

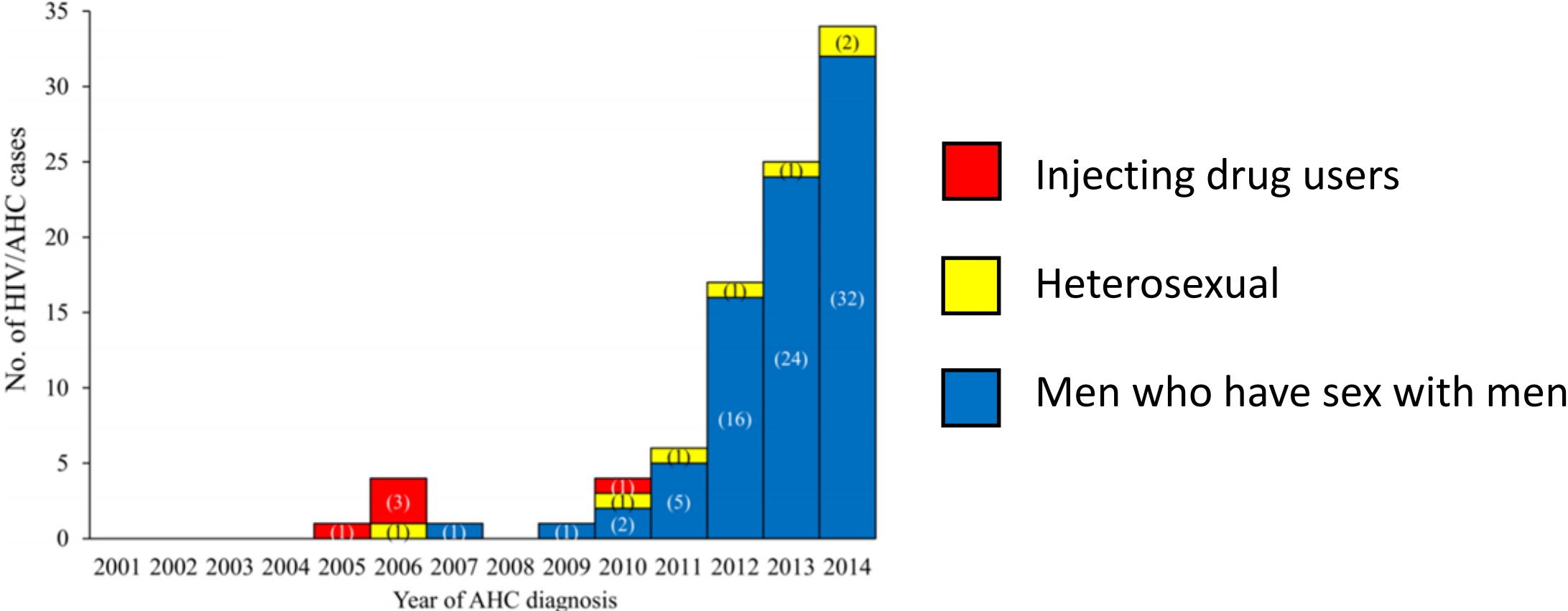
HCV reinfections after viral clearance among HIV-positive patients with recent HCV infection in Taiwan

