

Parameters associated with Adherence to Anti-Retroviral Therapy in HIV-infected adults: the PAART study

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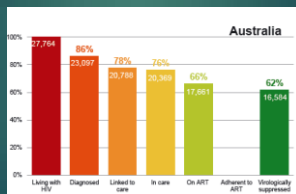
Disclosures

- Funding for the PAART study:
 - Gilead Sciences (unrestricted educational grant)
 - Western Australia Health
 - Victoria Department of Health
 - ACT Health
 - KS
 - Gilead Fellowship
 - travel sponsorship
 - JdW
 - research funding
 - consultancy fees
 - lecture fees
 - in-kind research support
 - AC
 - research funding
 - consultancy fees
 - lecture / travel sponsorships
 - advisory boards
- Gilead & Viiv Healthcare
Gilead
Boehringer Ingelheim
BMS
Gilead
Gilead, MSD, Pfizer, Viiv Healthcare
Gilead, MSD, and Viiv Healthcare
BMS, Gilead, Janssen, MSD, and Viiv Healthcare
Gilead, MSD, and Viiv Healthcare

Background

- UNAIDS global targets of 90-90-90
- HIV treatment cascade – requires additional information on long term outcomes, lost to follow-up

Treatment cascade - Australia



Raymond et al, HIV Drug Therapy, Glasgow, 2014

Background

- Futures¹
 - anonymous online survey of 1,058 HIV+ adults
 - 37.6% report difficulty taking ART
 - 27.9% of those on ART had taken a break from ART
 - 49.9% said they were taking ART as prescribed 100% of the time
 - no clinical / virological endpoints
- AHOD adherence²
 - post-2006 ART interruption associated with higher pill-burden, specific regimens, ART requiring fasting / food
- SVH IBAC Patient Survey³
 - 335 HIV+ adults
 - ART copayment associated with delaying / stopping medications

¹Grierson, et al. HIV Futures Seven 2013; ²Guy et al ASHM, 2011 ³McAllister J, et al, HIV Med 2012

Methods

- 500+ patients at multiple Australian GP, sexual health and hospital sites
- Eligibility
 - HIV+ adult ≥18 years of age
 - on stable ART for previous 3 months (minimum)
 - plasma HIV-RNA <50 cp/mL

	0	6	12	18	24
Consent	x				
Questionnaire	x		x		x
Cogstate	x		x		x
eCRF	x	x	x	x	x
Pharmacy ART data	x		x		x

Questionnaire

- 90-item questionnaire
 - Socio-demographics
 - Physical health
 - Mental health and emotional wellbeing
 - Life stressors and social supports
 - HIV disclosure, stigma and discrimination
 - HIV healthcare access
 - Health and treatment perception
 - Financial / employment status
 - HIV treatment, adherence and side effects



Cognitive Function

- CogState brief battery
 - electronic card games to assess neurocognitive domains affected by HIV-Associated Neurocognitive Disorders (HAND):
 - identification
 - detection
 - back memory
 - visual learning
 - 4 domain z-scores used to generate a Global Deficit Score (GDS; impairment defined by GDS ≥ 0.5)
- sensitive in detecting cognitive impairment
- adequate specificity for diagnosis of HAND

Outcome & Pharmacy Data

Case Report Form

- Demographics
- Current ART
- Current concomitant medications
- Pathology
 - HIV RNA
 - CD4 count
 - haemoglobin
 - eGFR
 - ALT

Pharmacy

- ART dispensing in preceding 12 months
 - ARV medication(s)
 - dates of dispensing
 - amounts dispensed
 - clinical trial medication / not
 - cost to patient (out-of-pocket)

Analysis

- Outcome variable = self-reported adherence
 - previous week - any missed dose
 - previous 3 months - ≥ 3 doses
- Each variable assessed for association with each adherence outcome
- Variables significantly associated in univariate analysis ($p \leq 0.05$) were then included in a forward, stepwise logistic regression model

Demographics and ART

Site (n,%)	Sexual health clinic	144	41%
	Hospital outpatient clinic	114	33%
	High caseload GP	92	26%
Patients	Male (n,%)	332	95%
	Age (mean)	50	years
	Self-identified homosexual (n,%)	275	79%
	HIV duration (mean)	14	years
	Cognitive impairment (n,%)	95	27%
Income (median)		\$600	/ wk
Drug use (n,%)	Major depressive disorder (PHQ-9)	48	14%
	Alcohol dependence (CAGE)	137	39%
	Recreational drug use \geq monthly	137	39%
ART	Duration (mean)	12	years
	Once-daily dosing (n,%)	211	63%
	One pill a day (n,%)	105	31%
	Paid pharmacy co-payment (n,%)	210	60%

Self-Reported ART Adherence

		Doses missed previous 3 months		Total
		≥ 3	< 3	
Dose missed last week	≥ 1	29 (8.3%)	14 (4%)	43 (12.3%)
	None	13 (3.7%)	294 (84%)	307 (87.7%)
Total		42 (12%)	308 (88%)	350 (100%)
<i>sensitivity 70%; specificity 95%</i>				

