Prevalence of hepatitis C, France, 2004

C Meffre[1], Y Le Strat[1], E Delarocque-Astagneau[1], JF Meyer[2], D Coste[3], J Steinmetz[4], F Dubois[5], D Antona[1], J Warszawski[6], JM Lemasson[3], JP Giordanella[7], R Gueguen[4], A Landau[8], JC Desenclos[1]

[1]National Institute for Public Health Surveillance (InVS), Saint-Maurice, France ; [2]Social Security Health Medical Center of National Health Insurance System, Saint-Brieuc, France ; [3]Social Security Health Medical Center of National Health Insurance System, Poitiers, France ; [4]Social Security Health Medical Centers Coordinating Unit, Saint-Etienne, France ; [5]Social Security Health Medical Center of National Health Insurance System (IRSA), Tours, France ; [6]Unit 569, National Institute for Health and Medical Research (INSERM), Le Kremlin-Bicêtre, France ; [7]National Health Insurance System (CNAMTS), France ; [8]Hepatology Unit, Necker Hospital, Paris, France

C. Meffre
12, rue du Val d'Osne - 94415 St-Maurice Cedex - France
Tél. : +33 (0)1 41 79 68 79 Fax : +33 (0)1 41 79 67 69
c.meffre@invs.sante.fr

Background

- In France, in 1994, the prevalence of anti-HCV antibodies was 1.05% ; CI 95% (0.75-1.34) for persons from 20 to 59 years-old.
- National programmes for hepatitis B & C prevention and control were implemented in 1999 and 2002, aiming particularly at :
  - reinforcement of screening,
  - improvement of access to care and treatment.

➡ A new HVC infection prevalence survey was conducted in 2003-2004.

Objectives

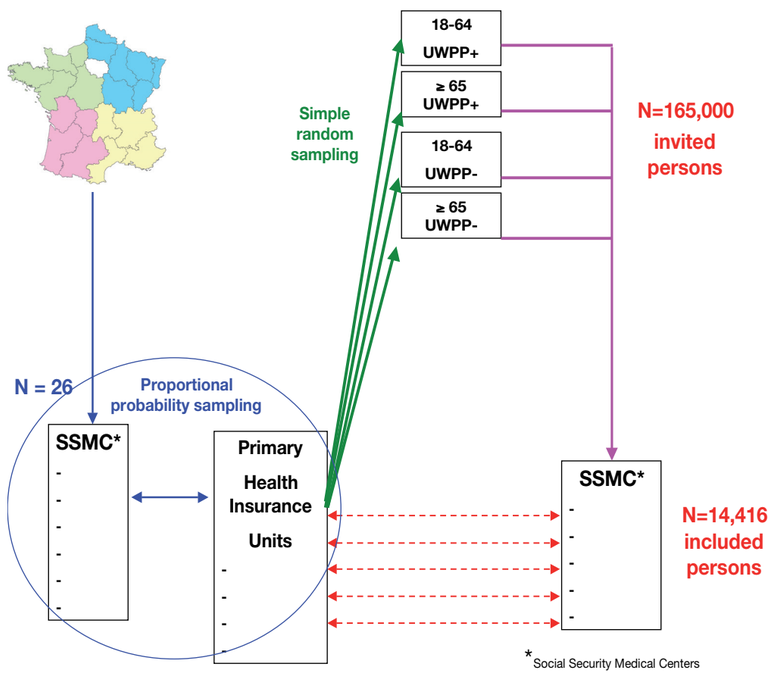
- To obtain national and regional prevalence estimates of :
  - anti-HCV positive,
  - HCV RNA positive.
- To obtain these estimates in socially deprived persons and in persons older than 65 years-old.
- To estimate the proportion of persons aware of their sero-status anti-HCV positive.

Methods

- A two stage, stratified, random and proportional probability sample design was used among French residents from 18 to 80 years-old:
  - **stage 1:** regional stratification and selection of 26 Primary Health Insurance Units linked to a Social Security Medical Centre from the National Health Insurance System.
  - **stage 2:** selection of insurees with stratification by :
    . age : 18-64, ≥ 65 years-old,
    . social deprivation : beneficiaries of universal welfare for precarious persons (UWPP), non beneficiaries,

  and with over sampling of those ≥ 65 years-old with UWPP.

Figure1: Sampling design



- 165,000 selected persons were invited to SSMC for a health check-up.
- Informed consent was obtained from each participant to the study.
- A 4 pages questionnaire was submitted by a nurse or a GP.
- Blood samples were tested for :
  - anti-HCV (EIA and immunoblot if positive),
  - HCV RNA (PCR) if anti-HCV positive.
- Statistical analysis weighted according to sampling was performed with Sudaan® software.