Poster No. 15

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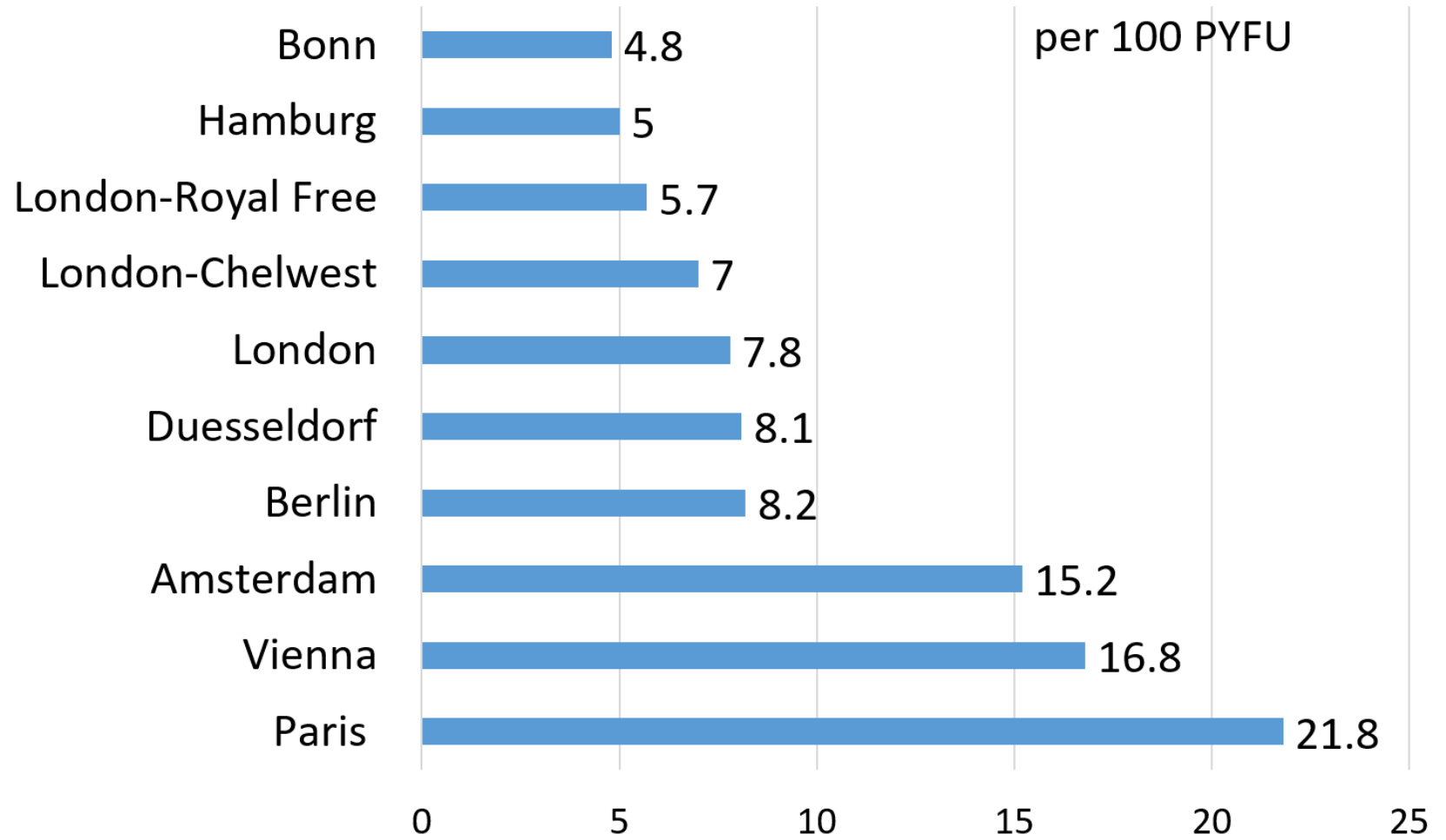
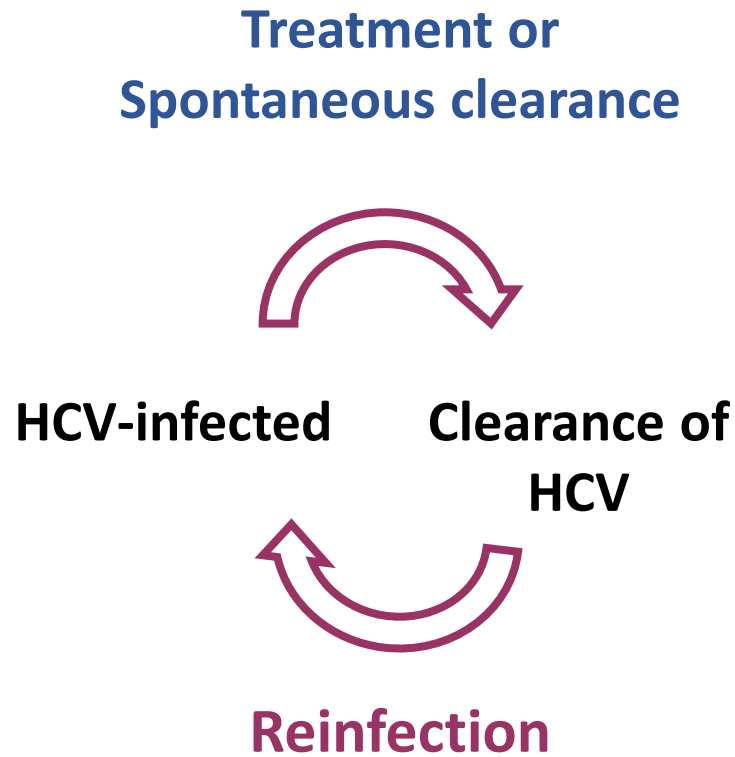
National Taiwan University Hospital, Taipei, Taiwan

