Quest Diagnostics®

Don’t miss **primary aldosteronism** in your patients with hypertension

Primary aldosteronism (PA) is a condition that can lead to serious health complications if patients aren't screened or are missed with traditional aldosterone renin ratio (ARR) screenings.

PA is underrecognized, resulting in a screening rate of <1% of all hypertensive patients and only 1.6% of patients with resistant hypertension.[3]

Plasma renin activity (PRA) is a newer screening recommended to improve sensitivity and recognize at-risk patients.

~120M
people are hypertensive in the US[1]

30%
of hypertensive patients in US may have PA[2]

<1% of patients
with hypertension are screened for PA[3]

Understanding the relationship between hypertension and primary aldosteronism

PA is caused by the **overproduction of aldosterone**, a steroid hormone, by one or both adrenal glands.[4]

- Aldosterone regulates blood pressure by balancing sodium and potassium levels and water retention in the bloodstream[4]
- In PA, excess aldosterone is produced in a renin-independent way[4]

Elevated aldosterone causes the kidney to absorb excess sodium and excrete more potassium, leading to increased sodium levels, water retention, and increased blood volume, which in turn results in severe hypertension[4,5]

In addition to being underrecognized, PA is also the **most common cause of secondary hypertension**[3]

The importance of screening

Patients with untreated PA are at a disproportionately **higher risk of cardiovascular, kidney, and metabolic disease** when compared to essential hypertensive patients.

These conditions include but are not limited to heart failure, kidney disease, stroke, atrial fibrillation (AF), myocardial infarction, type 2 diabetes mellitus (T2DM), and sleep apnea.[4,5]

Who should be screened?

PA screening is important for high-risk populations, including those with:[5,6]

- Severe or resistant hypertension
- Unexplained or diuretic-induced hypokalemia
- Hypertension with adrenal mass
- Hypertension with sleep apnea
- Hypertension with atrial fibrillation
- A strong personal or family history of hypertension

Additionally, there is growing agreement that screening for PA should be expanded to cover a larger scope of patients, including those with new onset hypertension.

The current state of diagnosing PA

PA is characterized by high aldosterone levels and low renin activity. Current Endocrine Society guidelines recommend an aldosterone-to-renin ratio (ARR) of ≥30 ng/DL to identify patients with PA, although ARR can suffer from sensitivity lower than 50%, inconsistent results and a complicated workup.

Large-scale study compares ARR vs PRA

A study of nearly 95K patients compared ARR vs PRA as screening tests for PA and found that

45.9% of patients tested positive based on suppressed renin of <1 ng/mL/h versus **13.9%** of patients based on ARR ≥30[2]

