Disclosures

- Research grants, travel support, and honoraria: AbbVie, Gilead, Merck

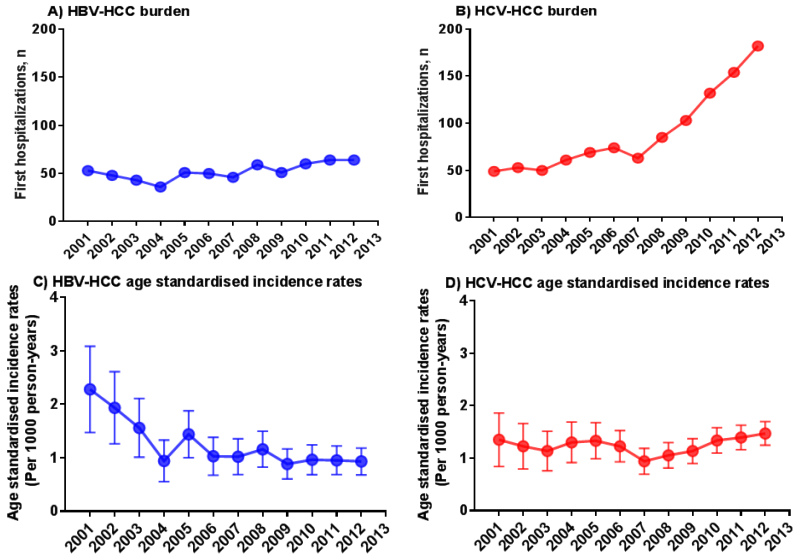
Data linkage will provide

- Incidence of advanced liver disease events (HCC, DC) and liver-related mortality
- Survival following HCC and DC
- Cascade of care (HCV RNA testing, genotype testing, DAA uptake)
- DAA coverage in key sub-populations: PWID, OST, prison, Indigenous
- DAA coverage in geographical and LHD areas
- Rates of retreatment, including for virological failure and reinfection

Data linkage will not provide

- Incidence of HCV, overall or in high-risk populations
- Incidence of HCV reinfection, other than lower bound (treated reinfection)
- DAA outcomes (apart from retreatment for virological failure estimate)
- HCC risk among people with HCV-related cirrhosis following DAA therapy

HBV- and HCV-related HCC burden in NSW

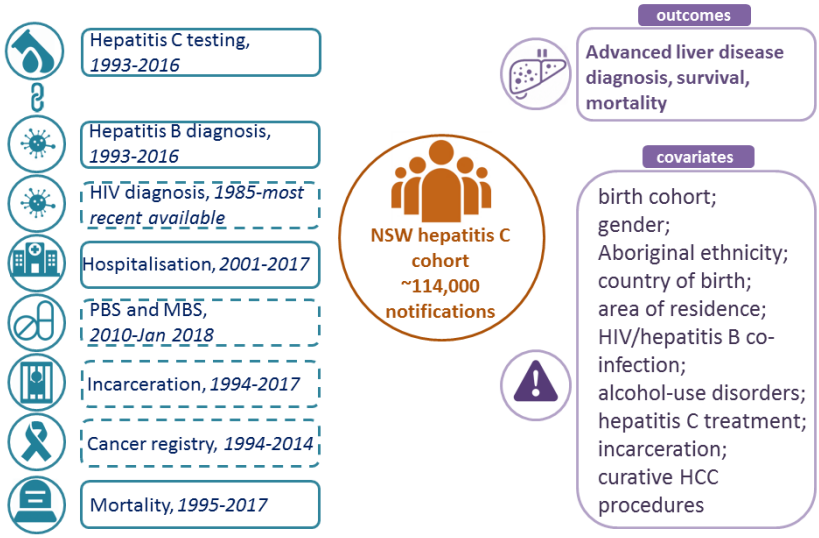


Waziry R, et al. *J Hepatology* 2016

Population-level impact of DAA treatment programs

- NSW data linkage project
- Impact of DAA era on decompensated cirrhosis (DC) diagnosis
- Impact of DAA era on hepatocellular carcinoma (HCC) diagnosis
- Survival following DC and HCC in DAA era
- Key issues for reducing the burden of HCV-related liver disease

NSW data linkage 2018



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Characteristics of people with HCV-related DC, 2001-2017

