

# Epidemiology of hepatitis C

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# History of the HCV epidemic

100,000 to 400,000 individuals

Transfusion

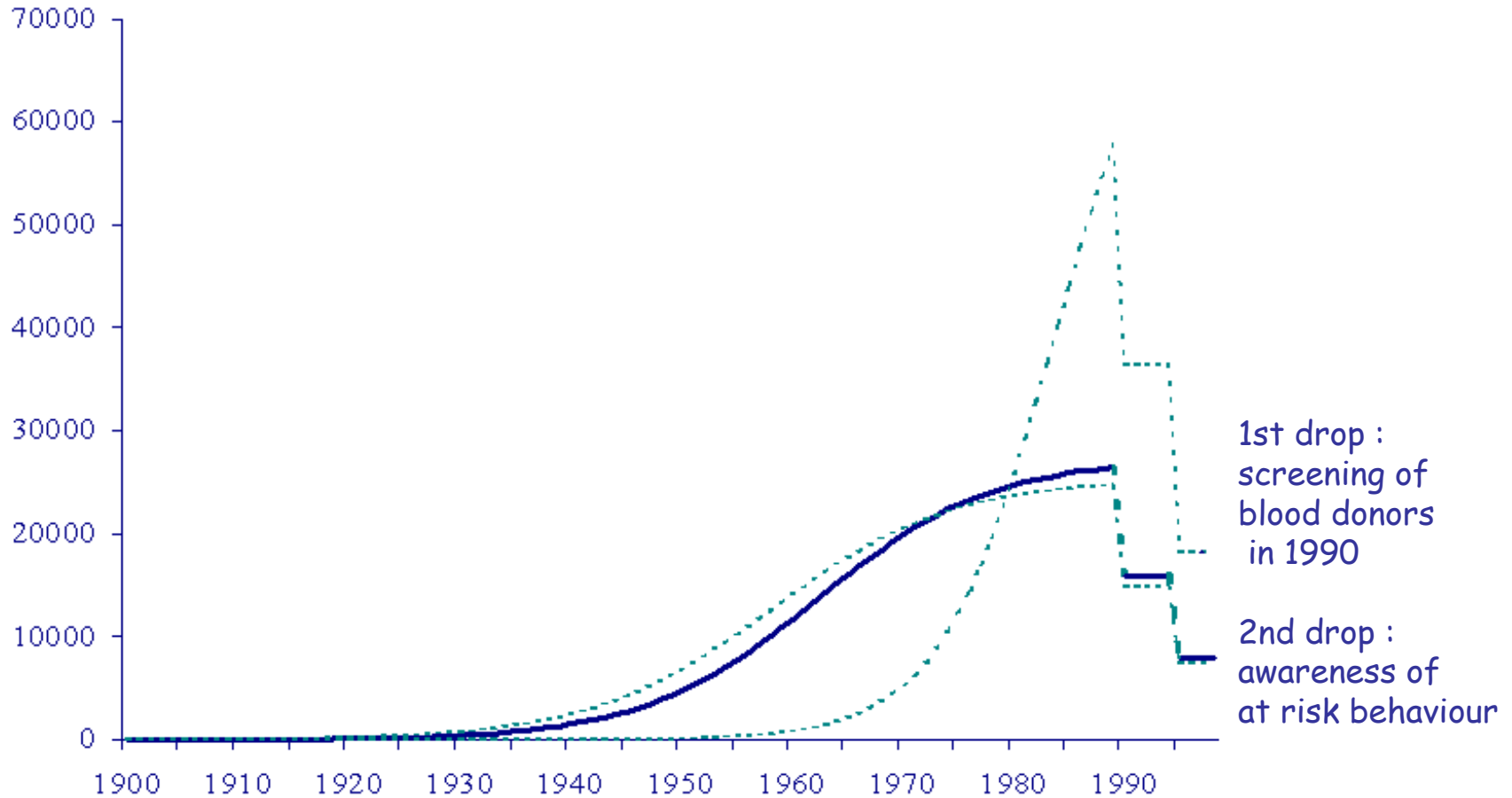
Medical/surgical  
procedures

IV drug use



# Back-calculated past incidence of HCV

Annual incidence  
Of HCV



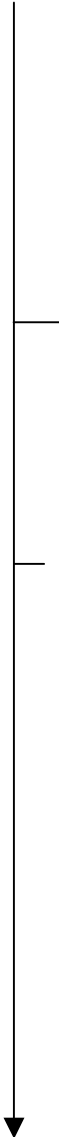
# Data available (1)

- 1994 :
  - estimated prevalence : 1.1 %
  - $\approx$  half a million individuals infected with HCV in France
- 2004 :
  - Probably lower
  - New estimation not yet available

# Data available (2)

Time (years)

Exposure to HCV



# Data available (2)

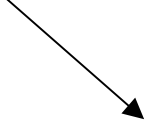
Time (years)

