

# Secondary Hypertension Audit

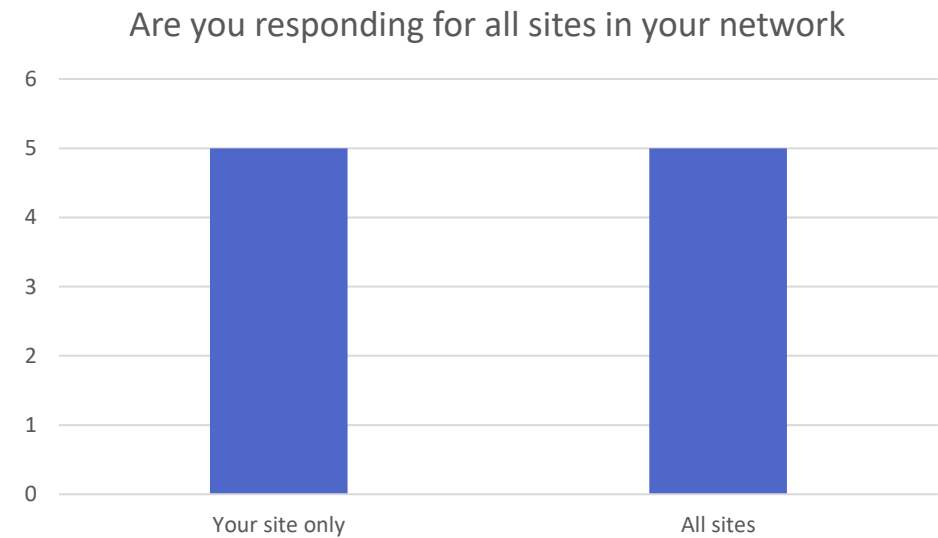
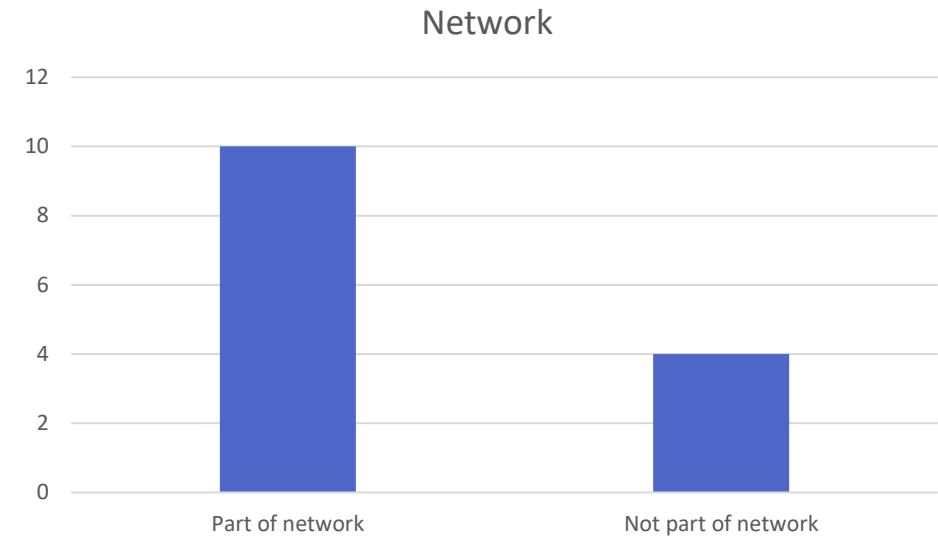
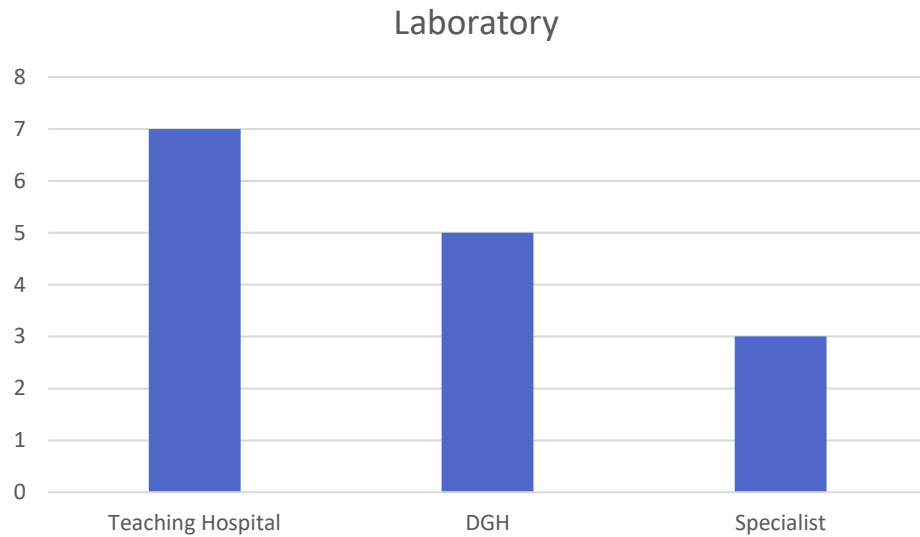
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THAMES AUDIT GROUP

NOVEMBER 2024

HEATHER STODDART & ELLEN RIDLER

# 14 Responses:



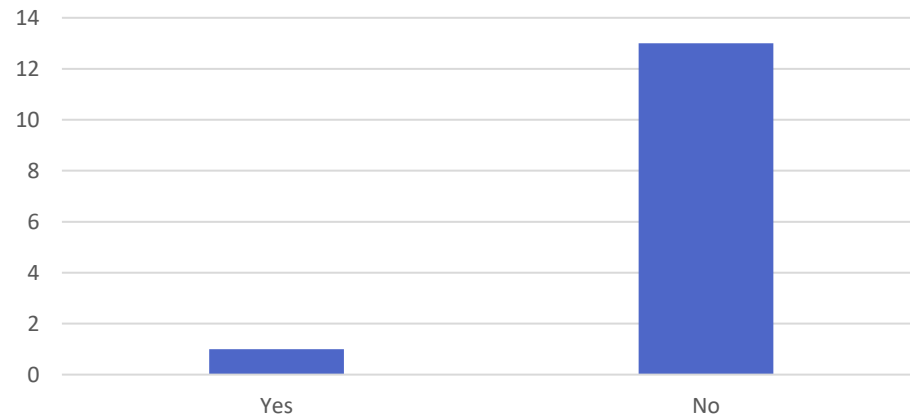
# Hypertension

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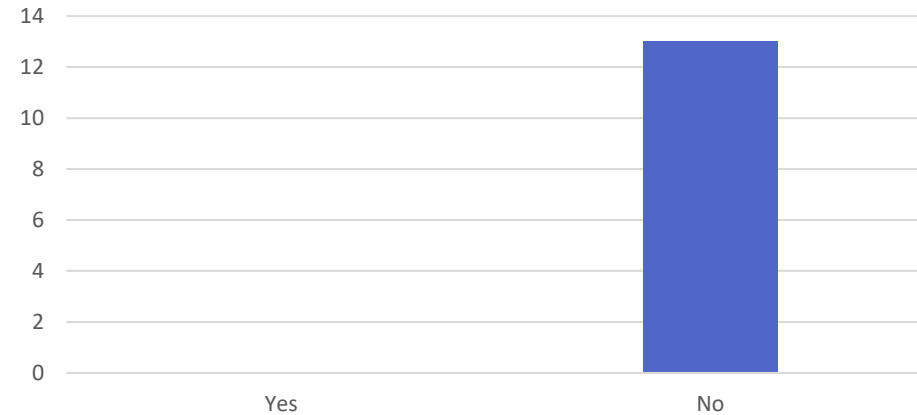
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Does your department issue formal guidance for investigation of any type of hypertension?

