



Earlier initiation of antiretroviral therapy in a national cohort of people newly diagnosed with HIV attending Australian sexual health clinics

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Earlier initiation of ART in Australian sexual health clinics



Introduction

- **Earlier HIV treatment associated with**
 - improved health outcomes
 - reduction in transmission risk
- **Australian primary care guidelines**
 - the initiation of treatment at CD4+ above 500 cells/μl to reduce disease progression in patients, as well as to lower the risk of transmission of HIV
- **Seventh National HIV Strategy**
 - improved appropriate uptake of treatment as a priority preventative action.

Objectives

- estimate the rate of early commencement of treatment (treatment within 6 months of diagnosis) over time
- determine predictors of early commencement of treatment

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Methods: Data source

- sexual health clinics participating in the Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance (ACCESS) program.
- 44 of the 83 clinics in Australia
- located across all states except South Australia
- includes the larger Australian clinics
- collected using computerized medical records systems as part of routine care
- de-identified line-listed data is transferred annually to the Kirby Institute.

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Methods: Inclusion

- **include if**
 - HIV diagnosis between 1 Jan-04 and 30 June-15
 - diagnosis made using
 - western blot test
 - “consecutive serology” / “HIV-seroconversion illness” in clinic HIV-registers
- **exclude if**
 - inconsistent dates
 - Incomplete virology treatment records
 - no follow-up visits in 6 months following diagnosis
 - record of HIV treatment/management at other clinics
- **outcome if record of antiretroviral treatment within 6 months of diagnosis (early treatment)**

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Methods: Statistical

- mixed effects logistic regression (adjust for variation in response associated treating clinic)

Variables

- calendar era 2004-6, 07-09, 10-12, 13-15; age, sex
- CD4 - within 90 days of diagnosis, (“<350 cells/μl”, “350-499”, “500+”)
- log₁₀ viral load– within 30 days of diagnosis & prior to treatment (“<3.7”, “3.7-4.5”, “4.5-5.0”, “5.0+”)
- prior positive test for Hepatitis B surface antigen (HbSAg (0/1))
- prior Hepatitis C positive test
- HIV-exposure (“male sex with other men” (MSM), “Injecting drug use” (IDU), “heterosexual sex”, “blood transferral”, “other/unknown”)
- remoteness category (“major cities”, “regional/remote”)
- high-risk according to numbers of sexual partners

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Results: characteristics



	N (%)	2004-06	2007-09	2010-12	2013-15	Total
number		89	141	268	365	863
male		83 (93.3)	129 (91.5)	242 (90.3)	334 (91.5)	788 (91.3)
mean age (SD)		38 (10.8)	37.22 (11.0)	36 (11.4)	35 (11.6)	36 (11.4)
mode of exposure						
MSM	45 (66.2)	61 (59.2)	77 (54.6)	105 (54.7)	288 (57.1)	
Het	10 (14.7)	22 (21.4)	32 (22.7)	44 (22.9)	108 (21.4)	
IDU	12 (17.6)	20 (19.4)	30 (21.3)	43 (22.4)	105 (20.8)	
blood	1 (1.5)	0 (0)	2 (1.4)	0 (0)	3 (0.6)	
missing/other	21	38	127	173	359	
HBV		4 (4.5)	7 (5.0)	16 (6.0)	15 (4.1)	42 (4.9)
HCV		2 (2.2)	3 (2.1)	9 (3.4)	5 (1.4)	19 (2.2)
remoteness						
major cities	65 (73.9)	95 (68.8)	225 (85.6)	312 (87.4)	697 (82.4)	
regional/remote	23 (26.1)	43 (31.2)	38 (14.4)	45 (12.6)	149 (17.6)	
missing	1	3	5	8	17	
high-risk		3 (3.4)	8 (5.7)	44 (16.4)	93 (25.5)	148 (17.1)

