



# Medication Possession Ratio as a Measure for PrEP Adherence in the EPIC-NSW Study

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**September 2019**

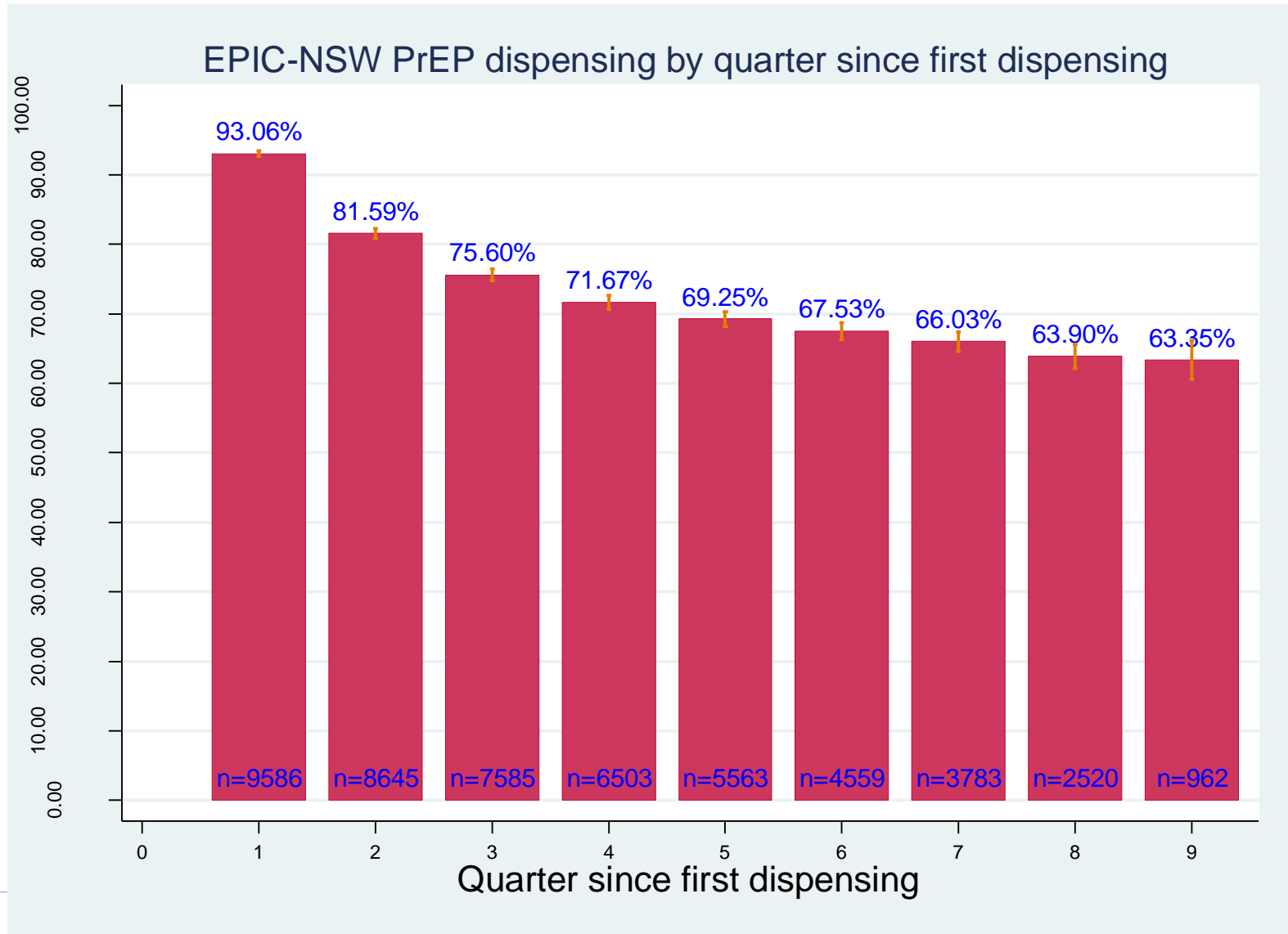
# Background

- **PrEP adherence is key to its effectiveness**
- **A range of methods have been used to measure PrEP adherence**
  - **Self-report**
  - **Medication possession ratio**
  - **Drug concentration testing**

## Medication possession ratio

- **A review of the PrEP dispensing logs**
- **Study period**
  - **Date of first dispensing – April 30, 2018, divided by a series of 90-day intervals (quarterly)**
- **Days PrEP in possession equals number of pills dispensed**
- **MPR: days PrEP in possession/90**