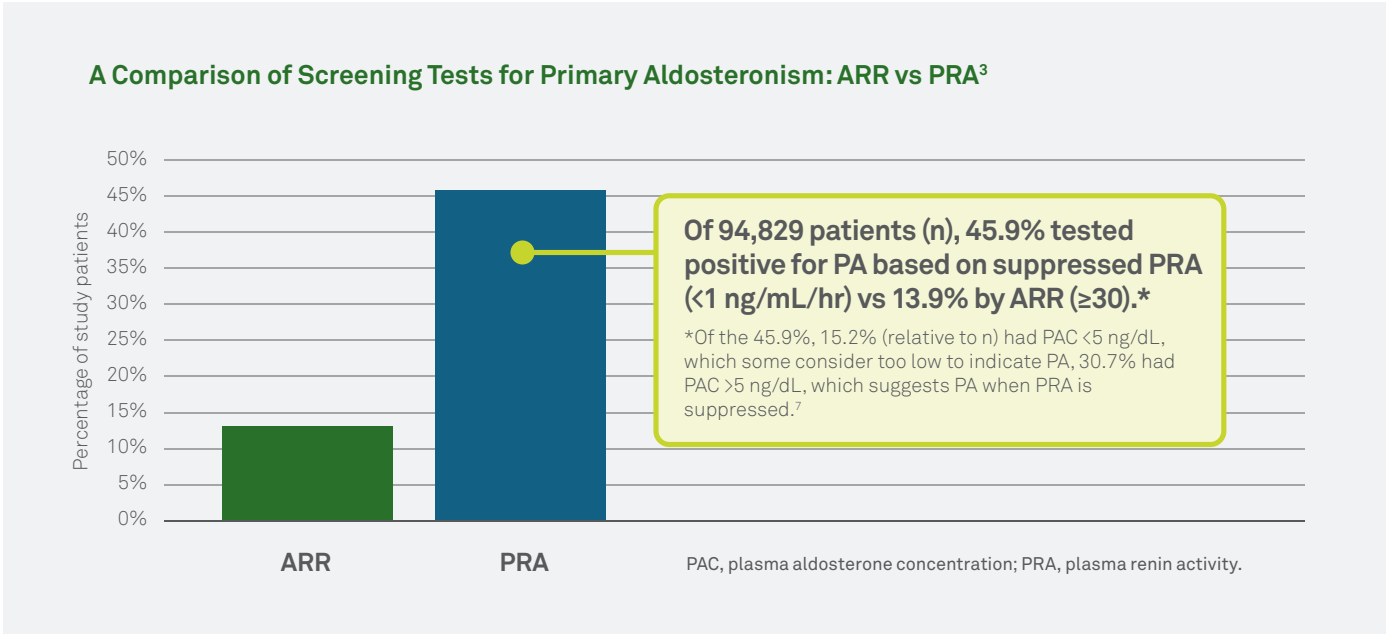


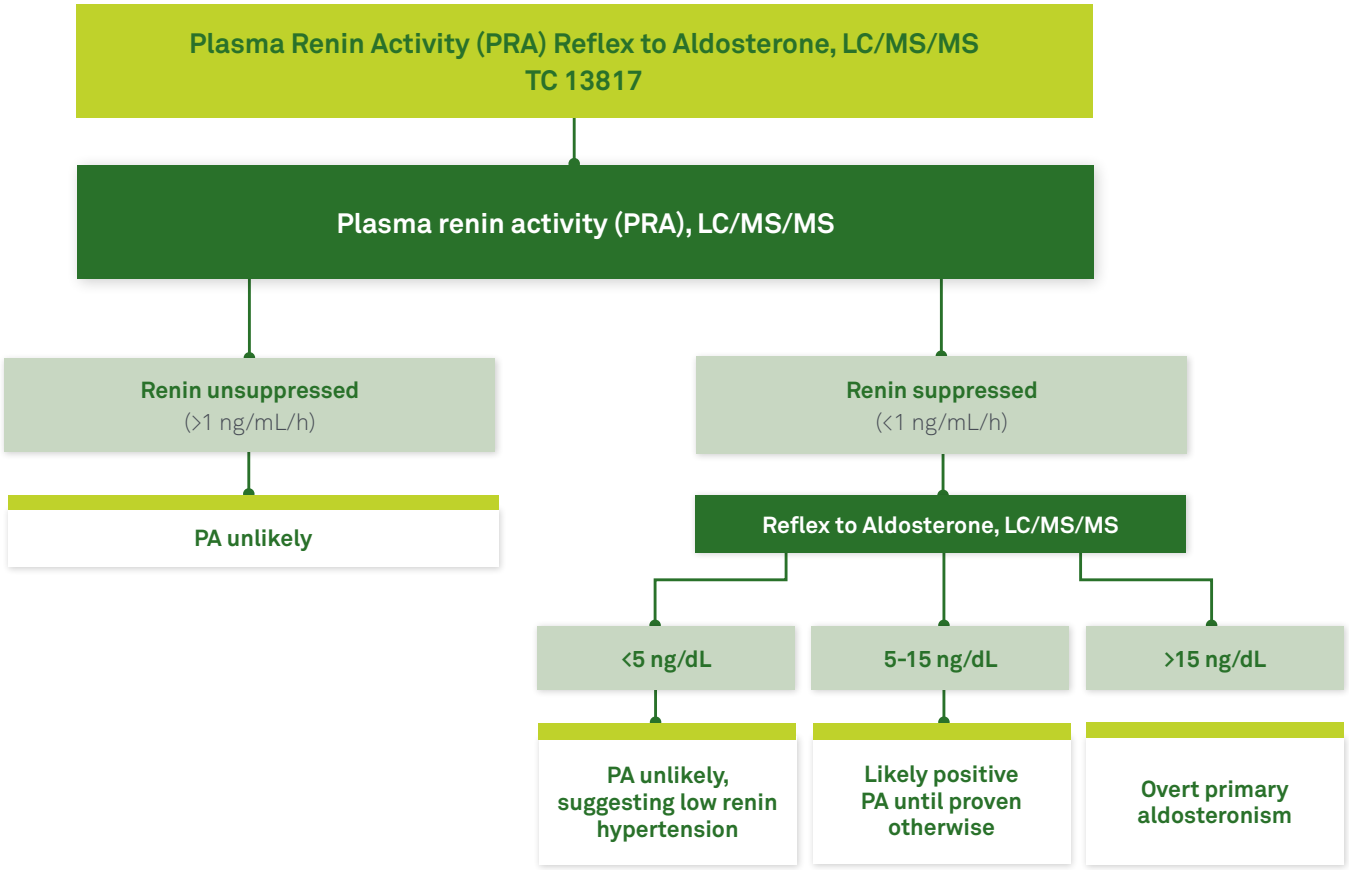
Figure: Percentage of positives using the ARR ≥30 ng/dL vs PRA <1 ng/mL/h screening tests. The Y axis represents patients who have a positive test for PA.

