

# INCIDENT HCV INFECTIONS IN THE SWISS HIV COHORT STUDY: NATURAL HISTORY AND TREATMENT OUTCOMES

GILLES WANDELER<sup>1,2,3</sup>; JANINE ROHRBACH<sup>1</sup>; KARIN METZNER<sup>4</sup>; JAN FEHR<sup>4</sup>; MARCEL STÖCKLE<sup>5</sup>; MATTHIAS CAVASSINI<sup>6</sup>; JUAN AMBROSIONI<sup>7</sup>; OLIVIA KEISER<sup>2</sup>; HANSJAKOB FURRER<sup>1</sup>; ANDRI RAUCH<sup>1</sup> AND THE SWISS HIV COHORT STUDY

<sup>1</sup>BERN UNIVERSITY HOSPITAL, SWITZERLAND; <sup>2</sup>INSTITUTE OF SOCIAL AND PREVENTIVE MEDICINE, UNIVERSITY OF BERN, SWITZERLAND; <sup>3</sup>UNIVERSITY OF DAKAR, SENEGAL; <sup>4</sup>UNIVERSITY HOSPITAL ZURICH, SWITZERLAND; <sup>5</sup>UNIVERSITY HOSPITAL BASEL, SWITZERLAND; <sup>6</sup>UNIVERSITY HOSPITAL LAUSANNE, SWITZERLAND; <sup>7</sup>UNIVERSITY HOSPITAL GENEVA, SWITZERLAND

## BACKGROUND

- We recently observed dramatic changes in the hepatitis C virus (HCV) infection epidemic in the Swiss HIV Cohort Study (SHCS), including an 18-fold incidence increase in men who have sex with men (MSM)<sup>1</sup>.
- In selected HIV-infected patients, sustained virological response (SVR) rates of 60–80% have been observed if antiviral therapy was initiated within 24 weeks after HCV diagnosis<sup>2</sup>.
- The long-term trends in outcomes of incident HCV infections are largely unknown.
- HCV reinfections after spontaneous clearance or successful treatment seem to be frequent in HIV-infected MSM<sup>3</sup>.

- Wandeler G. et al. *Clinical Infectious Diseases* 2012; 15;55(10):1408-16
- Bösecke C. et al. *Current Opinion in HIV and AIDS* 2011; 6:278–284
- Martin T. et al. *AIDS* 2013;27(16):2551-7

## OBJECTIVES

- To study the natural history and treatment uptake of incident HCV infections between 1991 and 2012 in a nationwide cohort.
- To compare HCV treatment outcomes between patients who experienced a seroconversion before and after the first description of the surging epidemic in 2006.

## METHODS

### Study population

- The Swiss HIV Cohort Study (SHCS), a nationwide and representative cohort, offers an ideal platform to study nationwide trends in acute HCV epidemiology and management.
- All patients from the SHCS with a documented HCV-seroconversion were included.
- Patients with insufficient data and those who were lost to follow-up during the first 6 months after seroconversion were excluded.

### Data collection

- Detailed information on HCV diagnosis, treatment and outcomes, as well as reasons for not starting HCV treatment was retrieved from the SHCS database and chart review using standardized case report forms

### Analyses

- Natural history, treatment uptake and outcomes were compared between risk groups and time periods before and after 2006 using Fisher's exact test.
- HCV reinfections were defined as a genotype switch or a newly detectable HCV viral load after treatment-induced SVR or spontaneous clearance.

