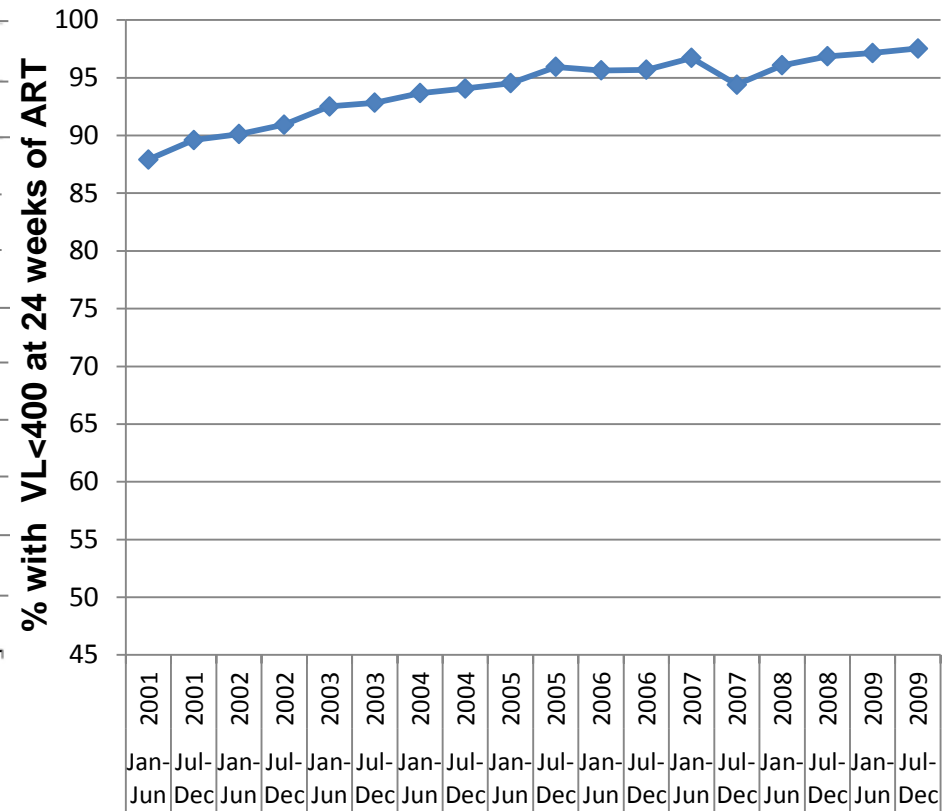
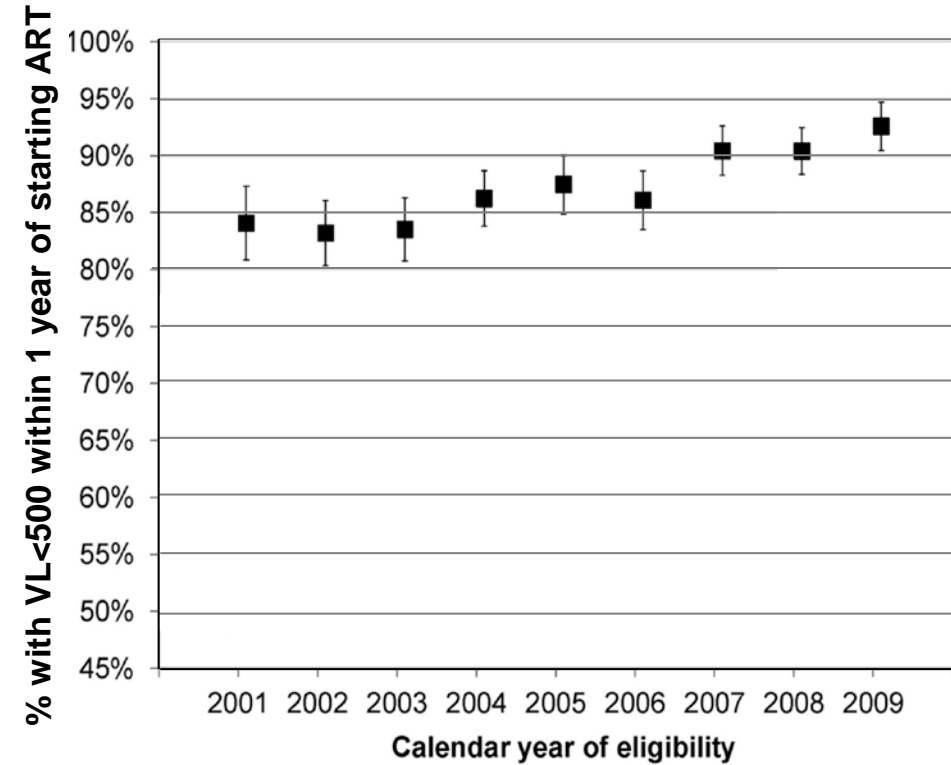


Is the gender difference in viral load response to ART narrowing over time?

