

Trends in hepatocellular carcinoma among people receiving opioid substitution therapy with an HCV notification in New South Wales, Australia between 2000 and 2014

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Introduction

- Hepatocellular carcinoma (HCC) is the third leading cause of cancer death worldwide
- Prognosis is poor with limited curative treatment options available
- Little is known about the recent trends in HCC among people receiving opioid substitution therapy (OST) in Australia

Aims

- The aim of this study was to assess trends in hepatocellular carcinoma (HCC) hospitalization among people with an HCV notification and receiving opioid substitution therapy in New South Wales (NSW), Australia

Methods

- Data on HCV notifications in NSW, Australia were linked to:
 - Data on hospitalizations (2000-2014)
 - The pharmaceutical drugs of addiction (1985-2014)
- Analysis of time from HCV diagnosis to HCC hospitalization was undertaken using Fine and Gray competing risk analyses (with OST as a time dependent variable)

Results

- Over the study period a total of 96,908 persons were notified with HCV, among which 29,942 (31%) had ever received OST

Table 1: Baseline characteristics of people notified with HCV stratified by history of opioid substitution therapy in NSW, Australia (1993-2012)

	Overall (n=96,908) n (%)	Non-OST (n=66,966) n (%)	OST (n=29,942) n (%)
Year of notification, Median (IQR)	2000 (9)	2000 (9)	2000 (8)
Year of birth			
<1956	17,816 (18)	15,754 (23)	2,062 (7)
1956-1965	33,532 (35)	24,420 (36)	9,112 (30)
>1965	45,560 (47)	26,792 (40)	18,768 (63)
Gender			
Female	35,862 (37)	25,543 (38)	10,319 (34)
Male	60,746 (62)	41,159 (61)	19,587 (65)
Place of residence			
Metro	30,745 (31)	21,599 (32)	9,146 (30)
Outer-Metro	31,626 (32)	21,031 (31)	10,595 (35)
Rural	32,710 (33)	23,212 (34)	9,498 (32)
Country of birth			
Australia	50,206 (79)	27,440 (75)	22,766 (83)
Asia Pacific	5,254 (8)	4,325 (12)	929 (3)
Europe	4,824 (7)	3,018 (8)	1,806 (7)
Other	1,676 (3)	1,064 (3)	612 (2)
HIV positive	1,067 (1)	803 (1)	264 (0.8)
Alcohol related hospitalization	16,297 (17)	9,349 (14)	6,948 (23)
Died	10,831 (11)	7,380 (11)	3,451 (12)
Age at death, Median (IQR)	50 (20)	55 (26)	43 (16)

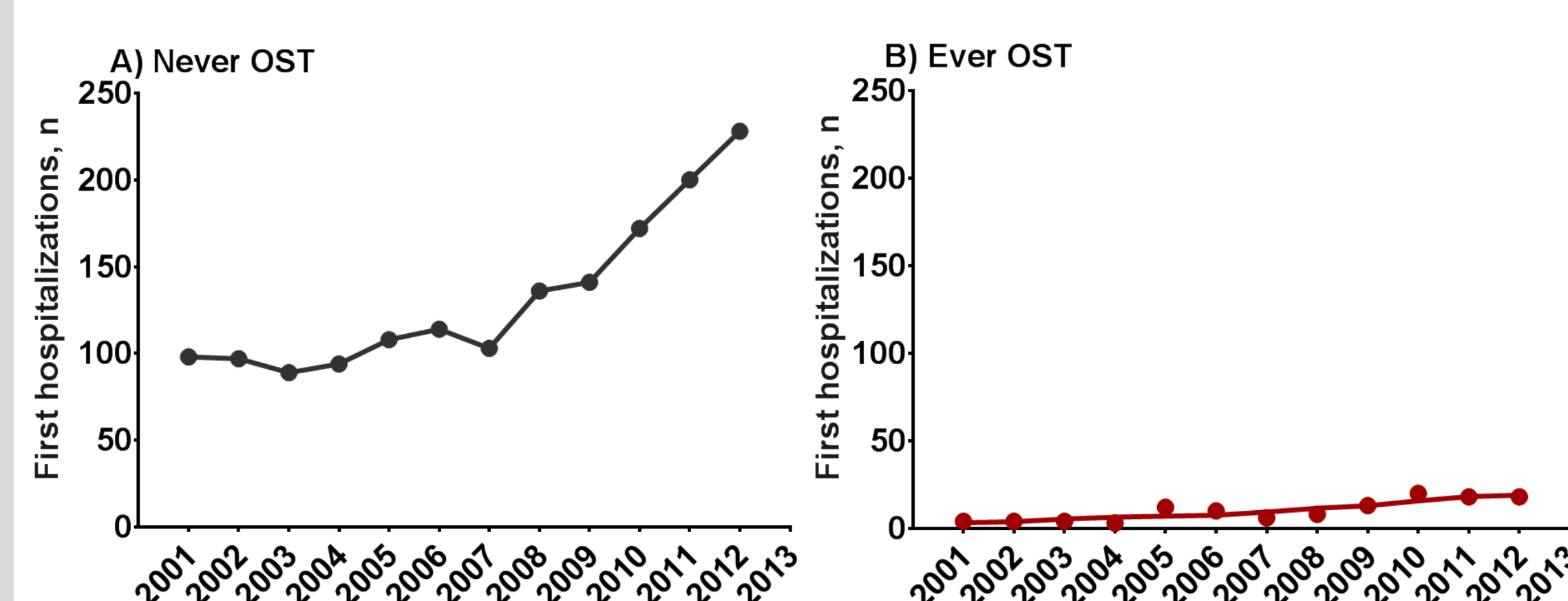


Fig.1. Burden of first hospitalization for hepatocellular carcinoma (HCC) among people who A) never received OST and B) ever received OST and notified with HCV in NSW, Australia 2001-2013