Risk factors for non-adherence - previous week

Risk Factor	AOR	95% CI	P
Not born in Australia	4.9	1.5-15.7	0.007
Living alone	3.8	1.5-9.6	0.004
Major depression (PHQ-9)	2.7	1.1-7.1	0.038
ART interruption in previous 12 months	13.3	3.0-58.8	0.001
No previous AIDS diagnosis	3.6	1.5-8.6	0.004

Relationship status (single/partnered), length living AUS, living in subsidized housing, private health insurance, income from various social welfare, weekly income <\$1,000, financial barriers to obtaining services/amenities, cost of HIV-healthcare, seeing other medical specialists in previous 12-months, unemployed, self-rated health as fair/poor, ≥ 1 bed day in previous year for illness, ≥ 3 major stressful events in previous 12-months, problematic smoking / marijuana use / benzos use, injecting speed, injecting ICE, non-disclosure of HIV status to casual sexual partners, prior non-adherence to ART, prior non-adherence to concomitant therapy, missing ≥ 3 appointments in past 12-months, difficulty accessing ART, ART readiness, ART side effects, >1 ART pill per day

Risk factors for non-adherence - previous 3 months

Risk Factor	AOR	95% CI	P
Not born in Australia	6.0	1.6-22.0	0.007
Medicare Safety Net reached	0.29	0.11-0.78	0.014
Currently in a sexual relationship	7.9	2.3-26.9	0.001
ART interruption ever	3.9	1.4-10.7	0.007
Marijuana \geq monthly	0.17	0.06-0.48	0.001

Relationship status, sexual relationship, length of time in Australia, private health insurance, living alone, income source, income amount, employment, health status, bed days, depression, major stress events, social support, NGO / support group, smoking, marijuana, benzos, speed (injected) ICE (injected), disclosure to casual sexual partners, ART readiness, ART side effects, ART access, previous ART non-adherence, previous concomitant therapy interruption, Doctor aware of ART interruption, missing \geq 3 appointments in past 12-months previous AIDS, >1 ART pill per day

Other variables

- No univariate association
 - Cognitive function
 - Copayment
- Univariate analysis (last week and last 3 months)

- >1 ART pill / day	OR \geq 2.3	p= 0.014
- side effects	OR \geq 1.9	p= 0.038
- not well informed about ART	OR \geq 2.4	p= 0.001
- Income: various social welfare	OR \geq 2.6	p= 0.001
- >1 bed day for illness (12 months)	OR \geq 3.0	p= 0.001
- major depressive disorder	OR \geq 3.0	p= $<$ 0.001
- \geq 3 major stress events (12-months)	OR \geq 3.0	p= $<$ 0.001
- problematic cigarette use	OR \geq 2.3	p= 0.003
- problematic benzo use	OR \geq 2.3	p= 0.025
- non-disclosure to casual sex partners	OR \geq 2.4	p= 0.003
- interrupted ART (12 months)	OR \geq 4.2	p= $<$ 0.001
- interrupted ART (ever)	OR \geq 2.6	p= 0.002
- interrupted conc meds (12 months)	OR \geq 3.0	p= $<$ 0.001
- interrupted conc meds (ever)	OR \geq 2.4	p= 0.010
- No prior AIDS diagnosis	OR \geq 3.3	p= 0.014

Summary & Conclusions

- Suboptimal adherence
 - 12% in past week, and past 3 months
 - mainly associated with background characteristics
- Longitudinal data
 - rate of ART failure
 - components of ART failure
 - risk factors for ART failure

Acknowledgements

- Albion Center (Sydney)
 - Ms Denise Smith, Prof Don Smith
- Cairns Sexual Health
 - Ms Faith Bassett, Ms Colette Cashman, A/Prof Darren Russell
- Centre Clinic (Melbourne)
 - Ms Helen Lau, Dr BK Tee
- Canberra Sexual Health
 - Ms Anne Baynes, Mr Rendry Del Rosario, Ms Ruth Evans, Dr Sarah Martin
- East Sydney Doctors
 - Dr David Baker, Ms Elizabeth Oedgers
- Fremantle Hospital
 - Dr John Dyer, Ms Anna Palermo
- Holdsworth House Medical Practice (Sydney)
 - Dr Mark Bloch, Mr Avindra Jayewardene, Ms Toni Gaunson, Ms Kate Morris
- SHAIDS (Lismore)
 - Ms Kate Allardice, Ms Ariane Minc, Dr David Smith, Ms Amber Tarver
- Sydney Sexual Health
 - Ms Ruthy Mclver, Dr Anna McNulty, Dr Caroline Thing
- St Vincent's Hospital
 - Ms Nicola MacKenzie
- Western Sydney Sexual Health
 - Ms Karen Biggs, Dr Catriona Ooi, Ms Melissa Power
- Gilead Sciences
- Western Australia Health
- Victoria Department of Health
- ACT Health