection in different European countries.

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Data is based on figures reported from large cohorts of blood donors and/or general population



ELSEVIER

Journal of Hepatology 48 (2008) 148–162

Journal of
Hepatology

www.elsevier.com/locate/jhep

Review

The changing epidemiology of hepatitis C virus infection in Europe[☆]

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²CIBER de Enfermedades Hepáticas y Digestivas (Ciberehd) del Instituto de Salud Carlos III, Spain
³Banc de Sang i de Teixits, Institut Català de la Salut, Barcelona, Spain

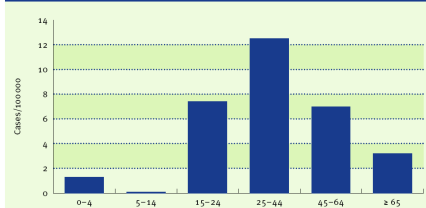
The epidemic of hepatitis C virus (HCV) infection in Europe is continuously evolving and epidemiological parameters (prevalence, incidence, disease transmission patterns and genotype distribution) have changed substantially during the last 15 years. Four main factors contribute to such changes: increased blood transfusion safety, improvement of healthcare conditions, continuous expansion of intravenous drug use and immigration to Europe from endemic areas. As a result, intravenous drug use has become the main risk factor for HCV transmission, prevalent infections have increased and genotype distribution has changed and diversified. Hence, prevalence data from studies conducted a decade ago may not be useful to estimate the current and future burden of HCV infection and additional epidemiological studies should be conducted, as well as new preventive strategies implemented to control the silent epidemic. This review summarizes recently published data on the epidemiology of HCV infection in Europe focusing on the factors currently shaping the epidemic.

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CMC

- In 2006, 29.073 confirmed cases of hepatitis C were reported by 28 EU and EEA/EFTA Member States, with an overall rate of 6.7 per 100.000 inhabitants.
- There are limitations to the HCV reporting, related to the difficulties with the interpretation of test results in distinguishing between acute and chronic infections. However, available data suggest that hepatitis C is the most common form of viral hepatitis reported in the EU.
- The most affected age group is the 25–44 year-olds (12.5 cases per 100.000).

Figure 3.2.5. Age-specific notification rates of hepatitis C cases in EU and EEA/EFTA countries, 2006 (n = 27 866)



Source: Country reports. Austria, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, UK, Iceland and Norway.

Table 3.2.4. Number and notification rate of reported cases of hepatitis C virus infection in the EU and EEA/EFTA, 2006

Country	Report type*	Total cases	Confirmed cases	Notification rate per 100 000 population
Austria	C	227	227	2.7
Belgium	A	739	739	7.0
Bulgaria	A	121	121	1.6
Cyprus	C	5	5	0.7
Czech Republic	C	1022	1022	10.0
Denmark	C	348	348	6.4
Estonia	A	57	57	4.2
Finland	C	1181	1181	22.5
France	U	—	—	—
Germany	C	7509	7509	9.1
Greece	C	16	10	< 0.1
Hungary	C	29	29	0.29
Ireland	C	1226	1226	29.1
Italy	C	322	322	0.55
Latvia	C	105	105	4.6
Lithuania	A	62	62	1.8
Luxembourg	C	12	12	2.6
Malta	C	11	11	2.7
Netherlands	C	30	30	0.18
Poland	A	2949	2949	7.7
Portugal	C	88	82	0.78
Romania	C	84	84	0.39
Slovakia	C	31	31	0.58
Slovenia	C	6	3	0.3
Spain	C	422	422	1.0
Sweden	C	1976	1976	21.8
United Kingdom	C	10 417	10 417	17.2
EU total		28 995	28 980	6.74
Iceland	C	45	45	15.0
Liechtenstein	U	—	—	—
Norway	C	48	48	1.0
Total		29 088	29 073	6.68

Source: Country reports. * A: Aggregated data report; C: Case-based report; —: No report; U: Unspecified.

Modalità di trasmissione

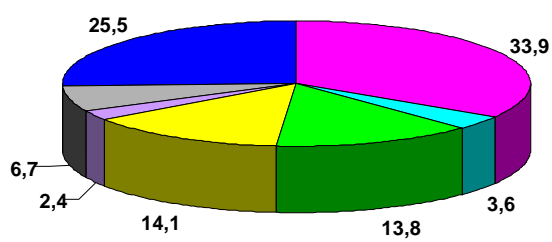
CMC

- Trasfusioni di sangue (1 su 103.000)
- Tossicodipendenti (80% dopo 6 mesi di TD)
- Rapporti sessuali
- Trasmissione verticale (5%)
- Emodialisi (20% pazienti)
- Tatooing
- Trapianto di organo da soggetto HCV positivo
- Needle-stick injury (incidente professionale; 5-10%)
- Sconosciuta >10% dei casi

Epatite C: distribuzione dei fattori di rischio

Seieva 1998-2000

CMC



- | | |
|---|---|
| ■ Droghe | ■ > 1 Partner |
| ■ Trasfusioni | ■ Terapia odontoiatrica |
| ■ Interventi chirurgici | ■ Nessuno dei precedenti fattori di rischio |
| ■ Altre esposizioni parenterali | |

