Effectiveness of direct-acting antiviral therapy among Aboriginal and Torres Strait Islander peoples with HCV infection: analysis of a national real-world cohort (REACH-C)

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Introduction

Ensuring Aboriginal and Torres Strait Islander peoples have access to effective, culturally safe hepatitis C virus (HCV) care is essential in striving for health equity and elimination.

This analysis assessed the effectiveness of direct-acting antiviral (DAA) therapy among Aboriginal and non-Aboriginal people with HCV in the three years following universal access in Australia.

Aims

1. Assess the effectiveness of DAA therapy, as determined by proportion achieving sustained virological response (SVR), among Aboriginal and non-Aboriginal people with HCV in the three years following universal access in Australia.
2. Identify factors associated with achieving SVR and undergoing post-treatment HCV RNA testing.

Methods

REACH-C was a multicentre prospective cohort study among people with HCV infection who commenced DAA therapy between 1 March 2016 and 30 June 2019 at 33 health services in Australia.

Stratified by Aboriginal identification, baseline characteristics and treatment outcomes were described, with DAA effectiveness (SVR) evaluated in two populations:

1. Intention-to-treat (ITT): All individuals who commenced treatment. Missing outcome data was counted as failure.

2. Per-protocol (PP): Individuals who commenced treatment and underwent assessment for virological response at or after post-treatment week 12.

Factors associated with return for follow-up and SVR were assessed using logistic regression analysis, stratified by Aboriginal identification and adjusted for year of treatment commencement.

Results

Participant disposition and overview of the population

- Of 10843 individuals in the REACH-C cohort, 915 (8%) identified as Aboriginal and/or Torres Strait Islander and 8095 (75%) identified as non-Aboriginal (**Table 1**); 1833 (17%) did not record their Aboriginal status and were excluded from this analysis.

Table 1. Participant characteristics	Aboriginal (n=915)	Non-Aboriginal (n=8095)	% Total (n=9010)
Age, median (IQR)	43 (35, 52)	52 (43, 58)	51 (42, 58)
Male, n (%)	640 (70)	5637 (70)	69
Clinic setting, n (%)			
Specialist liver clinic	245 (27)	4688 (58)	55
General practice	168 (18)	1246 (15)	16
Community health clinic	319 (35)	1742 (22)	23
Prison	183 (20)	419 (5)	7
Health service location, n (%)			
Major city	454 (50)	5023 (62)	61
Regional or remote	461 (50)	3072 (38)	39
IDU ± OAT, n (%)			
IDU	190 (21)	680 (8)	10
IDU + OAT	80 (9)	587 (7)	7
OAT	97 (11)	836 (10)	10
None	405 (44)	4910 (61)	59
Unknown	143 (16)	1082 (13)	14
HIV infection, n (%)	31 (3)	327 (4)	4
Cirrhosis, n (%)	152 (17)	1940 (24)	23
DAA regimen, n (%)			
Glecaprevir-pibrentasvir	82 (9)	302 (4)	4
Grazoprevir-elbasvir	42 (5)	305 (4)	4
Sofosbuvir+daclatasvir	239 (26)	2294 (28)	28
Sofosbuvir-ledipasvir	290 (32)	3270 (40)	40
Sofosbuvir-velpatasvir	246 (27)	1627 (20)	21
Other	16 (1)	297 (4)	4
Year treatment commencement			
2016	315 (34)	4181 (52)	50
2017	278 (30)	2250 (28)	28
2018	243 (27)	1268 (16)	17
2019	79 (9)	396 (5)	5

Abbreviations: DAA, direct acting antiviral; IDU, injecting drug use; OAT, opioid agonist therapy

Return for follow-up and HCV RNA testing post treatment

- The proportion returning for follow-up testing was lower among Aboriginal (78%; 714/910) than non-Aboriginal people (87%; 6981/8095) (**Figure 1**).
- Among Aboriginal people, returning for follow-up was positively associated with older age (per 10 years; aOR 1.20, 95%CI 1.04, 1.39), and negatively associated with an unknown history of injecting drug use (aOR 0.47, 95%CI 0.30, 0.74); current injecting drug use was not associated with return for follow up (aOR 0.72, 95%CI 0.47, 1.10) (**Figure 1**).
- On adjusted analysis of the total study population, Aboriginal identification was not associated with returning for follow-up.