5 to  
20 years

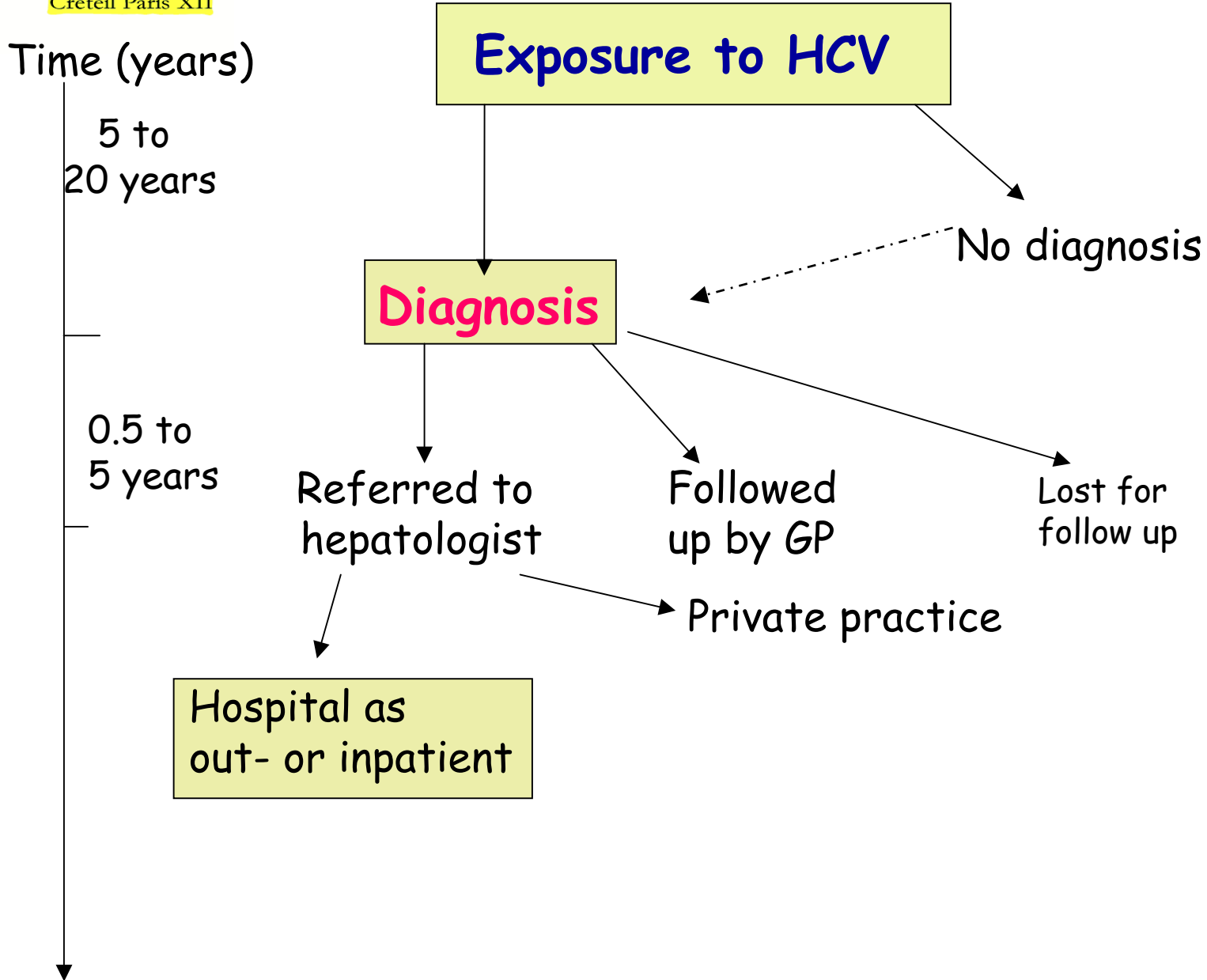
Exposure to HCV

Diagnosis

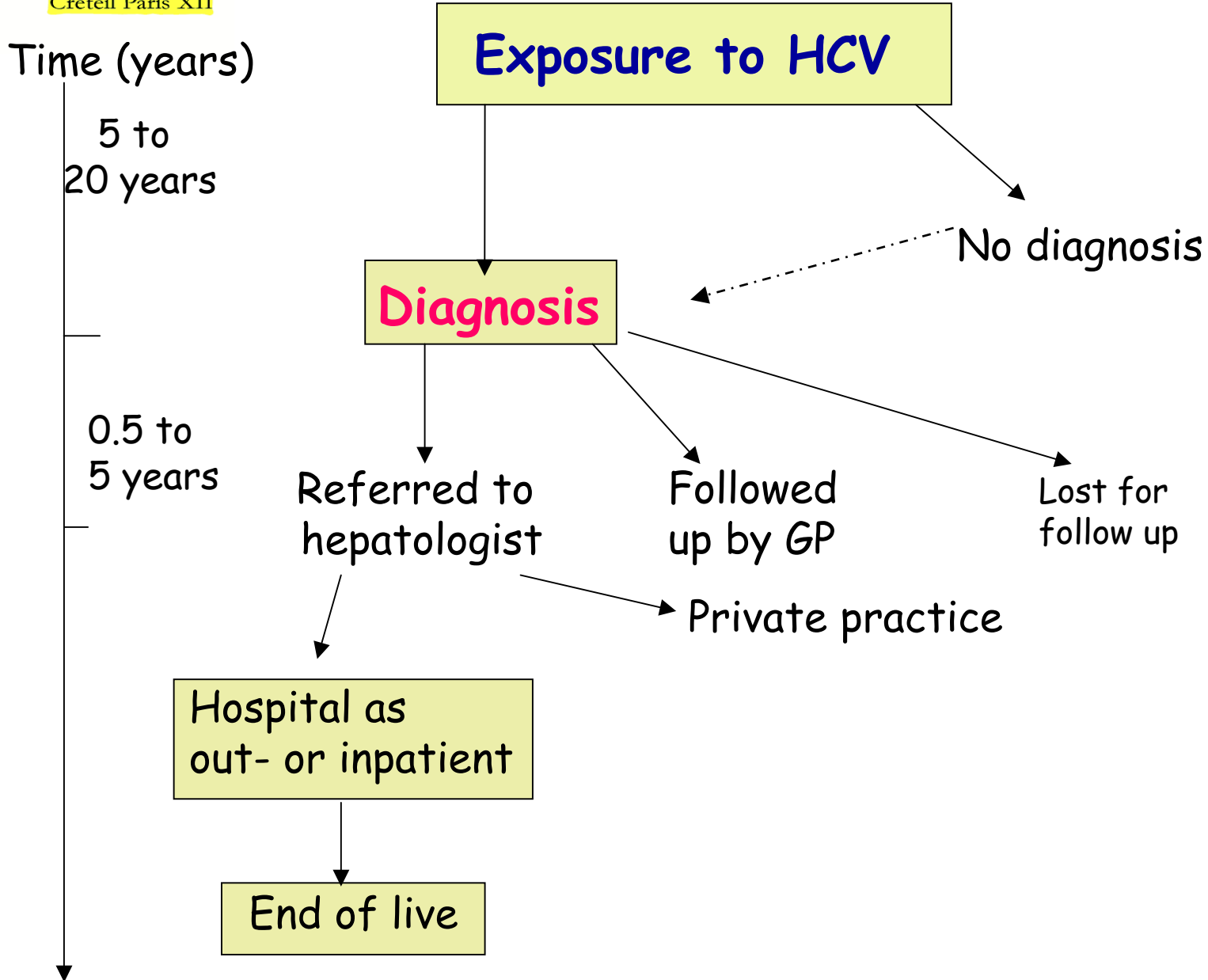
No diagnosis



# Data available (2)



# Data available (2)





# Data available (2)

Time (years)