# MPR by Quarters

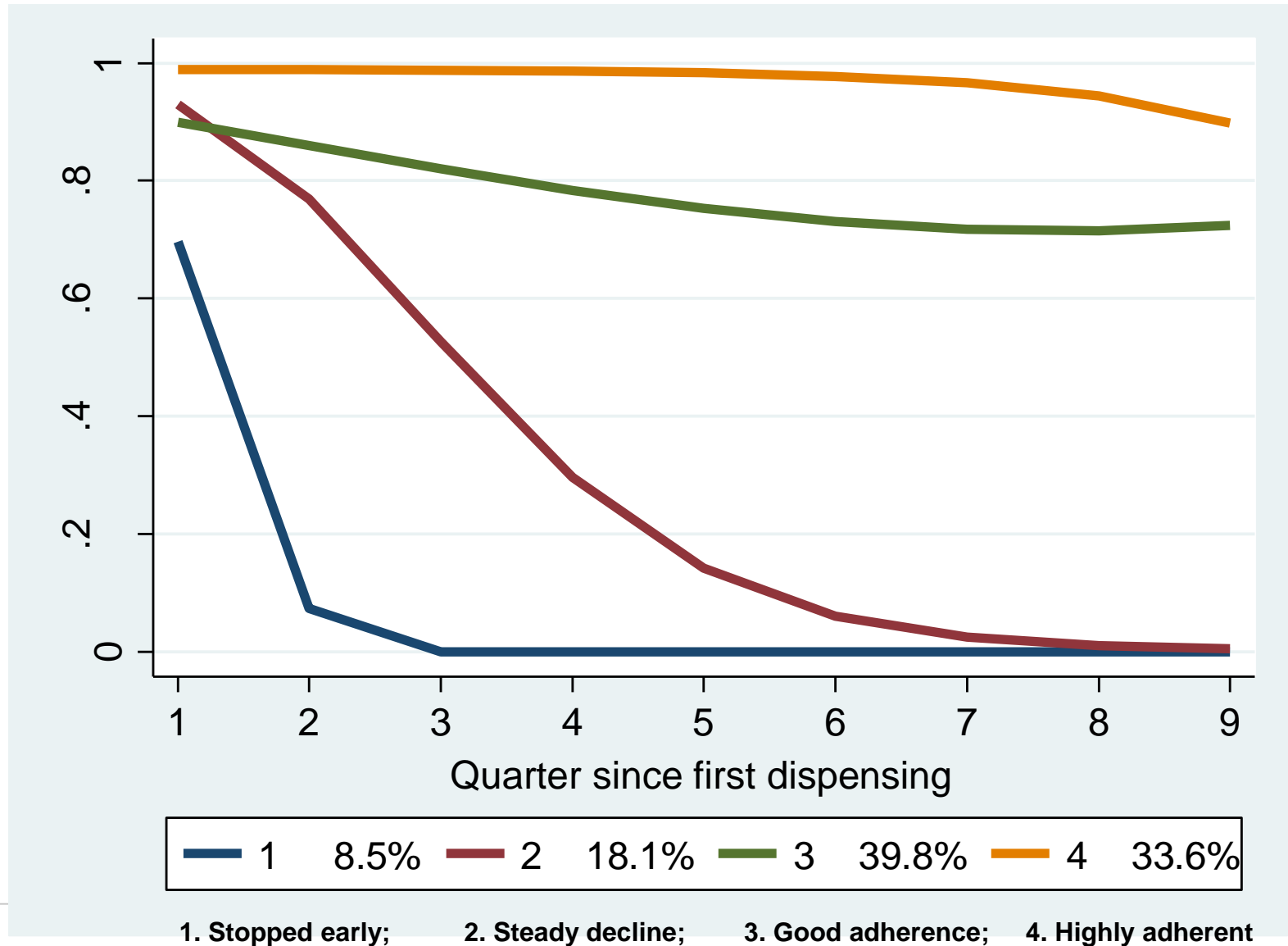


# Group-based Trajectory Modelling<sup>1</sup>

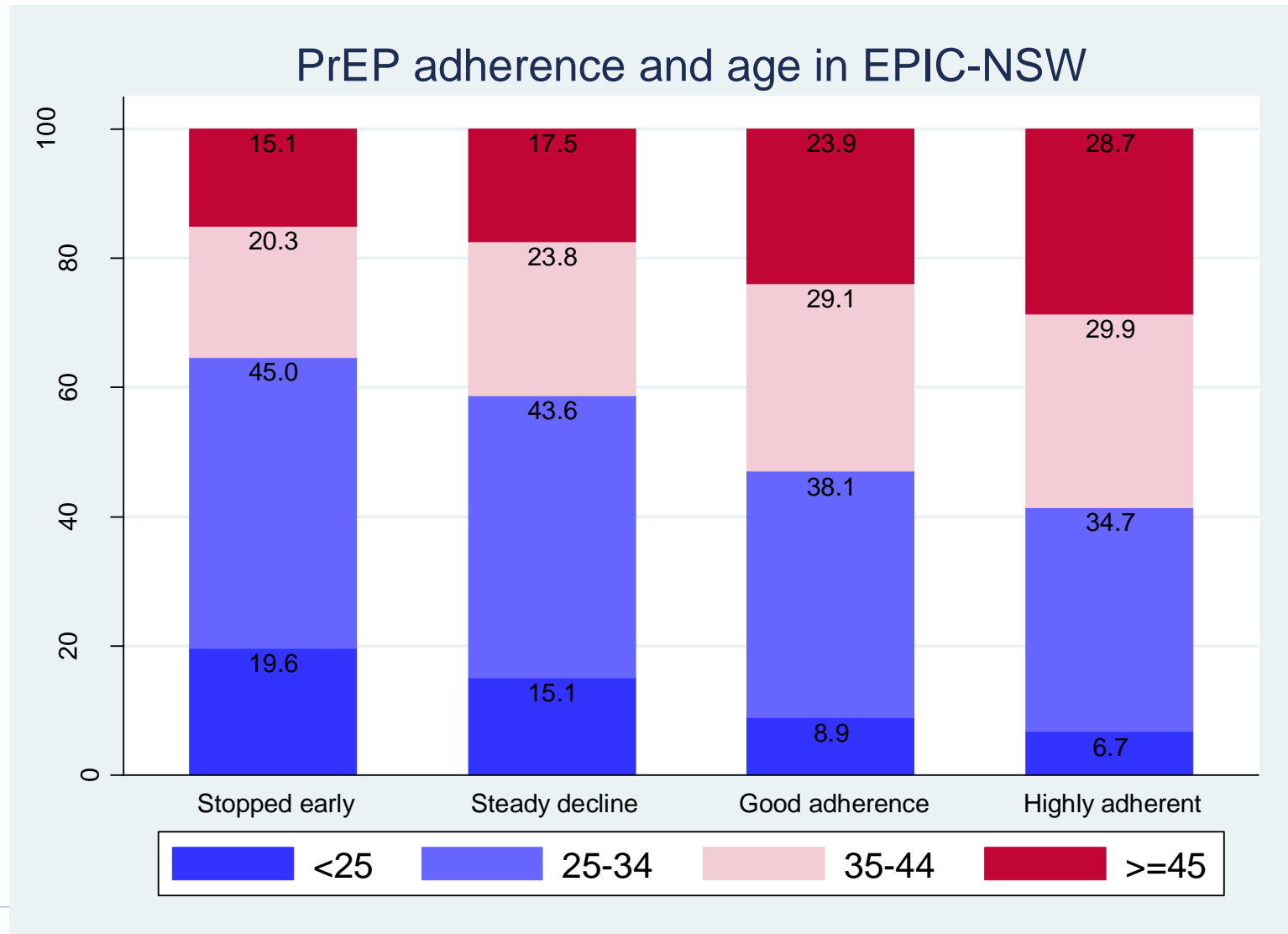
- **A new statistical method designed to identify:**
  - **Groups of individuals following similarly developmental trends**
- **Capable of profiling characteristics of individuals within the clusters**
- **Participants with at least 4 quarterly intervals included (n=6503, 67.8%)**

<sup>1</sup>Nagin DS, Odgers CL. Group-based trajectory modeling in clinical research. *Annu Rev Clin Psychol* 2010;6:109-38

