

# Behavioural risk before, during and after hepatitis C treatment among MSM with HIV before and in the direct-acting antiviral era

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## Background

With the introduction of direct-acting antivirals (DAA) almost all individuals with hepatitis C virus (HCV) can be cured with well-tolerated regimens. Given the simplifications of treatment and higher cure rates, men who have sex with men (MSM) may be less prone to behavioural change following HCV treatment.

## Objectives

To understand ongoing HCV risk behaviour following treatment to help strengthen strategies to prevent ongoing HCV transmission and ultimately achieve HCV micro-elimination.

## Methods

### Study design and participants

- MSM aged  $\geq 18$  years with HIV enrolled in the MOSAIC study.
- Successfully responded to HCV treatment and  $\geq 2$  study visits.

### Statistical analysis

- Timepoints pre-, during and post treatment.
- Interferon-based (IFN) vs. IFN-free DAA treatment regimen.
- Changes in risk behaviour were examined for the HCV-MOSAIC score and the individual risk behaviours included in the score.
- Linear/logistic regression with Generalized Estimating Equations.
- Factor time post treatment was added to investigate behavioural trends post-treatment.

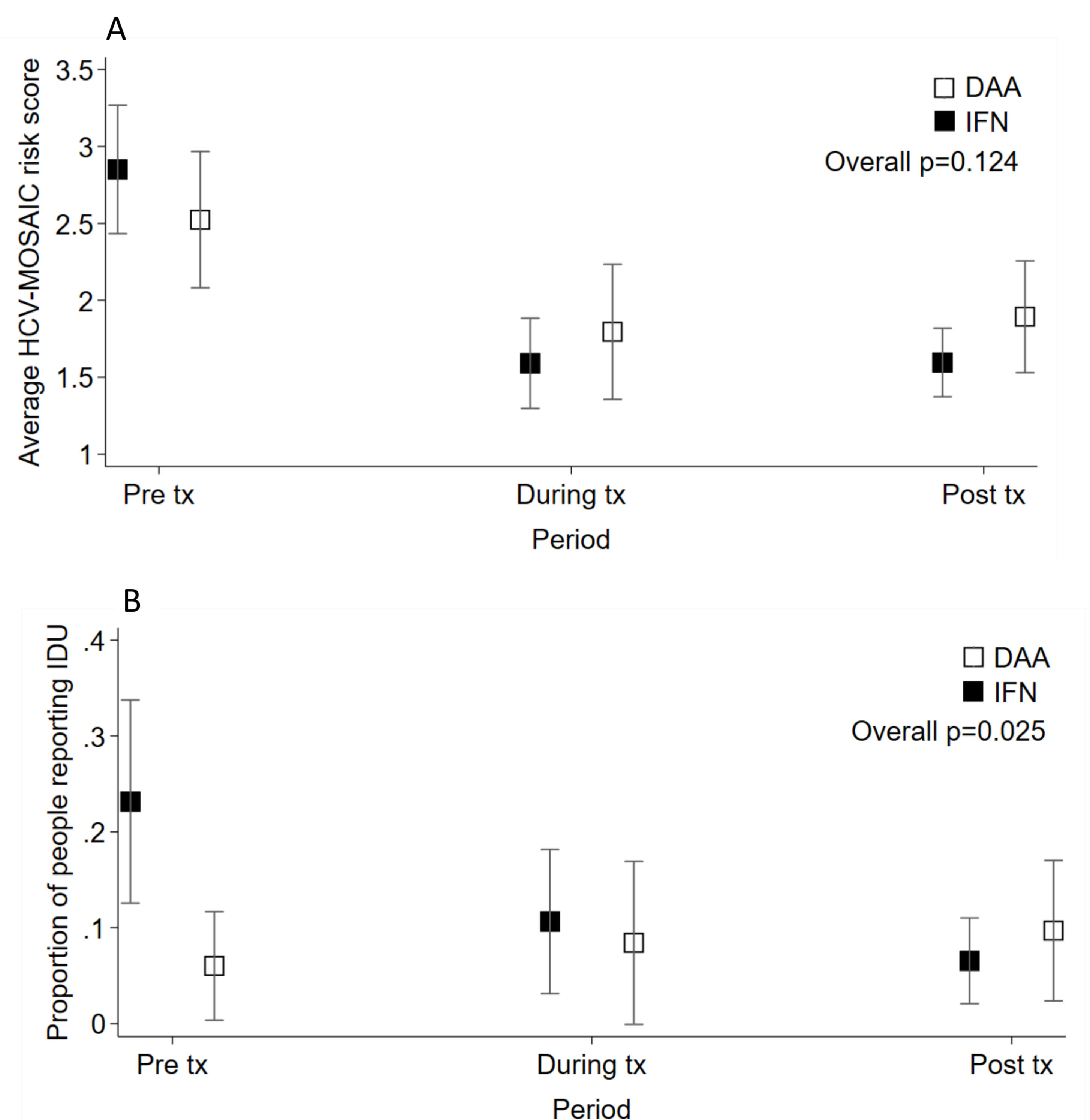
## Results

- N=131 MSM were included with 157 HCV infections.
- No evidence of overall differences between treatment regimen were found for HCV-MOSAIC risk score (Figure 1A) and individual risk behaviours across timepoints, except for injecting drug use (IDU) (Figure 1B).
- Post treatment, no differences in behavioural trends were observed.

**Table 1. Characteristics of MSM with HIV at first study visit per treatment episode between 2009-2018 in the MOSAIC study**

Variables <sup>a</sup>	MSM treated with	
	IFN (n=103)	DAA (n=63)
Age in years, median (IQR)	44(40-48)	47(42-53)
Ethnicity		
Dutch	85(82.5)	53(84.1)
Non-Dutch	18(17.5)	10(15.9)
Educational level		
High	73(72.3)	41(67.2)
Low	28(27.7)	20(32.8)
Period		
pre treatment	60(58.3)	33(52.4)
during treatment	20(19.4)	15(23.8)
post treatment	23(22.3)	15(23.8)
Condomless RAI	84(81.5)	55(87.3)
Sharing of sex toys	27(26.2)	24(38.1)
Unprotected fisting	42(40.8)	28(44.4)
IDU	16(15.5)	9(14.3)
Sharing of straws	33(32.0)	17(27.0)
Ulcerative STI	25(24.3)	14(22.2)
Risk score, median (IQR)	2.3(1.1-3.5)	2.5(1.1-3.5)

<sup>a</sup> n(%), unless otherwise indicated.



**Figure 1. Average modeled HCV-MOSAIC (A) and IDU (B) score pre-, during and post-treatment among MSM treated with IFN and DAAs.**

## Conclusions

- We generally found no difference in behaviours among MSM treated with IFN and DAA pre-, during and post-treatment.
- Nevertheless, a large proportion of MSM treated with DAAs are at risk of HCV reinfection (i.e. score  $\geq 2.0$ ) post-treatment, underscoring the need for ongoing HCV testing and behavioural interventions.

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