

OC 9

# EVOLUTION AND DETERMINANTS OF THE PREVALENCE OF HCV INFECTION AND HCV GENOTYPE DISTRIBUTION AMONG HIV-INFECTED PATIENTS ENTERING IN CARE BETWEEN 1997 AND 2015 IN ITALY: DATA FROM A PROSPECTIVE NATIONWIDE COHORT (ICONA)

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# Disclosure

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I declare that I received personal fees from Abbvie, Janssen, MSD, ViiV Healthcare, Gilead

# Prevalence and burden of HCV co-infection in people living with HIV

- ✓ HCV infection is a major cause of morbidity and mortality in PLWHA

Grint, D. AIDS. 2015 Jun 19;29(10):1205-15

WHO. Hepatitis C. 2016 Mar

- ✓ Worldwide 2 278 400 HIV/HCV co-infections (IQR 1 271 300-4 417 000)
- ✓ Odds of HCV infection are six times higher in PLWHA (5.8, 95% CI 4.5–7.4)
- ✓ Prevalence of HIV/HCV co-infection is 2.4% (IQR 0.8–5.8)
  - 4.0% (1.2–8.4) within pregnant or heterosexually exposed
  - 6.4% (3.2–10.0) in MSM
  - 82.4% (55.2–88.5) in PWID

L. Platt. Lancet Infect Dis. 2016 Feb 24. pii: S1473-3099(15)00485-5

- ✓ HCV prevalence and genotype distribution among PLWHA in Italy are not known

# HCV treatment in DAAs era



- ✓ Direct antiviral agents (DAAs) have increased the effectiveness and tolerability of anti-HCV treatments

J McGinnis, EASL 2016. Abs LBP514

K Neukam, EASL 2016. Abs LBP513

- ✓ The efficacy of IFN-free regimens is strongly influenced by viral genotype

WHO, 2016

- ✓ Research is needed to individualize the best care for coinfecting patients

# Objectives

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- ✓ To analyze variation of HCV prevalence and HCV genotype distribution among persons living with HIV over the time
- ✓ To investigate their determinants
- ✓ To evaluate HCV-Ab positivity and HBsAg-/HBcAb+ status in HCV-Ab+ according to risk factor