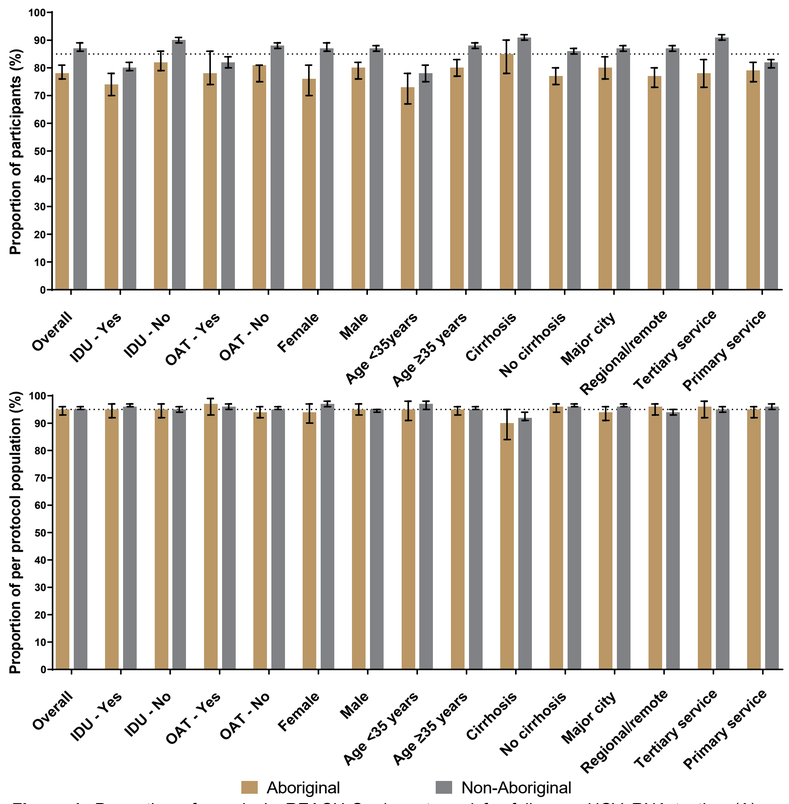

Figure 1. Proportion of people in REACH-C who returned for follow-up HCV RNA testing (A) and achieved SVR PP (B), stratified by Aboriginal status.
Dotted line represents proportion returning for testing (85%) and achieving SVR (95%) in total population.

Treatment outcomes and factors associated with SVR

- SVR12 ITT was achieved in 74% (95%CI 71%, 76%) and 82% (95%CI 81%, 83%) of Aboriginal and non-Aboriginal people, respectively (**Figure 2**).
- SVR12 PP was achieved in 94% (95%CI 92%, 95%) and 94% (95%CI 94%, 95%) of Aboriginal and non-Aboriginal people, respectively (**Figure 2**).
- Among Aboriginal people, prior interferon-free DAA treatment (aOR 0.14; 95%CI 0.04, 0.49) and cirrhosis (aOR 0.39; 95%CI 0.19, 0.80) were negatively associated with achieving SVR (**Figure 1**).

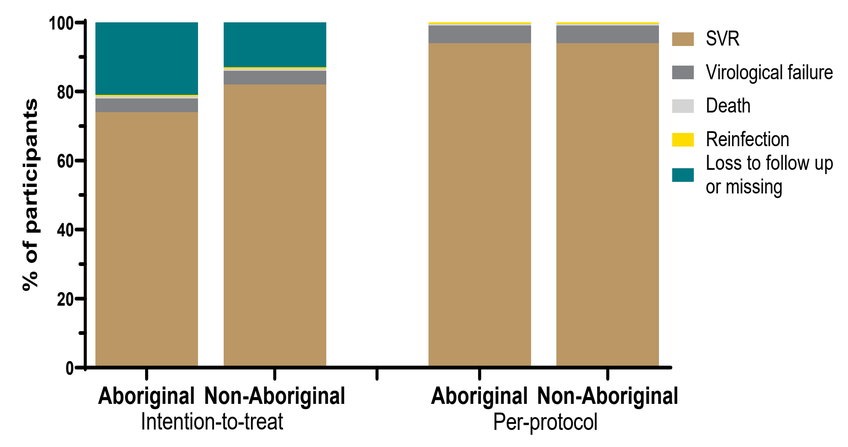

Figure 2. Treatment outcome in the intention-to-treat (ITT) and per-protocol (PP) populations, stratified by Aboriginal identification

Conclusion

To achieve equity in DAA uptake and outcomes between Aboriginal and non-Aboriginal people, integrated models of care that are community-led and culturally safe should be evaluated to optimise cure and facilitate ongoing healthcare engagement among Aboriginal peoples living with and at risk of HCV.

Ensuring equitable treatment access and outcomes among Aboriginal peoples is essential to achieving both individual and population-level benefits and moving toward HCV elimination in Australia.

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