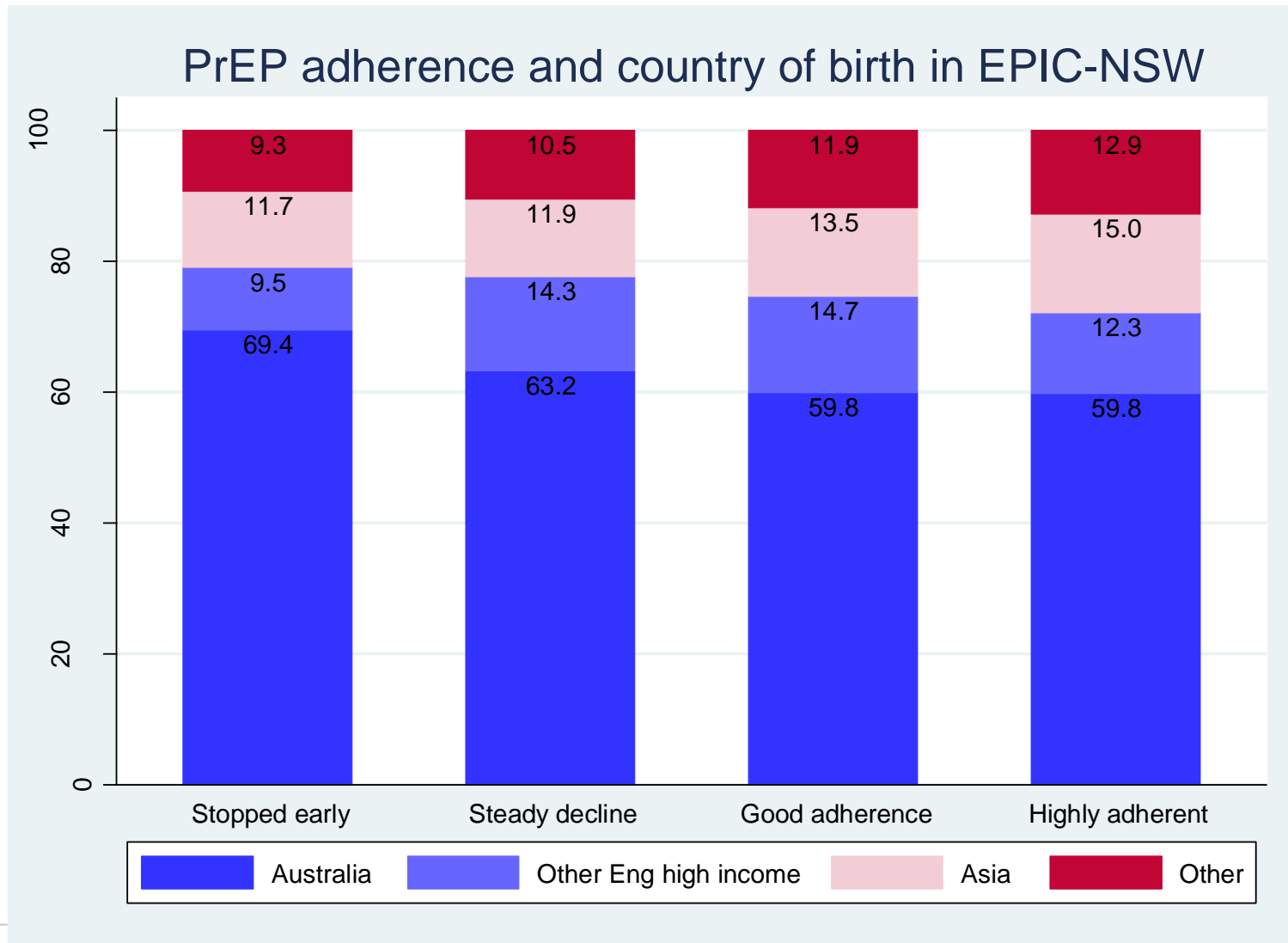
# MPR Clusters in EPIC-NSW



# PrEP Adherence and Age

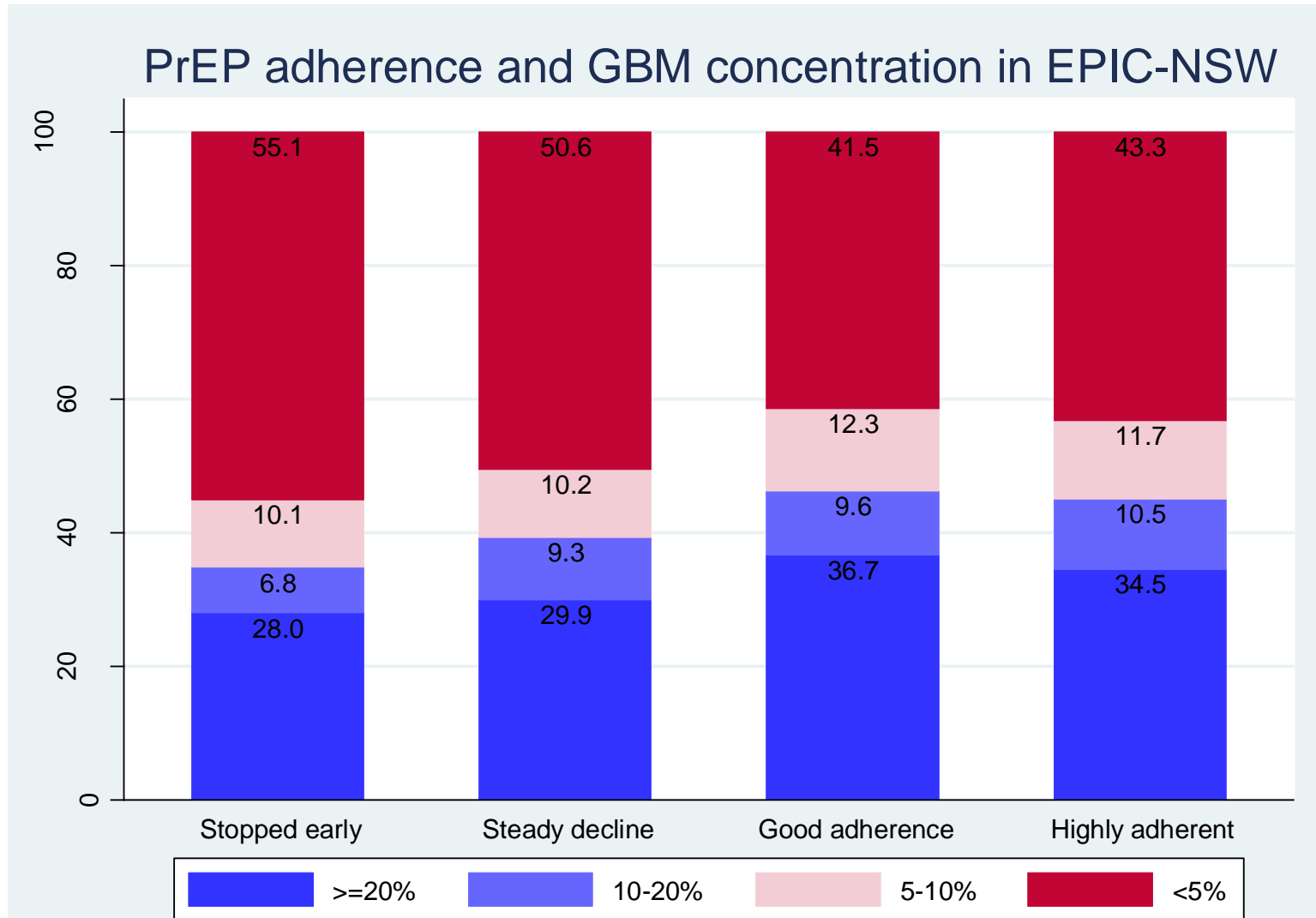


# PrEP Adherence and country of birth

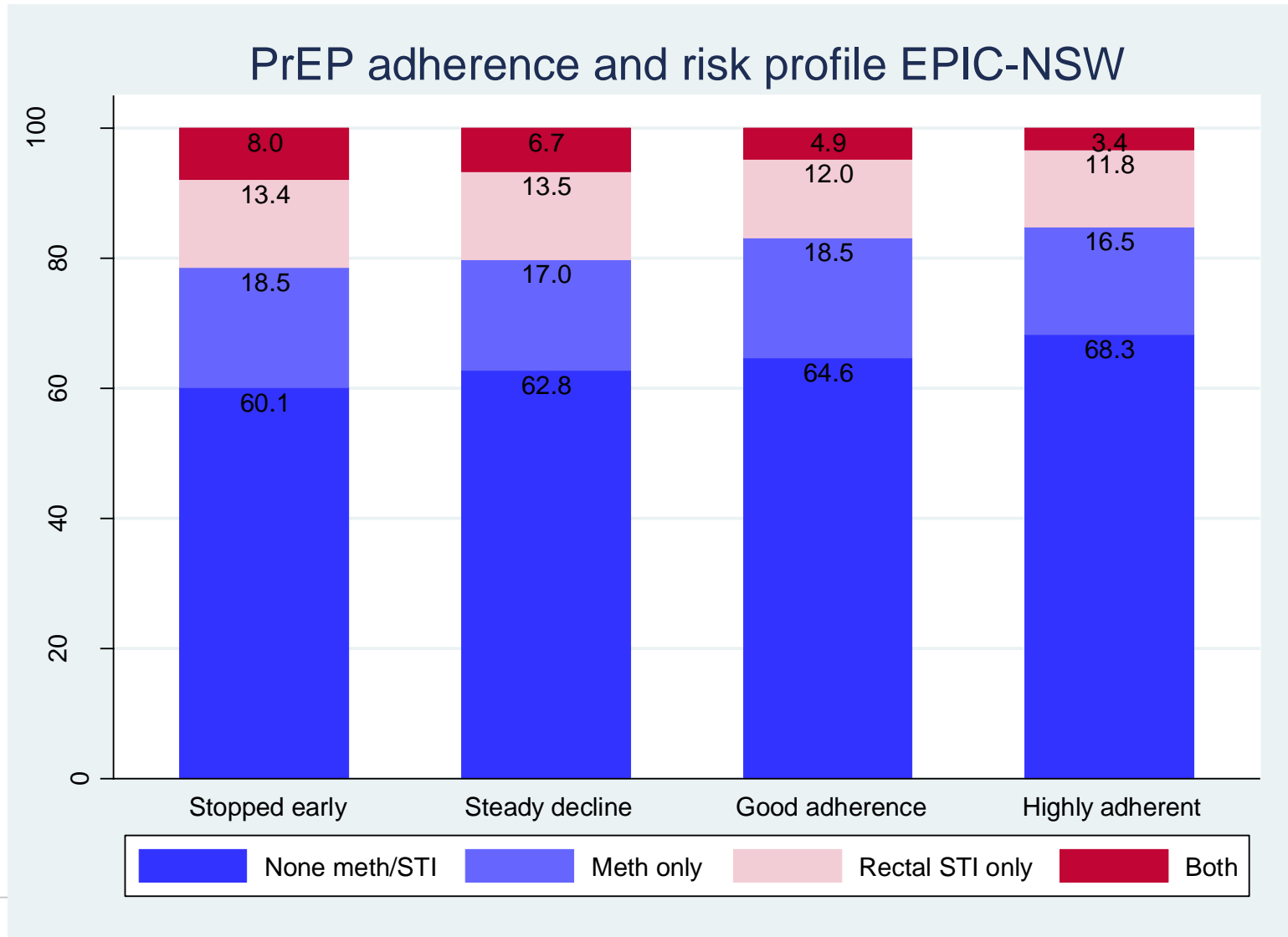




# PrEP Adherence and GBM concentration



# PrEP Adherence and Risk Profile at Baseline



# Risk factors for PrEP adherence

	Stopped early			Steady MPR decline			Good adherence		
	aRR	95% CI	P	aRR	95% CI	P	aRR	95% CI	P
<b>Age</b>			<0.001			<0.001			<0.001
<25	1	---		1	---		1	---	
25-34	0.51	0.37-0.69		0.59	0.45-0.76		0.81	0.64-1.03	
35-44	0.27	0.19-0.38		0.36	0.27-0.47		0.71	0.55-0.90	