# Methods

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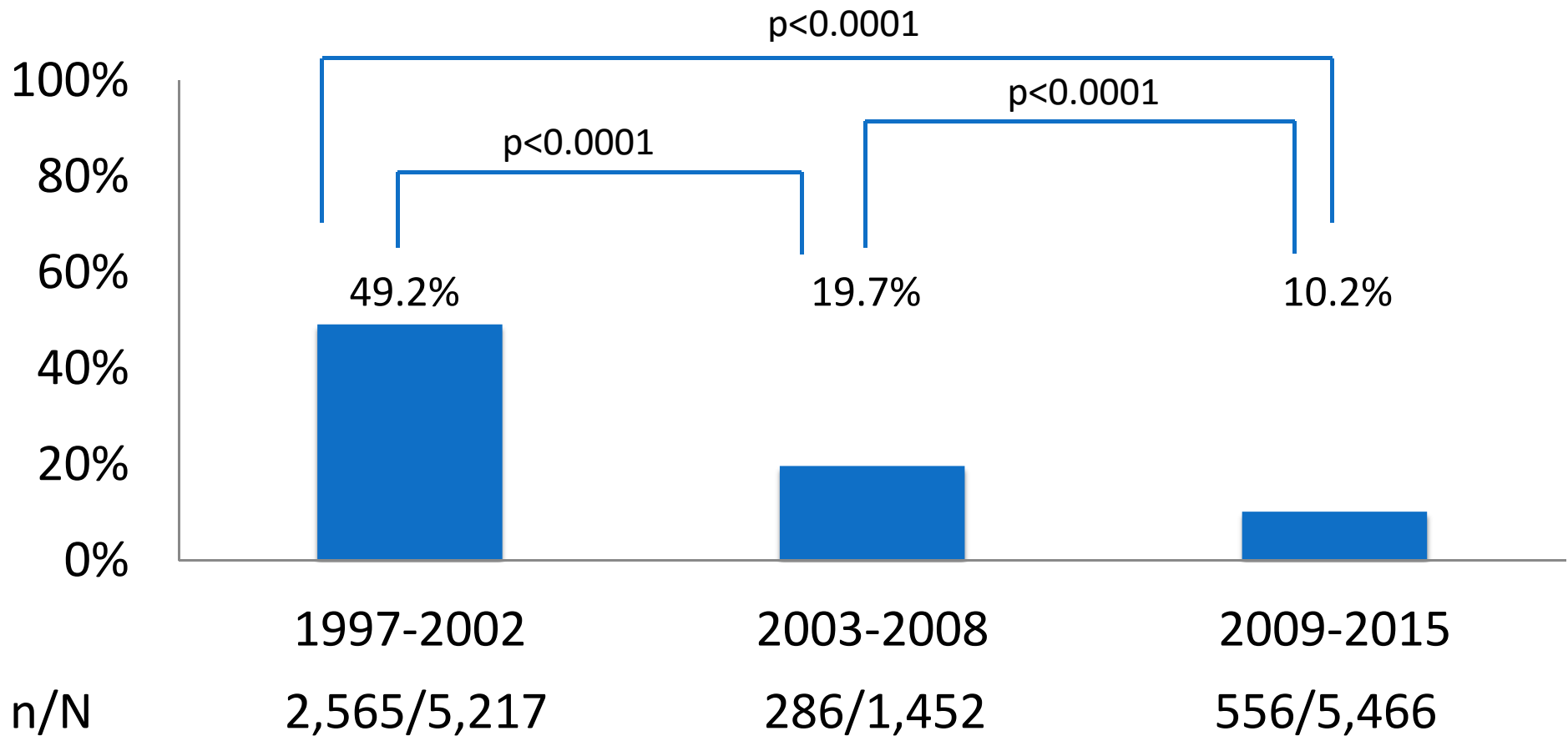
- ✓ HIV-1-infected ART-naïve patients tested for HCV-antibody enrolled from Iona cohort from 1997 to 2015
- ✓ HCV-Ab and HCV genotype prevalence were evaluated over calendar period of enrollment
- ✓ Different distribution of HCV-Ab positivity and HCV genotype and HBsAg-/HBcAb+ status in HCV-Ab+ according to risk factor were evaluated by  $\chi$ -square test
- ✓ Correlates of HCV-Ab prevalence and HCV genotype distribution were tested by univariable and multivariable logistic regression