Sexually transmitted hepatitis C infection is increasing in Taiwan



Trends of cases of acute hepatitis C (AHC) by population at risk, Taiwan, 2001–2014

Incidence rate of HCV reinfection among HIV (+) MSM in different EU cities

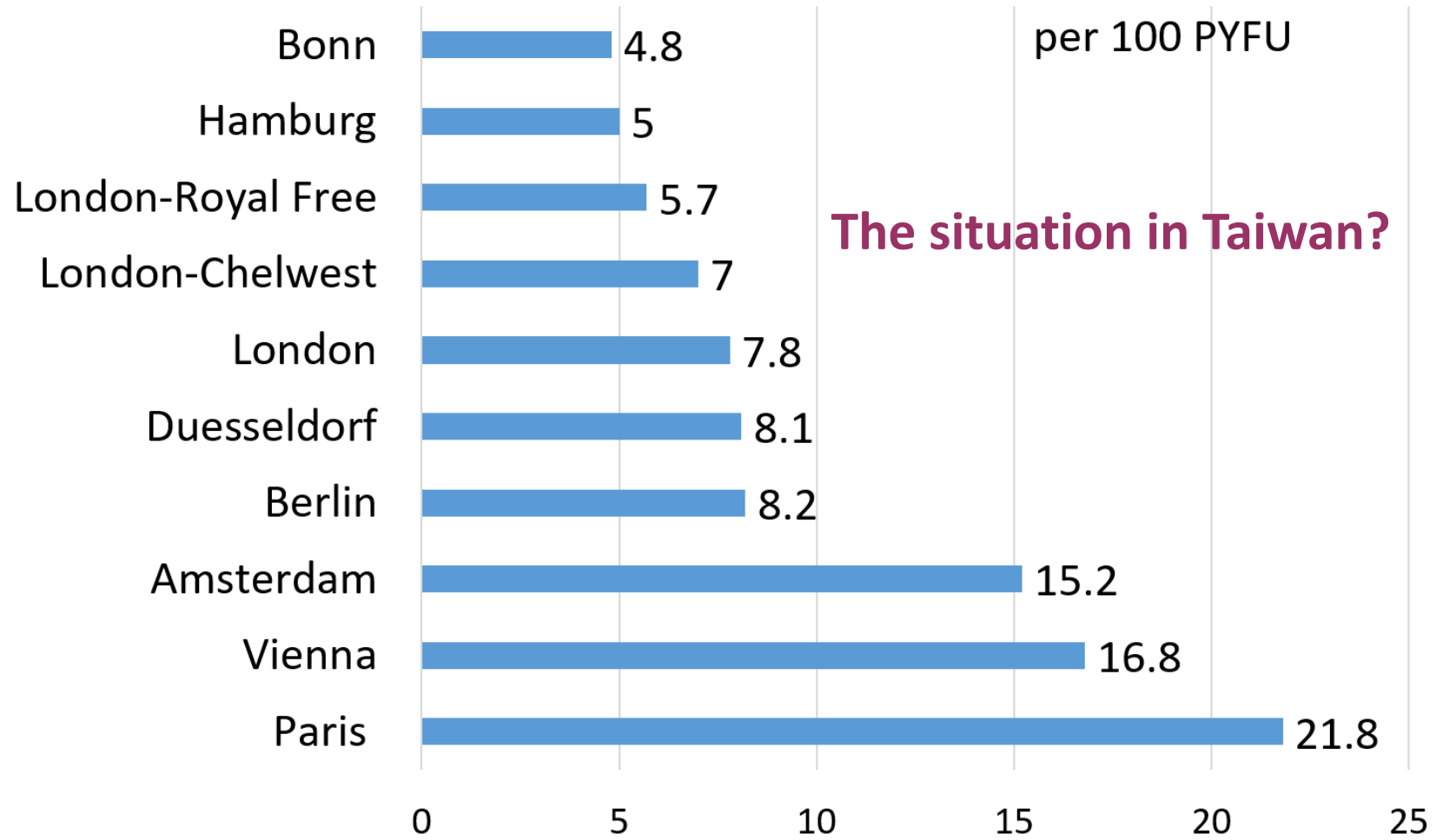
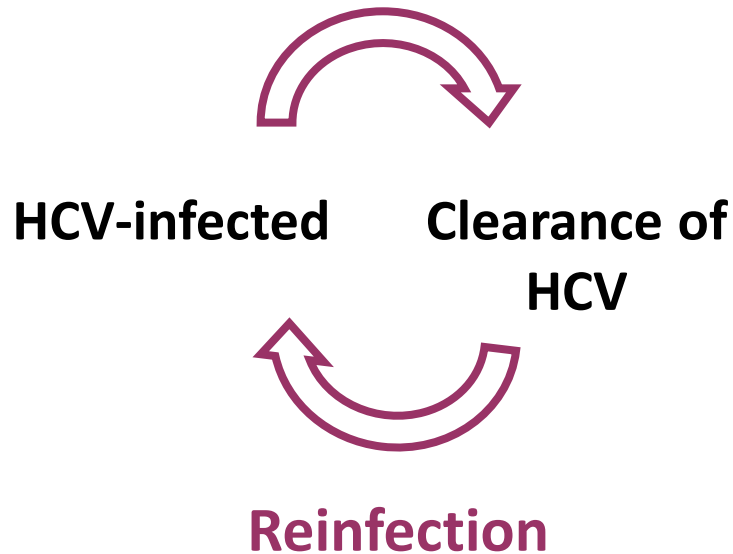


Ingiliz P, et al. J Hepatol 2017; 66: 282-7
Lambers F, et al. AIDS 2011; 25:F21-27
Martin T, et al. AIDS 2013; 27:2551-57

Incidence rate of HCV reinfection among HIV (+) MSM in different EU cities

Higher risk for reinfection

- Incident HCV infection
- History of reinfection
- Recreational drug use



The situation in Taiwan?

