

**Audit Template**

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| **Audit Title:** Thames Audit Group Audit on Cortisol |
| **Lead Auditor**: Heather Stoddart and Dawn Grenshaw | **Audit date(s):**  September 2018 |
| Please indicate if **Regional Audit**Please indicate which hospital & location or region**Southern Region** | **Report Author:** Name: Dawn GrenshawEmail: dawngrenshaw@nhs.net |
| **Aims of the Audit:** To obtain information about laboratory’s cortisol assays across the region and determine and compare the practice of the laboratories with regard to diagnosis of Cushing’s Syndrome and adrenal insufficiency. |
| **Audit Method and Outcome(s):** A questionnaire was sent out to laboratories across the Southern and Eastern region. A total of 20 laboratories responded and the responses were collated. Participating laboratories were asked about their cortisol assay and their recommendations with regard to protocol and cut-offs for diagnosis of Cushing’s Syndrome and adrenal insufficiency . The findings of the audit were presented to the region in a half day meeting on 9th October 2018. The results of the audit were discussed and regional standards were drafted and agreed at the audit meeting. 68% of the labs took their assay bias into account when interpreting patient results and deriving cut-offs. All the labs offered cortisol in premature and term neonates but no labs quoted age-related reference ranges for neonates. No labs added specific interpretative comments to results for neonates.25% of labs issued formal guidance for investigation of Cushing’s Syndrome. Most labs recommended tests for exclusion of Cushing’s in line with Endocrine Society Guidelines (2008). 40% of labs issued formal guidance for performing an Overnight Dexamethasone Suppression Test with most labs (82%) using a cut-off of <50 nmol/L to exclude Cushing’s.32% of labs issued formal guidance for the investigation of suspected adrenal insufficiency, with 9am cortisol and the Short Synacthen test being the most commonly recommended tests. 79% of labs/Trusts issued formal guidance for performing a Short Synacthen test, with 58% of labs recommending taking a 60 minute sample for cortisol, as well as 0 min and 30 min samples. 53% of labs used the increment between the baseline and 30 minute cortisols to interpret the results. |
| **Audit Recommendations / Standards:**1. Consider local assay bias when setting reference ranges and cut-offs for cortisol.
2. Acute hospitals should have access to a cortisol assay 24 hours a day, including weekends.
3. Interpretative comments should be provided on reports for short synacthen tests (SSTs) and overnight dexamethasone suppression tests (ONDSTs).
4. Guidance should be made available for investigation of suspected Cushing’s syndrome (including ONDST) and adrenal insufficiency (including SST). These should be drawn up in conjunction with local Endocrinologists where applicable.
5. We recommend the following tests for first line investigation of suspected Cushing’s syndrome (Endocrine Society 2008):
6. 24h urine free cortisol (at least 2 measurements)
7. Late night salivary cortisol (at least 2 measurements)
8. 1mg overnight dexamethasone suppression test
9. Longer low-dose dexamethasone suppression test may be helpful in patients with certain psychiatric conditions, morbid obesity, alcoholism, diabetes mellitus
10. Patients with an abnormal first line test result should be further evaluated using another of the tests listed in recommendation 5. The combined dexamethasone-CRH test or midnight serum cortisol test may also be recommended for certain patients (Endocrine Society 2008).
11. Specific recommendations should be made for investigation of suspected Cushing’s syndrome in pregnant women, patients taking anti-epileptic medications, renal failure, suspected cyclic Cushing’s syndrome and adrenal incidentaloma, in line with the Endocrine Society guidelines (2008).
12. We recommend the following tests for first line investigation of suspected adrenal insufficiency:
13. High dose standard SST
14. If the SST is not feasible (e.g. in primary care), 9am cortisol & ACTH may be used with the caveat that a “normal” cortisol does not exclude adrenal insufficiency.
15. Laboratories should make clinicians aware of contraindications to SST (e.g. previous adverse reaction) and factors which affect the interpretation of SST results (e.g. previous steroid therapy, exogenous oestrogens, pregnancy).
16. The increment between baseline and 30/60 minute cortisol levels should not be used in interpretation of SSTs.
17. Plasma ACTH should be used to distinguish between primary and secondary adrenal insufficiency. A cut off of 2 x ULN should be used (Endocrine Soc guidelines, 2016), but in cases where ACTH is >ULN but <2xULN, primary adrenal insufficiency should be considered.
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| **Please indicate to whom and when audit presented &/or circulated &/or published:**Audit presented at the Thames Audit Group meeting on 9th October 2018. Audit presentation and standards to be published on the Thames Audit Group webpage. |
| **Audit recommendations / standards ratified by … and when:**Standards agreed at the Thames Audit Group audit meeting on 9th October 2018. To be ratified at the next Thames Audit Group committee meeting (Spring 2019). |
| **Date of audit report:** 6th November 2018 |
| **Audit documents for upload to http://www.acb.org.uk/whatwedo/science/audit.aspx** |