Lisa Burch, Colette Smith, Fiona Lampe,
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for the Royal Free HIV Cohort

Introduction – Improvement in VL response over time



US NA-ACCORD¹
 VL < 500 within 1 year = suppression
 Adjusted analyses

UK Royal Free Hospital
 VL < 400 at 24 weeks = suppression
 Unadjusted

¹ Hanna. CID. 2013;56(8):1174-1182.

Introduction

- In the US^{1,2} and Europe^{3,4}, some evidence of poorer viral load (VL) responses to ART have been found among women than among men, in studies between 1996 and 2011
- Women and men who acquired HIV through sex with women (MSW) tend to have poorer VL responses than men who acquired HIV through sex with men (MSM)^{5,6}

¹ Hanna. CID. 2013;56(8):1174-1182. ² Mave. J Women's H. 2011;20(1):117-22. ³ Geretti. Antiviral Ther. 2008;13(7):927-36.

⁴ Rosin. HIV Med. 2014(ahead-of-print). ⁵ Fardet. HIV Med. 2006;7(8):520-9. ⁶ Robertson. AIDS Care. 2014(ahead-of-print):1-8.

Aims

- To investigate whether differences in response to first-line ART by gender/sexual orientation persist in recent time periods
- If they do, then to assess whether these differences are narrowing over time

Methods – study design

- Inclusion criteria:
 - Start ART at Royal Free Hospital, London between January 2000-July 2013 (baseline)
 - Previously ART-naïve
 - Sexual risk for HIV transmission
- **VL non-response (12 months):** VL >200 copies/mL first VL between 12 and 18 months after baseline; missing = excluded
- **VL non-response (24 months):** VL >200 copies/mL first VL between 24 and 30 months after baseline; missing = excluded

Methods – statistical analyses

- % with VL non-response by gender/sexual orientation group (MSM, MSW, women), by year of ART initiation
- Logistic regression to assess whether the association between gender/sexual orientation and VL non-response changed over time using a test for interaction, adjusted for:
 - Ethnicity
 - Age
 - Initial ART regimen
 - Baseline VL and CD4 count