Ingiliz P, et al. J Hepatol 2017; 66: 282-7
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Study aims

Among the HIV-positive patients with **recent HCV infection**, we aimed to investigate

1. the **incidence** of reinfection
2. the **factors** associated with HCV reinfection
3. the diagnostic yields of different **testing strategies** in the detection of HCV reinfections

Methods

- **Study site:** National Taiwan University Hospital, Taiwan
- **Inclusion period:** Jan 2011 to Sep 2018
- **Inclusion criteria:**
 1. HIV-positive patients with recent HCV infection
 2. Aged >20 years
 3. Clearance from recent HCV infection confirmed by plasma HCV RNA testing

Methods

HIV (+)



Recent HCV infection

- IFN-based or DAA treatment with SVR
- Spontaneous clearance



Anti-HCV (-) → (+)
within one year

Clearance of recent
HCV infection

Censored

- (1) HCV reinfection
- (2) Death
- (3) Loss to follow-up
- (4) Last undetectable HCV RNA load before 31 March, 2019

Definitions

- **Syphilis:**

consistent symptoms + ≥ 4 -fold increase of RPR titers occurred after clearance of recent HCV infection

- **Spontaneous clearance:**

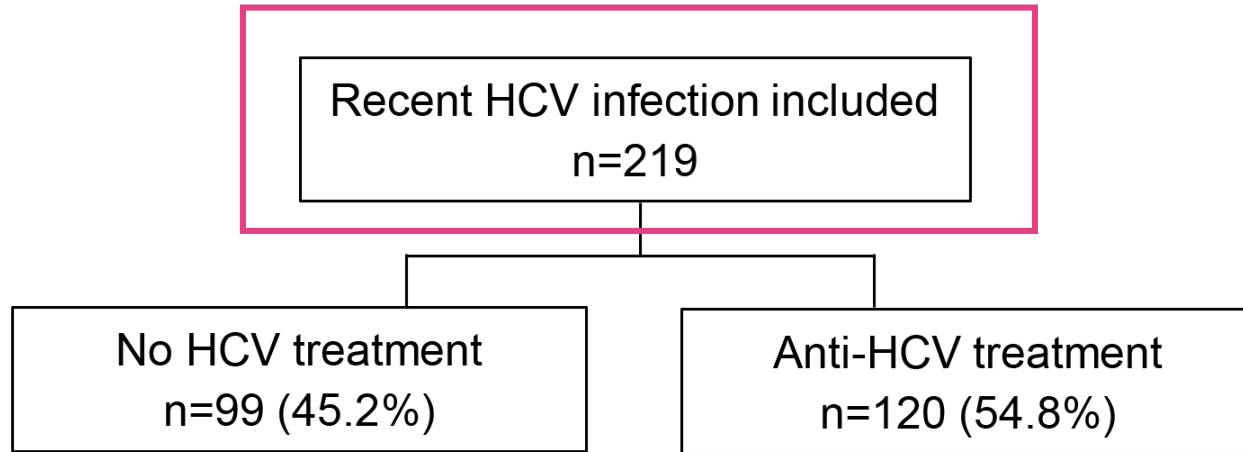
- ≥ 2 consecutive undetectable blood HCV RNA testing at least 12 weeks apart after recent infection