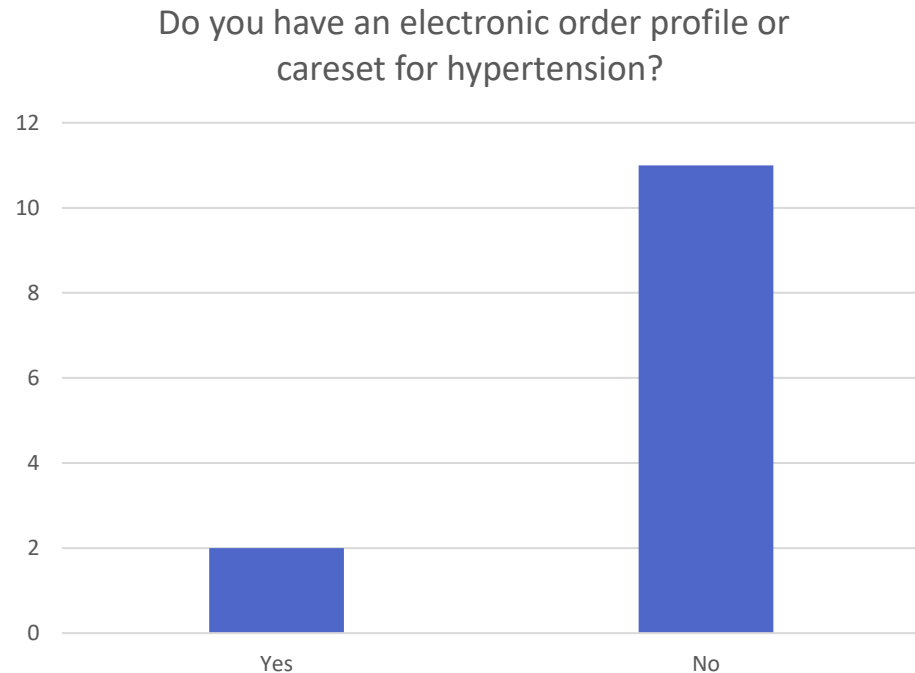


This was drawn up in collaboration with the endocrine team

Do you routinely recommend MEN screening on the basis of any laboratory results?



# Hypertension



Paediatric renal hypertension: FBC, ESR, glucose, lipids, renin, aldosterone, TSH, cortisol, ACR, metanephrines.

Maternity essential hypertension: ACR, renal profile, urea, LFTs, GGT, AST.

Endocrinology secondary hypertension: FBC, renal, lipids, bone profile, TSH, glucose, HbA1c, (selected if required: aldosterone, renin, cortisol, 24hr urine cortisol, metanephrines).

Cardiology hypertension: renal, FBC, glucose, HbA1c, lipids, TSH, LFT, bone profile

Used by renal consultants. Tests included: U&E, FBC, Bicarbonate, Aldosterone & Renin (+ratio), Plasma metanephrines, Urine Albumin:Creatinine ratio, Urine electrolytes (sodium/potassium)

# Cushing's

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# Which assay are you using for measurement of serum cortisol?

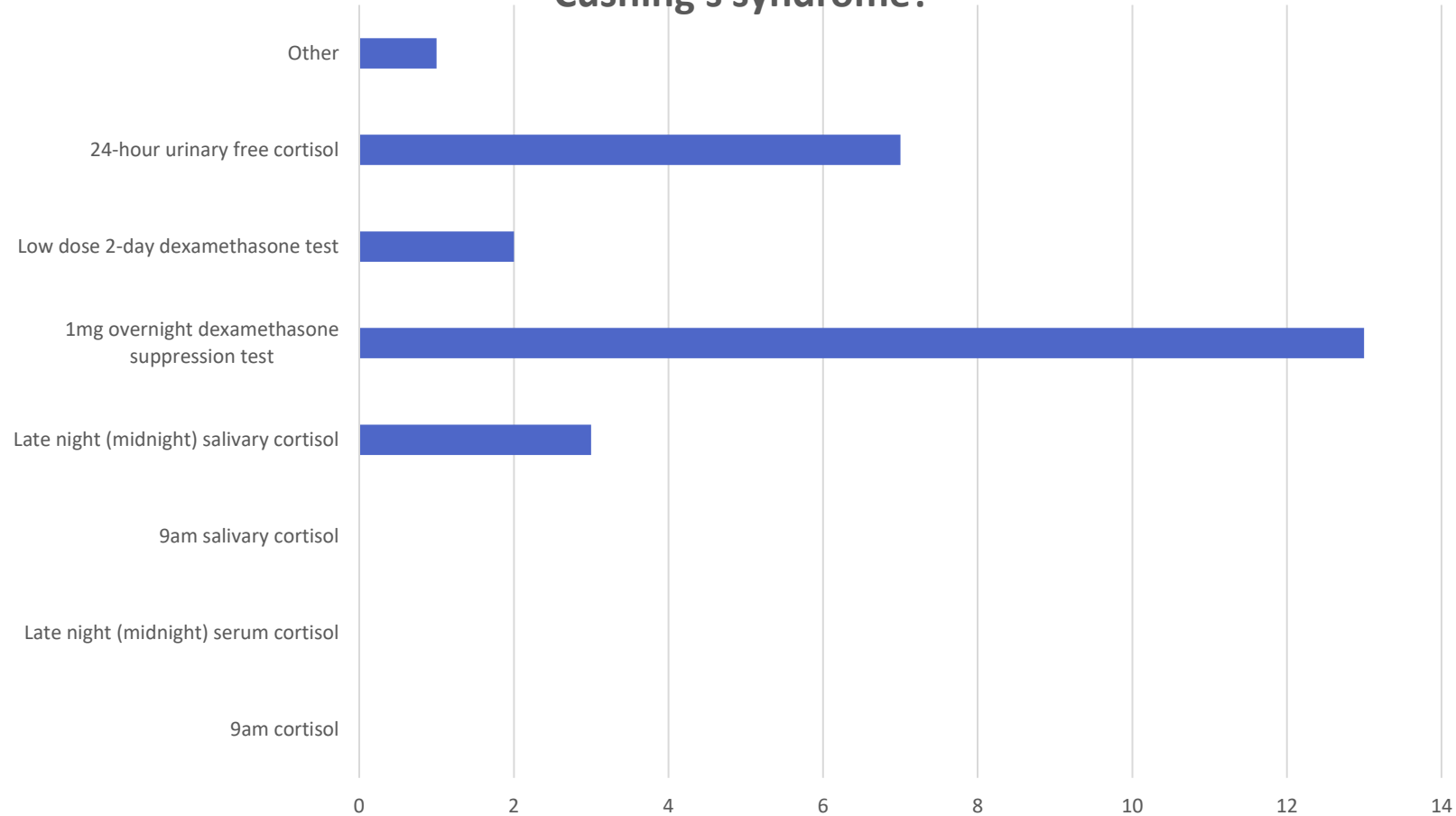
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Method	
Abbott	4
Roche	8
Orthos Vitros	1
Beckman Coulter	1

4 labs issue formal guidance for the investigation of Cushing's

- 3 of these were in collaboration with endocrine teams.
- 1 lab didn't provide details

## Which first line tests do you recommend for the exclusion of Cushing's syndrome?



Other: We accept other tests eg 9am cortisol, 24hr urine cortisol

# Do you recommend specific tests in the following groups of patients?

	Yes	24hr urine cortisol	ONDST	Late night salivary cortisol
Pregnant women	7	4	Advise against (3)	2
Patients taking anti-epileptic medication	7	4	Advise against (2)	3
Renal failure	5	Advise against (1)	4	1
Suspected cyclic cushings	9	7	Advise against (1)	5
Adrenal incidentaloma	9	Advise against (1)	8	1