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Results: virology

	N (%)	2004-06	2007-09	2010-12	2013-15	Total
CD4 at diagnosis						
Median (IQR)	510 (350-730)	480 (350-700)	483 (314-650)	510 (340-667)	500 (339-680)	
<350	21 (23.6)	32 (22.7)	75 (28)	93 (25.5)	221 (25.6)	
350-499	19 (21.3)	38 (27)	55 (20.5)	77 (21.1)	189 (21.9)	
500+	49 (55.1)	71 (50.4)	138 (51.5)	195 (53.4)	453 (52.5)	
log₁₀ viral load at diagnosis						
Median(IQR)	4.9 (4.3-5.0)	4.58 (4.1-5.0)	4.44 (3.9-5.0)	4.6 (3.7-5.0)	4.6 (3.9-5.0)	
<3.7	12 (16.2)	17 (15.5)	45 (19.7)	80 (24.8)	154 (21)	
3.7-4.6	13 (17.6)	35 (31.8)	78 (34.2)	83 (25.7)	209 (28.4)	
4.6-5.0	21 (28.4)	24 (21.8)	39 (17.1)	79 (24.5)	163 (22.2)	
5.0+	28 (37.8)	34 (30.9)	66 (28.9)	81 (25.1)	209 (28.4)	
missing	15	31	40	42	128	



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Results: characteristics unadjusted(UV) models

	Odds ratio	p	P
sex (ref male)			
female	1.09 (0.67-1.78)	0.73	
age (ref<30)			0.65
30-39	1.03 (0.75-1.41)	0.87	
40-49	1.15 (0.92-1.46)	0.23	
50+	1.14 (0.87-1.51)	0.34	
HBV ever (ref no)	1.00 (0.56-1.77)	0.995	
HCV ever (ref no)	1.27 (0.58-2.75)	0.55	
mode of exposure (ref GBM)			0.41
IDU	0.75 (0.44-1.27)	0.28	
Heterosexual	1.02 (0.61-1.71)	0.95	
Blood /other	1.68 (0.15-18.43)	0.67	
remoteness (ref major cities)			0.65
Regional	1.07 (0.7-1.62)	0.76	
high-risk (ref not high-risk)			
High risk	1.01 (0.76-1.34)	0.96	



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Results: virology unadjusted(UV) & adjusted(MV) models

	OR (UV)	p	P	OR (MV)	p	P
CD4 (ref 500+)			<0.001			<0.001
350-499	2.59 (1.92-3.51)	<0.001		2.07 (1.32-3.23)	0.001	
<350	14.1 (10.73-18.53)	<0.001		10.49 (5-21.99)	<0.001	
log10(VL) (ref<3.7)			<0.001			0.003
3.7-4.6	0.94 (0.59-1.51)	0.806		1.06 (0.64-1.73)	0.832	
4.6-5.0	1.38 (0.9-2.09)	0.136		1.28 (0.94-1.74)	0.112	
5.0+	2.22 (1.4-3.52)	<0.001		2.04 (1.31-3.17)	0.002	
year (ref 2004-06)			<0.001			<0.001
2007-09	1.13 (0.68-1.86)	0.643		0.46 (0.18-1.19)	0.11	
2010-12	2.69 (1.64-4.39)	<0.001		1.94 (0.95-3.97)	0.069	
2013-15	5.79 (3.32-10.07)	<0.001		9.39 (4.81-18.33)	<0.001	
year * CD4						
07_09*350-499				2.02 (0.4-10.32)	0.398	
07_09*<350				4.72 (1.73-12.86)	0.002	
10_12*350_499				3.11 (1.33-7.27)	0.009	
10_12*<350				2.81 (1.18-6.67)	0.019	