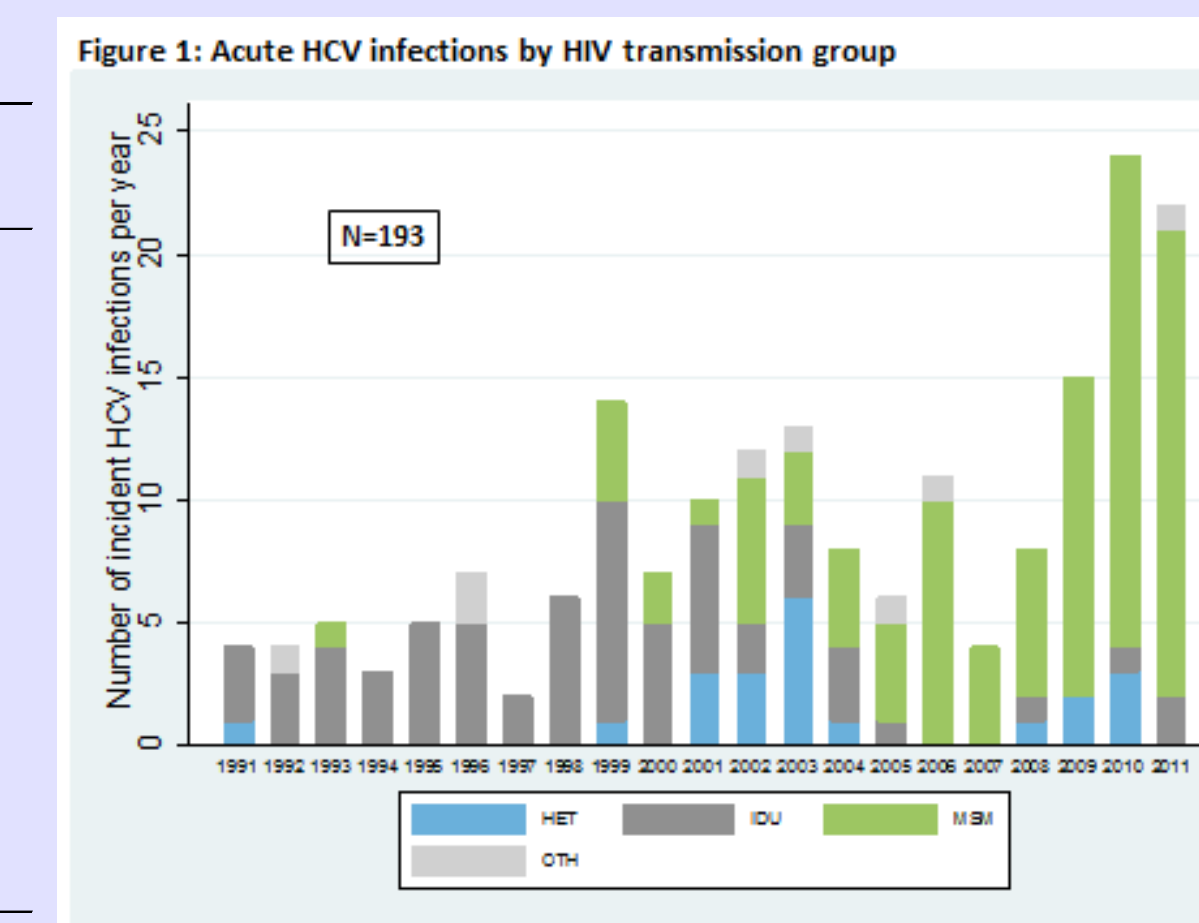
## RESULTS I: PATIENT CHARACTERISTICS

- Of 203 HCV seroconversions, 10 were excluded due to insufficient information. The demographic and clinical characteristics of the patients included are shown in [Table 1](#)
- The proportion of MSM among patients with incident HCV infections increased from 23% before to 85% after 2006 ( $p < 0.001$ ) ([Figure 1](#)).

Table 1: Baseline characteristics of participants

	MSM (N=99)	IDU (N=64)	HET (N=22)	OTHERS (N=8)
Female sex (%)	0	19 (30)	11 (50)	3 (38)
Median age in years (IQR)	34 (30-41)	31 (27-35)	35 (26-40)	33 (26-47)
Median CD4 count (IQR)	508 (358-676)	310 (191-491)	557 (372-745)	427 (157-636)
Suppressed HIV VL (%)	72 (73)	33 (52)	15 (68)	7 (88)
Occasional sexual partners (%)	83 (84)	6 (9)	9 (41)	2 (25)
Inconsistent condom use (%)	77 (78)	11 (17)	13 (59)	2 (25)
History of syphilis (%)	44 (44)	0	2 (9)	0
On ART (%)	92 (93)	45 (70)	17 (77)	8 (100)
HCV after 1.1.2006 (%)	75 (76)	4 (6)	7 (32)	2 (25)