# 9am cortisol

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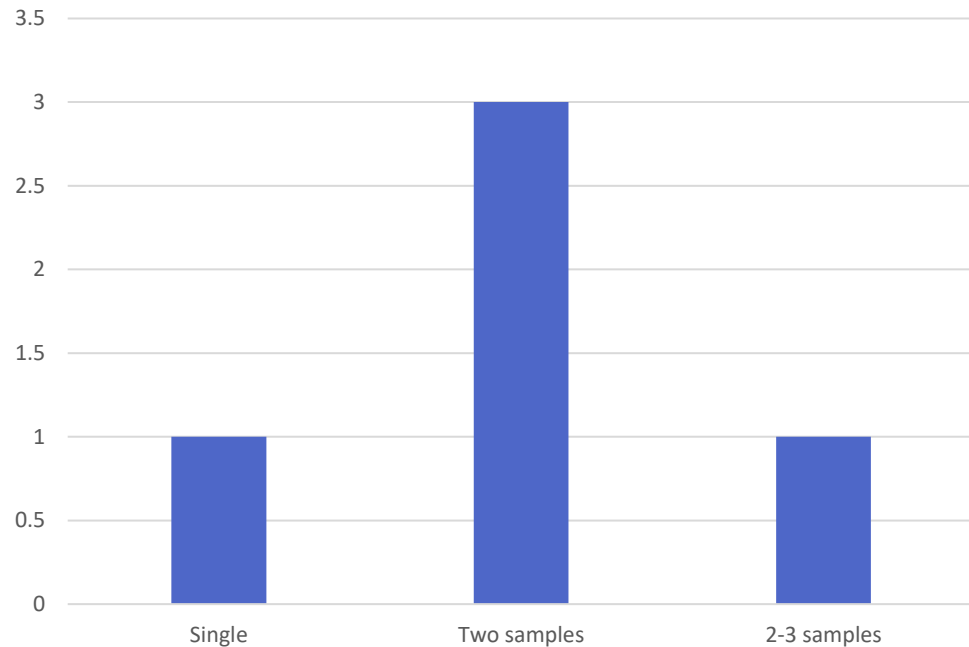
Reference range (nmol/L)	Source	Manufacturer
102 - 353	Manufacturer	Abbott
160 - 550	Manufacturer	Abbott
133 – 537 (3 labs)	Manufacturer	Roche
133 – 597	Manufacturer	Roche
171 - 536	Manufacturer	Roche
185 – 624	Manufacturer	Beckman Coulter
123-626	Not stated	Orthos Vitros
No range; interpretative comment added (5 labs)		

No lab had a cut off for 9am cortisol which excludes Cushing's

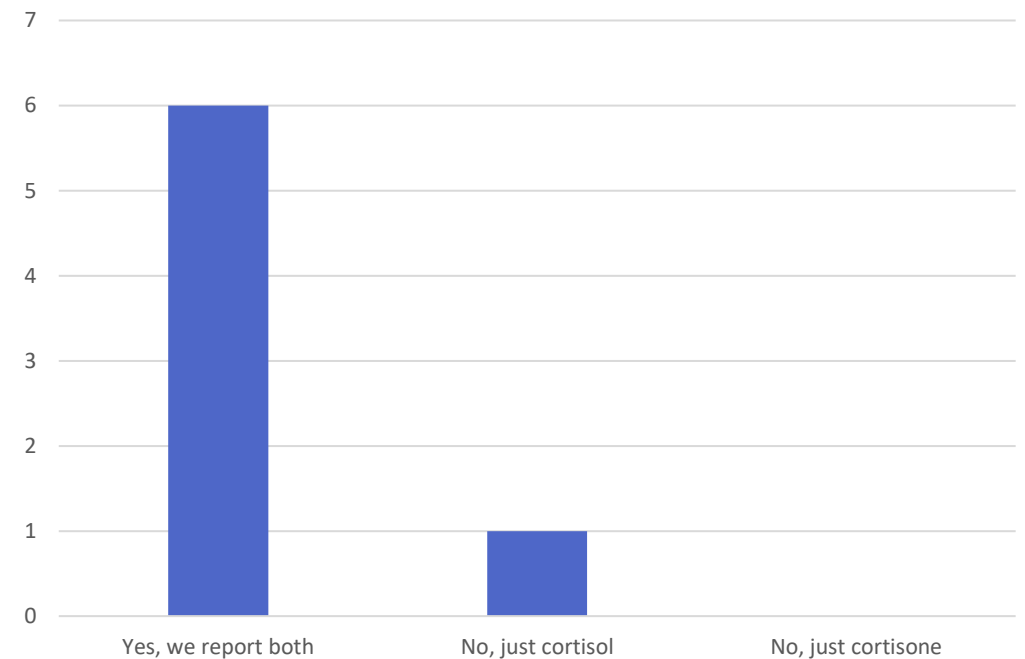
# Late night salivary cortisol

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Do you recommend a single sample for LNSC, or multiple samples?



Do you report salivary cortisone *and* salivary cortisol?

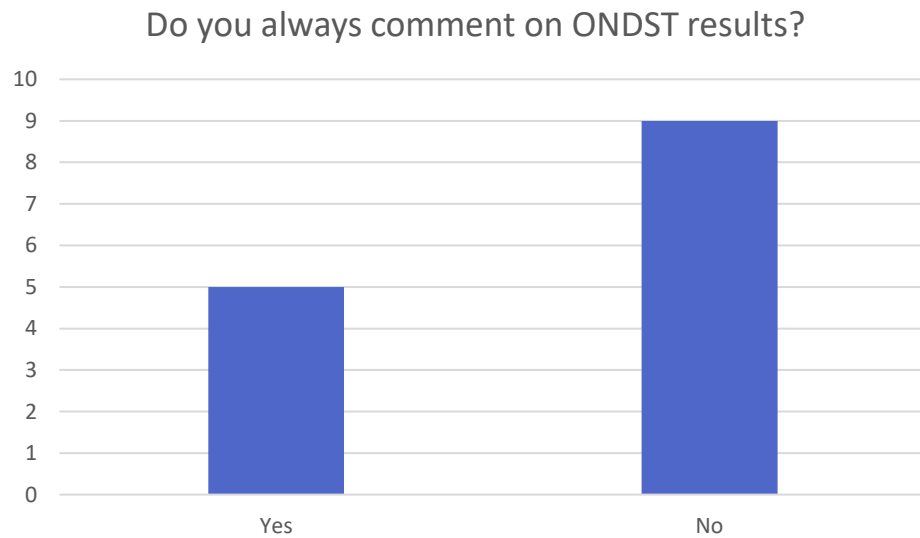


# What cut off do you use to exclude Cushing's following ONDST?

No. of Labs	Cut off	Source
11	<50 nmol/L	Endocrine Society Guidelines Diagnosis of Cushing's Syndrome 2008 Imperial Endocrine Bible Wood et al. (1997) Ann Clin Biochem 34:222-229
1	<40 nmol/L (Abbott)	Not stated
1	<30 nmol/L (Roche)	Unknown
2 labs had an inconclusive range	50 - 150/137 nmol/L	Unknown