Risk factors among patients diagnosed with acute or chronic hepatitis C attending specialized units during recent years in different European countries

Country	Patient setting*	No cases	Years	IDU (%)	BT (%)	Nosocomial (%)	Unknown (%)	Other (%)	Reference
France	CHC	1769	2000-2001	38	27	10	25	0	[76]
France	CHC	1145	1990-2000	45	27	0	10	16	[81]
Germany	CHC	747	2000-2001	23	12	0	54	9	[85]
Belgium	CHC	1726	1992-2002	26 ^a	39 ^a	9	21	5	[77]
Austria	CHC	250	1999-2000	30	22	0	45	4	[151]
Greece	CHC	1229	1987-2002	30	25	5	37	3	[78]
Sweden	CHC	312	1969-1996	53	21	0	27	9	[118]
Italy	AHC	214	1999-2004	39	0	32	13	18	[84]

* Over the 10-year study, blood transfusion decreased 2.7% per year and IDU increased 2.5% per year. In 2001 IDU outnumbered BT.
 * CHC, Chronic hepatitis C outpatient GE/Hepatology Unit; AHC, acute hepatitis C; Nacional Surveillance System IDU, intravenous drug use; BT, blood transfusion before 1991; Nosocomial, health-care-related procedure; Other: Dialysis, haemophilia, sexual transmission, vertical transmission, tattooing, piercing.

Seieva 1991 - 2004

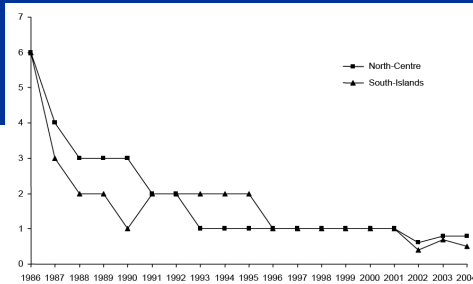


Figure 9. Incidence rates of reported non-A, non-B acute hepatitis cases by geographic area in Italy, SEIEVA 1986-2004

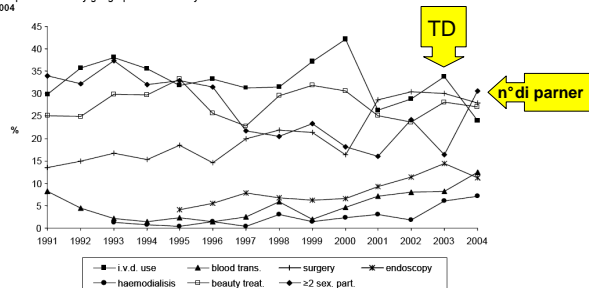


Figure 10. Frequency (%) of not mutually exclusive risk factors reported by hepatitis C cases during the six months before disease onset, in Italy, by year, SEIEVA 1991-2004

Table 7. Frequency (%) per age groups of not mutually exclusive risk factors reported by hepatitis C cases during the six months before disease onset, in Italy. SEIEVA 1997-2004

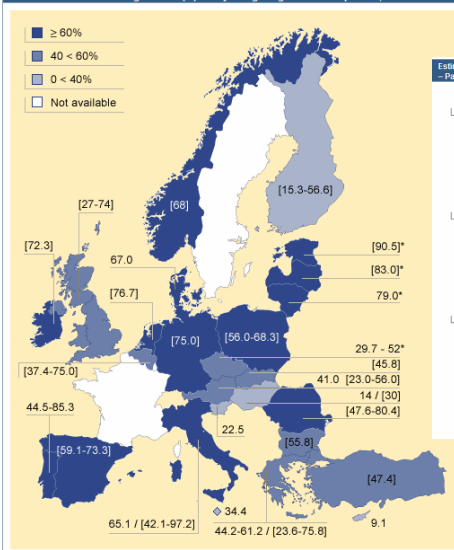
Risk factors	0-14 (n. 18)	15-24 (n. 349)	25-39 (n. 646)	≥ 40 (n. 668)	Total (n. 1,681)
Blood transfusion	18.7	1.3	1.1	12.5	5.9
Surgical intervention	31.3	13.8	17.0	35.2	23.8
Endoscopy	14.3	2.6	4.7	16.6	9.0
Hemodialysis	6.2	0.9	0.3	6.3	2.9
Hospitalization	43.8	14.4	16.0	42.7	26.4
Beauty treatment*	12.5	36.4	30.5	20.5	27.6
Dental therapy	6.7	28.7	25.8	19.6	23.8
Intravenous drug use	13.3	60.9	46.0	3.0	31.9
Household of IV drug users	6.2	10.3	10.8	0.8	6.6
≥ 2 sexual partners (last year)	11.1	35.2	26.7	6.7	20.9
Household of HBsAg+ carrier	28.6	15.6	18.1	8.3	13.5

* Piercing, tattooing, attendance to manicurist/chiroprapist, barber shop shaving

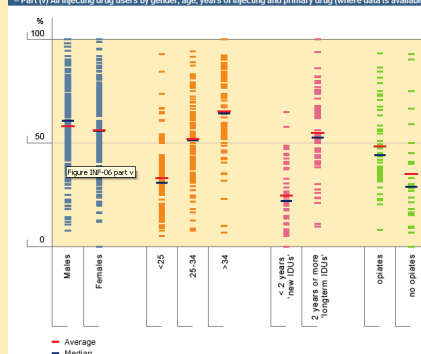
- The incidence of hepatitis C is decreasing in Italy.
- Unlike other developed countries, we also estimate a decreasing in HCV-related health consequences in the next future.
- Intravenous drug use, diagnostic or therapeutic procedures, having sex with multiple partners, and beauty treatments seem nowadays to be the most frequent modes of transmission in our country.
- Since the lack of an effective HCV vaccine, educational programs concerning safe injection practices among drug users, information programs concerning at risk sexual behaviors among the general population, and the carefully observance of infection control measures in hospital setting need to be further implemented.