5 to  
20 years

Exposure to HCV

Estimation of incidence  
in particular at risk  
groups

Diagnosis

No diagnosis

0.5 to  
5 years

Referred to  
hepatologist

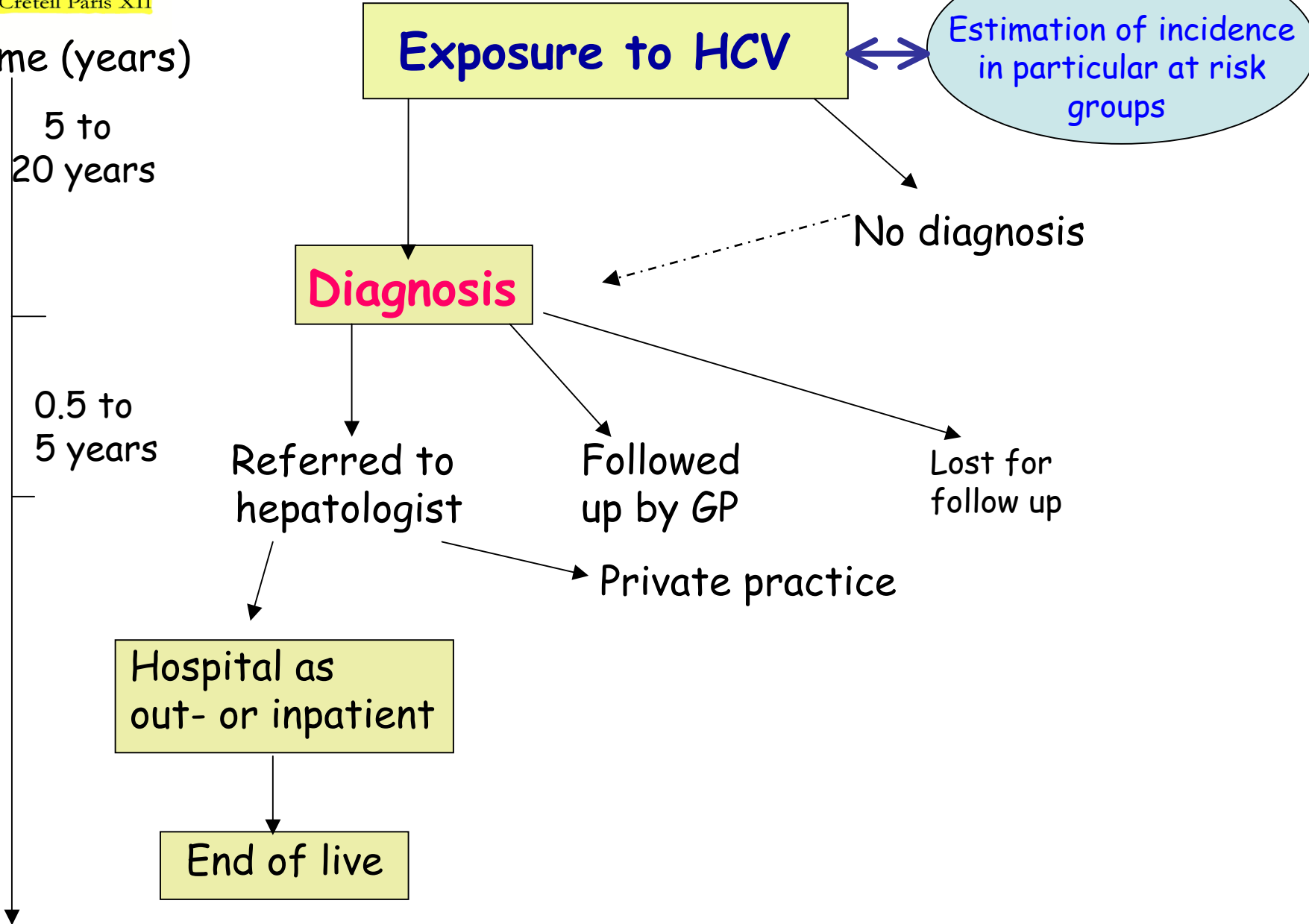
Followed  
up by GP

Lost for  
follow up

Private practice

Hospital as  
out- or inpatient

End of live



# Data available (2)

Time (years)

5 to 20 years

Exposure to HCV

Estimation of incidence in particular at risk groups

Diagnosis

No diagnosis

Registers

0.5 to 5 years

Referred to hepatologist

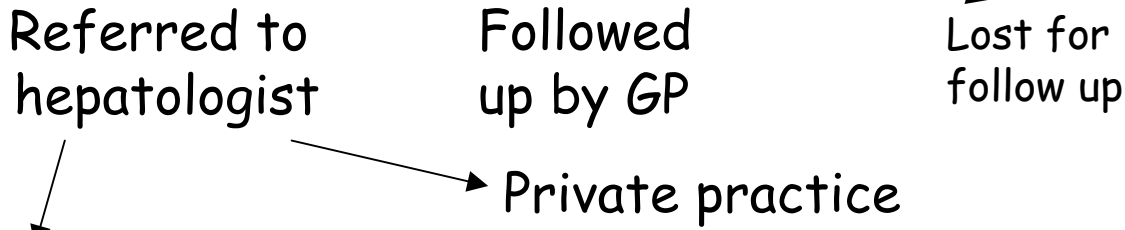
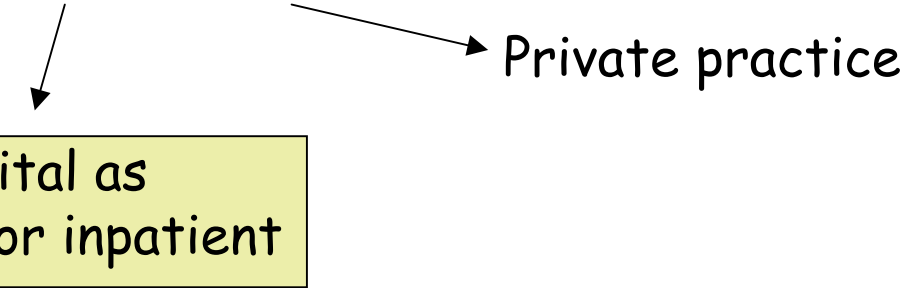
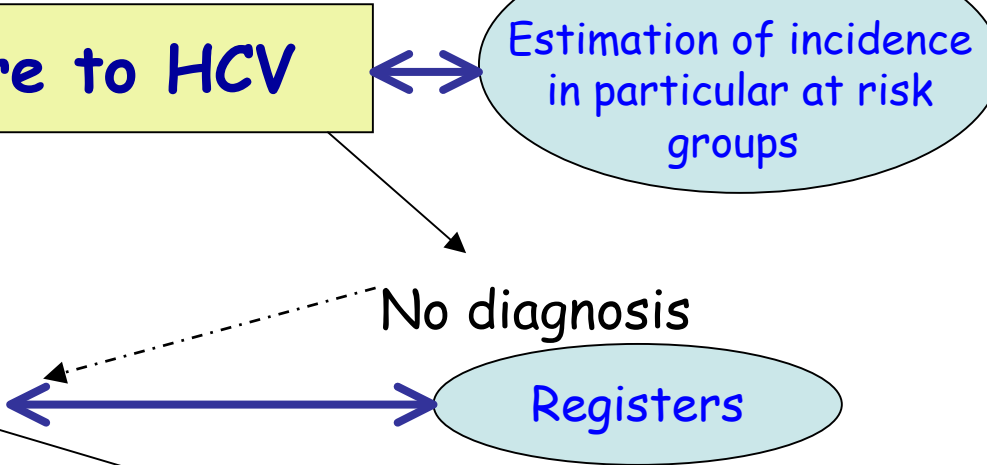
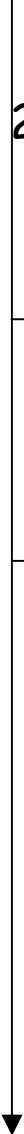
Followed up by GP

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Private practice

Hospital as out- or inpatient

End of live



# Data available (2)

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Referred to hepatologist

Followed up by GP

Lost for follow up

Private practice

Hospital as out- or inpatient

System of surveillance  
Reference centres-InVS

End of live



# Data available (2)

Time (years)