Results

Table 2: Competing risk analysis of factors associated with time to first hospitalization with HCC among people notified with HCV in NSW, Australia (2000-2014)

	Person-years	HCC (n=1,168)	Rate (/1000 P-yrs)	SHR** (95% CI)	P
Study period					
2000-2004	249,848	184	0.7	1.00	--
2005-2009	360,922	350	0.9	1.01 (0.83, 1.20)	0.99
2010-2014	373,389	634	1.6	1.20 (1.01, 1.44)	0.04
Age	--	--	--	1.06 (1.06, 1.07)	<0.001
Gender					
Male	608,106	937	1.5	2.51 (2.15, 2.92)	<0.001
Place of residence					
Metro	323,233	440	1.4	1.00	--
Outer-Metro	323,048	445	1.4	0.89 (0.77, 1.03)	0.14
Rural	327,573	280	0.8	0.66 (0.56, 0.78)	<0.001
Country of birth					
Australia	503,627	569	1.1	1.00	--
Asia Pacific	49,684	236	4.7	2.29 (1.91, 2.74)	0.04
Europe	46,988	188	4.0	1.59 (1.31, 1.92)	<0.001
HBV					
Yes	35,925	64	1.8	1.32 (1.01, 1.73)	0.04
HIV					
Yes	8,584	7	0.8	0.60 (0.28, 1.29)	0.19
Alcohol-related hospitalization					
Yes	138,570	389	2.8	3.35 (2.90, 3.87)	<0.001
OST					
Yes	304,723	143	0.4	0.32 (0.26, 0.39)	<0.001

**SHR: Sub-distribution Hazard Ratio of competing risk analyses

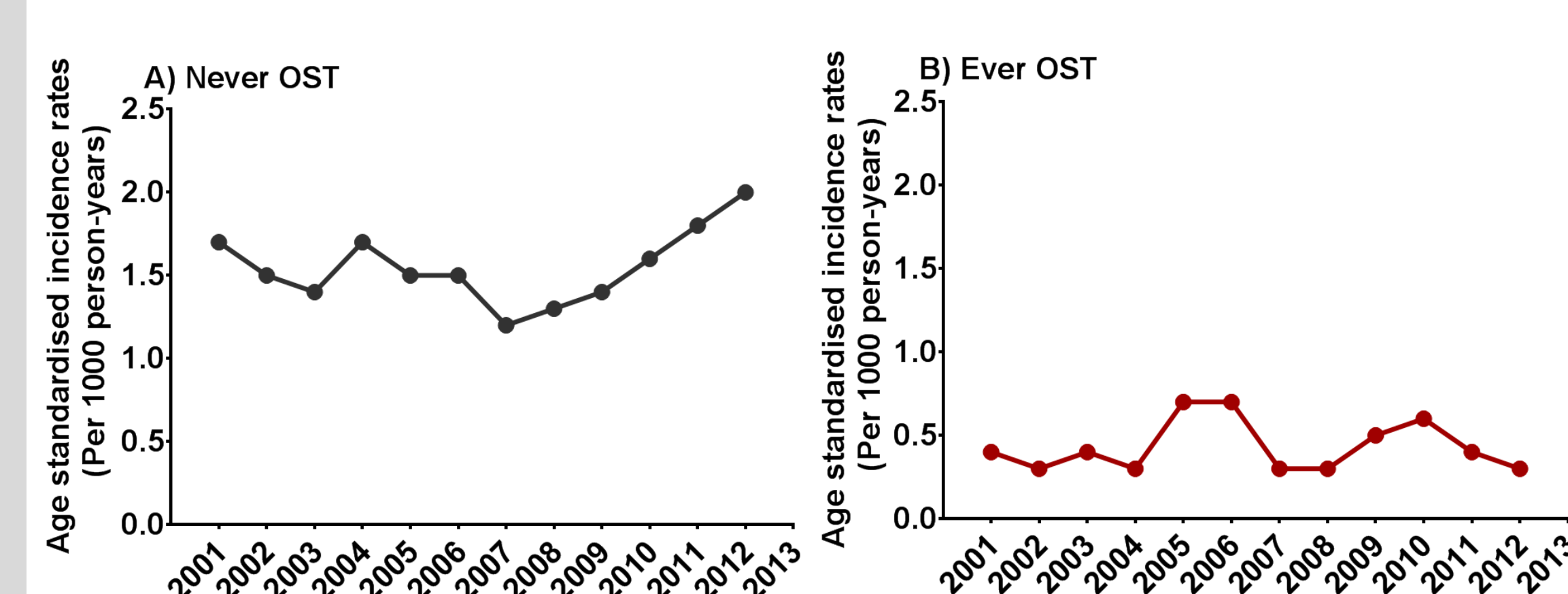


Fig.2. Age standardized incidence rates of first HCC hospitalization among people who A) never received OST and B) ever received OST and notified with HCV in NSW, Australia 2001-2013

Conclusion

In NSW, Australia between 2000-2014:

- The burden of HCC is increasing among people notified with HCV infection in New South Wales, Australia
- The increase in HCC burden is likely related to the ageing nature of the HCV-infected population and suboptimal treatment uptake and outcomes
- People with a history of OST appear to be at lower risk of HCC, following adjustment for other factors including age
- It is unclear why OST appears to have a HCC protective impact and therefore requires further investigation

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