Results

- 14,416 participants were included in the study.
- Men, beneficiaries of UWPP and those aged 40-69 had a better participation to the study.
- The overall seroprevalence of anti-HCV was 0.84% (95%CI: 0.65 - 1.10).
- An estimated 367,055 persons (95%CI: 269,361 - 464,750) among French metropolitan residents had antibodies to HCV.

Figure 2: Anti-HCV prevalence by age and gender, France, 2004

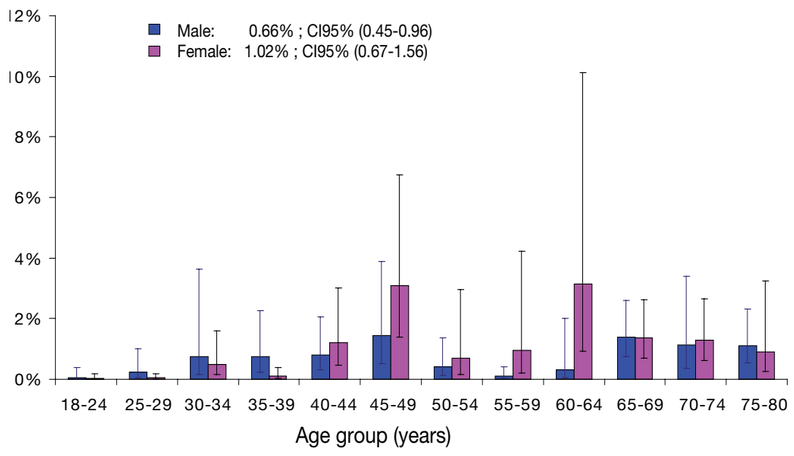


Figure 3 : Anti-HCV prevalence by age, gender and UWPP, France, 2004

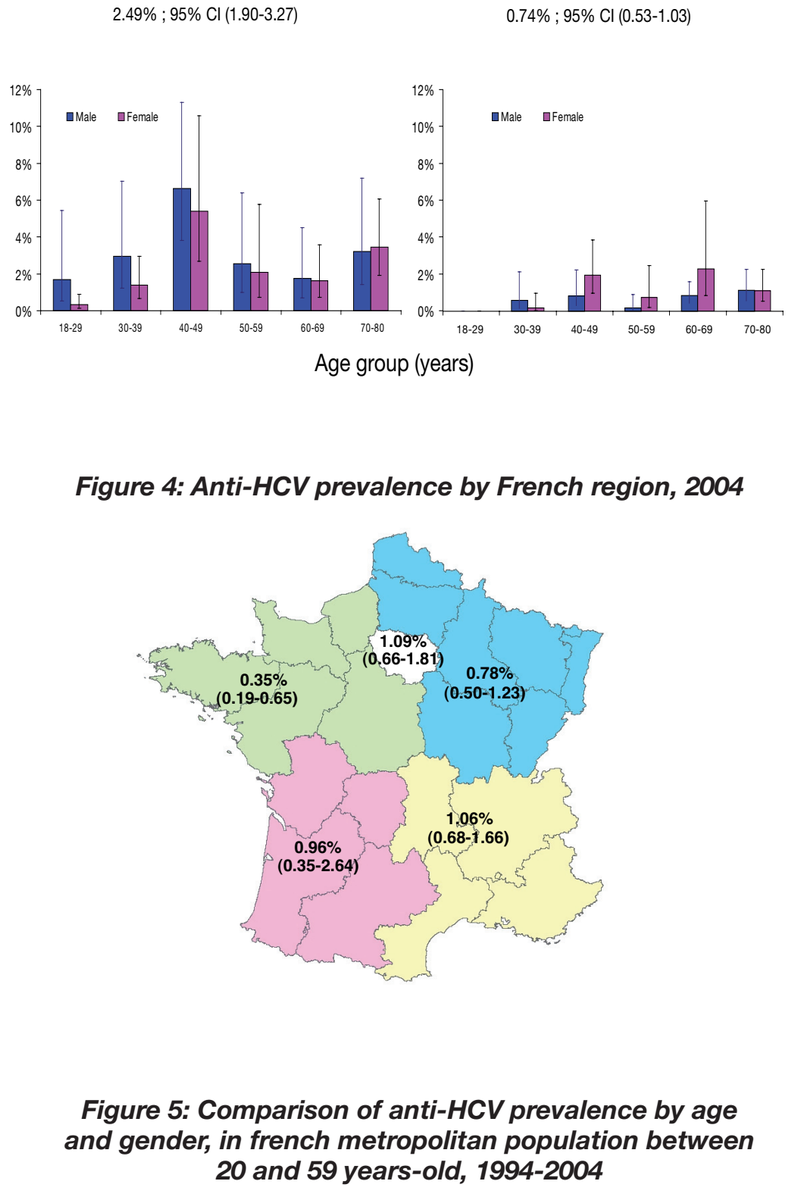
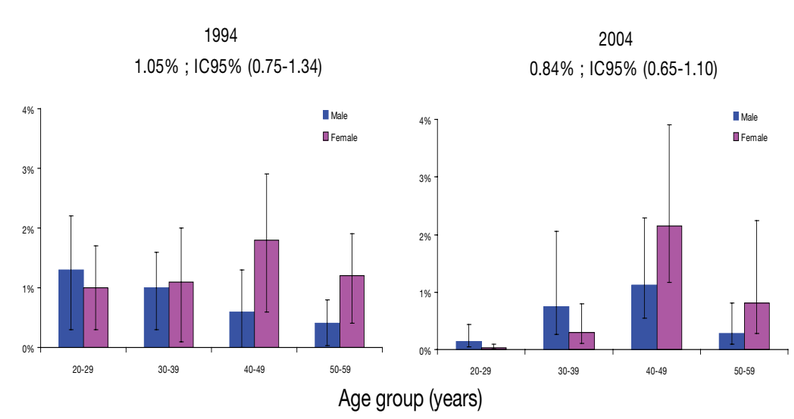


