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Telephoning urgent cortisol results and the impact of an ONDST-cortisol test code.

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Introduction

The Royal College of Pathologists communication of critical and unexpected pathology results guidelines (2017) recommend telephoning cortisol results <50 nmol/L, unless part of an overnight dexamethasone suppression test (ONDST). Accordingly, all cortisol results <50 nmol/L go to our "CallBack" LIMS telephone module for immediate communication, along with those 50-100 nmol/L for referral to the Duty Biochemist (DB). Request details or clinical history are searched for evidence of ONDST. A new CORDEX test code was built following a suggestion from an Endocrinology Consultant to prevent telephoning of appropriately suppressed cortisol (<50 nmol/L) post-ONDST.

The aim of the audit was to assess the appropriateness of cortisol requesting and related telephone calls before and after the addition of a new CORDEX test code.

Methods

The CORDEX test code was launched in February 2024 across our six hospital sites. Lists were generated of all the cortisol results <100 nmol/L sent to the LIMS CallBack queue for a month-long period prior to and after the test code launch: 09/12/23-08/01/24 and 09/12/24-8/01/2025.
Any results whereby clinical details were unavailable on the patient information system were discounted.
Cortisol data was categorised based on the result, whether the call back was deemed clinically necessary, and whether our CallBack protocol was correctly followed by the laboratory team. Data was compared to determine the reduction in telephone calls made due to the new CORDEX test code, and to assess it's uptake by Clinicians.
A literature search of relevant publications was also carried out to assess the available guidance on cortisol call back action limits, and the suitability of our protocol.