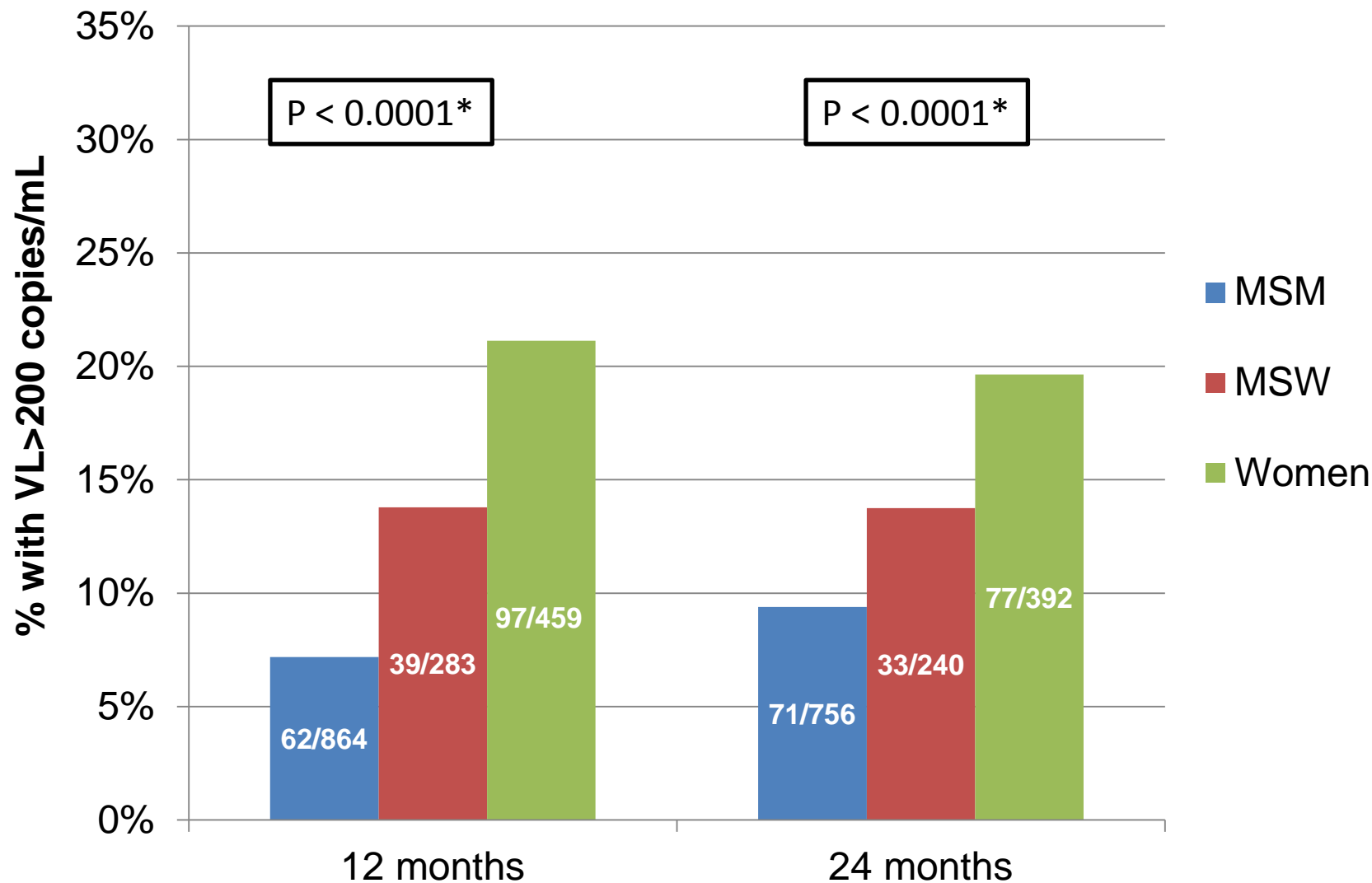
Characteristics of those starting ART 2000 - 2013

N = 1606		MSM	MSW	Women
N		864	283	459
Ethnicity	White	712 (83%)	75 (27%)	67 (15%)
	Black African	12 (1%)	146 (52%)	301 (66%)
	Other	140 (16%)	62 (22%)	91 (20%)
Age	<30 years	122 (14%)	28 (10%)	111 (24%)
	30-49 years	642 (74%)	203 (72%)	318 (69%)
	≥50 years	100 (12%)	52 (18%)	30 (7%)
ART regimen base	NNRTI	387 (45%)	131 (46%)	188 (41%)
	PI	381 (44%)	127 (45%)	224 (49%)
	Other	96 (11%)	25 (9%)	47 (10%)
CD4	Median (IQR) cells/mm ³	268 (168, 390)	160 (53, 280)	205 (84, 305)
VL	Median (IQR) log copies/mL	5.0 (4.6, 5.5)	5.0 (4.4, 5.6)	4.8 (4.1, 5.4)

17% (177) MSM, 22% (82) MSW and 21% (120) excluded as no VL 12-18 months after baseline