		Year of decompensated cirrhosis diagnosis				
	HCV 1995-2016	2001-2003	2004-2007	2008-2011	2012-2014	**2015-2017**
Characteristics, n (%)	n=101,244	n=491	n= 898	n=1,173	n=1,049	**n=1,042**
Year of birth, median	1967	1955	1957	1958	1959	**1961**
(IQR)	(59-76)	(45-61)	(51-62)	(54-63)	(55-64)	**(56-67)**
Male sex	64,898 (64)	351 (71)	658 (73)	851 (73)	777 (74)	**769 (74)**
HCV/HBV co-infection	4,008 (4)	28 (6)	61 (7)	68 (6)	51 (5)	**65 (6)**
Alcohol-use disorder	18,936 (19)	213 (43)	437 (49)	560 (48)	595 (47)	**612 (59)**
Late HCV notification		216 (44)	286 (32)	320 (27)	213 (20)	**155 (15)**
Death	12,722 (13)	399 (81)	698 (78)	890 (76)	713 (68)	**500 (48)**
Age at death, median	52	51	52	53	56	**56**
(IQR)	(42-61)	(45-64)	(47-59)	(49-59)	(51-60)	**(51-61)**

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Characteristics of people with HCV-related HCC, 2001-2017

		Year of hepatocellular carcinoma diagnosis				
	HCV 1995-2016	2001-2003	2004-2007	2008-2011	2012-2014	**2015-2017**
Characteristics, n (%)	n=101,244	n=59	n= 206	n=425	n=475	**n=546**
Year of birth, median	1967	1944	1951	1954	1956	**1958**
(IQR)	(59-76)	(31-54)	(39-57)	(46-59)	(50-59)	**(53-61)**
Male sex	64,898 (64)	41 (69)	167 (81)	332 (78)	372 (78)	**456 (84)**
HCV/HBV co-infection	4,008 (4)	5 (9)	15 (7)	28 (7)	27 (6)	**24 (4)**
Alcohol-use disorder	18,936 (19)	10 (17)	45 (22)	121 (28)	180 (38)	**232 (42)**
Late HCV notification		21 (34)	44 (21)	96 (23)	84 (18)	**75 (14)**
Death	12,722 (13)	53 (90)	169 (82)	357 (84)	357 (75)	**247 (45)**
Age at death, median	52	63	56	57	58	**58**
(IQR)	(42-61)	(49-72)	(50-71)	(52-65)	(55-63)	**(55-63)**

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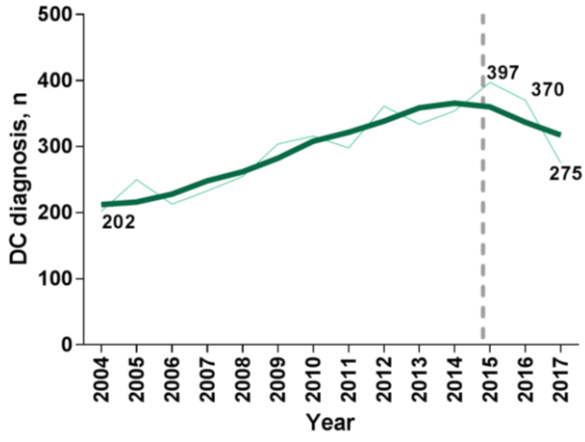
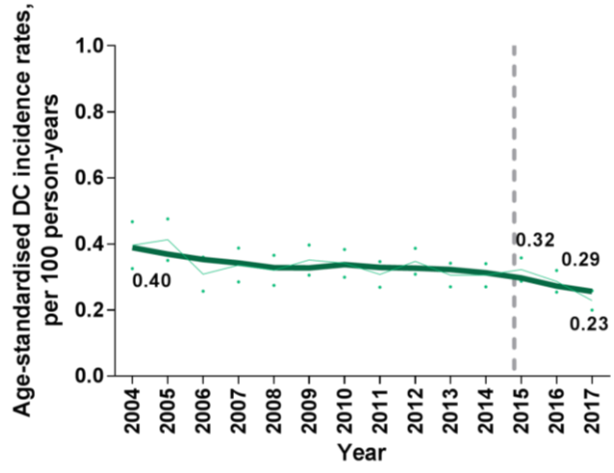
Trends in HCV-related decompensated cirrhosis