# ONDST

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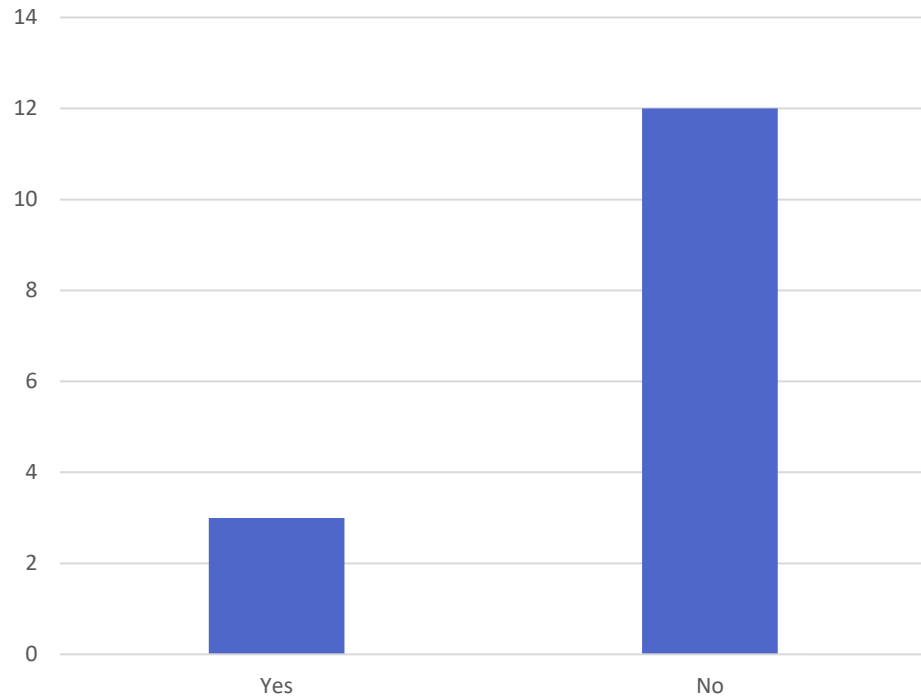
Comment for primary care, not for endocrine consultants

Only comment for Primary care

If done in primary care would let endocrine team know of any abnormal results

# ONDST

Do you measure dexamethasone in samples taken during ONDST?



One lab said not routinely but can be sent away if requested

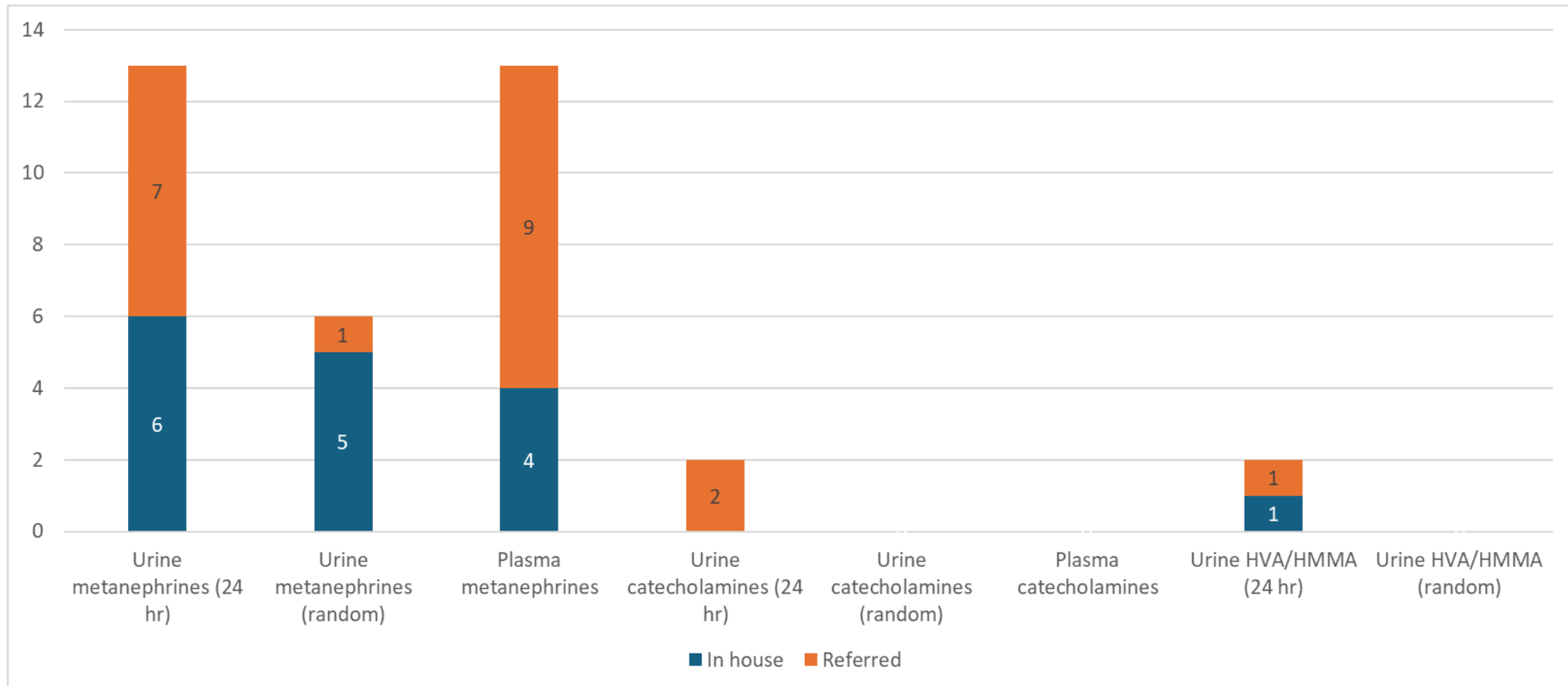
Of those that said yes, 2 refer the test away

1 lab measure dexamethasone by LCMS; cut off used to establish that suppression test has been carried out correctly  $>3.3$  nmol/L

# Phaeochromocytoma & Paraganglioma

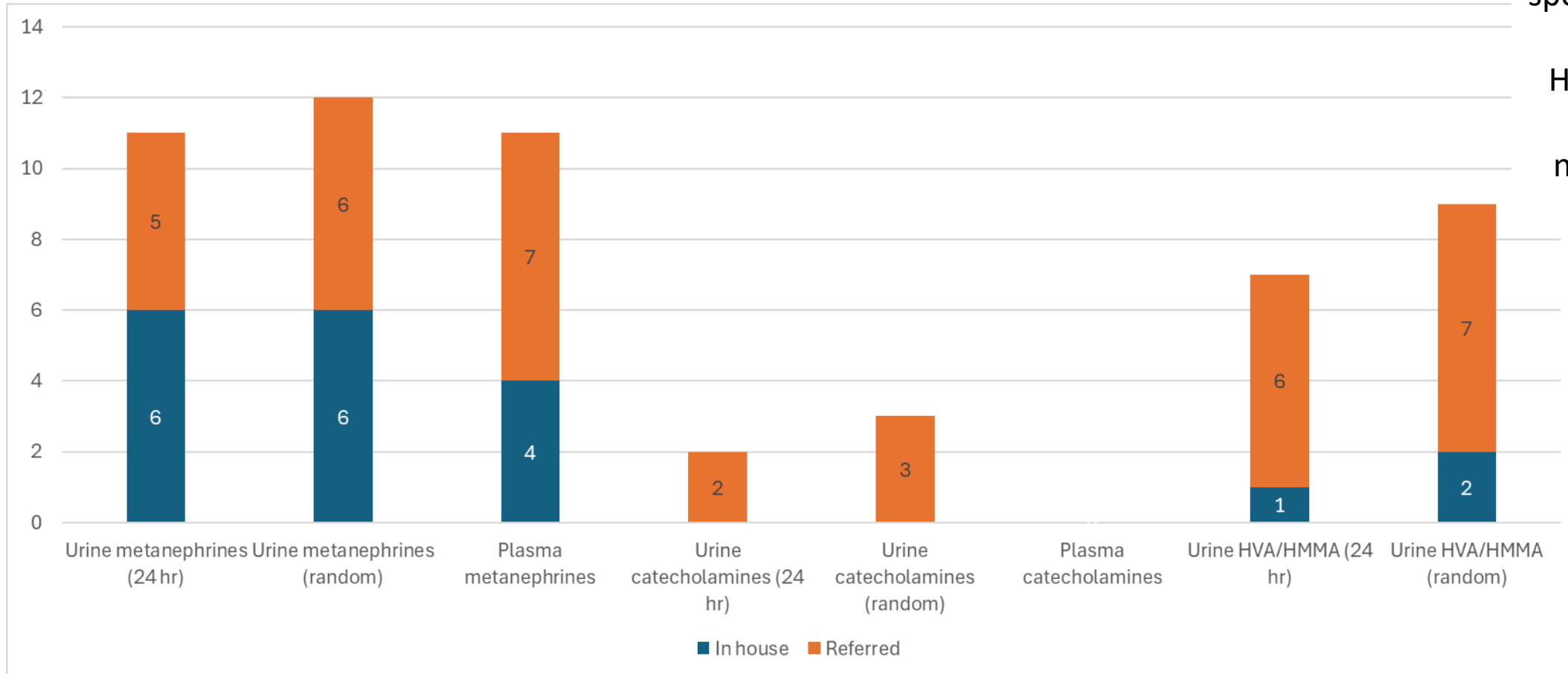
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# Tests offered for adult patients