# Baseline characteristics (N=12,135)

|   | Overall<br>(n=12,135) | HCV Ab +<br>(n=3,407) | HCV Ab -<br>(n=8,728) | p      |
|---|-----------------------|-----------------------|-----------------------|--------|
| Female gender, n (%)                                  | 3,001 (24.7%)         | 871 (24.6%)           | 2,130 (24.4%)         | 0.184  |
| Age, years (median, IQR)                              | 36 (31-43)            | 36 (32-40)            | 36 (30-45)            | 0.012  |
| Years from HIV diagnosis to enrollment* (median, IQR) | 1 (0-4)               | 5 (1-11)              | 0 (0-1)               | 0.0001 |
| Risk factor, n (%)                                    |                       |                       |                       |        |
| IDU   | 2,748 (22.6%)         | 2,502 (73.4%)         | 246 (2.8%)            |        |
| MSM   | 4,075 (33.6%)         | 309 (9.1%)            | 3,766 (43.1%)         | 0.0001 |
| Heterosexual  | 4,564 (37.6%)         | 494 (14.5%)           | 4,070 (46.6%)         |        |
| Other/unknown   | 748 (6.2%)            | 102 (3%)              | 646 (7.4%)            |        |
| AIDS, n (%)   | 1,841 (15%)           | 586 (17%)             | 1,255 (14%)           | 0.0001 |
| Country region, n (%)                                 |                       |                       |                       |        |
| North   | 6,516 (53.7%)         | 1,860 (54.6%)         | 4,656 (53.3%)         |        |
| Centre  | 3,876 (31.9%)         | 901 (26.4%)           | 2,975 (34.1%)         | 0.0001 |
| South and Islands                                     | 1,743 (14.4%)         | 646 (19%)             | 1,097 (12.6%)         |        |
| Italian, n (%)  | 10,375 (84.1%)        | 3,238 (95%)           | 7,137 (81.8%)         | 0.001  |
| Calendar period of enrollment, n (%)                  |                       |                       |                       |        |
| 1997-2002   | 5,217 (42.9%)         | 2,565 (75.3%)         | 2,652 (30.4%)         | 0.0001 |
| 2003-2008   | 1,452 (11.9%)         | 286 (8.4%)            | 1,166 (13.4%)         |        |
| 2009-2015   | 5,466 (45%)           | 556 (16.3%)           | 4,910 (56.3%)         |        |
| HCV genotypes, n (%)                                  |                       |                       |                       |        |
| 1   | 668 (49%)             | 668 (49%)             |                       |        |
| 2   | 46 (3.4%)             | 46 (3.4%)             |                       |        |
| 3   | 488 (36%)             | 488 (36%)             | -                     | -      |
| 4   | 146 (10.8%)           | 146 (10.8%)           |                       |        |
| Mixed Infection                                       | 11 (0.8%)             | 11 (0.8%)             |                       |        |
| HBsAg positive patients, n (%)                        | 735 (6%)              | 261 (8.1%)            | 474 (5.7%)            | 0.0001 |

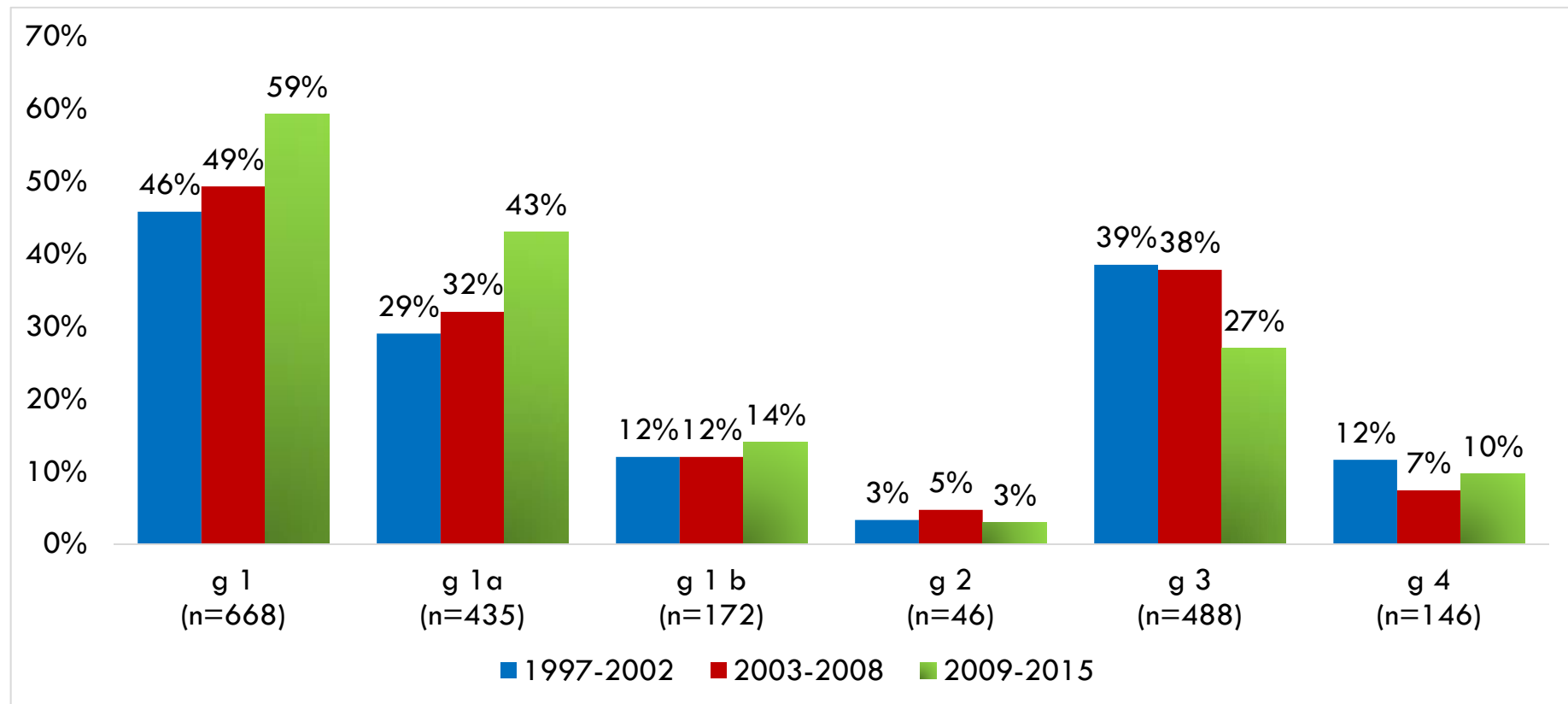
Values are expressed as n (%) except for the \* median (IQR)