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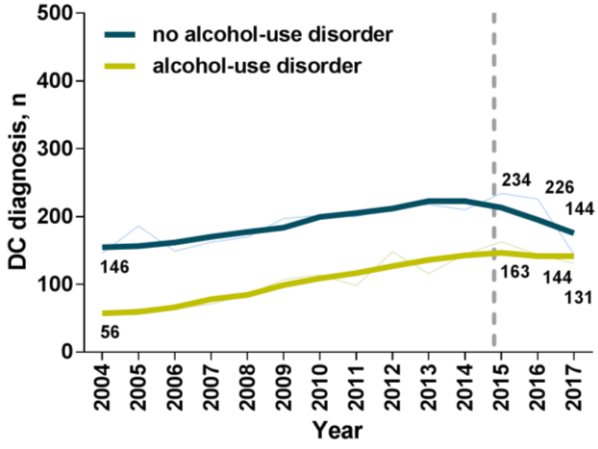
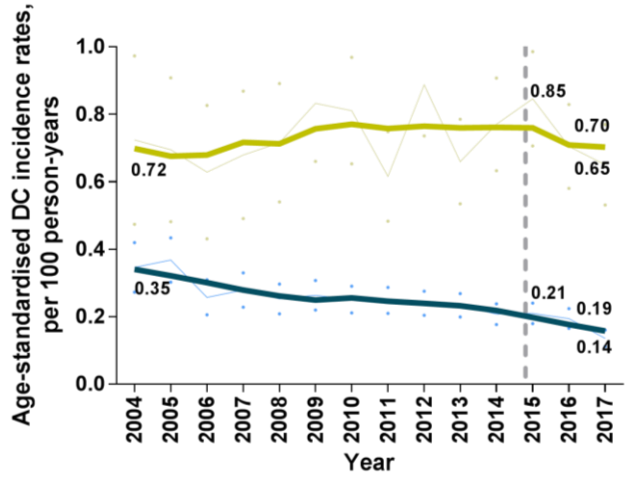
Trends in HCV-related DC by alcohol-use disorder





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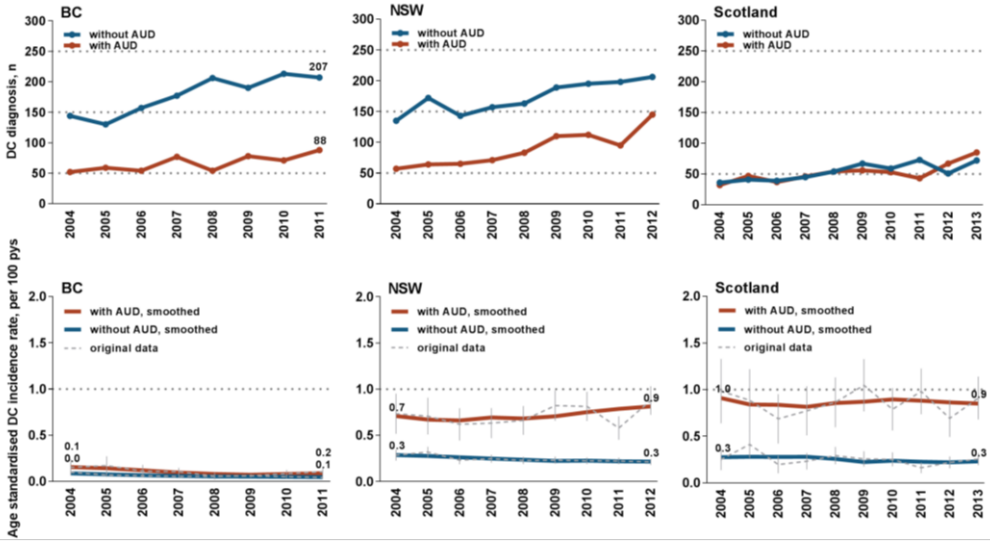
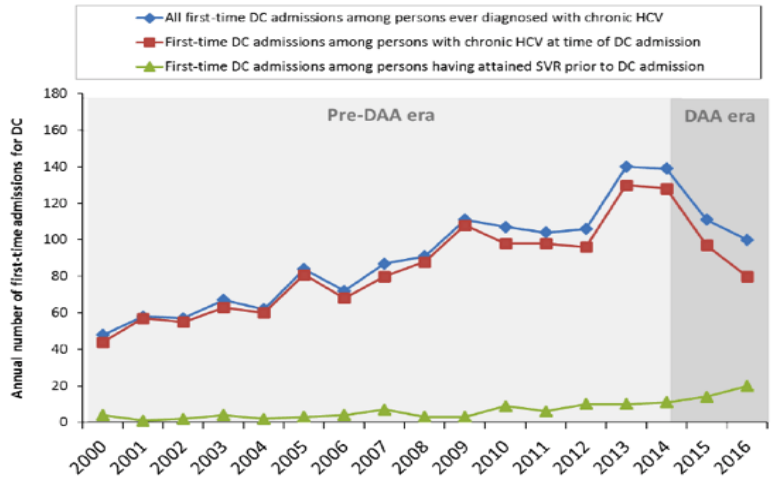
Trends in HCV-related DC by alcohol-use disorder



12 M Alavi, et al. The contribution of alcohol use disorder to decompensated cirrhosis among people with hepatitis C: An international study. Journal of Hepatology 2018; 68(3): 393-401.