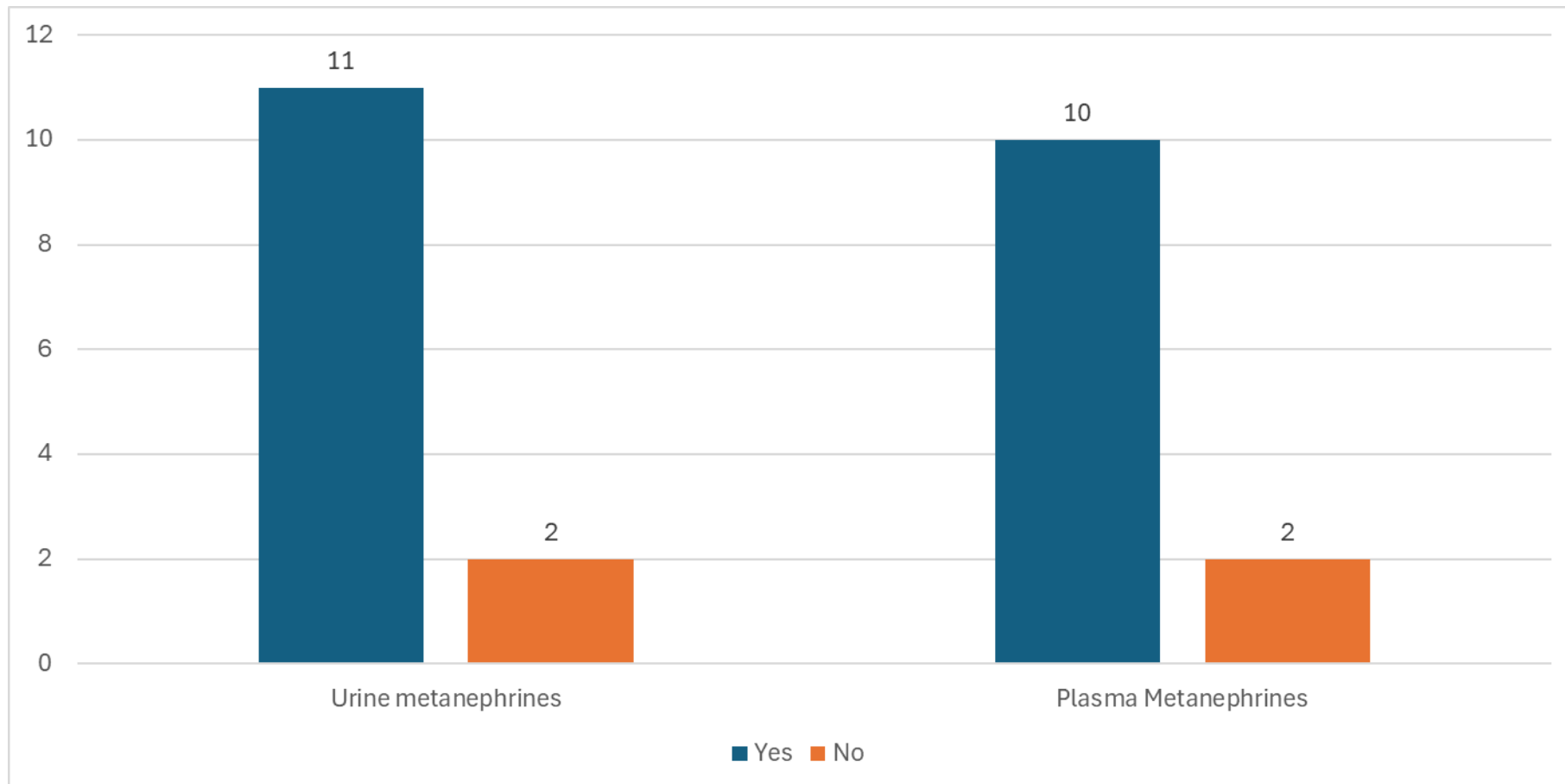
# Tests offered for paediatric patients

Some labs specified that they recommend HVA/HMMA for suspected neuroblastoma

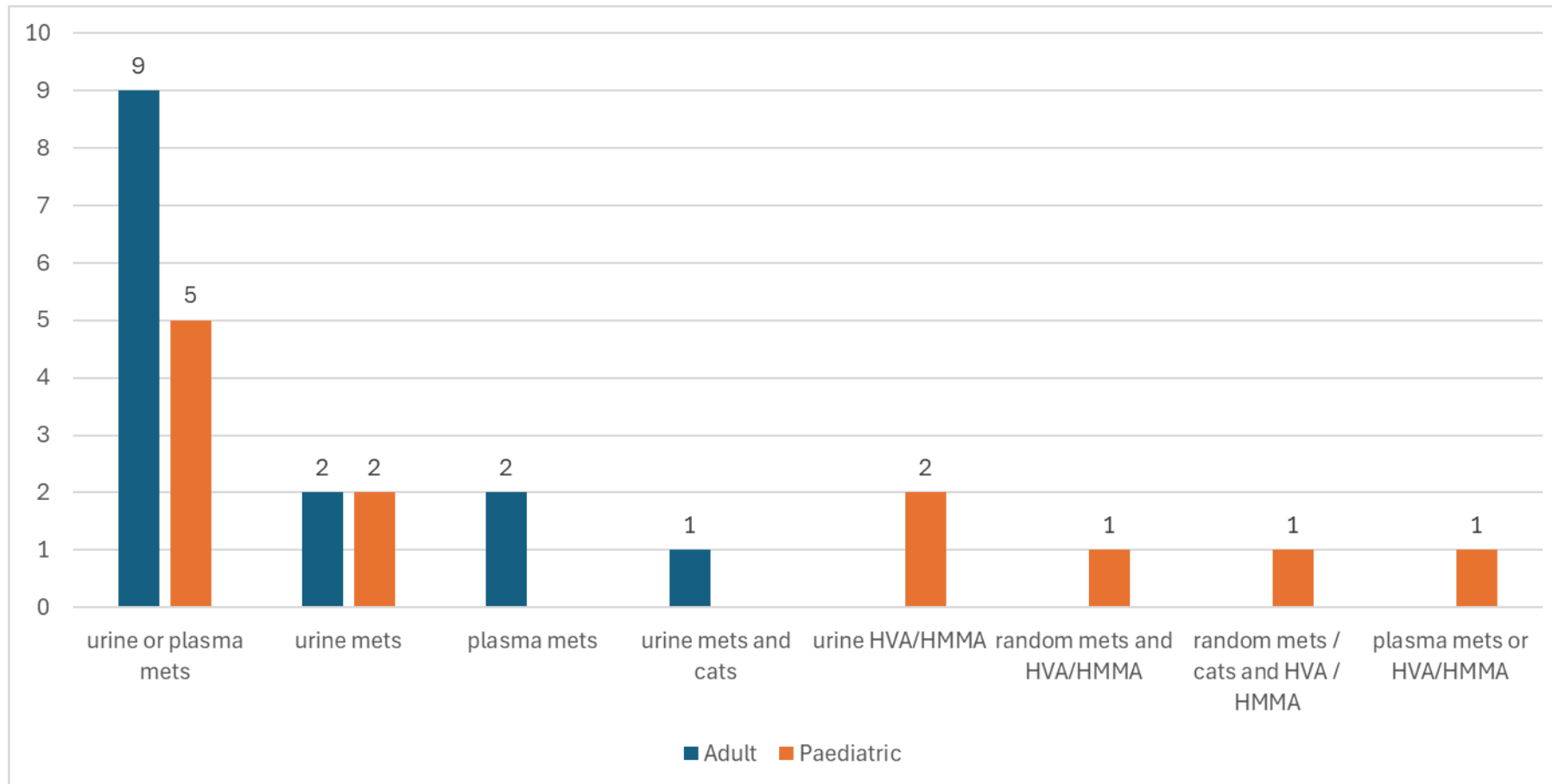


# 3-methoxytyramine included

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# Recommended first line tests