HCV e Dipendenza da Sostanze

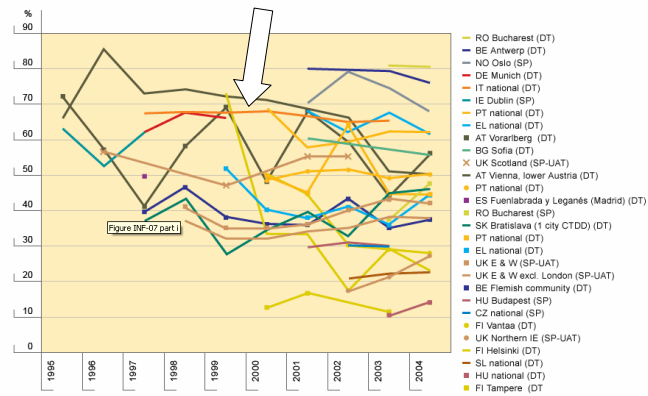
Estimated HCV antibody prevalence among injecting drug users – studies with national and sub-national coverage – Part (iv) All injecting drug users – map of EU, 2003 to 2004



Estimated HCV antibody prevalence among injecting drug users – studies with national and sub-national coverage – Part (v) All injecting drug users by gender, age, years of injecting and primary drug (where data is available)



Trends in HCV antibody prevalence estimated from national and sub-national samples of injecting drug users 1995 to 2004, in EU countries where data are available – Part (i) All injecting drug users



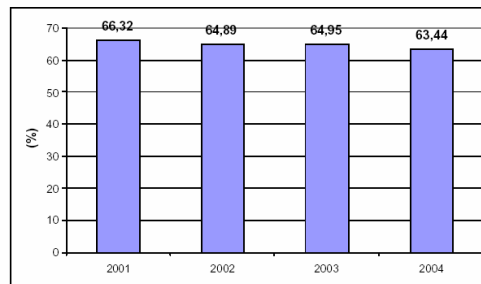
2005 NATIONAL REPORT TO THE EMCDDA by the Reitox National Focal Point

Viral hepatitis C

The analysis carried out regarding hepatitis C indicates a stable situation over the years, with high HIV positivity values, reaching approximately 63% in 2004.

There was an alarmingly high positivity of subjects to the hepatitis C test among users already undergoing treatment, with values coming close to 70%, indiscriminately for both men and women.

Percentage distribution of those testing positive for hepatitis C among users being treated at Ser.T. between 2001 and 2004



Based on data from the Ministry of Health

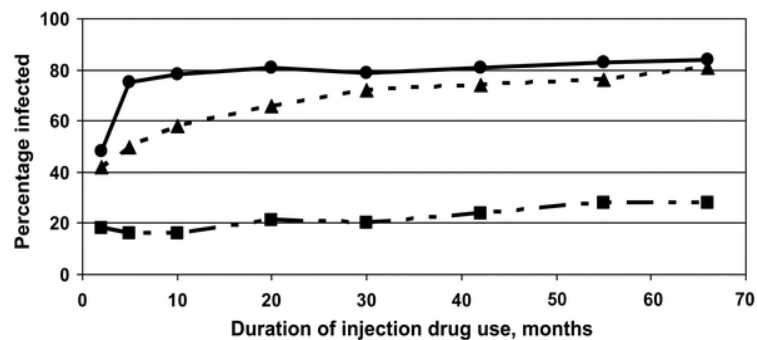
TRASMISSIONE DELL'HCV NEL TOSSICODIPENDENTE

CMC

- Altamente efficiente
- Rapida acquisizione dopo l'inizio della tossicodipendenza
 - HCV è facilmente trasmesso attraverso l'uso di aghi infetti e degli strumenti impiegati per la preparazione e la somministrazione delle sostanze.
 - HCV è quattro volte più comune dell'HIV tra i tossicodipendenti.
 - 60-90% dei TD sono HCV positivi dopo più di 5 anni di tossicodipendenza

EPIDEMIOLOGIA DELL'HCV NEL TOSSICODIPENDENTE

CMC



Prevalenza dell'epatite C (●), dell'epatite B (▲), e dell' HIV (■) in una coorte di Baltimora, in rapporto alla durata della tossicodipendenza.