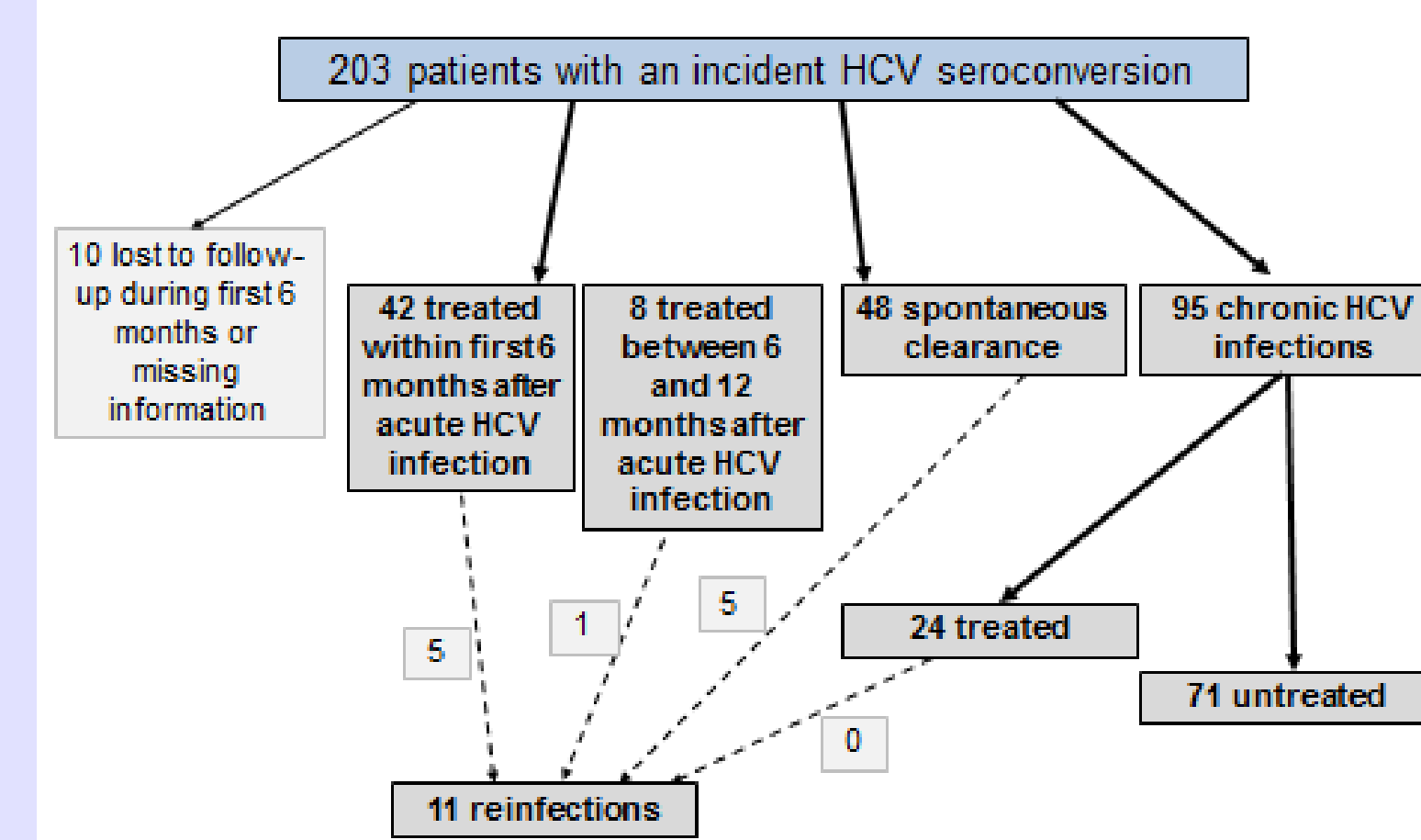
IQR: interquartile range; VL: viral load; ART: antiretroviral therapy



## RESULTS II: NATURAL COURSE OF HCV INFECTION AND TREATMENT UPTAKE

- A spontaneous clearance was observed in 48 cases (32% of those not treated during acute infection). Five of these experienced a reinfection ([Figure 2](#)).
- Twenty-three (12%) patients died during follow-up.
- Liver stiffness measurements were available for 55 (28%) individuals. The median liver stiffness was 6.9 kPa (IQR 4.7-7.5) after a median follow-up time of 6.9 years (2.7-10.3), and 7 patients were above the cut-off for liver cirrhosis (14 kPa).

Figure 2: Natural course and treatment uptake of patients with incident HCV seroconversions



- HCV treatment uptake increased from 33% before 2006 to 75% after 2006 ( $p < 0.001$ ). Among those treated, only 19% started treatment during acute infection before 2006, compared to 79% after 2006 ( $p < 0.001$ ). MSM were more likely to receive HCV therapy compared to patients from other transmission groups (71% vs. 32%,  $p < 0.001$ ). The most frequent reason for not being treated was persistent alcohol or drug abuse (23%), followed by patient's refusal (20%).