- **HCV reinfection:**

Detection of HCV viremia

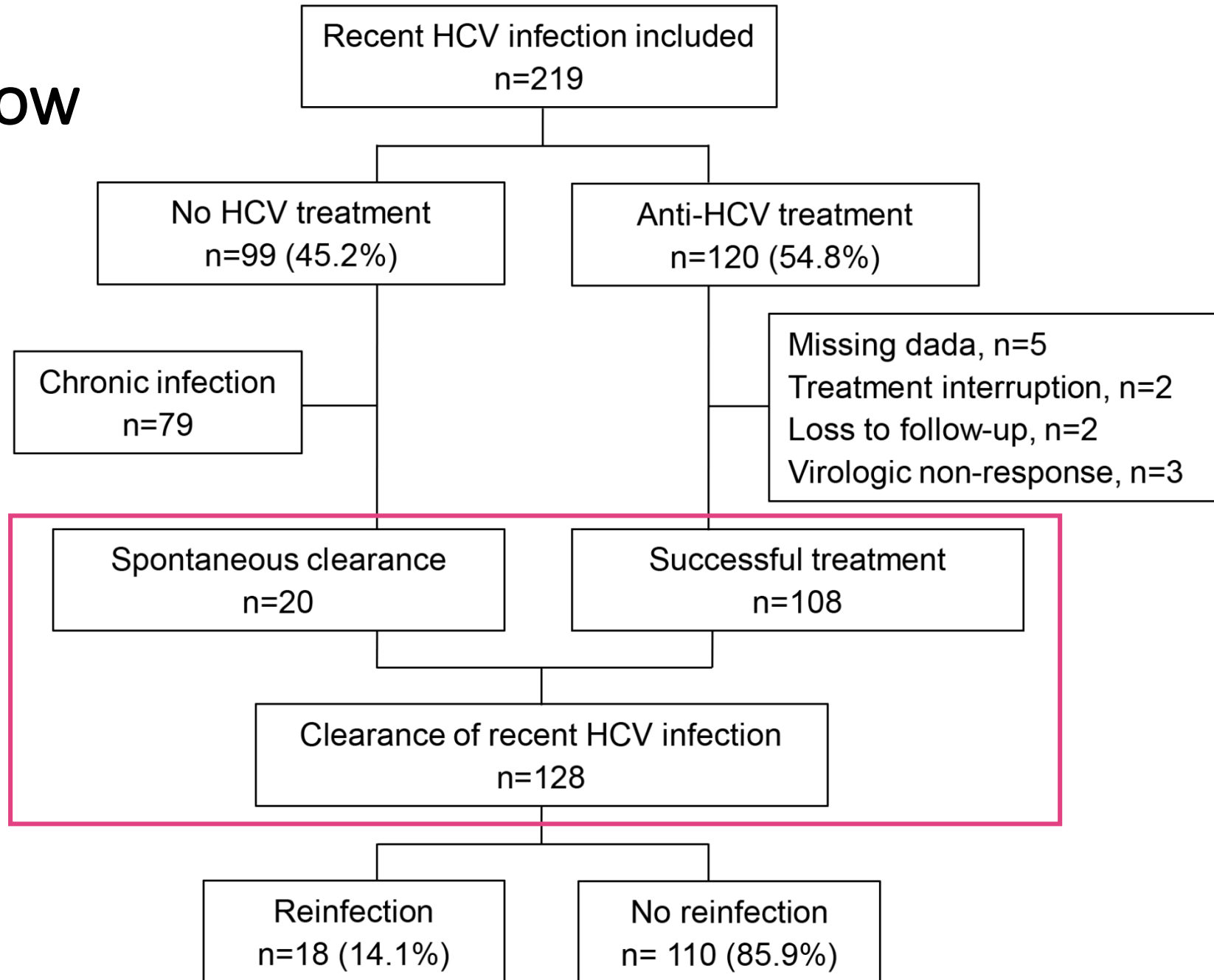
1. after spontaneous clearance
2. after achieving SVR in patients who had received anti-HCV treatment
3. recurrence of HCV viremia with genotype switch

Results



- Male: 219 (100%)
- Mean age: 33.7 years (SD, 7.4)
- Risk of HIV acquisition:
 1. MSM, 198 (90.4%)
 2. Heterosexuals, 10 (4.5%)
 3. IDUs, 3 (1.4%)
 4. Unknown, 8 (3.7%)
- HIV RNA load: 1.81 log₁₀ cp/ml (SD, 1.18)
- CD4 count: 600 cells/mm³ (SD, 251)
- HCV RNA load: 5.61 log₁₀ cp/ml (SD 1.6)

Study Flow



Reinfections

HIV (+)



