Epidemiology and clinical characteristics of mpox cases in Victoria, Australia

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Disclosure of interest

- Nothing to disclose.

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I would like to acknowledge the Traditional Owners of the land on which we meet today and pay my respects to the Elders past, present, and emerging.

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MPOX

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- Mpox (formerly monkeypox) infection is caused by MPVX virus.
- Transmission mainly through close contact - including sexual contact and bodily fluid
- Endemic in Central and West Africa. But since May 2022, global increase in mpox cases in many countries
- Since then, over 120,000 cases have been reported in 128 countries.
- WHO has declared mpox outbreak a public health emergency of international concern twice – May 2022 (Clade II) & August 2024 (Clade I).

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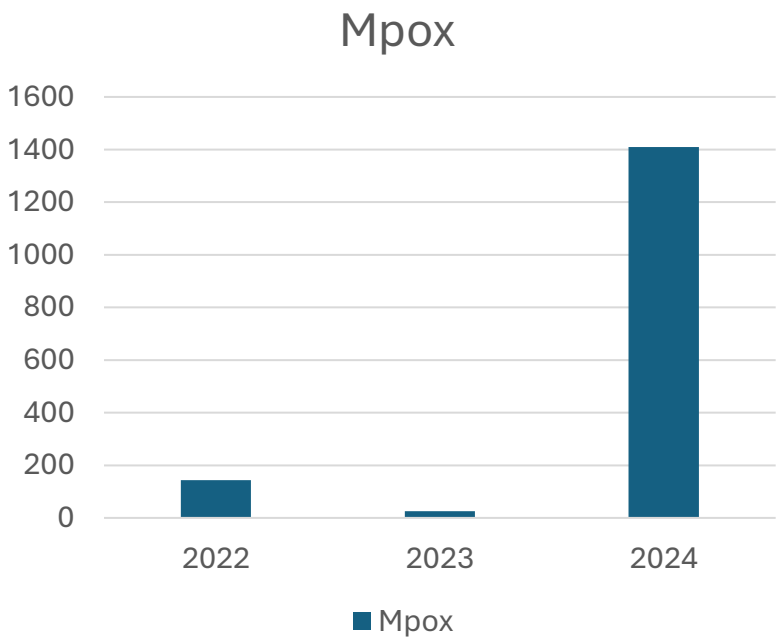
Mpox in Australia

- Mpox was first reported in Australia in May 2022.
- 2022 outbreak: 144 cases
- 2024 outbreak: 1,409 cases
- The majority of the mpox cases have been among gay, bisexual and other men who have sex with men (GBMSM).
- All cases were clade IIB.

Mpox cases in Australia 2022-24



Data source: National Notifiable Disease Surveillance System Dashboard

Aims

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To understand

- the trends in the epidemiology of mpox infection
- the changes in clinical characteristics of mpox cases

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Study design

- Retrospective review of mpox cases
- Period: from 1st January 2022 to 30th September 2024.
- Location: Melbourne Sexual Health Centre (MSHC)
- Case definition – persons with suspected mpox symptoms and confirmed by mpox PCR, and attended MSHC
- Data collection:
  - demographics, sexual practices, history of vaccination, and characteristics of mpox cases were collected.
  - Follow-up reviews (between 7 to 21 days) – complications, treatment, hospitalisations

Study design cont’

Severity of mpox infection

1. Mild
   - Simple analgesia
2. Moderate
   - secondary complications - oral antibiotics, stronger analgesia
3. Severe
   - Hospitalisations, emergency presentations, prolonged illness (>21d)

Statistical analysis

- Descriptive statistics, pearson’s chi-square, fisher’s exact test, ordered logistic regression for association

Ethic: approved by Alfred Health Ethic Committee (686/24)

Demographics of mpox cases at MSHC, 2022-24

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	2022	2023	2024	P-VALUE*
Number of cases (N=210)	**48**	**6**	**156**	
MSM	48 (100%)	6 (100%)	153 (98%)	
Age (median)	36	36	35	0.851
Medicare	40 (83%)	5 (83%)	121 (78%)	0.668
PrEP users & PLHIV				0.388
PrEP users	32 (67%)	4 (67%)	90 (58%)	
PLHIV	5 (10%)	1 (17%)	37 (24%)	
Non-PrEP users	11 (23%)	1 (17%)	29 (19%)	

