

# "Long-tailed MSM": Prevalence and characteristics of MSM with frequent partner change in location-based surveillance in New Zealand

P.Saxton<sup>1</sup>, A.Hughes<sup>2</sup>, N.Dickson<sup>3</sup>, A.Ludlam<sup>1</sup>

<sup>1</sup>University of Auckland, Gay Men's Sexual Health research group, Auckland, New Zealand; <sup>2</sup>New Zealand AIDS Foundation, Auckland, New Zealand; <sup>3</sup>University of Otago, AIDS Epidemiology Group, Dunedin, New Zealand

Correspondence: p.saxton@auckland.ac.nz



## Introduction

The proportion of individuals with frequent partner change - the "long tail" in a partnering distribution - is a fundamental determinant of HIV spread in communities. It can be used as a proxy for properties of a community's sexual network, for example how interconnected it is, and therefore how susceptible it is to spread of a sexually transmitted infection. Populations in which there is a "long tail" in the distribution of sexual partner numbers are modelled to have lower epidemic thresholds [1] in which ongoing chains of transmission are likely (hence more difficult to control). A better understanding of sexual partnering patterns would help identify effective HIV prevention responses.

We aimed to describe the size of the "long tail", whether this changed over time, and condom use and testing characteristics using of men who have sex with men (MSM) in New Zealand.

## Methods

HIV behavioural surveillance in Auckland, New Zealand collected anonymous self-completed questionnaires in 2002, 2004, 2006, 2008, and 2011 at a community fair day, gay bars, and sex-on-site venues. Full methods are described in [2]. Eligibility was being male at least 16 years old and having had sex with another man in the past five years. "Sex" was defined as "any physical contact you felt was intimate". Response options for number of male sexual partners in the six months prior to survey were 0, 1, 2-5, 6-10, 11-20, 21-50 and >50. Changes over time in the proportion reporting >10, >20 and >50 recent partners - corresponding to three alternative "long tails" - were examined, adjusting for sample age and recruitment site. Differences between "long-tail" MSM (LTMSM) and non-LTMSM were assessed by logistic regression and adjusted odds ratios (AOR).

## Results

Overall 5,925 MSM provided information. Fig.1 summarises the distribution of male sex partners by respondents in the six months prior to survey across all five rounds 2002-2011 combined. Three alternative measures of LTMSM are highlighted.