VL non-response for those starting ART 2000 - 2013

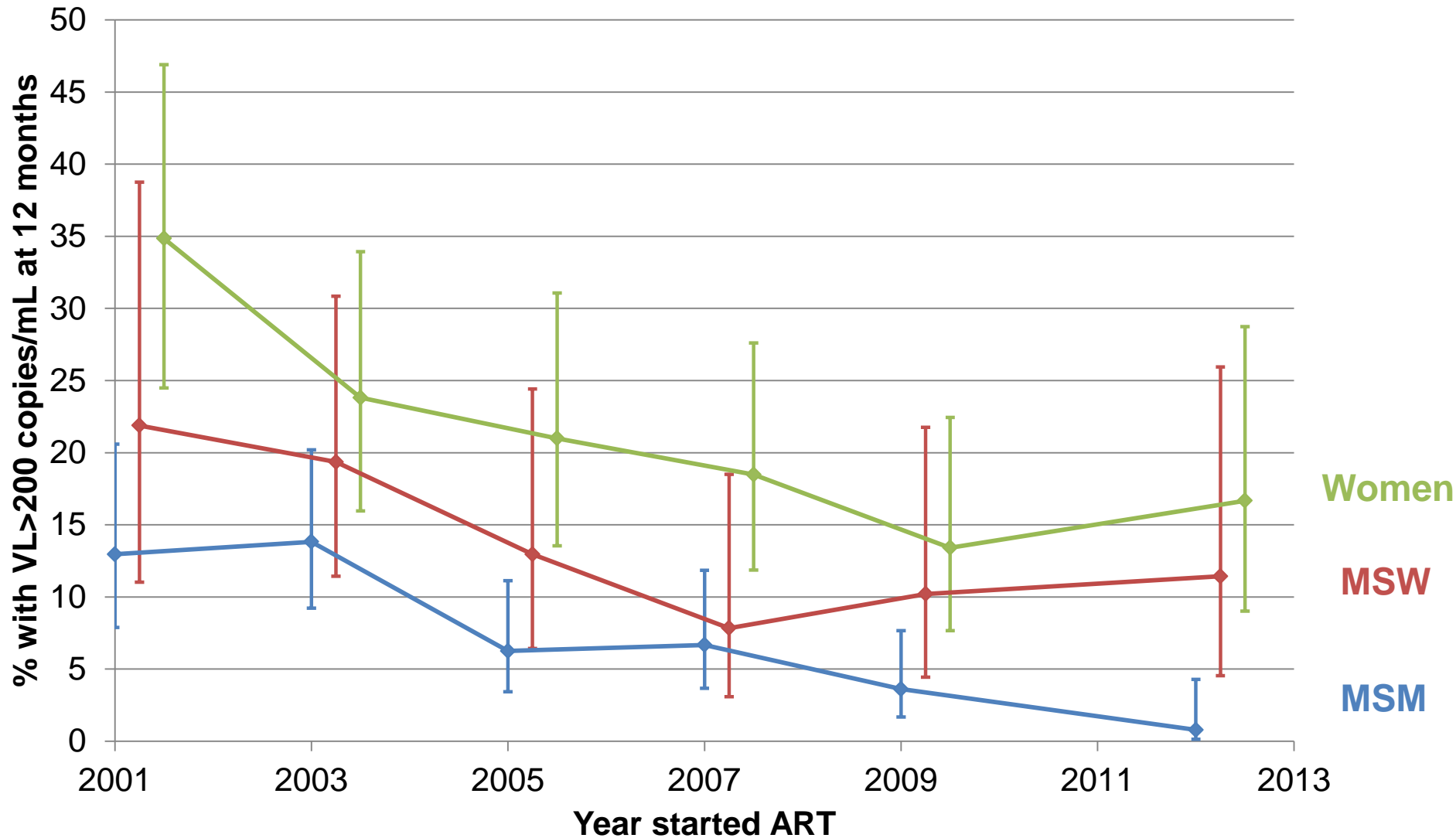
(missing VL = excluded)