*p-values for comparison over 3 years

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Epi data of mpox cases at MSHC, 2022-24

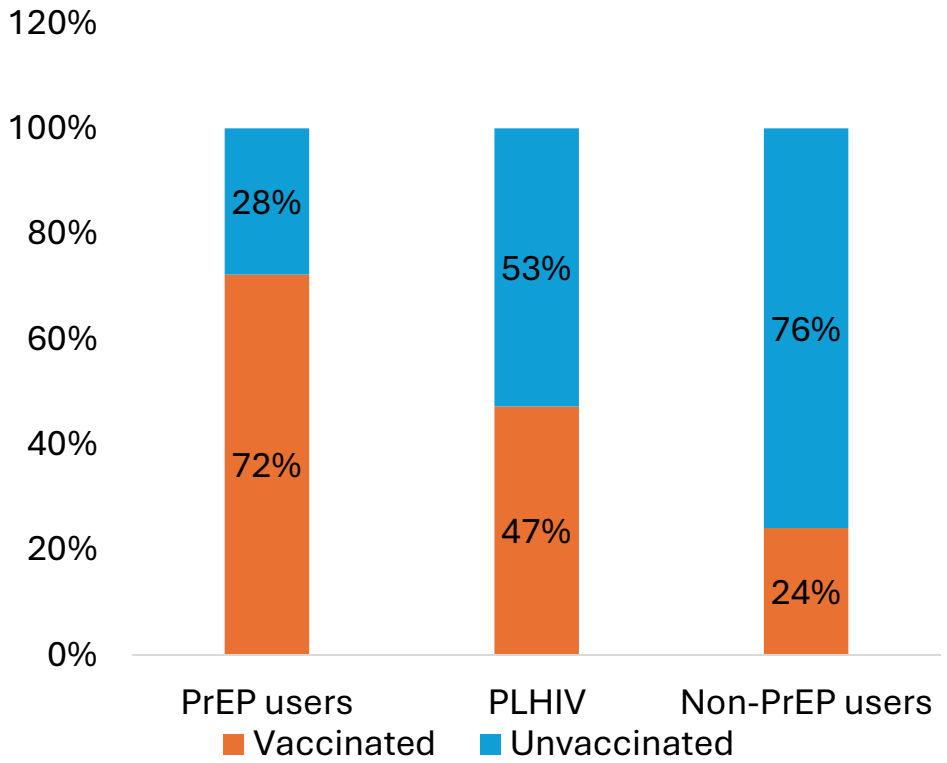
	2022 N=48	2023 N=6	2024 N=156	P-value~
Sex overseas (last 21 days)	12 (25%)	6 (100%)	7 (4%)	**<0.001**
Smallpox/mpox vaccination				**<0.001**
- 2 doses	0 (0%)	3 (50%)	67 (43%)	
- 1 dose (includes childhood vaccine)	7 (15%)	1 (17%)	22 (14%)	
- unvaccinated	**39 (81%)**	**2 (33%)**	**66 (43%)**	
Repeat infection*	0 (0%)	0 (0%)	1 (0.6%)	
Contact with a person with mpox	13 (27%)	0 (0%)	35 (22%)	0.320
Time to clearance (median, IQR, days)	**13.5 (7-18)**	**11 (7-18)**	**7 (7-12.5)**	0.532

*Past mpox infection— Unvaccinated PLHIV presented with mpox proctitis in 2022 and 2024.