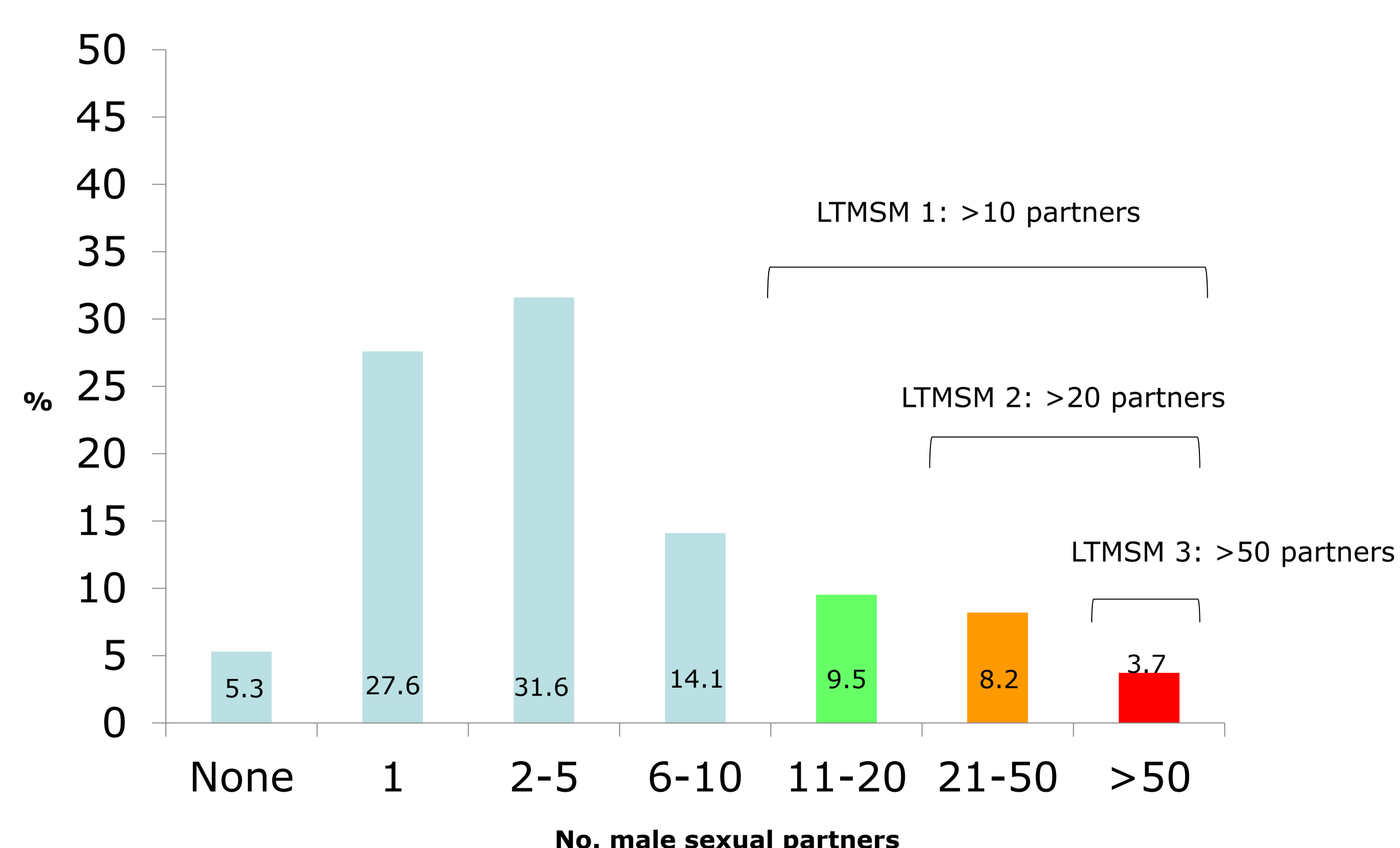


Fig.1 No. of male sex partners in last six months 2002-2011

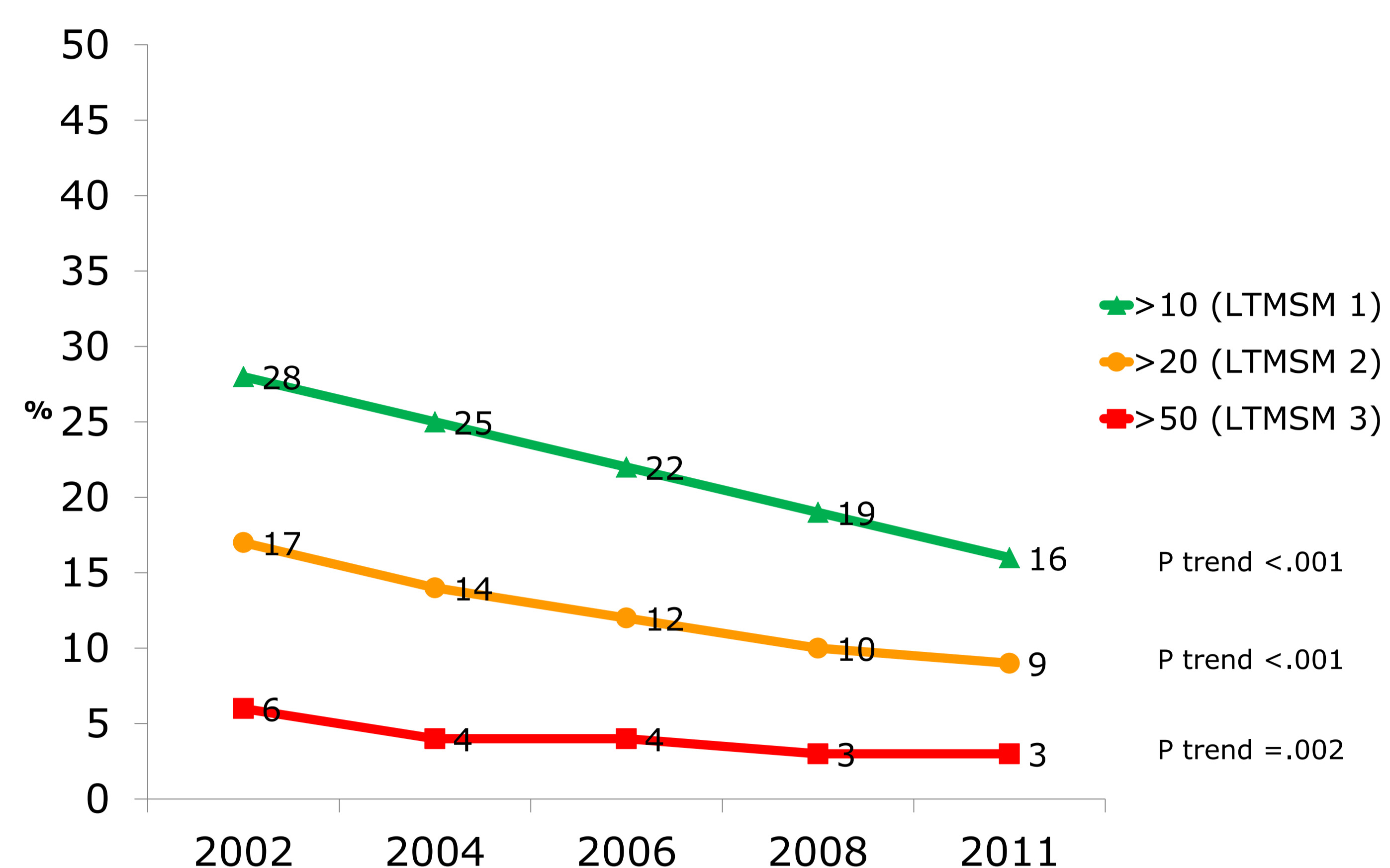


Fig.2 Proportion of sample reporting >10, >20 and >50 male sex partners in last six months by survey round

Figure 2 shows changes in the three cumulative partnering tails over time. The proportion reporting >10, >20 and >50 partners was 28%, 17%, 6% in 2002, which declined to 16%, 9%, 3% respectively in 2011.

The decline for all three tails remained significant after controlling for sample age and recruitment source.

No clear and consistent difference in behavioural characteristics was evident between respondents in the three recent partner number categories (11-20, 21-50, >50), suggesting there is no obvious trait-based break point delineating "tail" from "non-tail" respondents.

For further analysis LTMSM 2 respondents (who reported >20 partners) were compared to those reporting up to 20 partners (Table 1).

LTMSM 2 respondents were:

- older and more likely to have been recruited at a sauna or sex venue

Controlling for age group, LTMSM 2 respondents were:

- more likely to have engaged in any unprotected sex with a casual partner, but less likely to have done so with a current regular partner
- more likely to have tested for HIV and had a sexual health checkup
- more likely to have had an STI diagnosed in the last year
- more likely to report unfavourable attitudes to condoms
- less likely to expect an HIV positive sex partner to disclose their status

Despite these differences, the majority of LTMSM 2 respondents in these samples agreed that "condoms are ok as part of sex" (94%), and most LTMSM 2 respondents engaging in anal sex with a casual partner used condoms "always" or "almost always" (82%) (Table 1).