Expert opinion to identify more patients with PA

1. **Using PRA to screen for PA**, with PRA <1 ng/mL/h as an alternative first step to ARR[2]

2. **Using aldosterone levels as a second step** to categorize patients.
   - >15 ng/dL: overt primary aldosteronism
   - 5-15 ng/dL: likely primary aldosteronism until proven otherwise
   - <5 ng/dL: primary aldosteronism unlikely, suggesting low renin hypertension

Quest's solution for **primary aldosteronism screening**



This reflex testing algorithm was developed by Quest Diagnostics based on reference 2. Test selection and interpretation, diagnosis, and patient management decisions should be made based on the physician's education, clinical expertise, and assessment of the patient.

Help improve patient outcomes with reflex testing

Reflex PRA testing from Quest Diagnostics was developed based on new diagnostic guidance to address the limitations of ARR testing.

- Requires only 1 blood draw
- Automatically reflexes to perform aldosterone test **only** when PRA result indicates suppressed renin
- Provides more information up front to guide treatment decisions

Quest Diagnostics test	Test code	CPT® code
Plasma Renin Activity (PRA) Reflex to Aldosterone, LC-MS/MS *If renin is suppressed, Aldosterone, LC/MS/MS (test code 17181) will be performed at an additional charge (CPT code: 82088)*	13817	84244
Plasma Renin Activity, LC/MS/MS	16846	84244
Aldosterone, LC/MS/MS	17181	82088

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To speak to an endocrinology specialist, call 1.866.MYQUEST (1.866.697.8378).

References

1. Centers for Disease Control and Prevention (CDC). Division for Heart Disease and Stroke Prevention. Million Hearts®. Hypertension cascade: hypertension prevalence, treatment, and control estimates among US adults aged 18 years and older applying the criteria from the American College of Cardiology and American Heart Association's 2017 Hypertension Guideline—NHANES 2017–2020. Last reviewed May 12, 2023. Accessed September 3, 2024. https://millionhearts.hhs.gov/data-reports/hypertension-prevalence.html **2**. Marcelli M, Caixia B, Funder JW, McPhaul MJ. Comparing ARR versus suppressed PRA as screening tests for primary aldosteronism. *Hypertension*. 2024. doi: 10.1161/HYPERTENSIONAHA.124.22884 **3.** Funder JW, Carey RM, Fardella C, et al. Case detection, diagnosis, and treatment of patients with primary aldosteronism: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2008;93(9):3266–3281. doi: 10.1210/jc.2008-0104 **4.** Cleveland Clinic. Primary aldosteronism (Conn's syndrome). Last reviewed July 22, 2024. Accessed September 3, 2024. https://.my.clevelandclinic.org/health/diseases/21061-conns-syndrome **5.** Hung A, Ahmed S, Gupta A, et al. Performance of the aldosterone to renin ratio as a screening test for primary aldosteronism. *J Clin Endocrinol Metab*. 2021;106(8):2423–2435. doi: 10.1210/clinem/dgab348 **6.** Cobb A, Aeddula NR. Primary hyperaldosteronism. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. 2024. Last updated December 5, 2023. Accessed September 3, 2024. https://www.ncbi.nlm.nih.gov/books/NBK539779/ **7.** Vaidya A, Hundemer GL, Nanba K, Parksook WW, Brown JM. Primary aldosteronism: state-of-the-art review. *Am J Hypertens*. 2022;35(12):967-988. doi: 10.1093/ajh/hpac079

The CPT® codes provided are based on American Medical Association guidelines and are for informational purposes only. CPT coding is the sole responsibility of the billing party. Please direct any questions regarding coding to the payer being billed.

This document is provided for informational purposes only and is not intended as medical advice. A healthcare provider's test selection and interpretation, diagnosis, and patient management decisions should be based on their education, clinical expertise, and assessment of the patient.

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