Thomas DL, 1995
Adapted from Garfein, 1996

Sexual Transmission of HCV

CMC

- **Case-control, cross sectional studies**
 - infected partner, multiple partners, early sex, non-use of condoms, other STDs, sex with trauma
 - MSM no higher risk than heterosexuals
- **Partner studies**
 - low prevalence (1.5%) among long-term partners
 - infections might be due to common percutaneous exposures (e.g., unsafe injections, drug use)
 - male to female transmission more efficient
 - more indicative of sexual transmission
- **Occurs, but efficiency is low**
 - Rare between long-term steady partners
 - Factors that facilitate transmission between partners unknown (e.g., viral titer)
- **Accounts for 15-20% of acute and chronic infections in the United States**
 - Sex is a common behavior
 - Large chronic reservoir provides multiple opportunities for exposure to potentially infectious partners

CMC

Genotipo Distribuzione geografica

1a*	USA e Paesi industrializzati
1b*	USA, Giappone, Europa
2	Paesi industrializzati
3	Tossicodipendenti
4*	Medio-oriente e nord-Africa
5	Sud-Africa
6	Asia

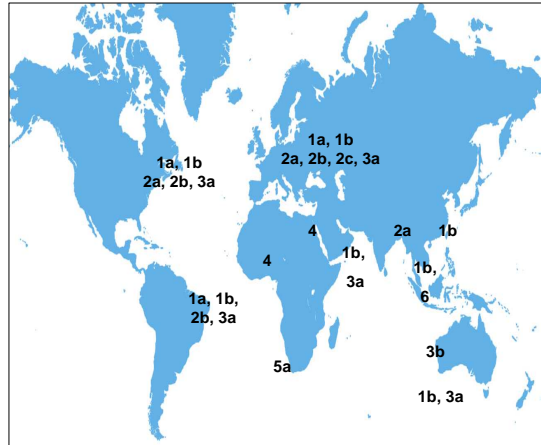
*1a, 1b e 4 non rispondono bene all'IFN come gli altri genotipi

GENOTIPI HCV

CMC

- Una caratteristica dell'HCV è la sua notevole eterogeneità genetica.
- Gli HCV isolati nel mondo sono stati classificati in 6 genotipi maggiori ed in oltre 100 sottotipi, con differenze che raggiungono il 35% del genoma.
- USA ed Europa Occidentale: l'1 è il genotipo più comune, seguito dal 2 e, più distanziato, dal 3
- Egitto e Congo: molto comune il 4
- Sud-Africa: frequentemente isolato il 5
- Sud-Est Asiatico: si riscontra in discreta percentuale il 6

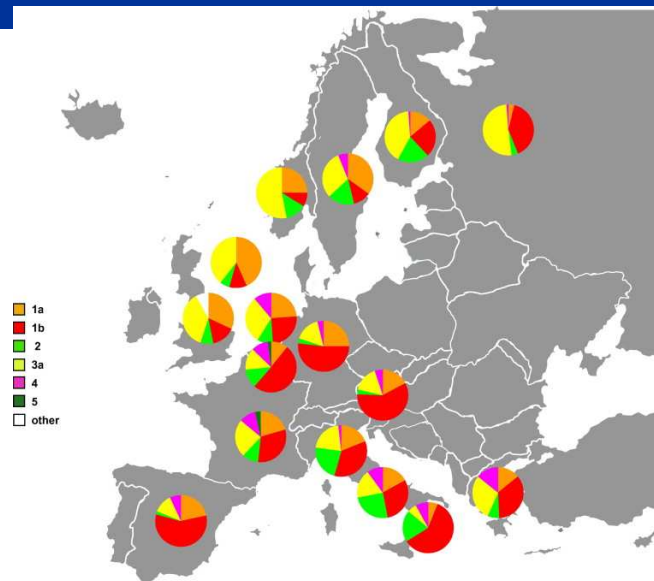
L'importanza dei genotipi deriva dalla diversa risposta alla terapia



Simmonds P. J Gen Virol. 1993 Nov;74 (Pt 11):2391-9.

Estimated HCV genotype distribution among HCV-infected individuals in Europe. Only data from representative cohorts including more than 250 patients evaluated after 1999 are depicted

CMC



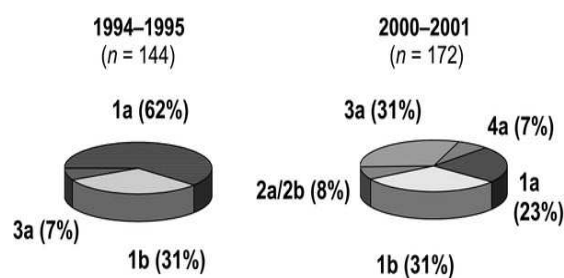
Cambiamenti nella prevalenza dei genotipi tra giovani tossicodipendenti

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- Introduzione ed estensione di “nuovi” genotipi tra giovani tossicodipendenti
- L'epidemiologia dei genotipi HCV nei tossicodipendenti è soggetta a cambiamenti altamente dinamici per:
 - comportamenti sessuali ad alto rischio
 - aumento dell'immigrazione
- La probabilità di acquisire più infezioni come nella popolazione di tossicodipendenti, e la conseguente probabilità di infettarsi con diversi genotipi è associata con la rapidità di cambiamenti nella distribuzione dei genotipi