*Chi-squared test

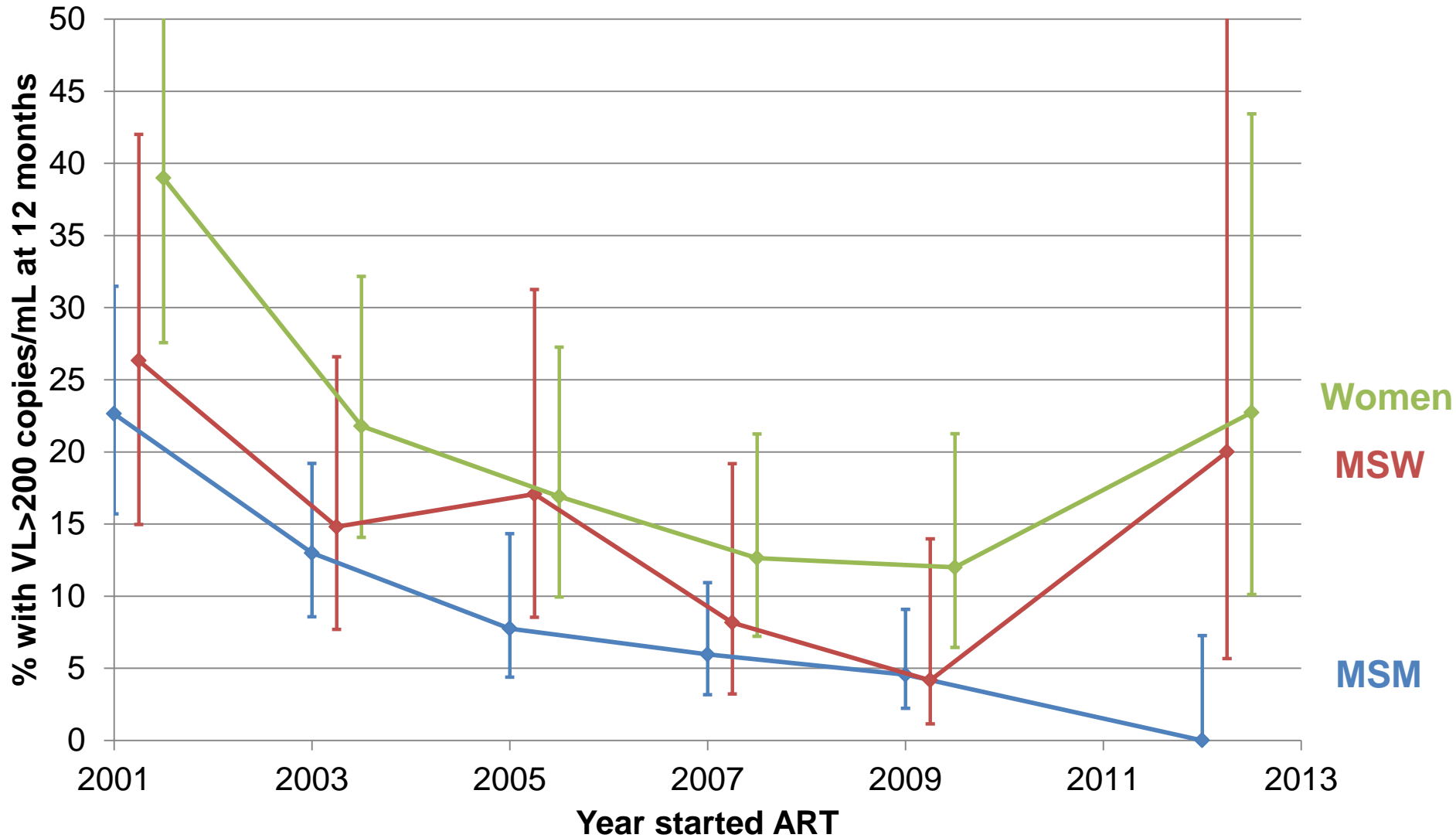
12-month VL non-response over time

(missing VL = excluded)



24-month VL non-response over time

(missing VL = excluded)



Change in 12-month VL non-response per calendar year by gender/sexual orientation

(missing VL = excluded)

		Unadjusted*		Adjusted#	
		OR (95% CI)	p-value	OR (95% CI)	p-value
Change per calendar year	MSM	0.81 (0.74, 0.88)	0.21	0.77 (0.70, 0.84)	0.15
	MSW	0.90 (0.81, 1.01)		0.85 (0.75, 0.96)	
	Women	0.88 (0.82, 0.95)		0.86 (0.79, 0.93)	

* Logistic model includes gender/sexual orientation, calendar year and interaction

Logistic model additionally includes ethnicity, age, initial ART regimen and baseline VL and CD4 count