N=219

N=128

218.3

person-years of follow-up

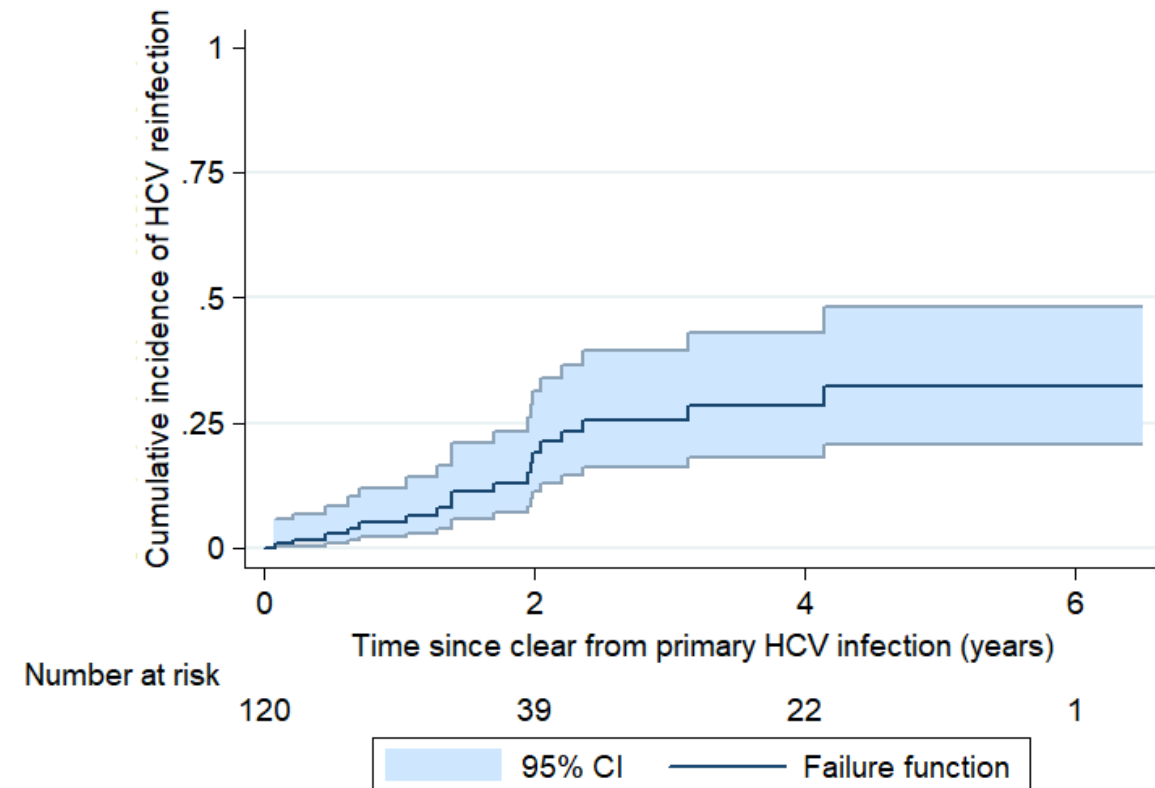
18 reinfections

Anti-HCV (-) → (+)
within one year

Clearance of recent
HCV infection

Censored

- Incidence rate of reinfection: **8.2 (95% CI 5.2-13.1)** per 100 PYFU
- Median time to reinfection: **1.6 years (IQR 0.7-2.0)** from clearance of recent infection



Reinfections

HIV (+)