## RESULTS III: TREATMENT OUTCOMES

- 56 of 74 treated patients had an available treatment outcome at time of analysis.
- A sustained virologic response (SVR) was achieved in 70% and 21% ( $p = 0.01$ ) of those treated during early (within 12 months after diagnosis) and chronic infection, respectively ([Figure 3](#)).
- Five patients (all MSM) experienced a reinfection after an SVR to HCV treatment.
- [Figure 4](#) shows the time each patient spent with a replicating HCV infection during follow-up.

Figure 3: HCV treatment outcomes

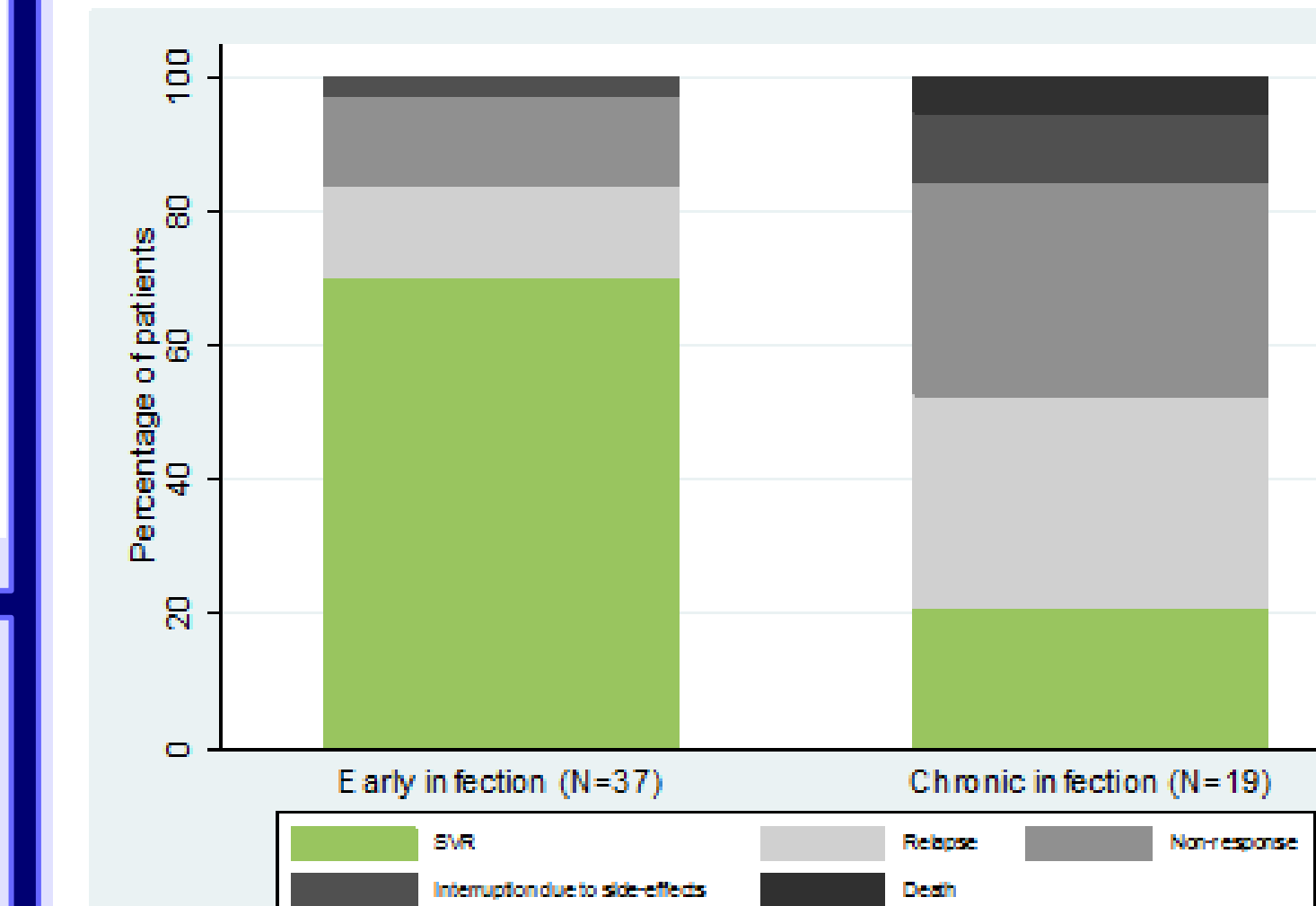
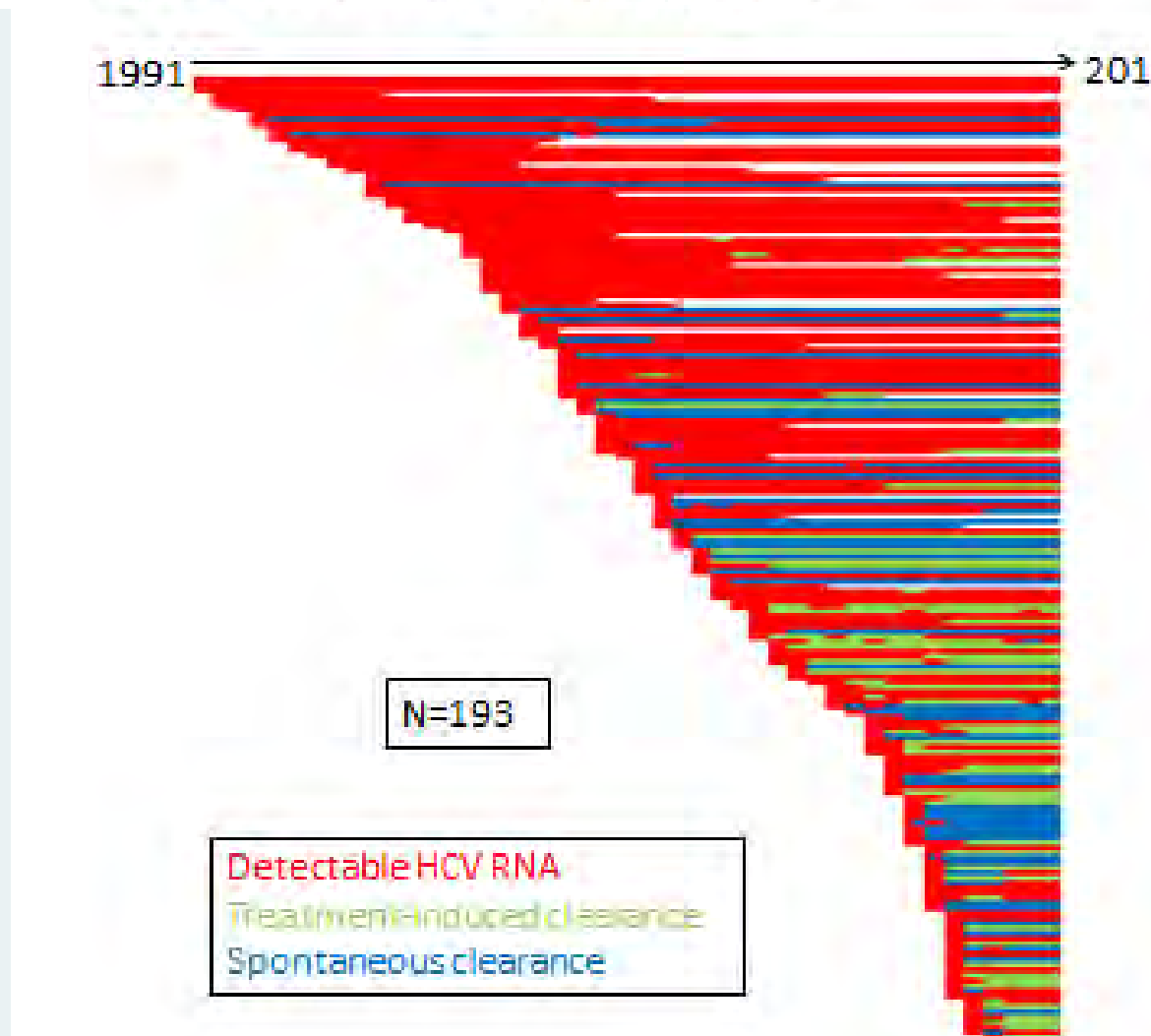


Figure 4: Cohort HCV viral load over time



## DISCUSSION AND CONCLUSIONS

- In this nationwide representative cohort of HIV-infected patients with an incident HCV infection, overall treatment uptake was low, although the proportion of patients treated during the acute phase of infection increased after 2006.
- MSM were more likely to be treated during acute infection.
- If treated early, SVR rates were high, underscoring the need of increased efforts towards early diagnosis and treatment.
- The improvement of HCV treatment uptake could have an impact on transmission in HIV-infected patients.

## ACKNOWLEDGEMENTS

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