Figure 4: Anti-HCV prevalence by French region, 2004

Figure 5: Comparison of anti-HCV prevalence by age and gender, in french metropolitan population between 20 and 59 years-old, 1994-2004



- From 1994 to 2004, the anti-HCV prevalence decreased overall and especially for the 20-29 years-olds (fig. 5).
- In 1994 the prevalence estimates were comparable for all the age groups independently of gender (fig. 5).
- In 2004 the prevalence estimates were lower before 40 and after 50 but higher between 40-49 years-old (fig. 5).

Table 1: Risk factors for antibodies to HCV, France, 2004

Characteristics	Multivariate analysis	
	OR*	95%CI
Age group		
18-29	1.0	ref
30-39	7.5	1.8 – 31.0
40-49	27.0	7.2 – 100.2
50-59	8.3	2.0 – 34.3
60-69	74.7	18.1 – 308.9
70-80	42.2	9.6 – 184.4
Beneficiaries of UWPP	2.0	0.9 – 4.3
Birth continent		
low HCV endemicity**	1.0	ref
moderate HCV endemicity**	3.1	1.3 – 7.5
high HCV endemicity**	66.9	6.0 – 750.7
Transfusion <1992	6.0	2.5 – 14.6
Tattoo	2.3	1.0 – 5.4
Nasal drug use	6.9	2.2 – 21.3
Intravenous drug use	94.1	25.9 – 342.0

** OR adjusted for gender and all variables in table.*
*** Low HCV endemicity = anti-HCV prevalence < 2.5% ; moderate HCV endemicity = anti-HCV prevalence 2.5%-5% ; high HCV endemicity = anti-HCV prevalence ≥ 5.*

Chronic infection due to HCV

- In 2004, 65% of persons with anti-HCV antibodies (95%CI: 50 - 78) were positive for HCV RNA.
- In 1994, 81% were HCV RNA positive.
- An estimated 221,386 persons (95%CI: 158,909 - 283,862) in France were chronically infected in 2004.

Table 2: Awareness of the anti-HCV positive status

	Proportion of anti-HCV positive persons aware of their seropositivity	
	%	95%CI
In 1994	24.0	—
In 2004		
Overall	56.4	40.5 - 71.0
IDU	93.2	77.0 - 98.2
Transfusion <1992*	72.4	47.1 - 88.6
Others**	28.2	14.1 - 48.5

**IDU excluded **non-IDU & no transfusion <1992*

Conclusions

- The decrease of anti-HCV prevalence between 1994 and 2004 in the 20-29 years old (fig. 5) is in favour of a decline of HCV incidence among younger adults in the past ten years.
- The high prevalence of anti-HCV among the beneficiaries of UWPP needs futher investigation.
- Tattoo and nasal drug use may have played a role in HCV transmission.
- HCV RNA positivity decreased over the decade, which could be due to treatment efficacy.
- Anti-HCV seropositivity awareness has overall increased, but a refinement of screening criteria should be defined and implemented.

Acknowledgements

- Participating Social Security Medical Centers and Primary Health Insurance Units.
- Steering Committee members.
- Associated Partners (CNAMTS, Cetaf, IRSA, CNR hépatites virales et biologie moléculaire INSERM U 370, InVS-SFLE-SCOM).