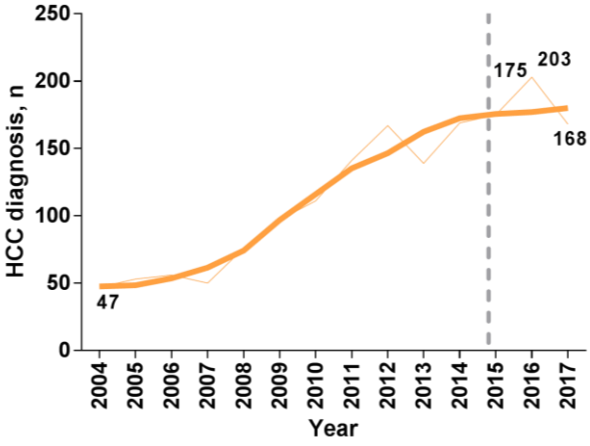
Impact of DAAs on DC in Scotland

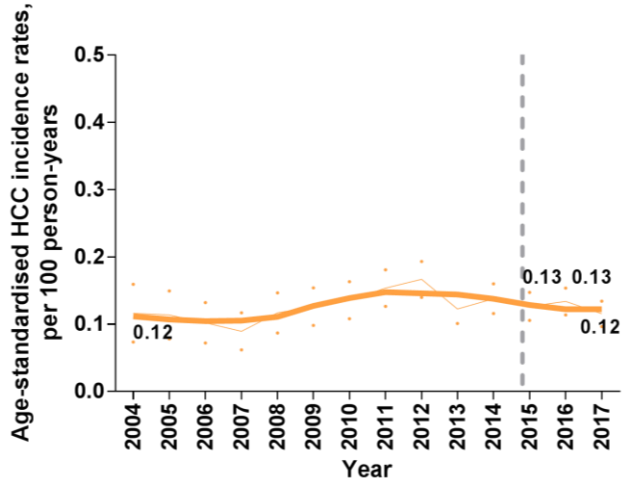
Figure: Annual number of first-time hospital admissions for decompensated cirrhosis (DC) in Scotland during 2000-16, among persons previously diagnosed with chronic HCV infection



13 SJ Hutchinson, et al. Reduction in the incidence of hepatitis C-related decompensated cirrhosis associated with national scale-up of direct-acting antiviral therapies targeting patients with advanced liver fibrosis. EASL Abstract 2018

Trends in HCV-related hepatocellular carcinoma





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Survival following DC and HCC diagnosis

Study period	Decompensated cirrhosis n=3,496			Hepatocellular carcinoma n=1,473		
	Subjects, n	Median survival, yrs	95% CI	Subjects, n	Median survival, yrs	95% CI
2004-2007	697	1.94	1.52, 2.50	177	0.84	0.53, 1.22
2008-2011	949	1.55	1.20, 1.96	366	0.95	0.75, 1.27
2012-2014	904	1.22	1.03, 1.43	428	0.82	0.66, 1.14
2015-2017	946	1.35	0.91, 1.43	502	1.66	1.20, 2.32
Total	3,496	1.46	1.33, 1.63	1,473	1.01	0.88, 1.22

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Population-level impact of DAA treatment programs

Preliminary findings

- Decline in liver-related deaths (after three-fold increase in decade prior to DAAs)
- Decline in admissions for decompensated cirrhosis, and stable admissions for HCC
- Improved survival following HCC (after no change in decade prior to DAAs)

Planned further analyses

- Trends in liver disease burden in key sub-populations, including HIV/HCV, Indigenous
- Cascade of HCV care, including HCV RNA/HCV genotype testing and DAA uptake
- Cascade of HCV care in key sub-populations, including HIV/HCV, Indigenous, PWID/OS

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Acknowledgements

UNSW Sydney
Dr. Maryam Alavi
A/Prof. Jason Grebely
Dr. Behzad Hajarizadeh
Prof. Matthew Law
Ms. Hannah Reid

University of Sydney
Prof. Jacob George

Macquarie University
Prof. Janaki Amin