**HIGHER INCIDENCE OF HCV RE-INFECTION AMONG TREATMENT EXPERIENCED PEOPLE WHO INJECT DRUGS IN TAYSIDE, SCOTLAND.**

Byrne CJ[1 2] Dillon JF[1,3]
[1]Division of Molecular and Clinical Medicine, School of Medicine, University of Dundee, Ninewells Hospital and Medical School, UK.
[2]Tayside Clinical Trials Unit, School of Medicine, University of Dundee, Ninewells Hospital and Medical School, UK.
[3]Department of Gastroenterology, NHS Tayside, Ninewells Hospital and Medical School, Dundee, UK.

**Background:**
Hepatitis C Virus (HCV) poses a global public health threat. In 2017, Tayside, Scotland, commenced a real-world regional trial of HCV treatment-as-prevention (TasP) among People Who Inject Drugs. Following the treatment phase, initial HCV re-infection estimates were high at 15.20 (95%CI CI 10.81-20.78) per 100 person-years (PY). In this analysis, we sought to understand patient-level factors associated with increased incidence of re-infection.
**Methods:**
Among the subset of cases with post-cure follow-up RNA testing (n=236), we undertook incidence rate comparisons relative to demographic (age, gender, deprivation, housing status), behavioural (injection drug use prior to treatment), and clinical (opioid agonist therapy, treatment experienced) factors. For factors associated with a statistically significant difference in incidence of re-infection, survival to, and hazard of, re-infection was analysed using survival methods (Kaplan-Meier failure function; log-rank test; Cox proportional hazards modelling).
**Results:**
Thirty-nine re-infections were detected over 256.57 PY of follow-up. Cases with treatment experience prior to the scaleup (n=52; 22%) had less follow-up (48.44 v 208.13 PY), and significantly (*p*=.005) higher incidence (30.97 [95%CI 18.67-51.37] per 100PY) of re-infection relative to treatment naïve cases (11.53 [95%CI 7.73-17.20] per 100PY), with an incidence rate ratio of 2.69 (95%CI 1.31-5.33). Prior treatment experience was associated with shorter mean survival to (2.14 v 2.87 years, *p*=.003), and higher hazard (HR 2.56 [95%CI 1.34-4.87], *p*=.007) of, re-infection. Other tested factors were not associated with differences in re-infection incidence.

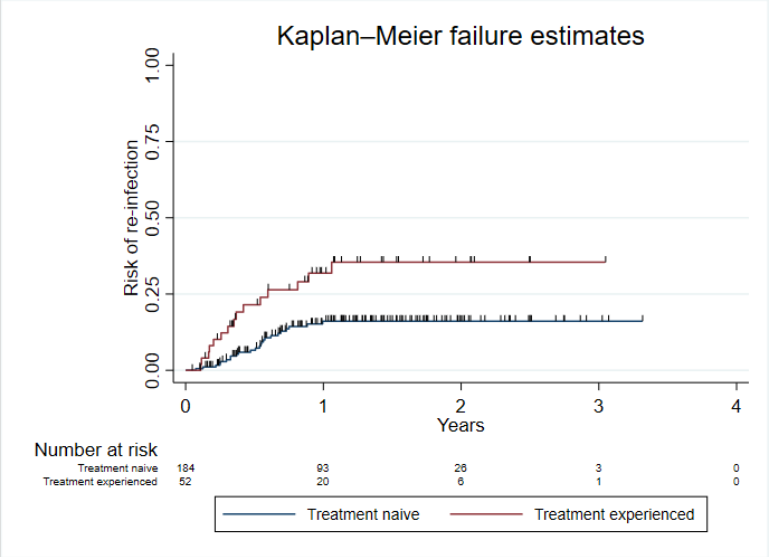


**Figure 1**: Kaplan-Meier failure estimates by treatment history

**Conclusion:**

These findings suggest that a core group of treatment-experienced cases had higher risk of re-infection and less post-SVR engagement with re-testing relative to naïve cases. This underscores the need to ensure follow-up testing for previously treated cases to a) ensure detection of re-infection, a critical threat to TasP, and b) access to re-treatment. Tayside should re-double its efforts to ensure follow-up among individuals who have experienced multiple treatment episodes.

**Disclosure of Interest Statement:**
This work forms part of a wider TasP study which was funded by Merck Sharp & Dohme Limited (MSD) investigator studies program (MISP #54873). CB has no disclosures. JFD declares research grants, in part supporting the scale-up of HCV treatment in Tayside, from AbbVie, Bristol-Myers Squibb, Gilead, Janssen, Merck Sharpe and Dohme and Roche and other research grants and honoraria for lectures form AbbVie, Abbott, Bristol-Myers Squibb, Gilead, Janssen, Merck Sharpe and Dohme and Roche, outside the submitted work.