# Advice on potential impact of medications

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7 labs provide written guidance, 7 do not

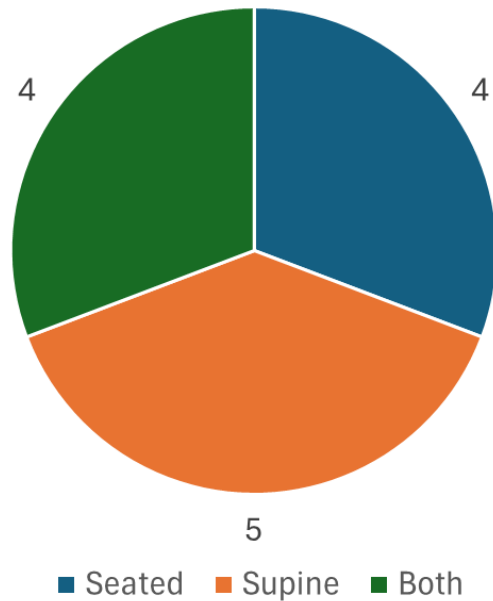
Two labs make a general statement and ask that drugs are listed on the request form

One lab comments on isolated raised normetadrenaline results stating that medications may be the cause

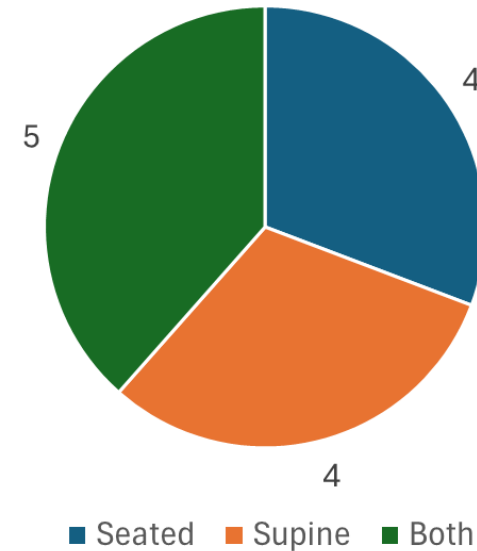
Two labs provides extensive information on physiological and analytical drug effects

# Seated vs Supine

How are samples collected?



Do you have reference ranges for seated & supine collections?



# Seated vs Supine

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Response	Sample collection	Reference ranges	
1	Seated	Seated	✓
2	Both	Both	✓
3	Supine	Both	✓
4	Not stated	Seated	
5	Both	Both	✓
6	Supine	Supine	✓
7	Seated	Both	✓

Response	Sample collection	Reference ranges	
8	Both	Supine	✗
9	Supine	Supine	✓
10	Both	Supine	✗
11	Supine	Supine	✓
12	Both	Seated	✗
13	Seated	Seated	✓
14	Seated	Not stated	

# Primary Hyperaldosteronism

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# Measurement of Aldosterone & Renin

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- 5 respondents measure aldosterone in house, 9 refer away
- 4 respondents measure renin in house, 10 refer away

## Aldosterone methods:

- Diasorin Liaison XL (2)
- IDS-iSYS
- In house LC-MSMS method (2)

## Renin methods:

### 2 respondents use renin mass assays:

- Diasorin Liaison XL
- IDS-iSYS

### 2 respondents use renin activity assays:

- In house LC-MSMS method (2)

# Measurement of Aldosterone & Renin

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5 labs always report the ARR, with one specifying that they state it is only applicable in hypertensive adults