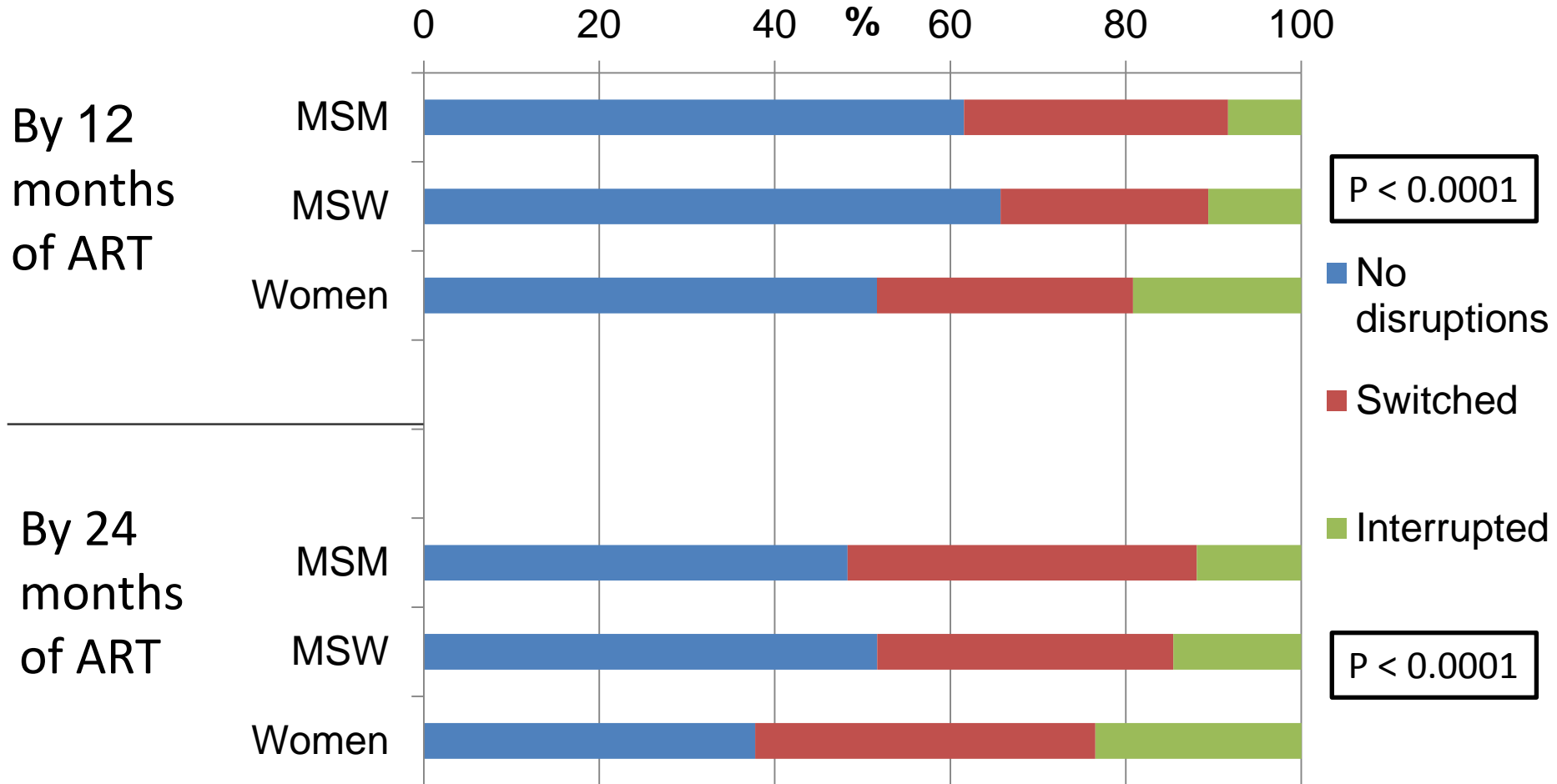
Change in 24-month VL non-response per calendar year by gender/sexual orientation (missing VL = excluded)

		Unadjusted*		Adjusted#	
		OR (95% CI)	p-value	OR (95% CI)	p-value
Change per calendar year	MSM	0.76 (0.69, 0.84)	0.19	0.73 (0.66, 0.81)	0.072
	MSW	0.84 (0.73, 0.96)		0.82 (0.71, 0.94)	
	Women	0.86 (0.78, 0.94)		0.86 (0.78, 0.95)	

* Logistic model includes gender/sexual orientation, calendar year and interaction

