

# A review of short synacthen test results: What is the cut off?

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## Background and aims

- The short synacthen test (SST) is a dynamic function test used to assess the hypothalamic pituitary adrenal axis.
- Interpretation requires consideration of sample timing and cortisol method.
- Currently the 30 minutes post-synacthen cortisol (CORT30) at NHS Greater Glasgow and Clyde (NHS GGC) is >450 nmol/L measured on the Abbott Architect.
- A large reference range study published a cut-off of >430 nmol/L for this method.<sup>1</sup>
- This audit aims to document clinical outcomes of patients with results in the range 430-450 nmol/L.

## Method

- SST requests were identified from laboratory databases at NHS GGC for six months beginning 01/05/2017.
- Tests with CORT30 430-450 nmol/L accounted for 3.4% requests (53/1573).

Requests with CORT30 430-450 nmol/L were selected for further analysis to include:

- reason for request
- steroid status prior to test
- outcome/clinical management of the patient post test

## Results

### Reason for requests

- Clinical details with initial requests were reviewed.
- A variety of reasons were noted, most commonly steroids for another condition.

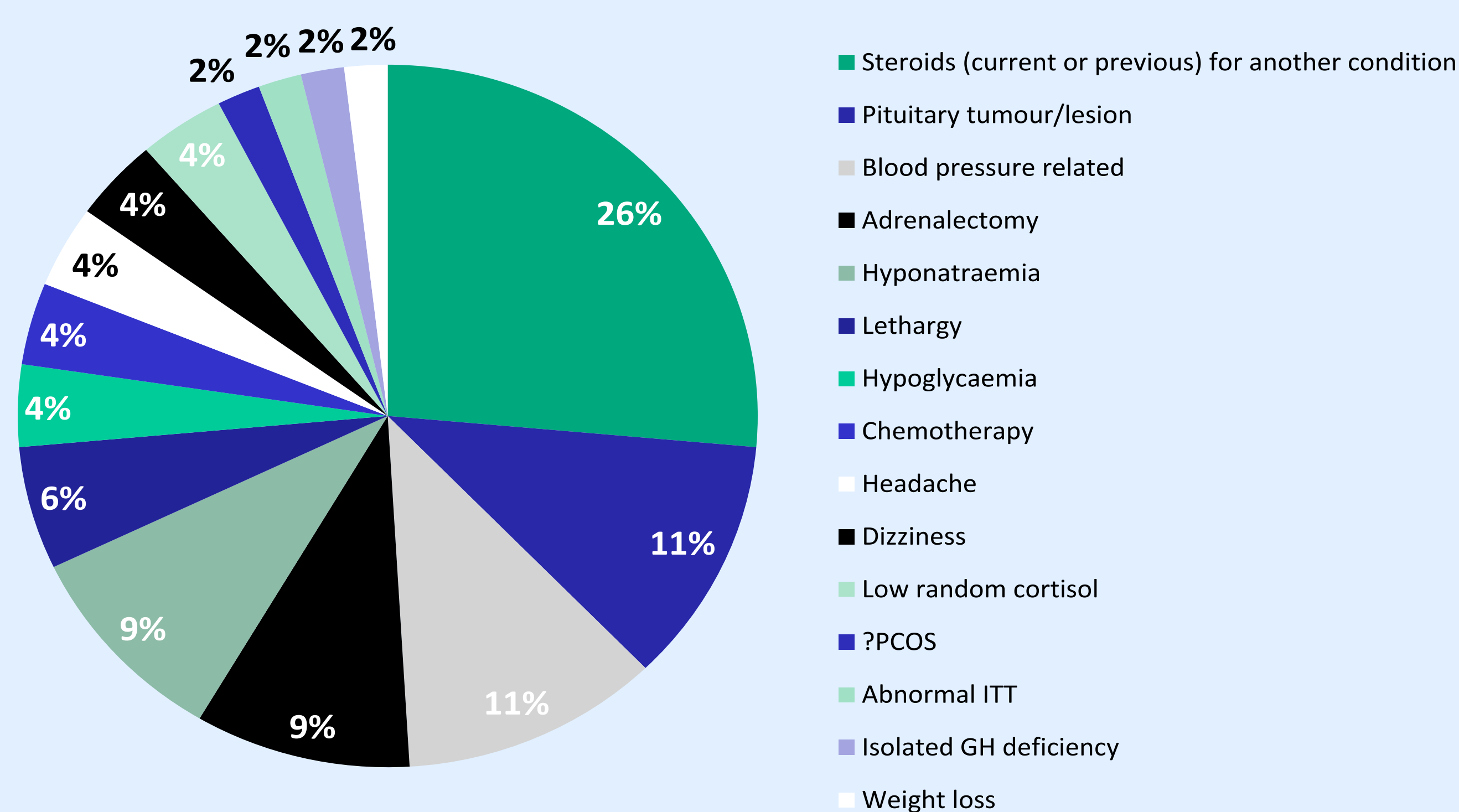


Figure 1. Frequency of request reason for short synacthen test requests

### Outcome in patients on steroids initially

- 18/53 patients were prescribed steroids prior to the short synacthen test.
- Only 5/18 (28%) patients had no change in drug regimen.
- Patient outcomes are classified as shown in figure 2.