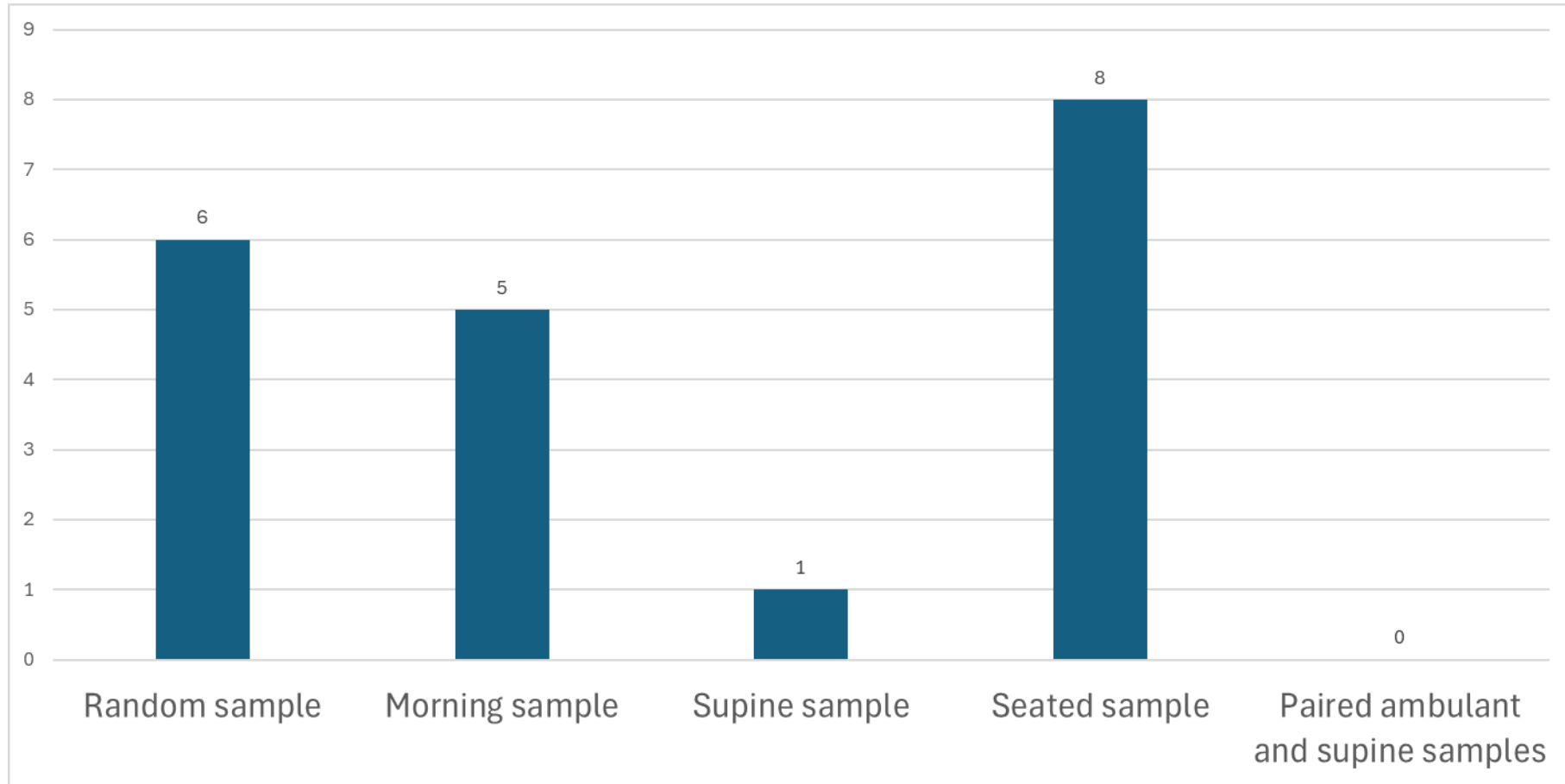
1 lab reports the ARR if requested

1 lab never reports the ARR

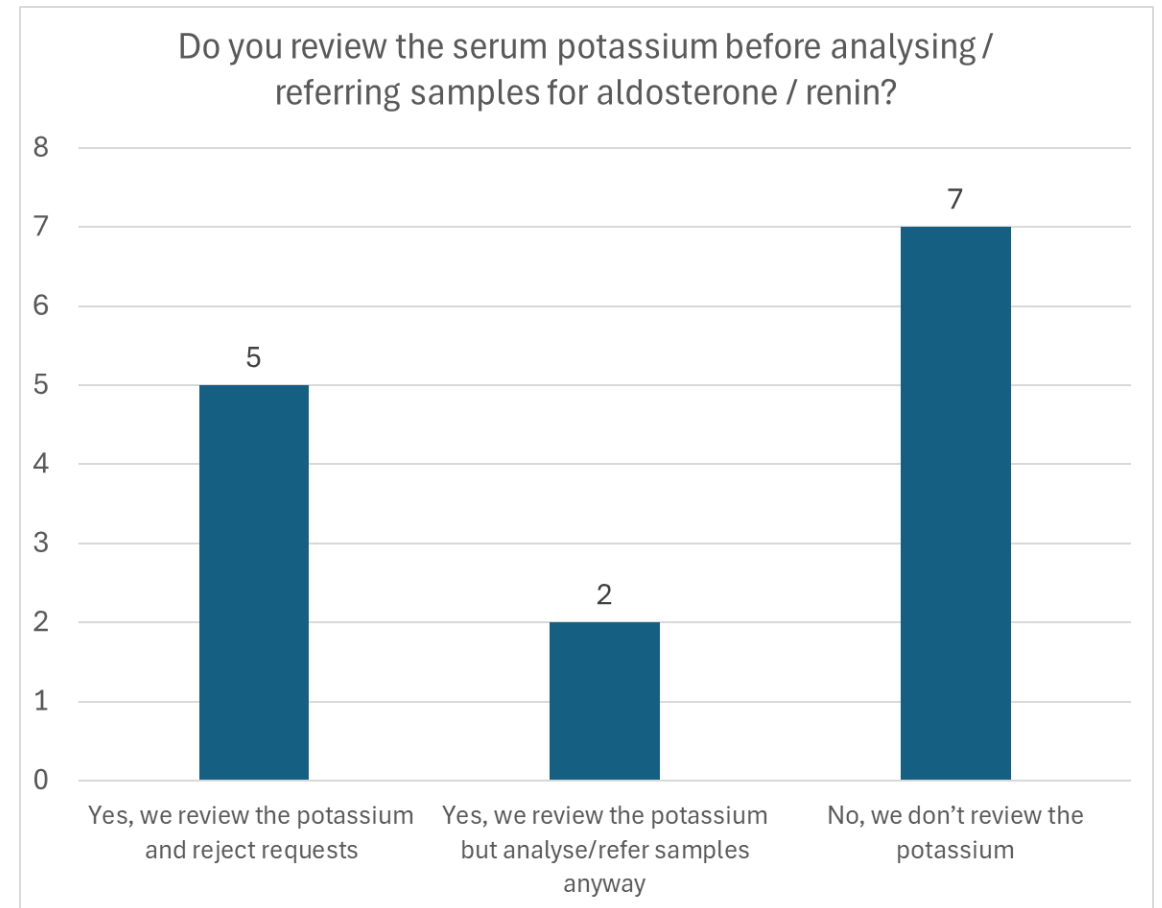
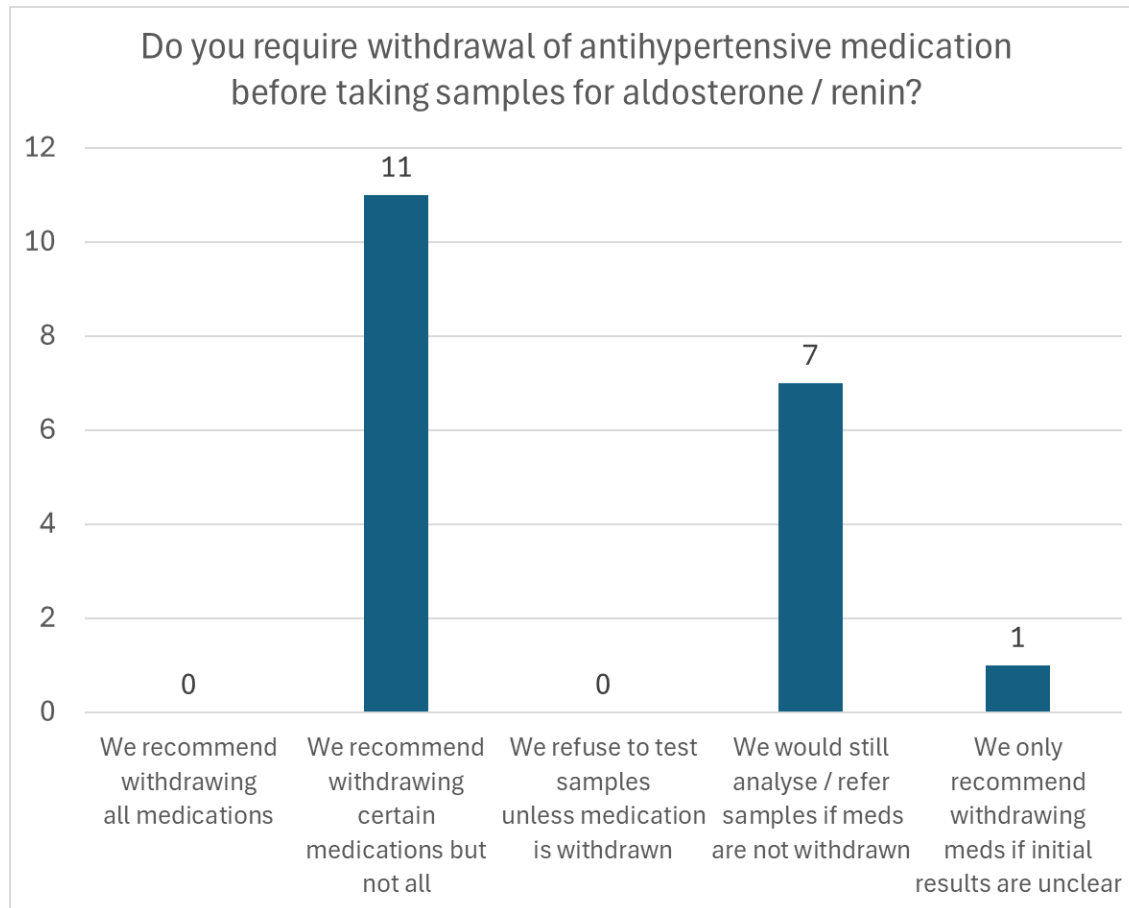
(this lab measures aldosterone in house and refers renin)

# Aldosterone & Renin; Patient Preparation

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# Aldosterone & Renin; Patient Preparation