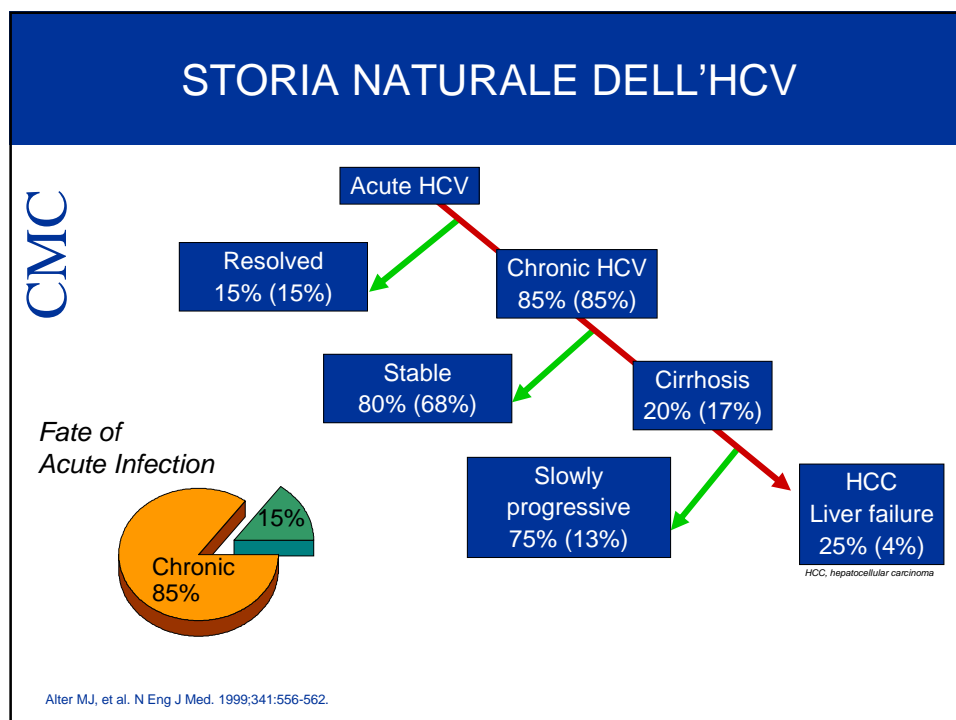
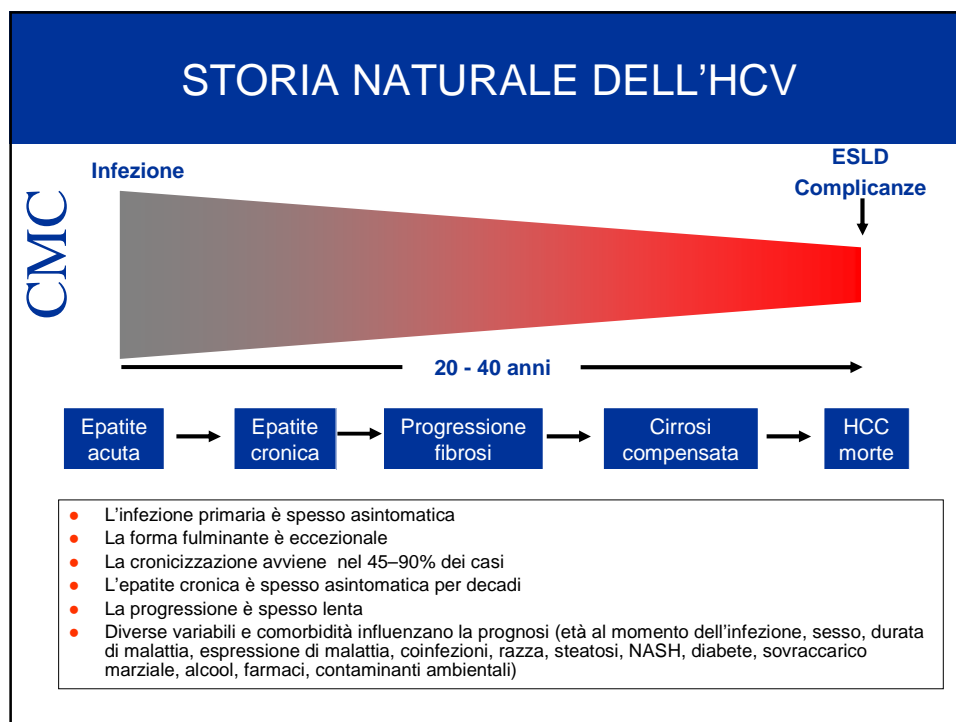
Cambiamenti nella prevalenza dei genotipi dell'HCV tra i tossicodipendenti

CMC



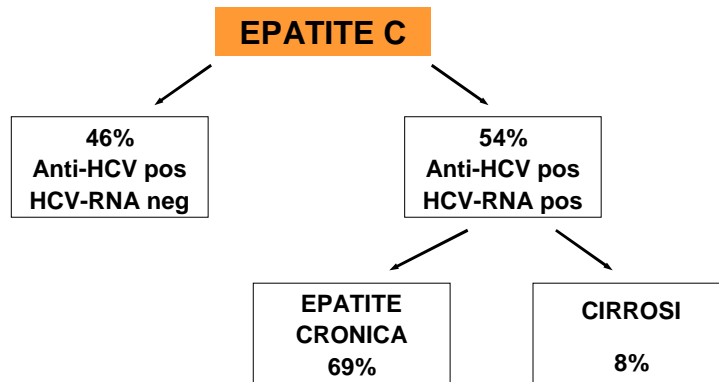
Cambiamenti nella prevalenza dei genotipi dell'HCV in una popolazione di tossicodipendenti tedeschi dopo un periodo di 6 anni

Schröter M., J Clin Microbiol. 2002 May;40(5):1866-8.