# Prevalence of HCV-Ab positive status according to calendar year of enrollment



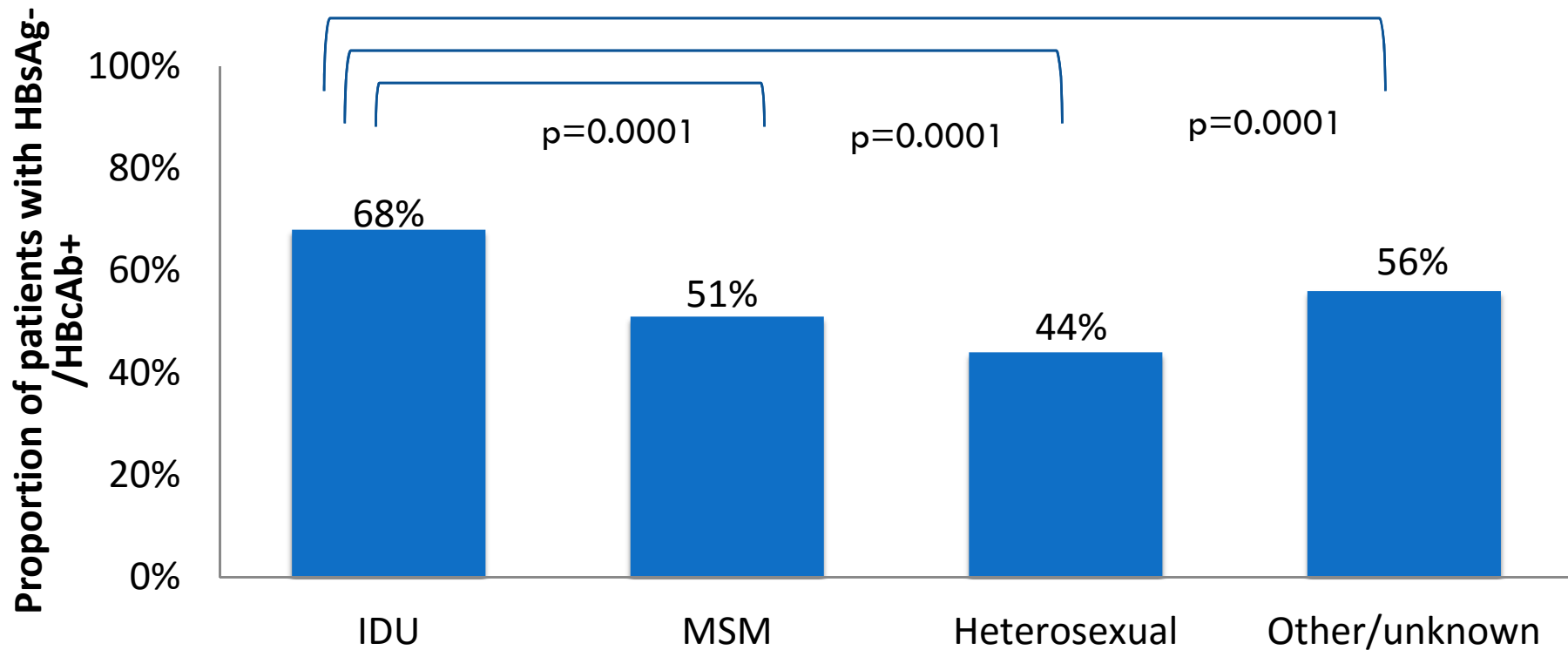


# HCV genotype distribution according to calendar year of enrollment (N=1,359\*)



\*1 