~p-values for comparison over 3 years

Vaccination among mpox cases in 2024

- Vaccinated: 89 (57%)
- Unvaccinated: 66 (43%)



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Characteristic mpox cases at MSHC, 2022-24

	2022	2024	P-value*
Prodromal symptoms* (includes fever)	31 (66%)	78 (50%)	0.054
Fever	23 (49%)	44 (28%)	**0.008**
Other prodromal symptoms (excludes fever)	28 (60%)	46 (29%)	**<0.001**
Lymphadenopathy	22 (59%)	62 (75%)	0.093
Number of lesions (median, IQR)	5.5 (3-10)	3 (1-15)	**0.005**
Site of lesions			0.728
-Proctitis/anal	15(31%)	58 (37%)	
-Genital/penile	19 (40%)	59 (38%)	
-Anogenital+/-generalised	14 (29%)	39 (25%)	
Coinfection with other STIs	13 (28%)	54 (35%)	0.374
Antibiotic use (syndromic tx, coinfection tx, mpox tx)	34 (71%)	103 (66%)	0.535

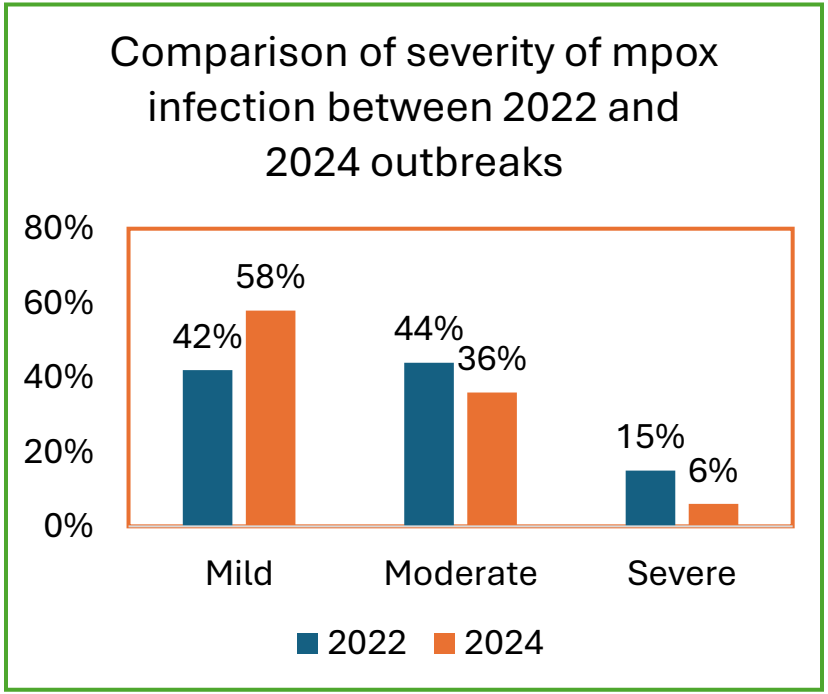
*p-values for comparison between 2022 and 2024

Prodromal symptoms: fever, myalgia, headache, lethargy, sore throat, rash, pruritus

Severity of mpox infection

Overall, the findings indicate milder mpox infection in 2024 outbreak.

	2022	2024	P-VALUE *
Hospitalisations	7 (15%)	8 (5%)	**0.037**
Complications	31 (65%)	65 (42%)	**0.007**
Severity			**0.023**
- Mild	20 (42%)	90 (58%)	
- Moderate	21 (44%)	56 (36%)	
- Severe	7 (15%)	9(6%)	



*p-values for comparison between 2022 and 2024

Factors associated with severity of mpox infection

- Adjusted for age, HIV status, PrEP use
- Covariates – fever, prodromal symptoms, site of lesions, coinfection with other STI, antibiotic use for other STIs or syndromic treatment

N=206	Univariate odds ratio, 95% CI	p-value	Multivariate odds ratio, 95% CI	p-value
Vaccination	0.30 (0.15-0.57)	<0.001	**0.37 (0.20-0.68)**	**0.001**
Number of lesions	1.10 (1.04-1.14)	<0.001	**1.10 (1.06-1.14)**	**<0.001**

Limitations

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- Recall bias- Retrospective data
- Small sample size
- Single site study – limiting generalisability

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Summary

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- More local transmission in 2024
- Vaccine is highly protective against severe infection
- Still a gap in vaccination
  - Identify subpopulations with low vaccine uptake. Explore barriers to vaccination.
- A shift in characteristics → likely milder infection in 2024
  - Future studies to understand changes in immunity at population level (herd immunity from vaccination, immunity post infection)

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Thank you for listening.

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