≥45	0.18	0.12-0.26		0.28	0.21-0.37		0.61	0.47-0.78	
<b>Country of birth</b>			<0.001			<0.001			0.019
Aus/Other Eng	1	---		1	---		1	---	
Asia/Other	0.61	0.48-0.79		0.70	0.59-0.84		0.85	0.74-0.97	
<b>GBM concentration</b>			<0.001			0.002			0.265
>20%	1	---		1	---		1	---	
10-20%	0.78	0.51-1.20		1.01	0.76-1.35		0.84	0.98-1.37	
5-10%	1.11	0.77-1.62		0.99	0.76-1.31		1.01	0.82-1.23	
<5%	1.50	1.17-1.92		1.31	1.10-1.57		0.91	0.79-1.04	
<b>Risk profile</b>			<0.001			<0.001			0.021
None STI/Meth	1	---		1	---		1	---	
Meth only	1.38	1.04-1.83		1.22	0.99-1.50		1.16	0.98-1.37	
STI only	1.09	0.80-1.49		1.06	0.84-1.33		1.05	0.87-1.27	
Both	3.11	2.04-4.74		2.35	1.66-3.34		1.51	1.10-2.06	

High adherence was used as the reference group. aRR: adjusted risk ratio

# Conclusion

- **PrEP adherence in EPIC-NSW as measured by MPR is generally high**
  - **70% participants achieved excellent to good adherence**
- **Groups have difficulties in maintaining high PrEP adherence**
  - **Younger participants**
  - **Those living in suburbs with lower GBM concentration**
  - **Those reporting meth use and rectal STI at enrolment**

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