N=219

N=128

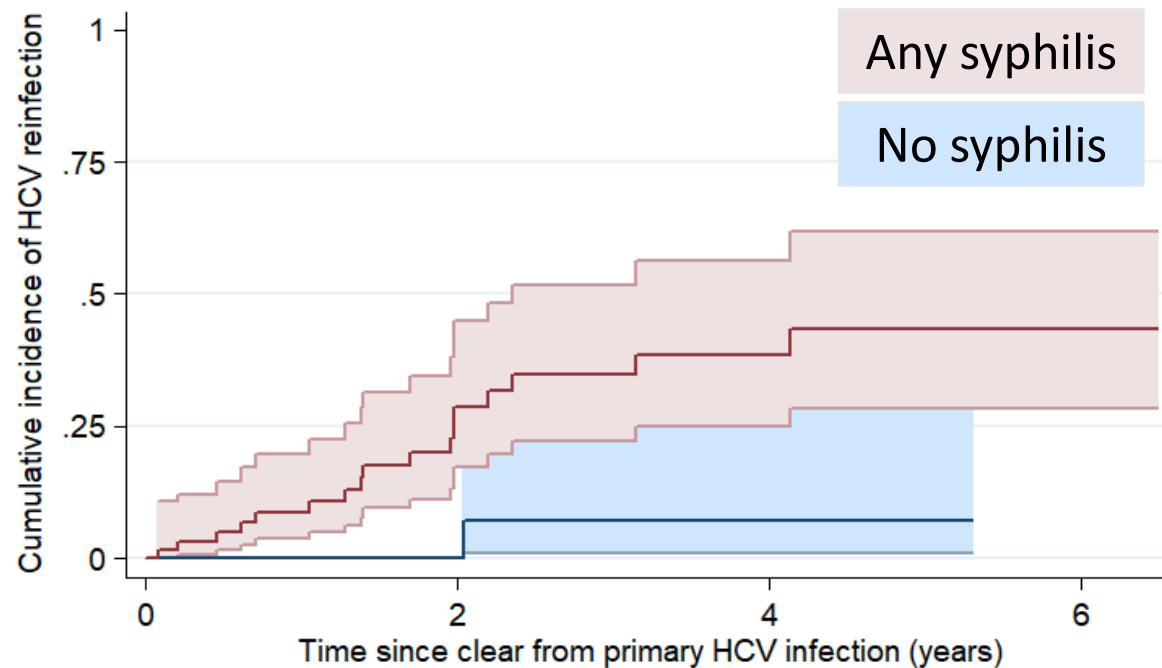
218.3
person-years of follow-up

18 reinfections

Anti-HCV (-) → (+)
within one year

Clearance of recent
HCV infection

Censored



Adjusted Cox proportional hazards model

HR 10.3, 95% CI 1.4-77.8, $P=0.023$

How to detect HCV reinfections

Reasons to determine HCV RNA load among 18 reinfections, n (%)

1. Hepatitis 7 (38.9%)
2. Sexual transmitted infections 1 (5.6%)
3. Regular screening 10 (55.5%)

Hepatitis		Syphilis	Hepatitis + Syphilis
>1 x	>3 x	VDRL > 4x	AST, ALT > 1x or VDRL > 4x
AST > 37	AST > 111		
ALT > 41	ALT > 123		
12/18 (66.6%)	10/15 (55.6%)	10/18 (55.6%)	15/18 (83.3%)

Testing strategies to detect HCV reinfections

Abnormal aminotransferase & Syphilis : ~ 83%

Regular HCV RNA testing to detect every HCV reinfections

BHIVA guidelines – The timing for HCV RNA testing:

Treatment-induced or spontaneous clearance of HCV RNA: screened **at least annually** for HCV by RNA testing

BHIVA guidelines for the management of hepatitis viruses in adults infected with HIV 2013

Suggest HCV RNA testing every **3-6** months after an incident HCV infection

Every **3** months in patients that had been reinfected.

Ingiliz P, et al. J Hepatol 2017; 66: 282-7

Limitations

1. Single-center study: may not be generalized to other institutions.
2. No regular testing of HCV RNA after viral clearance: might lead to underestimation of HCV reinfection.
3. The risks of HCV transmission among our included patients could not be definitely identified.
4. Phylogenetic analysis was not performed.

Conclusions

- We observed a high incidence rate (8.2 per 100 PY) of HCV reinfection among HIV-positive Taiwanese patients with recent HCV infection
- HCV reinfection was significantly associated with syphilis.
- To timely diagnose HCV reinfection, regular HCV RNA testing should be implemented in addition to testing driven by symptoms, STIs, or elevated aminotransferase levels.

Acknowledgements

- Patients and their families
- Case managers