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Registers

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Referred to hepatologist

Followed up by GP

Lost for follow up

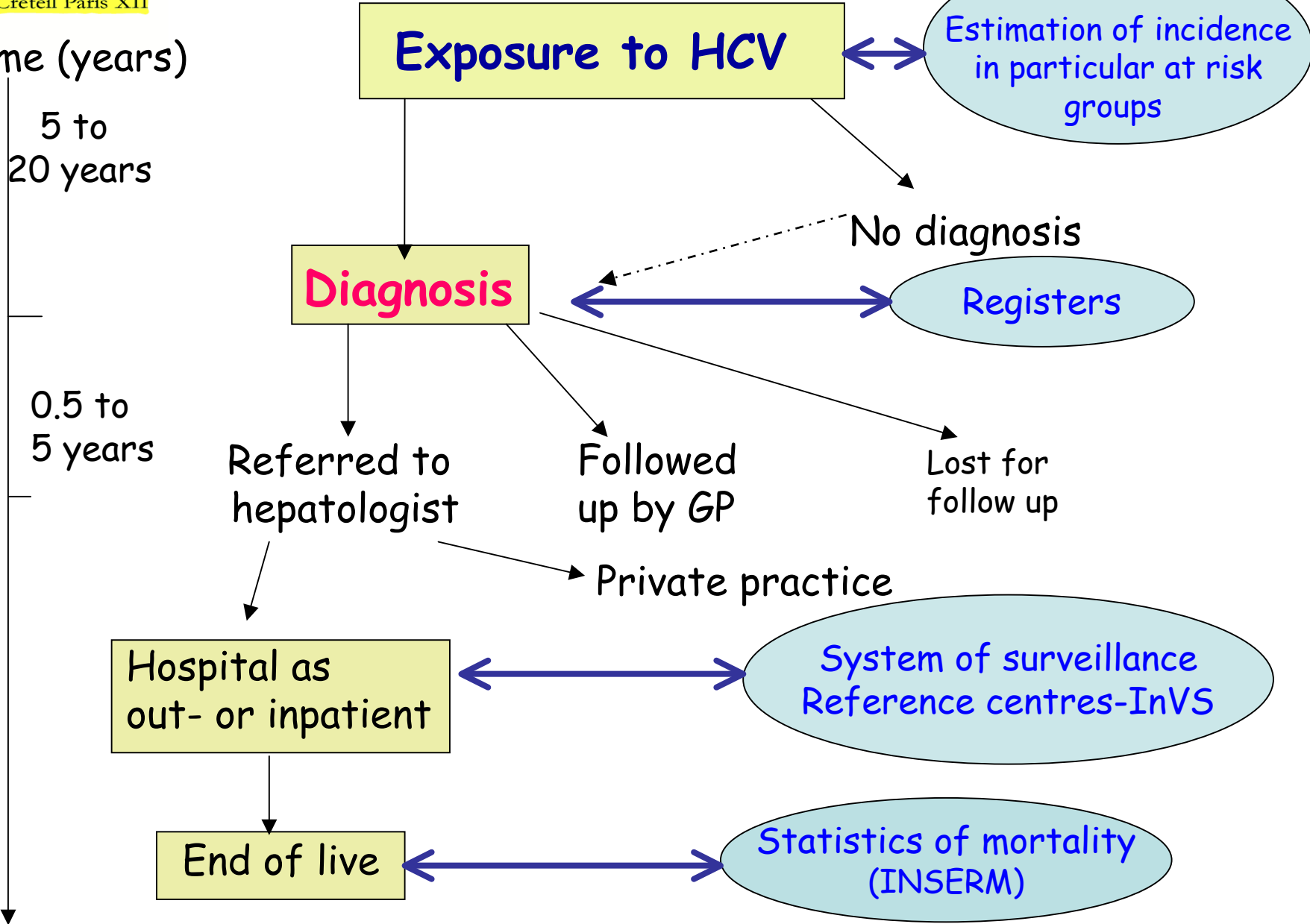
Private practice

Hospital as out- or inpatient

System of surveillance  
Reference centres-InVS

End of live

Statistics of mortality (INSERM)



# Current incidence of HCV infection

- Recipients of blood products : residual risk  $\approx 0$
- Nosocomial (/iatrogenic) transmission : cannot be easily quantified (screening in hemodialysis units)
- IVDU :  $\approx 10$  % seroconversions / p.y  
2,700 to 4,400 new infections/year
- Mother-infant transmission\* :
  - 3.8 % (95% CI : 0.8-6.8%) in monoinfected mother,
  - 10.9% (95% CI : 4.1-22.3) in mothers coinfecting with HIV
  - $\approx 300$  neonates infected at birth
- Transmission in sexual partners
  - No French large series available
  - Recent cases of acute hepatitis C in HIV +ve homosexual men

\* : E. Mariné-Barjoan, personal communication

# Characteristics of patients referred to the reference centres (2000-02)

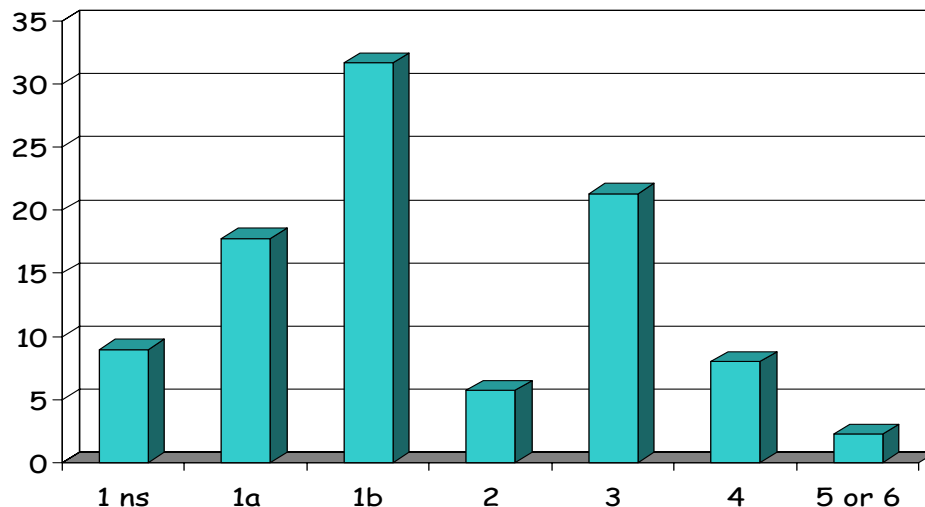
(n = 10,228)

|                                | Males | Females |
|--------------------------------|-------|---------|
| Sex ratio                      | 1.29  | 1       |
| Age < 45 y.o                   | 63 %  | 46 %    |
| Potential source of infection* |       |         |
| - transfusion                  | 25 %  | 40 %    |
| - drug use                     | 60 %  | 27 %    |
| - nosocomial                   | 16 %  | 20 %    |
| - no identified risk factor    | 13 %  | 14 %    |

\* : not exclusive, total > 100 %

# Characteristics of patients referred to the reference centres (2000-02)

- Clinical stage at referral :
  - Normal ALT : 20 %
  - Cirrhosis : 11 % (2 % decompensated)
  - Hepatocellular carcinoma : 1 %
  - Acute hepatitis : 37 cases in 3 ans
- HCV genotype distribution (n = 5218):