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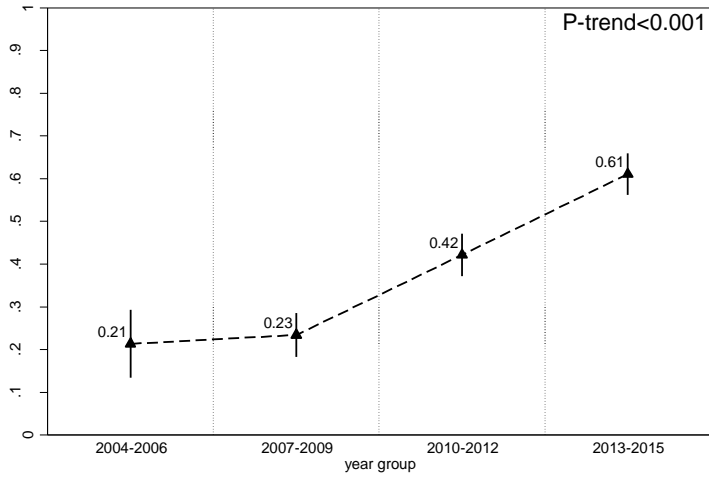
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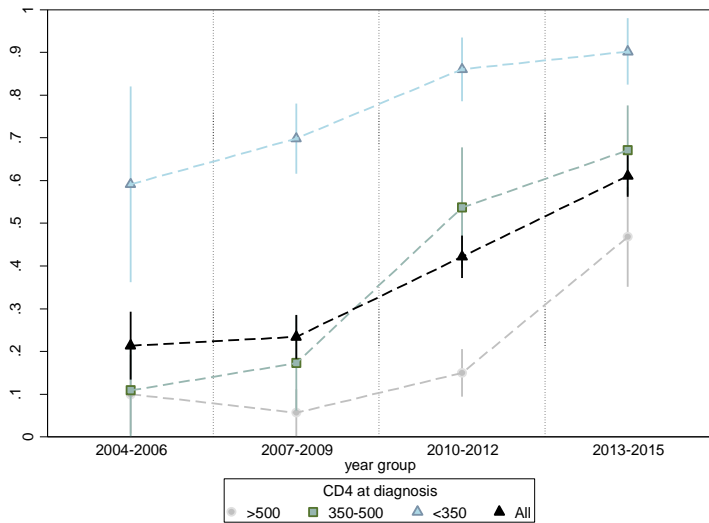
Results: probability of early treatment - year



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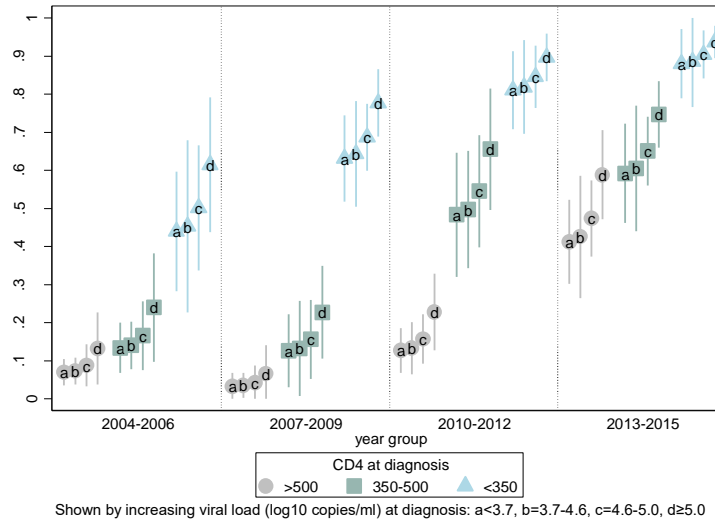
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Results: probability of early treatment - year & CD4



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Results: probability of early treatment – year, CD4 & viral load



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Conclusions

- socio demographic characteristics were not associated with early treatment
- large increases in rate of early treatment
- high viral load at diagnosis prognostic of early treatment
- low CD4 cell count associated with early treatment
- increased likelihood of treatment at high CD4 in later eras
- despite this success, further strategies are needed to maximise the benefits of treatment as prevention

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