

# Ballpark figure? Estimating who's eligible for mpox vaccination in Aotearoa New Zealand

Saxton P<sup>1</sup>, Hollingshead B<sup>2</sup>, Hanl P<sup>3</sup>, Rich J<sup>2</sup>, Leakey C<sup>2</sup>, Sriamporn T<sup>1</sup>, Paynter J<sup>1</sup>

<sup>1</sup>School of Population Health, University of Auckland, Auckland, New Zealand, <sup>2</sup>Burnett Foundation Aotearoa, Auckland, New Zealand, <sup>3</sup>Manatū Hauora, Ministry of Health, Wellington, New Zealand

Australasian Sexual and Reproductive Health Conference, Sydney 18-20 Sept 2023. Contact: p.saxton@auckland.ac.nz

## Background

During the Monkeypox (mpox) pandemic, and facing global vaccine shortages, Aotearoa New Zealand (NZ) received 5,000 initial vaccines in January 2023. Fractional dosing via intradermal administration could extend these 5,000 vials into 25,000 doses.

Since mpox is transmitted more easily than HIV, estimates of the number of men who have sex with men (MSM) using HIV pre-exposure prophylaxis (PrEP) were **insufficient** to plan mpox vaccine rollout.

The aim of this work was to develop a range of estimates of MSM who might benefit from mpox vaccination, to inform Government decision-making, guide delivery and evaluate coverage.

## Methods

To enumerate the MSM population in NZ, we used three data sources:

- NZ Health Survey 2014/15
- NZ Health Survey 2021/22
- Household Economic Survey 2022

and two measures:

- gay or bisexual identity
- same-sex behaviour <12 months

We applied these proportions to the male NZ population aged 16-69 as of June 2022.

Then, we used behavioural estimates <6 months from the 2022 Sex and Prevention of Transmission Study (SPOTS), a national cross-sectional online study of GBM conducted in 2022 (n=3,838). We proposed mpox vaccine priority sub-populations based on PrEP use, number of partners, and their geographic profile.

## Results

The proportion being MSM varied from 2.1% (same-sex behaviour <12 months, NZHS 2014/15) to 4.0% (gay or bisexual identity, NZ Health Survey 2021/2), therefore between 36,600 to 69,700 MSM.

SPOTS behavioural estimates were: on PrEP (25%); >1 partner (59%); >5 partners (29%); >10 partners (12%); >1 partner or PrEP (63%); >5 partners or PrEP (40%); >10 partners or PrEP (32%).

**Table 1.** Sub-population estimates for gay and bisexual men using SPOTS participants<sup>a</sup> (as of June 2022)

Source	Estimate	Gay or bisexual identifying men (GBM)		Men who had sex with a man <12m (MSM)	
		NZHS 2014/15	HES 2022	NZHS 2021/22	NZHS 2014/15
<b>Population</b>		2.3%	2.7%	4.0%	2.1%
NZ males aged 15-69	1,743,000				
GBM	40,000	47,000	69,700		
MSM				36,600	
<b>SPOTS Measure</b>					
PrEP	25%	10,000	11,700	17,400	10,200 <sup>b</sup>
>1 partner	59%	23,600	27,800	41,100	24,200 <sup>b</sup>
>5 partners	29%	11,600	13,600	20,200	11,700 <sup>b</sup>
>10 partners	12%	4,800	5,600	8,400	6,200 <sup>b</sup>
>1 partner or PrEP	63%	25,300	29,600	43,900	25,600 <sup>b</sup>
>5 partners or PrEP	40%	16,000	18,800	27,900	16,100 <sup>b</sup>
>10 partners or PrEP	32%	12,800	15,000	22,300	12,800 <sup>b</sup>

<sup>a</sup>Rounded to nearest 100. <sup>b</sup>These estimates use a reduced base of GBM who are sexually active. The adjusted proportions are HIV PrEP (28%), >1 partner (66%), >5 partners (32%), >10 partners (17%), >1 partner or PrEP (70%), >5 partners or PrEP (44%), >10 partners or PrEP (35%). NZHS=NZ Health Survey. HES=Household Economic Survey. <6m=last 6 months. <12m=last 12 months. GBM=Gay or bisexual identifying men. MSM=men who have sex with men. Darker shading indicates recommended estimate.

Consequently, the potential sub-populations to prioritise mpox vaccination for were 4,800 (lower) to 43,900 (upper) MSM.

Geographic profile was sensitive to behavioural criteria. For example, Auckland was home to 41% of MSM with >1 partner <6m, but 49% of MSM on PrEP.

## Relevance and outcome

The research team consulted with health officials, sexual health services and community organisations. The estimate of ">1 recent partner" (~24,200 MSM, darker shade in Table 1) was preferred as it:

- Created simple to define eligibility criteria
- Was easily communicated to community
- Approximated NZ's vaccine supply for fractional first doses (25,000 doses).

## Conclusion:

Triangulating data sources helped officials make evidence-based decisions at short notice in an mpox epidemic emergency. These methods can also help estimate future gonorrhoea vaccine and Doxy-PEP delivery.

Ultimately, achieving high two-dose coverage of mpox vaccines in NZ will depend on removing legislative barriers to vaccine promotion, the vaccine administration mode (intradermal vs subcutaneous) and actual yield of doses per vial in the field.

SPOTS study promotional collateral example.