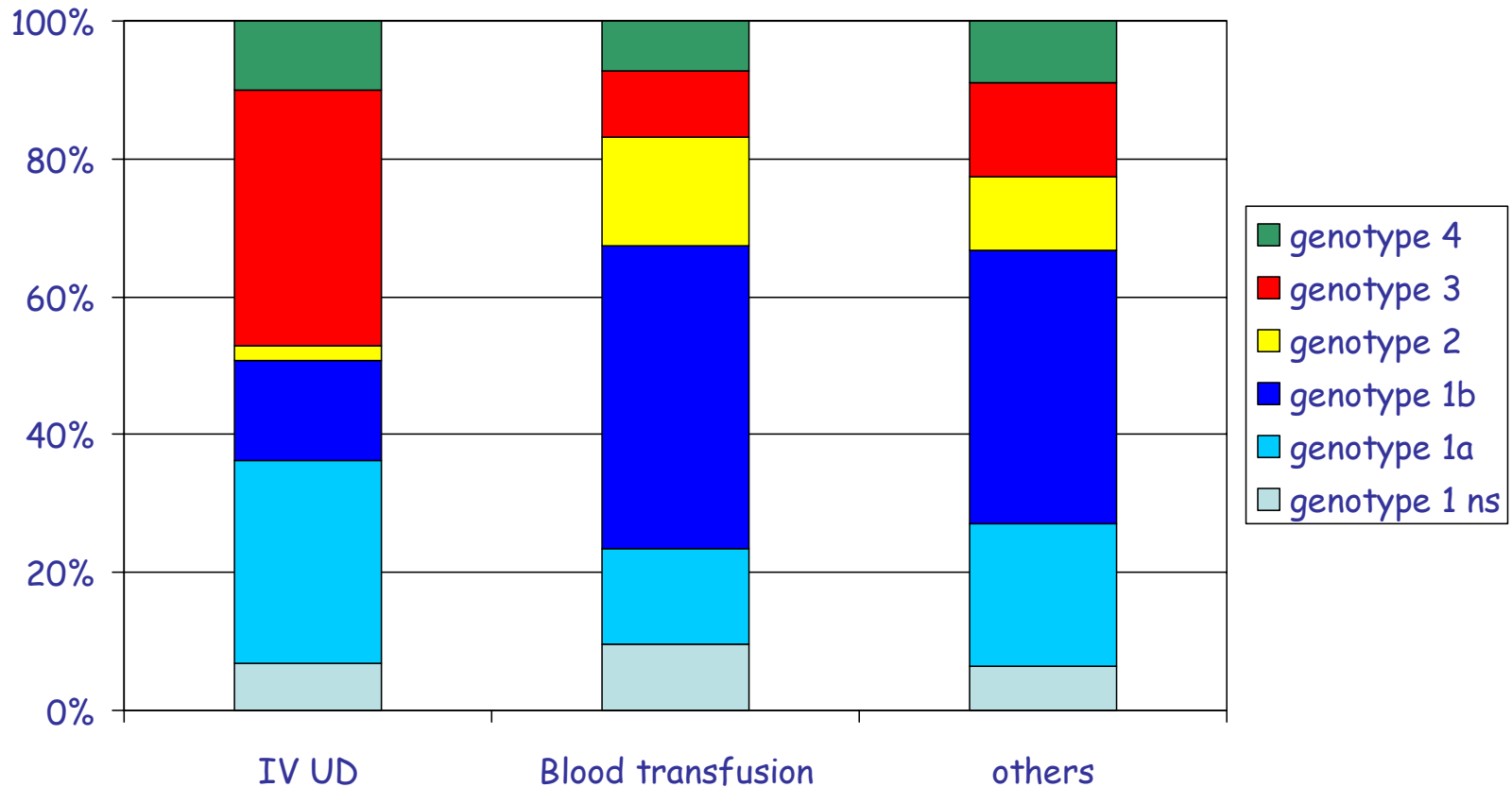
# Characteristics of patients referred to tertiary hospitals: comparison of 2 periods

|                                | 1991-93 | 2000-02   |
|--------------------------------|---------|---|
| <b>Route of transmission</b>   |         |   |
| - transfusion                  | 37.0 %  | 31.5 %  |
| - drug use                     | 24.7 %  | 45.6 %  |
| - nosocomial                   | 14.9 %  | 17.8 %  |
| - not identified               | 20.4 %  | 13.1 %  |
| <b>Severity of the disease</b> |         |   |
| - cirrhosis                    | 21.4 %  | 10.6 %<br>(13.2 % among patients with elevated ALT) |
| - hepatocellular carcinoma     | 0.9 %   | 0.97 %  |



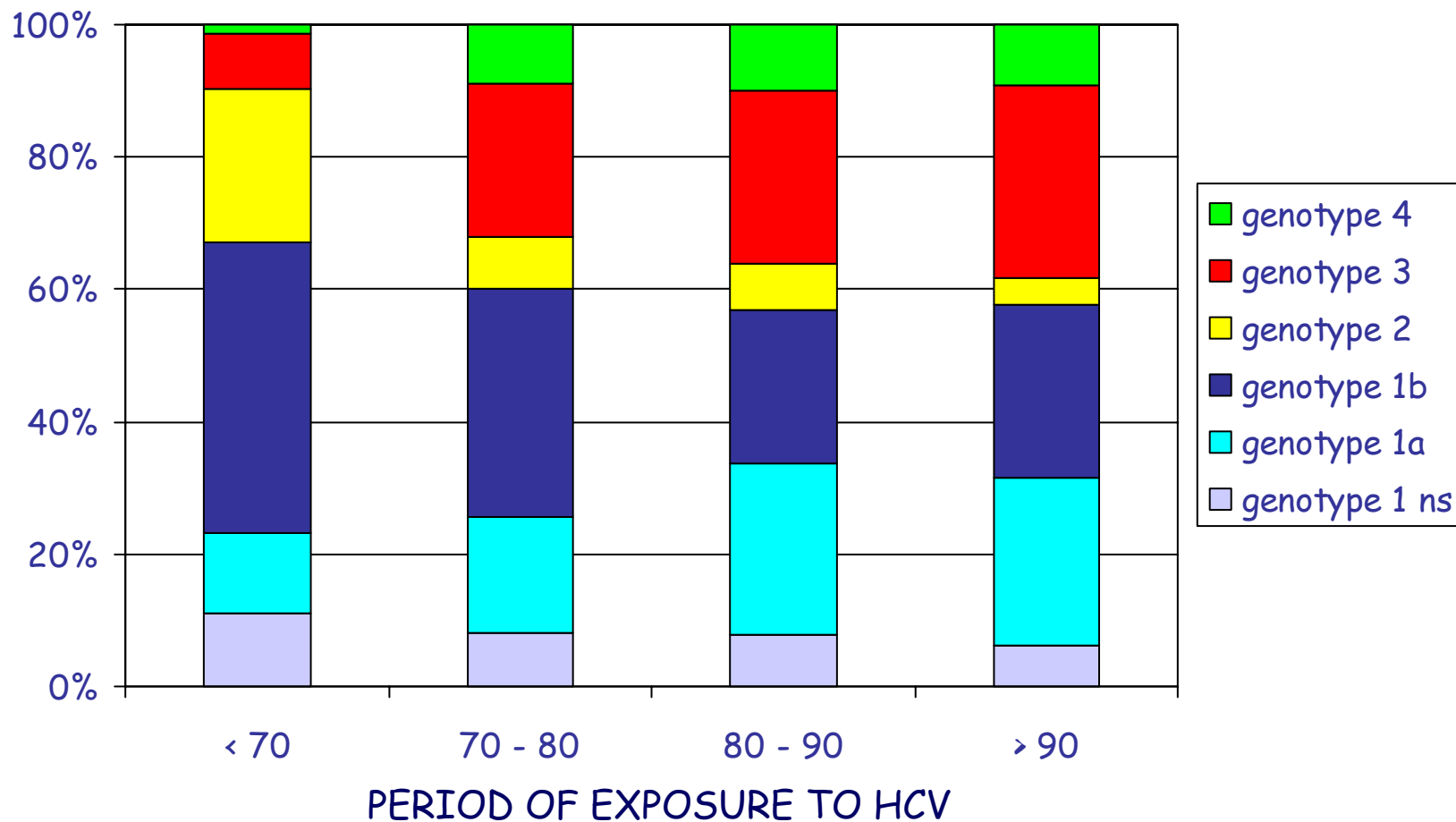
# HCV genotypes and sources of infection (2000-2001)