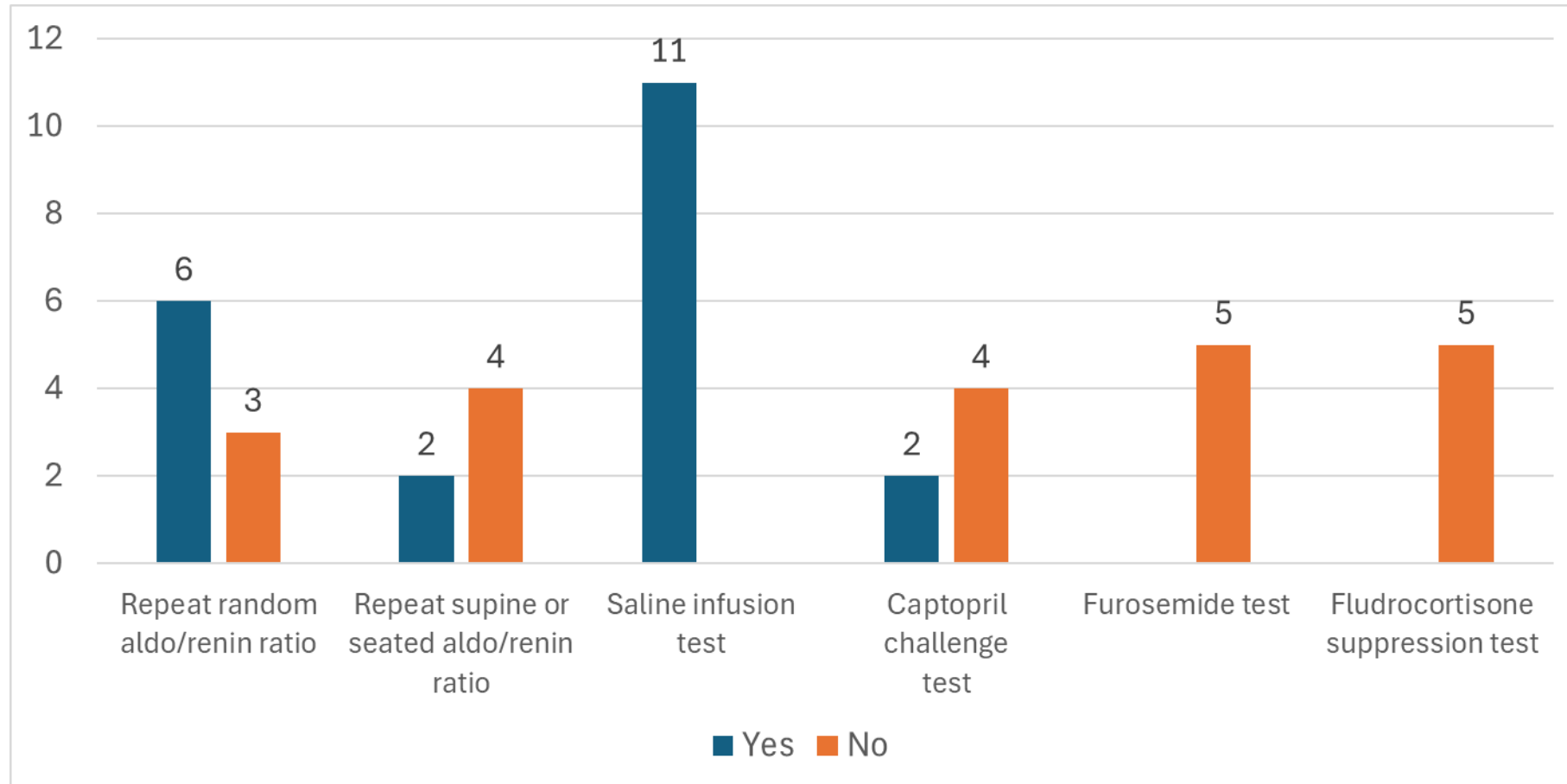


# Aldosterone & Renin; Patient Preparation

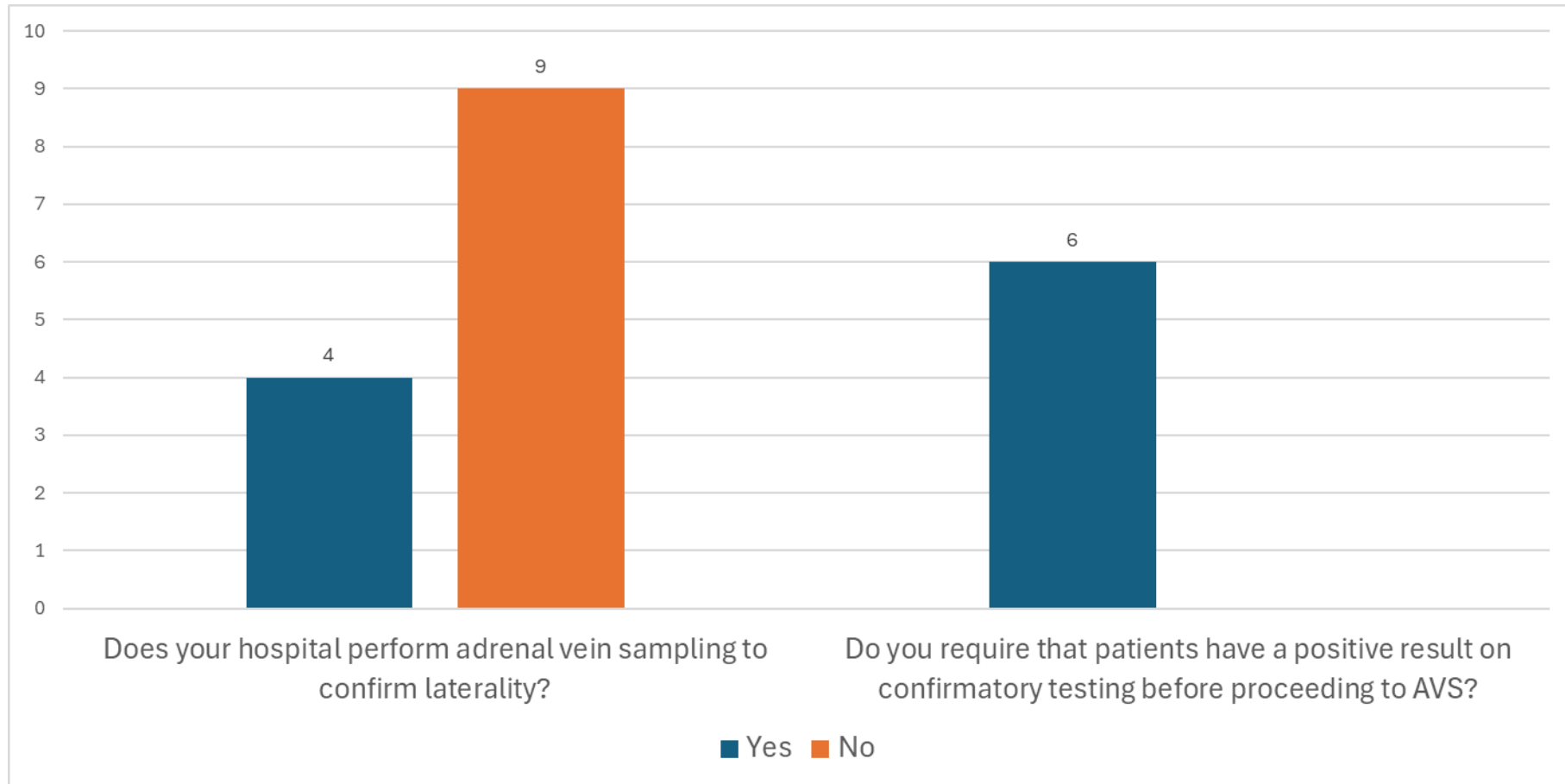
Drug Class; withdraw for	2 weeks	4 weeks	6 weeks	Time not stated	Reject request
Alpha-2 agonists	1				
Angiotensin 2 receptor blockers	3			1	
ACE inhibitors	3			1	
Beta blockers	4				1
Calcium channel blockers	3			1	
K sparing diuretics	1	1	1		
K wasting diuretics	1	2			
Liquorice		2			
Mineralocorticoid receptor antagonists		3	2		
NSAIDs	3				
Oestrogen		1	1		
Renin inhibitors	1				

Number of labs recommending withdrawal of these drug classes, and the duration of withdrawal before taking aldo/renin samples

# PHA: Follow Up Tests



# Adrenal Vein Sampling



Thank you for listening

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