Storia naturale (25 anni) di epatite C Acquisita con tossicodipendenza (IDU)

CMC



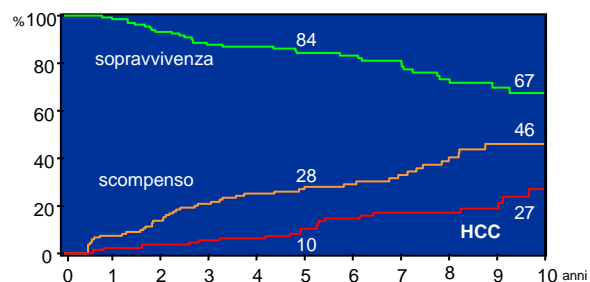
Decessi per cause epatiche: 1%

Rodger et al, Hepatology 2000

Sopravvivenza nella cirrosi HCV compensata

CMC

Reference	Area	Pazienti (n)	Mediana età (anni)	Mediana follow-up (anni)	5-anni Soprav.
Niederau 1998	Germany	141	58	4.2	85
Hu 1999	U.S.A.	112	52	4.5	83
Degos 2000	France	416	57	5.6	85
Fattovich 2002	Europe	136	58	6.8	84



Fattovich, Zagni Am J Gastroenterol 2002; 97: 2886-95

TAKE HOME MESSAGE

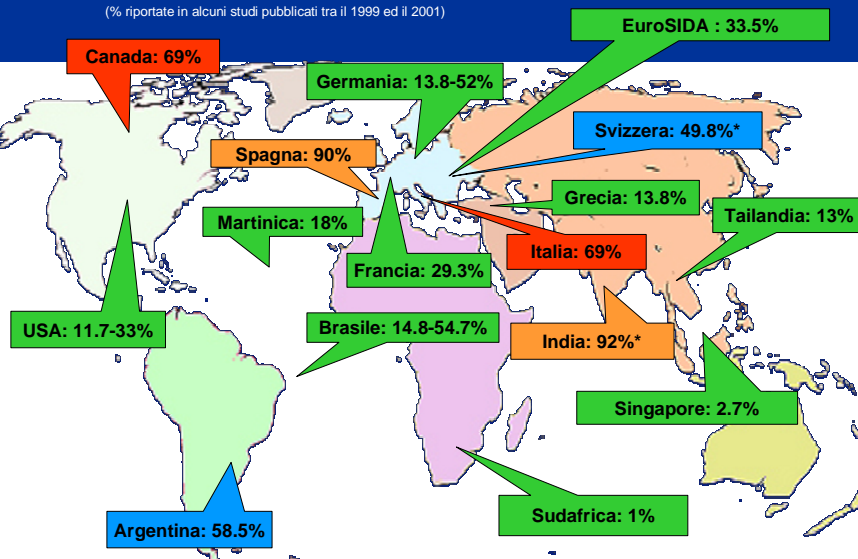
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Approccio al paziente tossicodipendente HCV positivo

- Incoraggiare ed educare alla riduzione o sospensione dell'uso di sostanze
- Educazione e counselling sulle modalità di evitare l'acquisizione di ulteriori infezioni e trasmissione dell'infezione a terze persone (evitare lo scambio di siringhe e degli altri dispositivi, usare siringhe sterili e dispositivi nuovi, lavarsi le mani e pulire il sito di iniezione prima dell'iniezione, lavarsi le mani prima e dopo l'iniezione)
- Counselling sul consumo di alcool
- Counselling sul sesso sicuro
- Offrire screening per HAV, HCV, HIV e lue ed eventuali vaccinazioni per HAV ed HBV

Prevalenza della coinfezione da HIV-HCV (% riportate in alcuni studi pubblicati tra il 1999 ed il 2001)

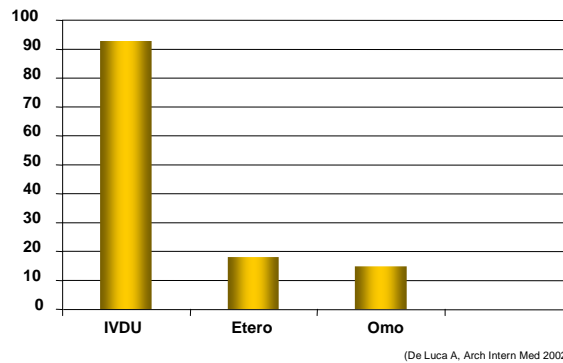
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PREVALENZA DELL'INFEZIONE DA HCV NEI PAZIENTI HIV+