(n = 1662)



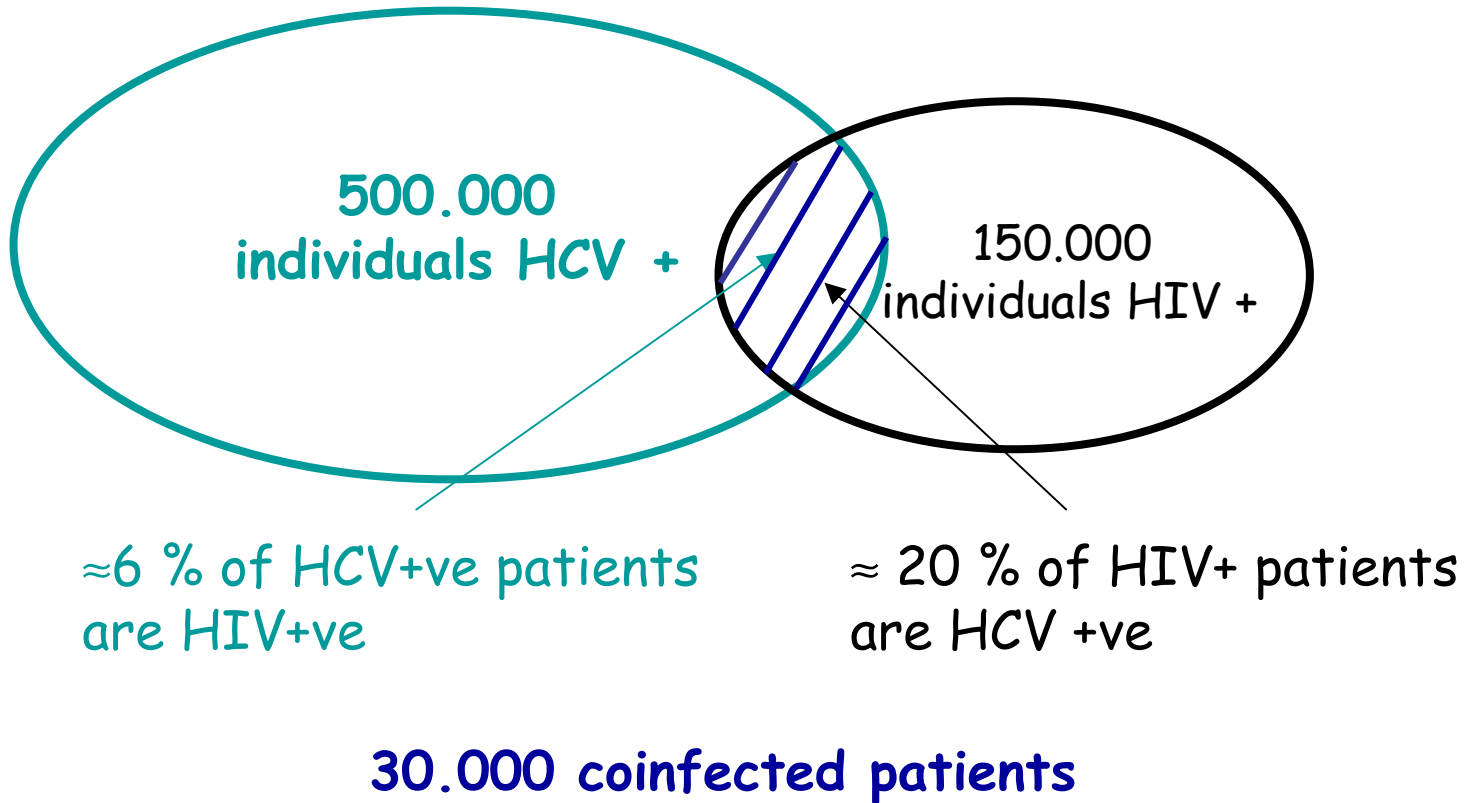
# Relationship between genotypes and period of exposure (2000-01)

(n= 985)