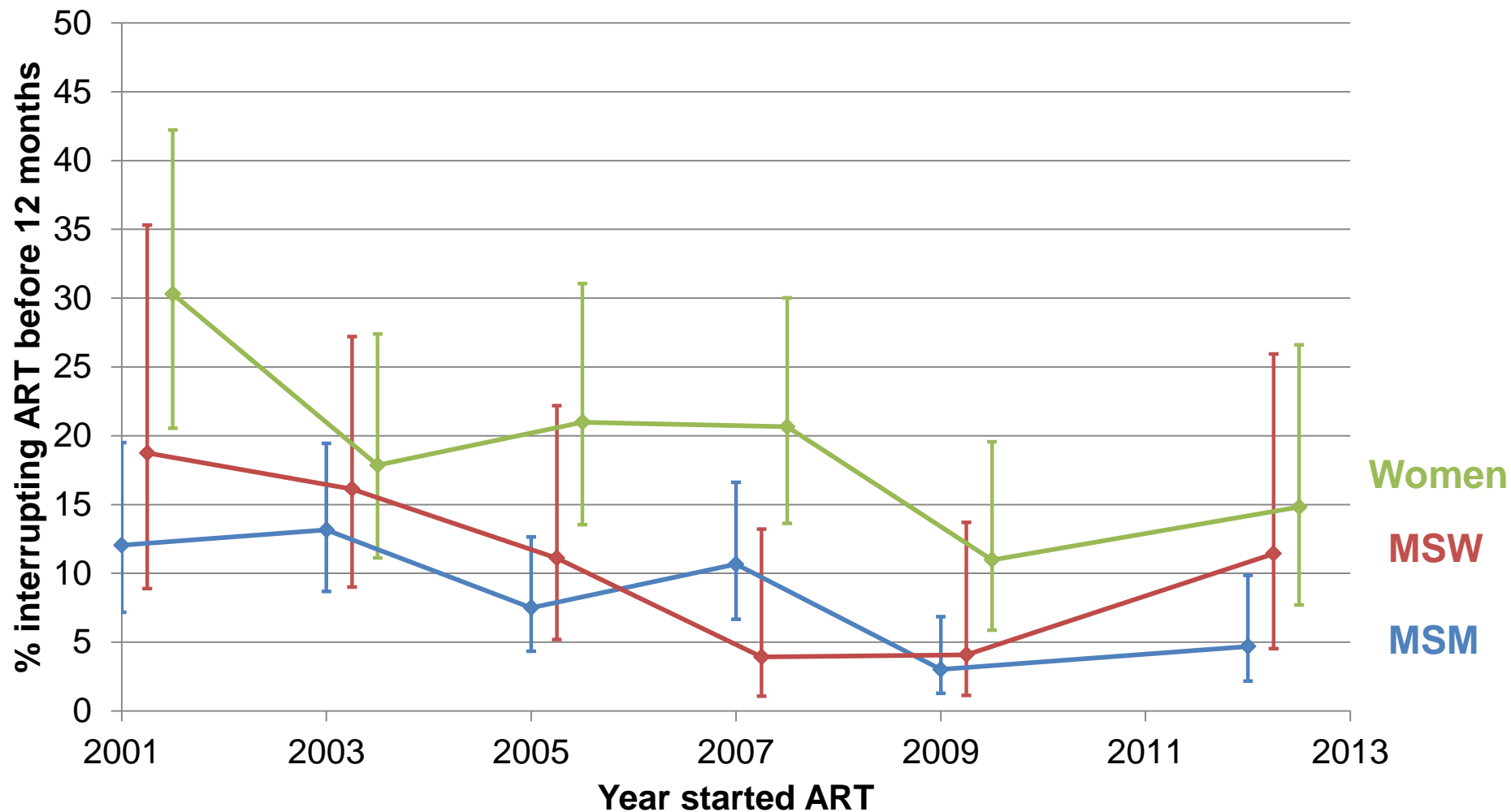
Logistic model additionally includes ethnicity, age, initial ART regimen and baseline VL and CD4 count

Treatment disruptions



Switched = made any changes to ART not including simplification of regimen;
Interrupted = stopped all ART drugs for ≥ 1 week.

% interrupting treatment before 12 months over time



Interrupted= stopped all ART drugs for ≥ 1 week.

Sensitivity analyses

- Results were consistent in the following sensitivity analyses:
 - Missing VL = failure
 - VL non-response is defined as VL >50 copies/mL
 - Women pregnant at baseline excluded

Conclusion - findings

- Overall VL non-response is now low in the UK and decreasing over time in all groups
- Women and MSW remain more likely to have VL non-response than MSM, in this single clinic setting with universal free access to care
- No evidence that this difference is narrowing in more recent years
- At the Royal Free hospital there is a dedicated women's clinic, counselling and adherence support

Conclusion – implications

- Women had more ART disruptions so non-adherence may contribute to observed differences
- Poorer VL outcomes in women and MSW may be related to: socio-economic status, time in the UK family circumstances, psychosocial factors, comorbidities
- Emphasis should be placed on improved/tailored support for women with HIV

Royal Free HIV cohort database

Clinical: S Bhagani, F Burns, P Byrne, A Carroll, I Cropley, Z Cuthbertson, T Fernandez, D Grover, G Murphy, D Ivens, M Johnson, S Kinloch-de Loes, M Lipman, S Madge, N Marshall, H Montgomery, L Sathia, R Shah, L Swaden, M Tyrer, M Youle, D Webster

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