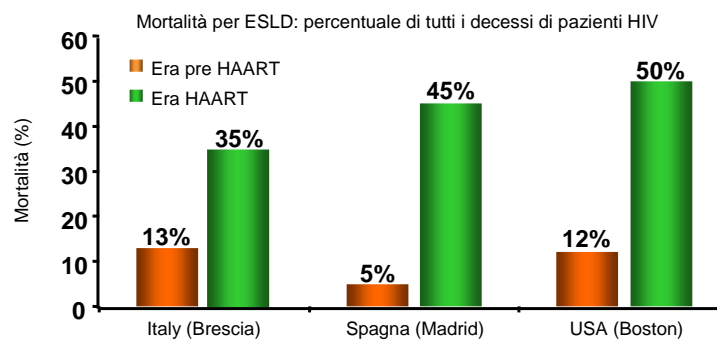
(Italia, Coorte ICONA, 1320 pazienti)

CMC



La malattia epatica è la principale causa di mortalità in era HAART

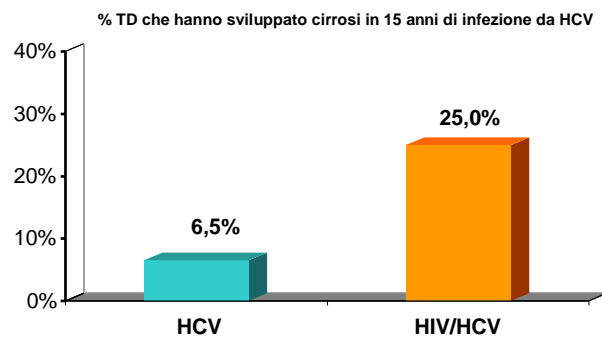
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Bica et al. Clin Infect Dis 2001;32:492-497
 Puoti et al. JAIDS 2000;24:211-217
 Soriano et al. Eur J Epidemiol 1999;15:1-4
 Martin-Carbonero et al. AIDS Res Human Retrovirus 2001;17:1467-1471

Evoluzione dell'epatopatia da HCV in corso di infezione da HIV

CMC



Martin et al. Gastroenterol 1989;97:1559
Eyster et al. AIDS Res Hum Retrovirol 1993;6:602
Sanchez-Oujano et al. Eur J Clin Microbiol Infect Dis 1995;14:949
Rockstroh et al. Am J Gastroenterol 1996;91:2563
Soto et al. J Hepatol 1997;26:1

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Tendenza alla scarsa proposta
dei test per HIV ed Epatiti
nei SerT italiani

Fattori correlati all'esecuzione dei test per HIV, HBV e HCV nei tossicodipendenti in trattamento presso i Sert

Laura Camoni - COA - Reparto di Epidemiologia Dipartimento Malattie Infettive, Parassitarie ed Immunomediate

CMC

87 Numero di Sert partecipanti
nel 2005 e nel 2007

2582 Totale schede raccolte



Percentuale di tossicodipendenti testati dati al 2006

	Testati (%)	regione più bassa - regione più alta
HIV	42,2	15,2%-65,2%
HBV	38,6	14,1%-51,2%
HCV	50,7	25,4%-67,6%

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HIV	IDU	Non IDU	Totale
Numero soggetti inclusi	1917	665	2582
N. testati nell'anno dell'intervista	716	186	902
% testati	37,4	28,0	34,9

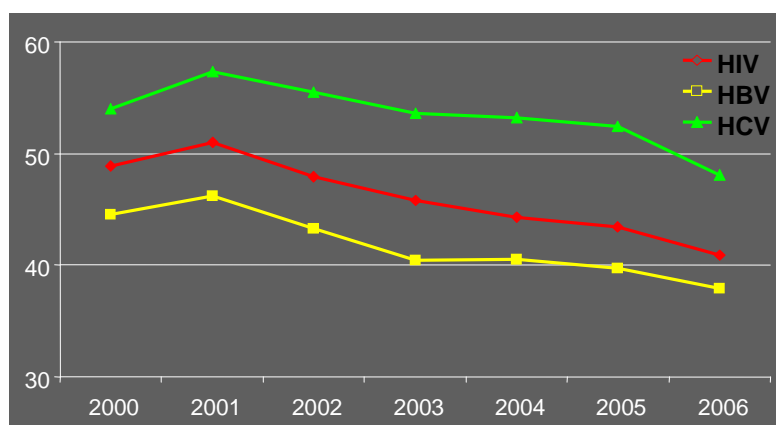
Il 65,1% non è stato testato nell'anno dell'intervista: di questi 1 su 6 non ha MAI effettuato un test per HIV

HBV	IDU	Non IDU	Totale
Numero soggetti	1917	665	2582
N. vaccinati	605	202	807
N. soggetti inclusi (non vaccinati)	841	934	1775
N. testati nell'anno dell'intervista	686	155	841
% testati	81,5	16,5	47,3

Il 52,7% non è stato testato nell'anno dell'intervista: di questi 1 su 3 non è MAI stato testato per HBV