not specified: 61 (4.5%); mixed 11 (0.8%)

# Prevalence of HBsAg-/HBcAb+ in HCVAb+ (n/N:764/1,249; 61%)



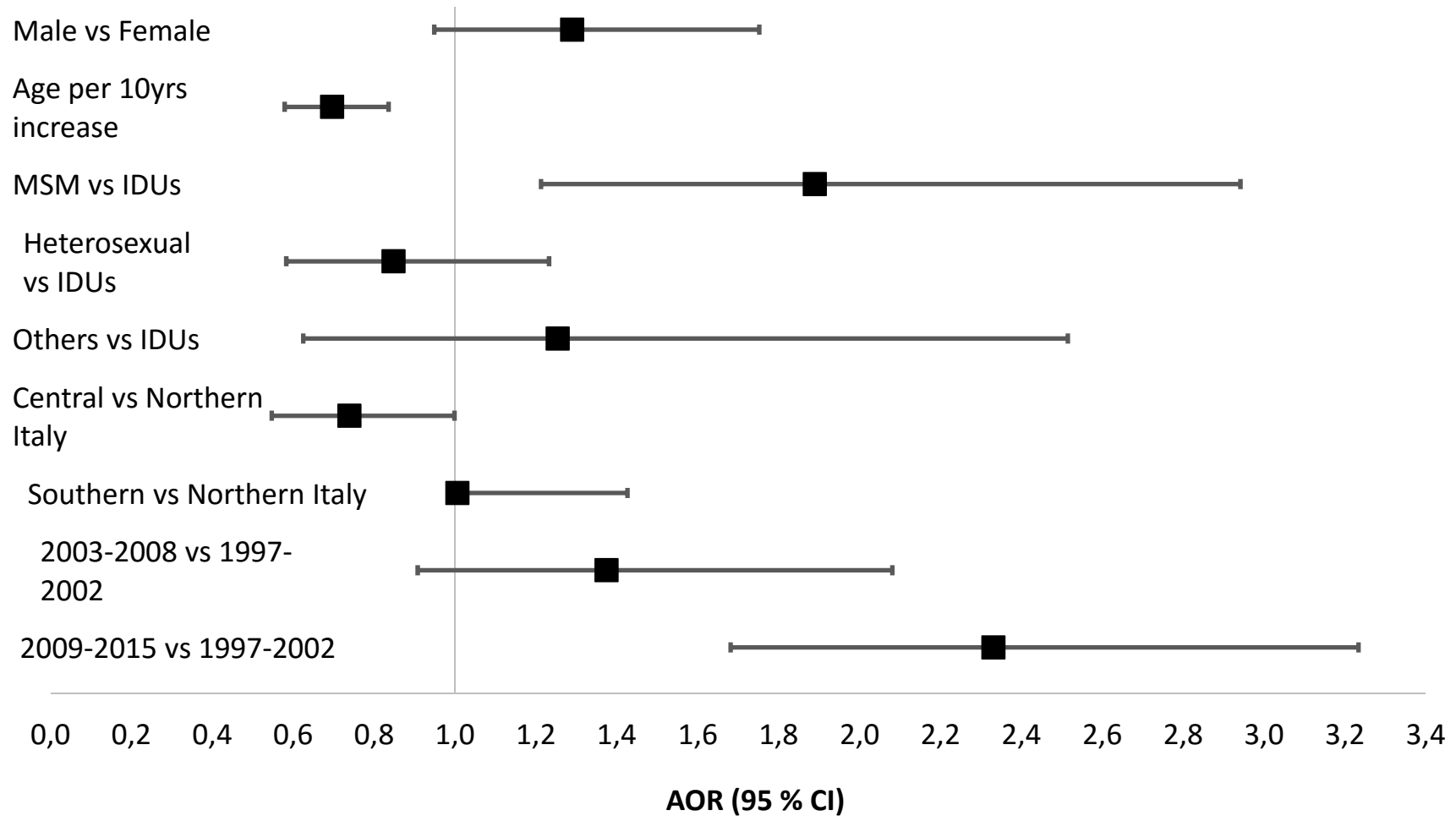
\*Other comparisons between groups are non statistically different