# HCV - HIV coinfections

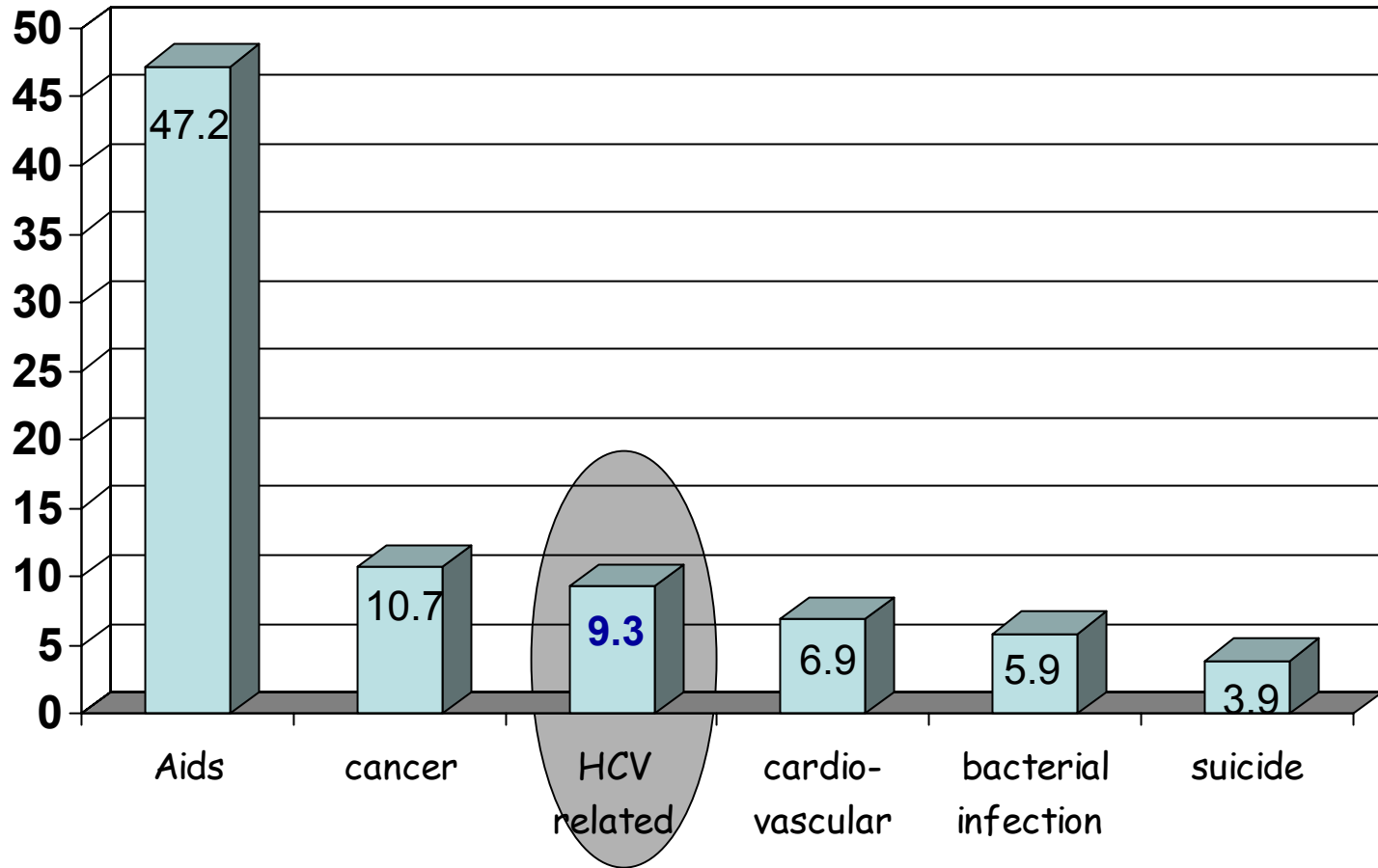
## Estimations in France



# Patients recently referred to HCV reference centres (2001-2002)

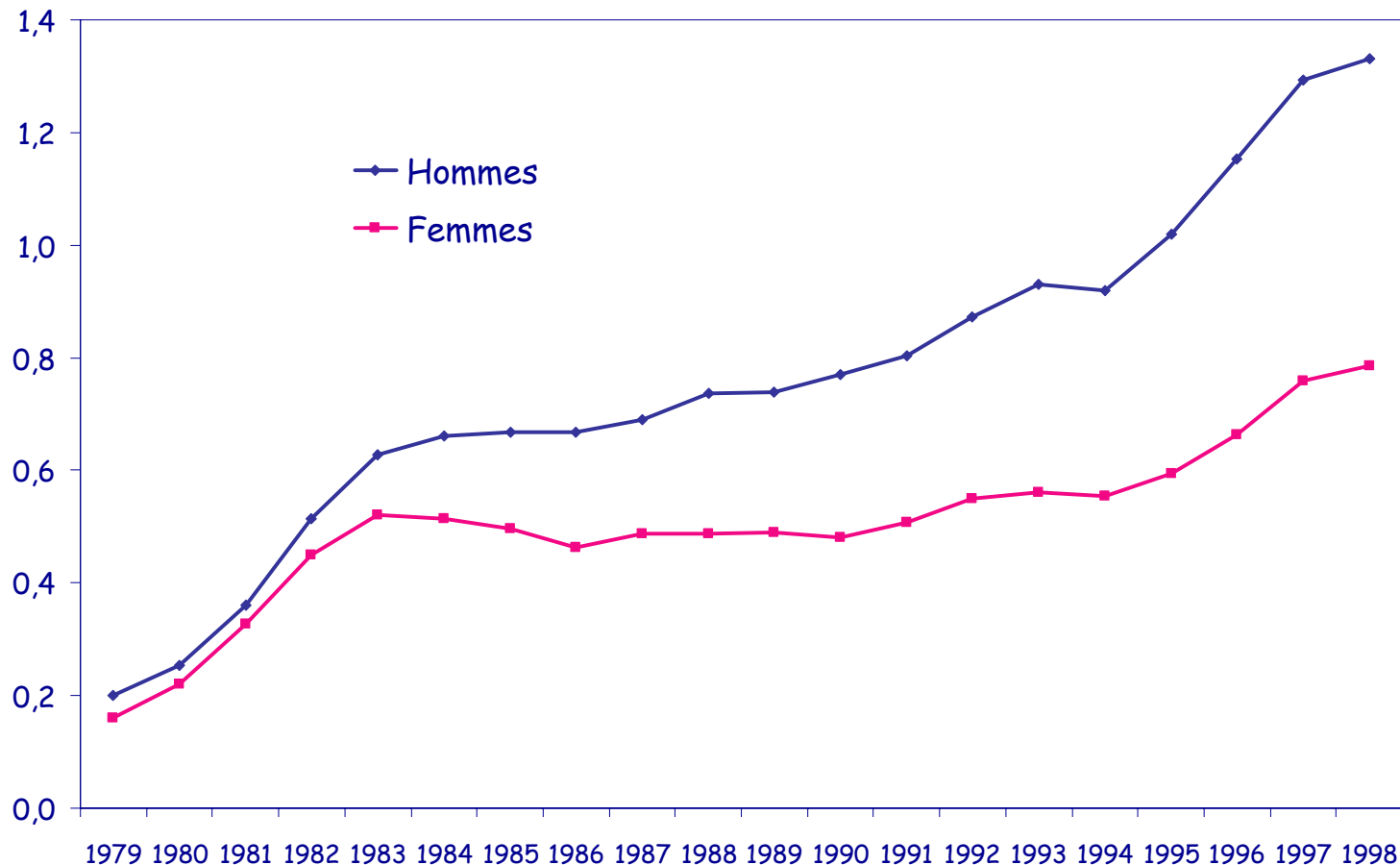
|                       | HIV +ve<br>(314) | HIV -ve<br>(7848) |
|-----------------------|------------------|-------------------|
| Sex ratio M:F         | 2.9:1            | 1.25:1            |
| Age <45 years         | 83 %             | 55 %              |
| Alcohol consumption   | 33 % >60g        | 25 % >40g         |
| Route of transmission |                  |                   |
| - transfusion : M - F | 7 % - 26 %       | 24 % - 39 %       |
| - IVDU : M - F        | 68 % - 68 %      | 59 % - 26 %       |
| Clinical stage        |                  |                   |
| - normal ALT          | 9 %              | 20 %              |
| - cirrhosis           | 16 %             | 11 %              |