Results

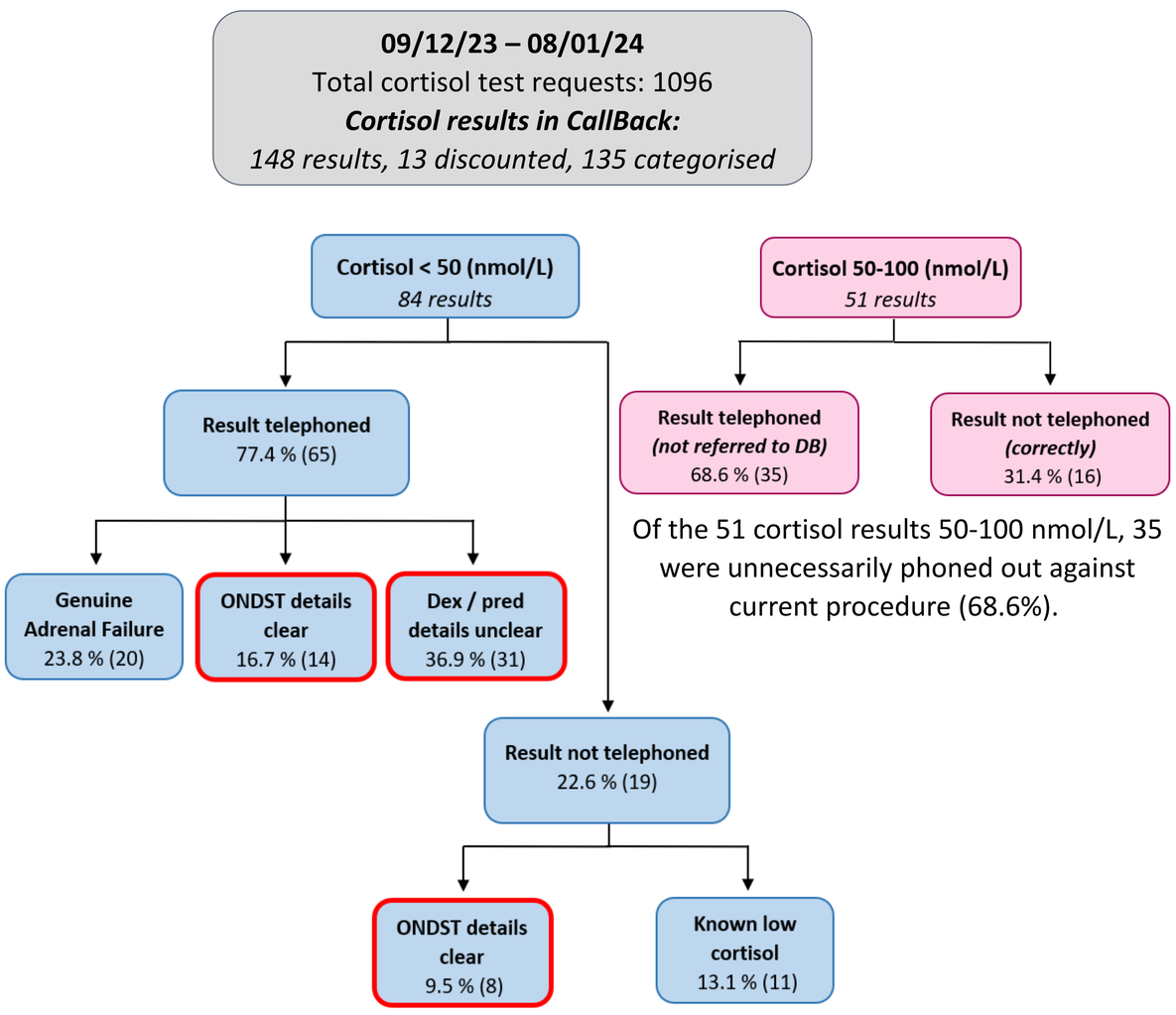

Figure 1. **Categorisation of cortisol results <100 nmol/L in CallBack from 23/24 review period *(before the new CORDEX test code was implemented)***