# Factors associated with HCV-Ab positive status

| Variable                      | Univariate analysis |             |         | Multivariate analysis |             |         |
|-------------------------------|---------------------|-------------|---------|-----------------------|-------------|---------|
|                               | OR                  | 95% CI      | P       | AOR                   | 95% CI      | P       |
| Female gender                 | 1                   |             |         | 1                     |             |         |
| Male gender                   | 0.940               | 0.858-1.030 | 0.183   | 0.811                 | 0.685-0.957 | 0.013   |
| Age, for 10 years older       | 1.523               | 1.466-1.581 | <0.0001 | 1.039                 | 0.971-1.112 | 0.276   |
| Risk factor                   |                     |             |         |                       |             |         |
| IDU                           | 1                   |             | <0.0001 | 1                     |             | <0.0001 |
| MSM                           | 0.008               | 0.007-0.010 | <0.0001 | 0.012                 | 0.010-0.015 | <0.0001 |
| Heterosexual                  | 0.012               | 0.01-0.014  | <0.0001 | 0.013                 | 0.011-0.016 | <0.0001 |
| Other/Unknown                 | 0.016               | 0.012-0.02  | <0.0001 | 0.021                 | 0.015-0.026 | <0.0001 |
| Country region                |                     |             |         |                       |             |         |
| North                         | 1                   |             | <0.0001 | 1                     |             | 0.098   |
| Center                        | 0.758               | 0.692-0.831 | <0.0001 | 0.851                 | 0.734-0.986 | 0.031   |
| South and Islands             | 1.474               | 1.319-1.647 | <0.0001 | 0.951                 | 0.788-1.148 | 0.601   |
| Foreign born                  | 1                   |             |         | 1                     |             |         |
| Italian                       | 4.271               | 3.625-5.032 | <0.0001 | 1.449                 | 1.163-1.807 | 0.001   |
| Calendar period of enrollment |                     |             |         |                       |             |         |
| 1997-2002                     | 1                   |             | <0.0001 | 1                     |             | <0.0001 |
| 2003-2008                     | 0.254               | 0.220-0.292 | <0.0001 | 0.497                 | 0.407-0.608 | <0.0001 |
| 2009-2015                     | 0.117               | 0.106-0.130 | <0.0001 | 0.229                 | 0.196-0.268 | <0.0001 |
| HBsAg-                        | 1                   |             |         | 1                     |             |         |
| HBsAg+                        | 1.464               | 1.252-1.713 | <0.0001 | 1.181                 | 0.916-1.521 | 0.201   |