# Causes of death in HIV infected patients (2000, n= 924)



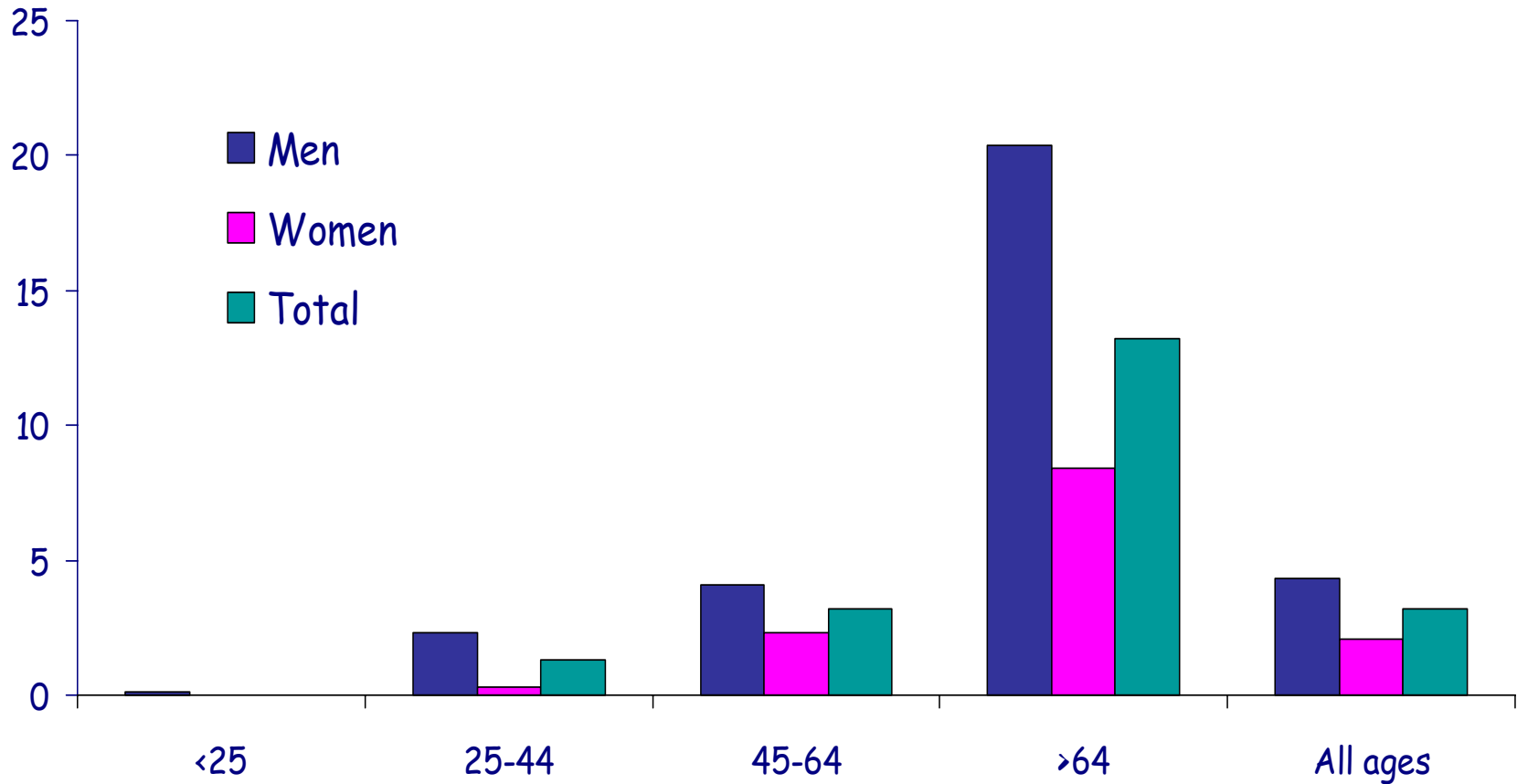
# Death associated with chronic hepatitis per 100 000 population, by gender, France, 1979-1998. Source : CépiDC-INSERM

Death rate / 100,000



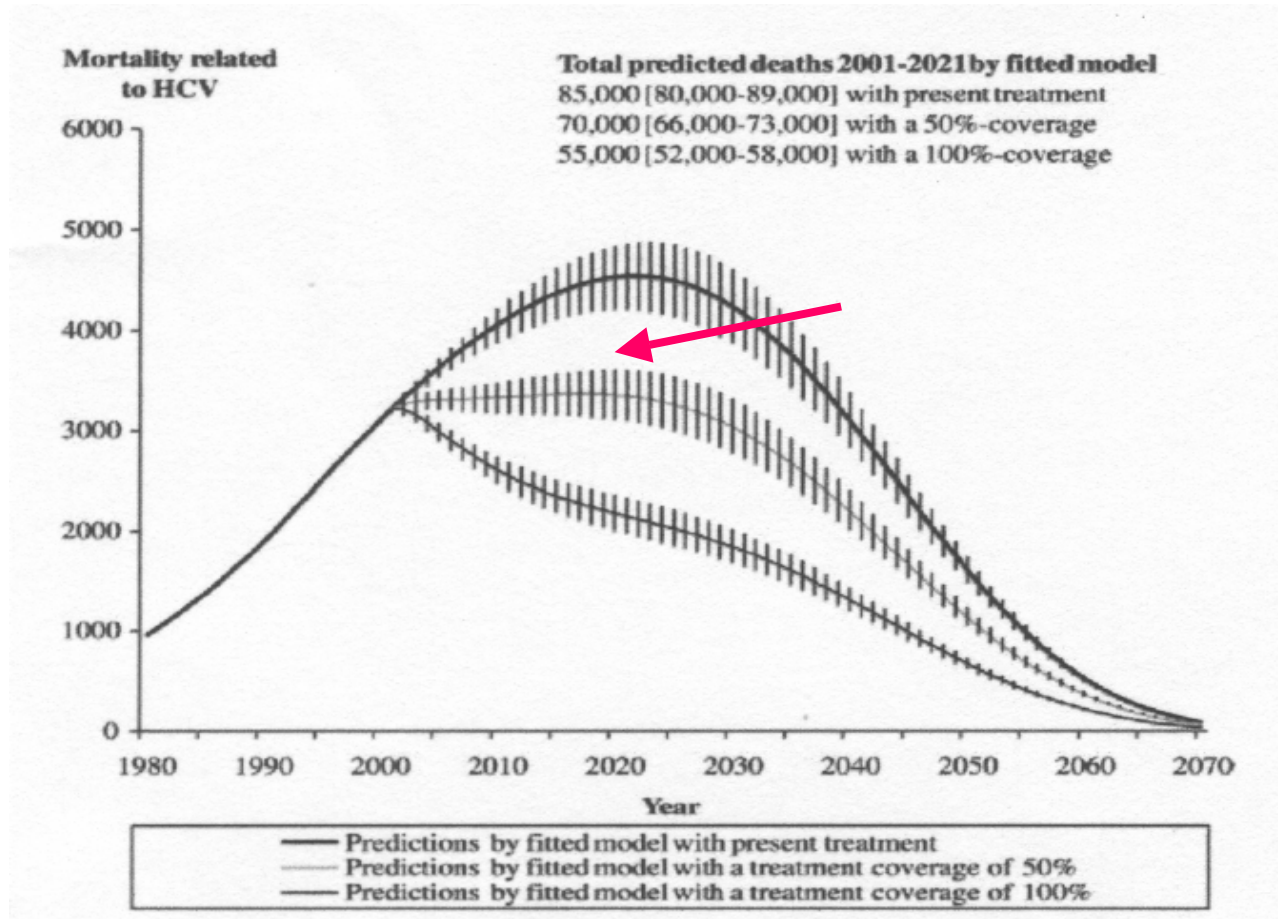
# Deaths associated with HCV infection, according to age and gender (France 1997)

Death rate/100,000



Source : CépiDC- INSERM

# Prediction of mortality related to HCV





## In conclusion

1. Incidence of hepatitis C has dramatically decreased in recent years
  - uncontrolled issue in DU
2. Older patients we have to cope with are :
  - in treatment failure
  - cirrhotics at risk of cancer and end stage liver disease
  - at need for transplantation
  - represent a great burden for reference centres
3. There is a need for an accurate surveillance system for a better funding allocation