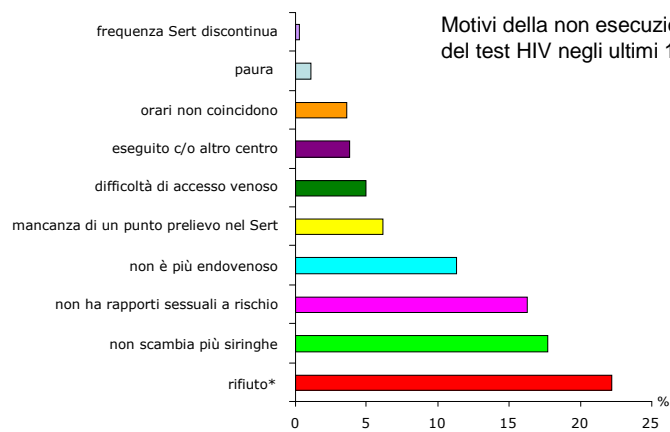
HCV	IDU	Non IDU	Totale
Numero soggetti inclusi	1917	665	2582
N. testati nell'anno dell'intervista	1489	263	1752
% testati	17,7	39,5	67,9

Il 32,1% non è stato testato nell'anno dell'intervista: di questi 1 su 3 non è MAI stato testato per HCV



Ministero della Salute, 2006

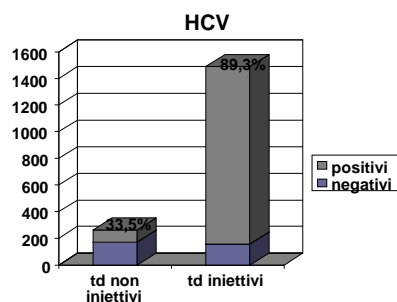
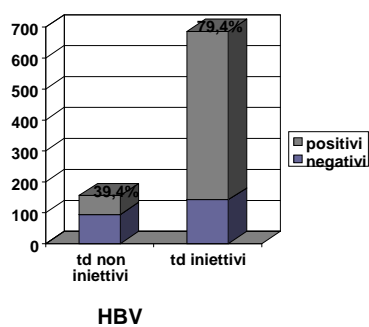
Motivi della non esecuzione del test HIV negli ultimi 12 mesi



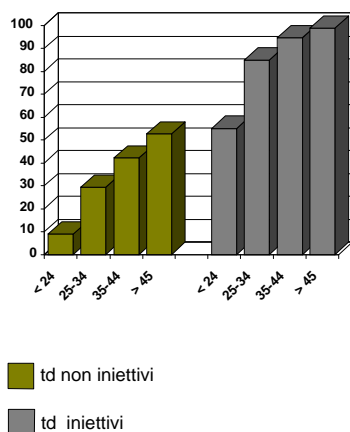
* mancanza di tempo, non è importante, non ci ha mai pensato, trascura il problema

Prevalenza e determinanti delle infezioni da HIV, HBV e HCV in tossicodipendenti iniettivi e non iniettivi in trattamento presso i SerT

Reparto di Epidemiologia - Dipartimento Malattie Infettive, Parassitarie ed Immunomediate

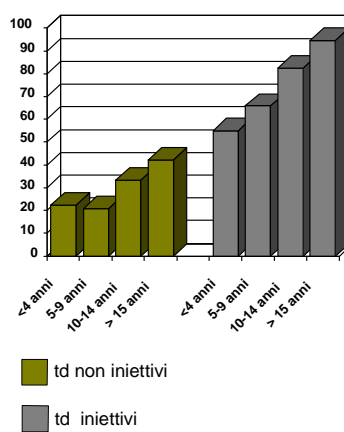


Prevalenze HCV per età



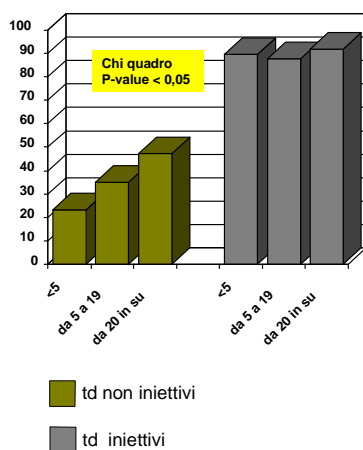
Chi quadro per trend lineare p-value<0,001

Prevalenze HCV per anni di TD

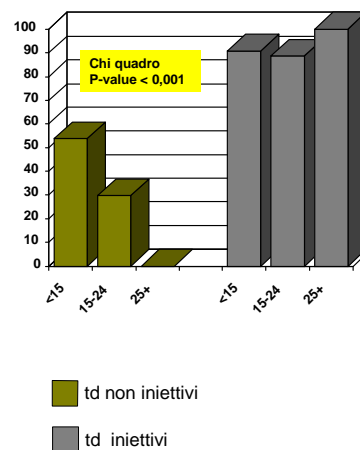


Chi quadro per trend lineare p-value<0,001

Prevalenze HCV per numero di partner nella vita

Chi quadro
P-value < 0,05

HCV ed età al primo rapporto sessuale

Chi quadro
P-value < 0,001

Conclusioni

CMC

- Promuovere la vaccinazione contro l'epatite B
- Prevalenze di infezione molto elevate nei tossicodipendenti non iniettivi
- Non sottovalutare il comportamento sessuale
- Incentivare l'esecuzione dei test di screening