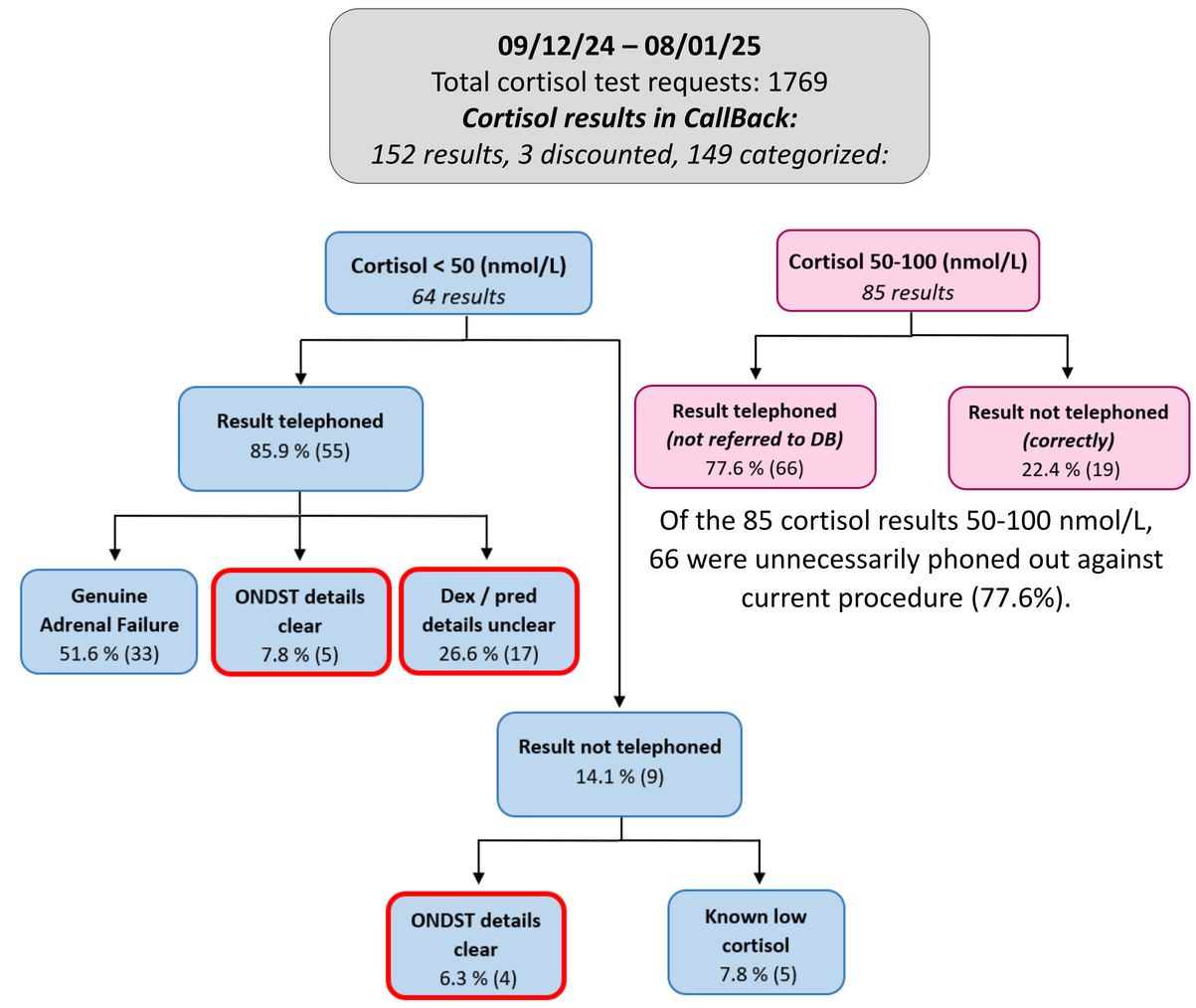

Figure 2. **Categorisation of cortisol results <100 nmol/L in CallBack from 24/25 review period *(after the new CORDEX test code was implemented)***

- There was an improvement in the proportion of calls made for results due to genuinely suspected adrenal failure, from 24% to 52% - *Improved CallBack clinical utility.*
- There was a reduction in the proportion of unnecessary results in the CallBack queue, from 63% to 41% - *But many clinicians are clearly not using the CORDEX code.*

It may seem that the overall number of cortisol results falling into the call back queue has not improved with the addition of the new CORDEX test code (23/24 = 148 vs. 24/25 = 152). However, the total number of cortisol test requests made in the period audited increased by >60% . Therefore, it was predicted that 240 cortisol results would be <100 nmol/L and fall into CallBack for the 24/25 period. Based on this, the number did improve (152 vs. 240 predicted).

Audit Limitations

- This comparison relies on accurate data collection and identification of ONDST in patient notes, and some of these details may have been missed.
- For results <50 nmol/L without details of ONDST or 'on prednisolone', it was assumed that all results phoned were due to genuine adrenal failure. These may have been caused by other factors e.g. evening sample collection time.
- A decrease in the number of results <50 nmol/L in CallBack is assumed to be due to use of the new CORDEX test code, but may be due to other factors.
- The data collected following addition of the new CORDEX test code is ~5 months old, and thus appropriate requesting from clinicians and inappropriate call back of results 50 – 100 nmol/L may have improved.

Conclusions

Audit results showed a reduction in the proportion of unnecessary results in the CallBack queue, and an improvement in the proportion of calls made for results due to genuinely suspected adrenal failure, indicating improved clinical value of CallBack.

The new test code was requested 69 times in this period. However, 12% (9 of 78) of clear ONDSTs were requested with the routine cortisol test code instead of the appropriate CORDEX code, indicating usage of CORDEX could be further improved.

Audit Actions

Recommendations following this audit included re-education of both clinicians about the availability of the CORDEX test code, and laboratory staff on our cortisol CallBack criteria, in order to further reduce unwarranted telephoning. Work is also ongoing to provide automated reflexing of dexamethasone measurement in cases where the CORDEX cortisol post-ONDST is ≥ 50 nmol/L.

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