

THE PATHCARE NEWS

LAUNCH OF SALIVARY CORTISOL & CORTISONE VIA LC-HRMS — EFFECTIVE 3 NOVEMBER 2025

PathCare will now offer simultaneous measurement of salivary cortisol and cortisone using liquid chromatography–high-resolution mass spectrometry (LC-HRMS). This non-invasive, highly specific assay provides an accurate assessment of free cortisol exposure. When collected at the appropriate time points (on waking for adrenal insufficiency or late at night for Cushing's syndrome) it offers a convenient and clinically validated approach to evaluating adrenal function.

This upgrade brings several clinically relevant advantages:

- **Cushing's Syndrome investigation:** Late-night salivary cortisol remains a first-line screening test for Cushing's syndrome¹. LC-HRMS allows parallel measurement of salivary cortisone, which recent data suggest may enhance diagnostic accuracy².
- **Adrenal Insufficiency investigation:** Waking salivary cortisone provides a practical, home-based screening tool for adrenal insufficiency, with reported sensitivity and specificity around 97% in studies comparing it with the gold-standard ACTH stimulation test^{3,4}.
- **Utility in Altered Cortisol-Binding States:** In conditions that alter cortisol-binding globulin (CBG) such as oestrogen use (e.g., combined oral contraceptives), critical illness, and liver disease, the total serum cortisol may not reflect true adrenal function. Salivary cortisol, and especially cortisone, are largely unaffected by CBG variation and better reflect physiologically active free cortisol, supporting their use in both adrenal insufficiency assessment and Cushing's syndrome screening in these populations^{5,6}.
- **Monitoring Treatment Response:** Emerging evidence supports an adjunct role for salivary cortisol and cortisone in monitoring glucocorticoid replacement in established adrenal insufficiency^{6,7}.
- **Detecting contamination:** Reporting of the Cortisol: Cortisone ratio helps flag hydrocortisone contamination, blood contamination, or 11 β -HSD2 inhibition (e.g., liquorice)⁸.

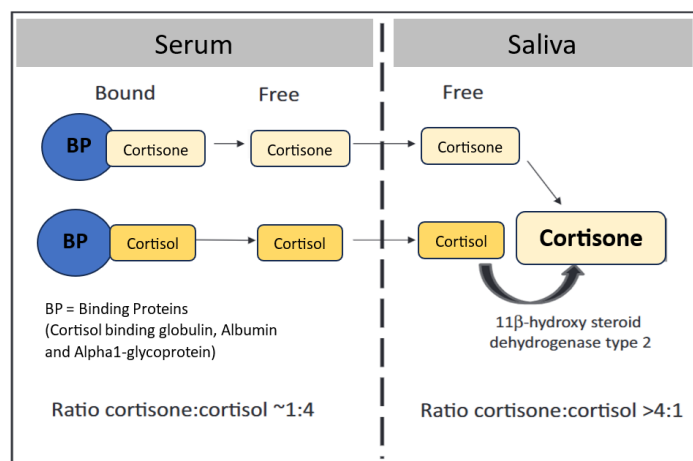


Figure 1: Salivary cortisol and cortisone are unaffected by serum binding proteins. Adapted from Blair et. al. 2017.

Sample Requirements and Patient Preparation:

- **Test name:** *Salivary Cortisol and Cortisone* (both analytes and their ratio reported, even if only one is requested)
- **Collection:** Passive drool (free-flow) into *SaliCap* (provided by PathCare); minimum 0.5 mL sample volume
- **Timing:**
 - Late-night (23:00 – 00:00) for *Cushing's syndrome* investigation
 - On waking (within 5 minutes) for *Adrenal insufficiency* investigation
 - Record collection time on the request form
- **Patient preparation:**
 - No lipstick, lip balm, tooth-brushing, eating, drinking, chewing gum, or oral medication within 30 min before sampling
 - Rinse mouth with water for ~5 seconds, then wait 5 min before collecting
- **Interferences:**
 - Document glucocorticoids; Avoid hydrocortisone near collection if feasible
 - Avoid liquorice for ≥ 2 weeks prior to collection
 - Recollect if sample shows visible blood contamination

In summary, this new LC-HRMS based assay measures salivary cortisol and cortisone simultaneously, offering a sensitive, specific, and patient-friendly assessment of free cortisol exposure for a more complete picture of adrenal function.

For queries or clinical guidance, contact us to speak to a Chemical Pathologist.

References:

1. Nieman LK et. al. The diagnosis of Cushing's syndrome: an Endocrine Society Clinical Practice Guideline. *J Clin Endocrinol Metab.* 2008
2. Mohamed RS et. al. Late-night salivary cortisol and cortisone should be the initial screening test for Cushing's syndrome. *Endocr Connect.* 2022
3. Debono M et. al. Home Waking Salivary Cortisone to Screen for Adrenal Insufficiency. *NEJM Evid.* 2023
4. Debono M et. al. Real world evidence supports waking salivary cortisone as a screening test for adrenal insufficiency. *Clin Endocrinol (Oxf).* 2023
5. Bäcklund N et. al. Salivary Cortisol and Cortisone Can Circumvent Confounding Effects of Oral Contraceptives in the Short Synacthen Test. *J Clin Endocrinol Metab.* 2024
6. Blair J et. al. Salivary cortisol and cortisone in the clinical setting. *Curr Opin Endocrinol Diabetes Obes.* 2017
7. Debono M et. al. Salivary Cortisone Reflects Cortisol Exposure Under Physiological Conditions and After Hydrocortisone. *J Clin Endocrinol Metab.* 2016
8. Imamovic M et. al. Confounding effects of liquorice, hydrocortisone, and blood contamination on salivary cortisol but not cortisone. *Endocr Connect.* 2022