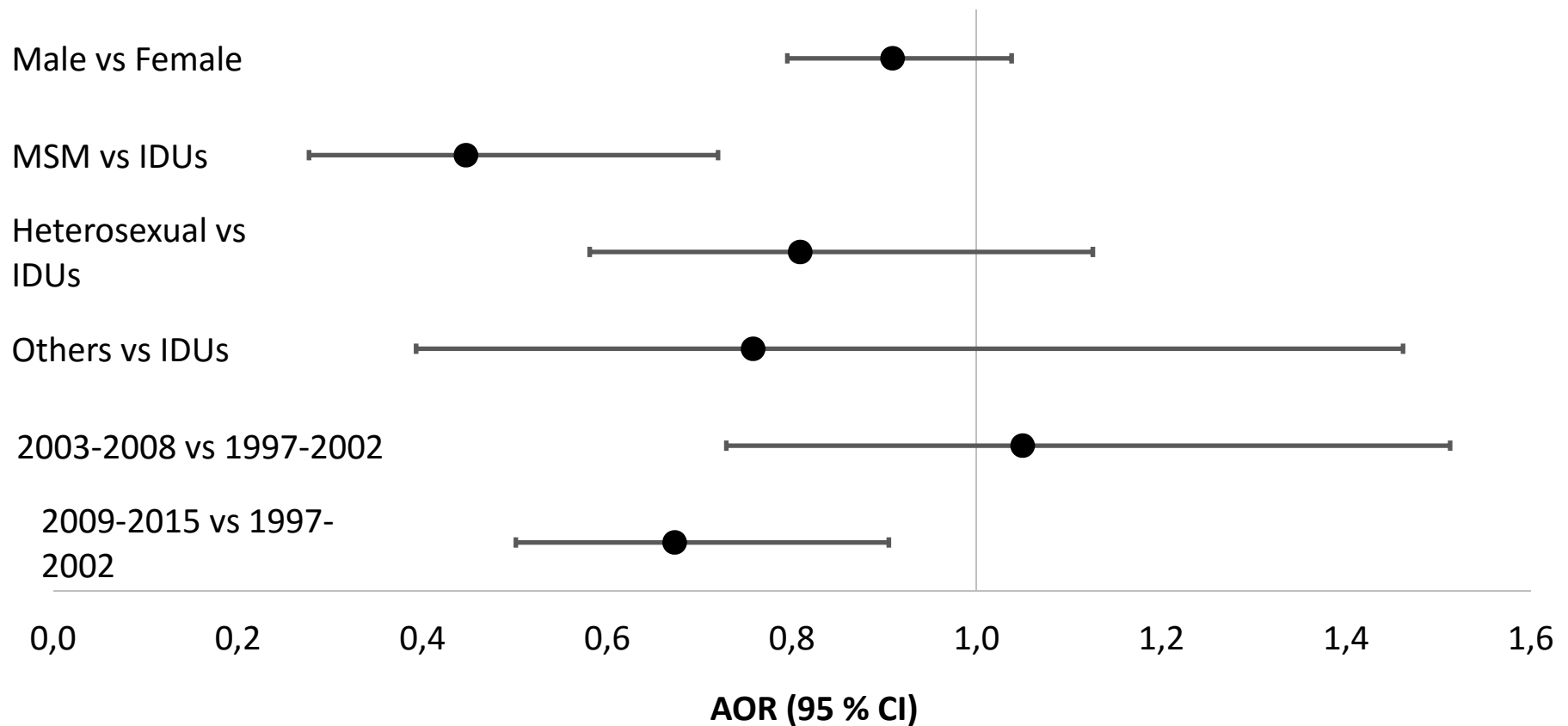
✓ Female sex versus male AOR +1.191, CI 95% 1.014-1.398 p= 0.033, excluding MSM

# Factors associated with genotype 1a (N=435)



\*Variables are mutually adjusted

# Factors associated with genotype 3 (N=488)



\*Variables are mutually adjusted

# Conclusions

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- ✓ Prevalence of HCV infection is significantly declining in PLWHA, independently of risk factors
- ✓ After adjusting for risk factors and calendar year of enrollment, HCV co-infection is more frequent in female patients and in natives
- ✓ In recent years the relative frequency of genotype 3 in co-infected patients is declining, while genotype 1a is increasing, mainly driven by younger patients and MSM

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