Table 1. Comparison of non-LTMSM 2 respondents ( $\leq 20$  partners) and LTMSM 2 respondents ( $> 20$  partners) in location-based surveillance 2002-2011

	% of $\leq 20$ partners	% of $> 20$ partners	Chi <sup>2</sup> p	AOR
<b>Socio-demographics</b>				
Recruited at sex-on-site / sauna	15	32	<.001	
Aged <30	35	23	<.001	
European ethnicity	75	75	ns	
Post-secondary school education	66	64	ns	
Gay identified	85	84	ns	
<b>Condom use with casual partner/s</b>				
Any UAI, total <sup>a</sup>	14	38	<.001	<b>3.8 (3.2-4.6)</b>
Any UAI, those having AI <sup>b</sup>	32	45	<.001	<b>1.8 (1.5-2.2)</b>
High condom use, those having AI <sup>b</sup>	86	82	<.001	<b>0.7 (.57-.94)</b>
<b>Condom use with regular partner</b>				
Any UAI, total <sup>a</sup>	30	24	<.001	<b>0.7 (.61-.89)</b>
Any UAI, those having AI <sup>b</sup>	67	55	<.001	<b>0.6 (.46-.75)</b>
High condom use, those having AI <sup>b</sup>	42	59	<.001	<b>2.1 (1.6-2.6)</b>
<b>HIV &amp; STI testing</b>				
Ever tested for HIV	76	85	<.001	<b>1.6 (1.3-2.0)</b>
Tested for HIV <6 months	25	35	<.001	<b>1.8 (1.5-2.2)</b>
Confirmed HIV positive	5	7	.019	1.4 (.97-1.9)
STI checkup/treatment <12 months	46	65	<.001	<b>2.3 (1.6-3.3)</b>
Diagnosed with STI <12 months	7	16	.001	<b>2.4 (1.4-4.1)</b>
<b>Attitudes (strongly agree/agree)</b>				
"Condoms are ok as part of sex"	96	94	.009	<b>0.6 (.45-.9)</b>
"HIV is a less seriously threat"	21	23	ns	1.1 (.94-1.4)
"Some times I'd rather risk HIV than use a condom"	10	18	<.001	<b>2.0 (1.6-2.5)</b>
"I don't like condoms because they reduce sensitivity"	36	42	.003	<b>1.2 (1.1-1.5)</b>
"A man who knows he has HIV would tell me before sex"	32	24	<.001	<b>0.7 (.55-.84)</b>

Note: UAI = unprotected anal intercourse, AI = anal intercourse, High = condoms used always or almost always during AI. AOR = odds ratio adjusted for age group, bold denotes statistically significant. <sup>a</sup> As a proportion of all non-tail/tail respondents; <sup>b</sup> as a proportion of non-tail/tail respondents engaging in anal intercourse with this partner type.

## Conclusions

LTMSM are strategically important prevention targets as they play a disproportionate role in facilitating (through non-condom use) or controlling (through condom use and testing) HIV spread.

In location-based surveillance in New Zealand, LTMSM are becoming less common, reported protective behaviours with regular partners and high HIV and sexual health screening, but also greater potential for HIV exposure through casual sex than other MSM.

HIV prevention responses must maintain a constructive engagement with LTMSM and policy makers must consider LTMSM when evaluating the effectiveness of new approaches. **Prevention goals need to include raising condom use, reinforcing the importance of HIV and STI testing, and shaping attitudes, while acknowledging the protective behaviours reported by these men.**

## References

[1] Schneeberger A. et al. "Scale-free networks and sexually transmitted diseases: a description of observed patterns of sexual contacts in Britain and Zimbabwe." *Sexually Transmitted Diseases*. 2004; 31: 380-387.

[2] Saxton P, Dickson N, Hughes A. "Location-based HIV behavioural surveillance among MSM in Auckland, New Zealand 2002-2011: condom use stable and more HIV testing." *Sexually Transmitted Infections* 2014; 90:133-138.