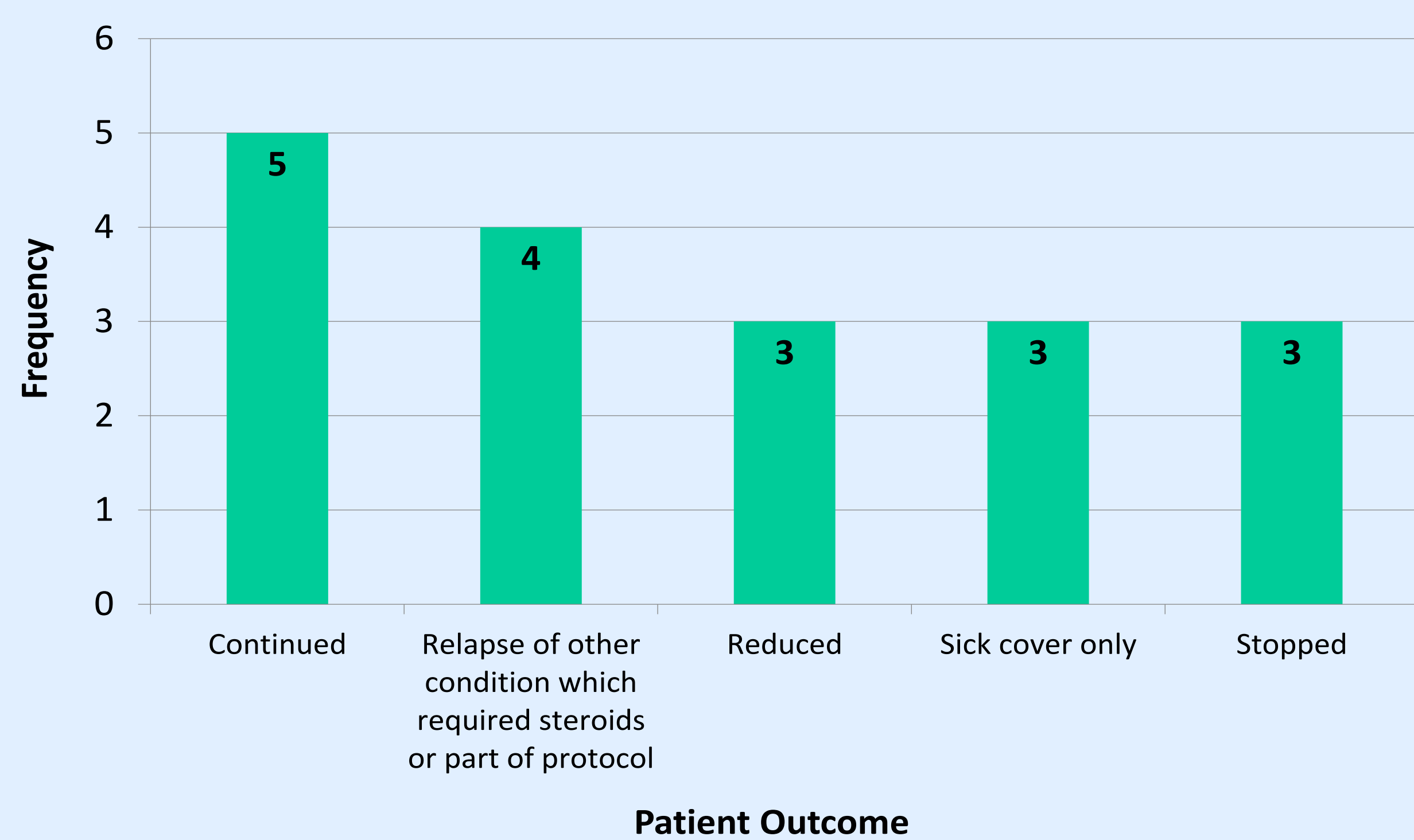


Figure 2. Classification of patient outcomes following borderline short synacthen test in patients who were prescribed steroids prior to test.

### Outcome in patients not on steroids initially

- Outcomes for 35/53 patients who were not on steroids prior to testing are shown in figure 3.
- 71% did not require any steroid therapy

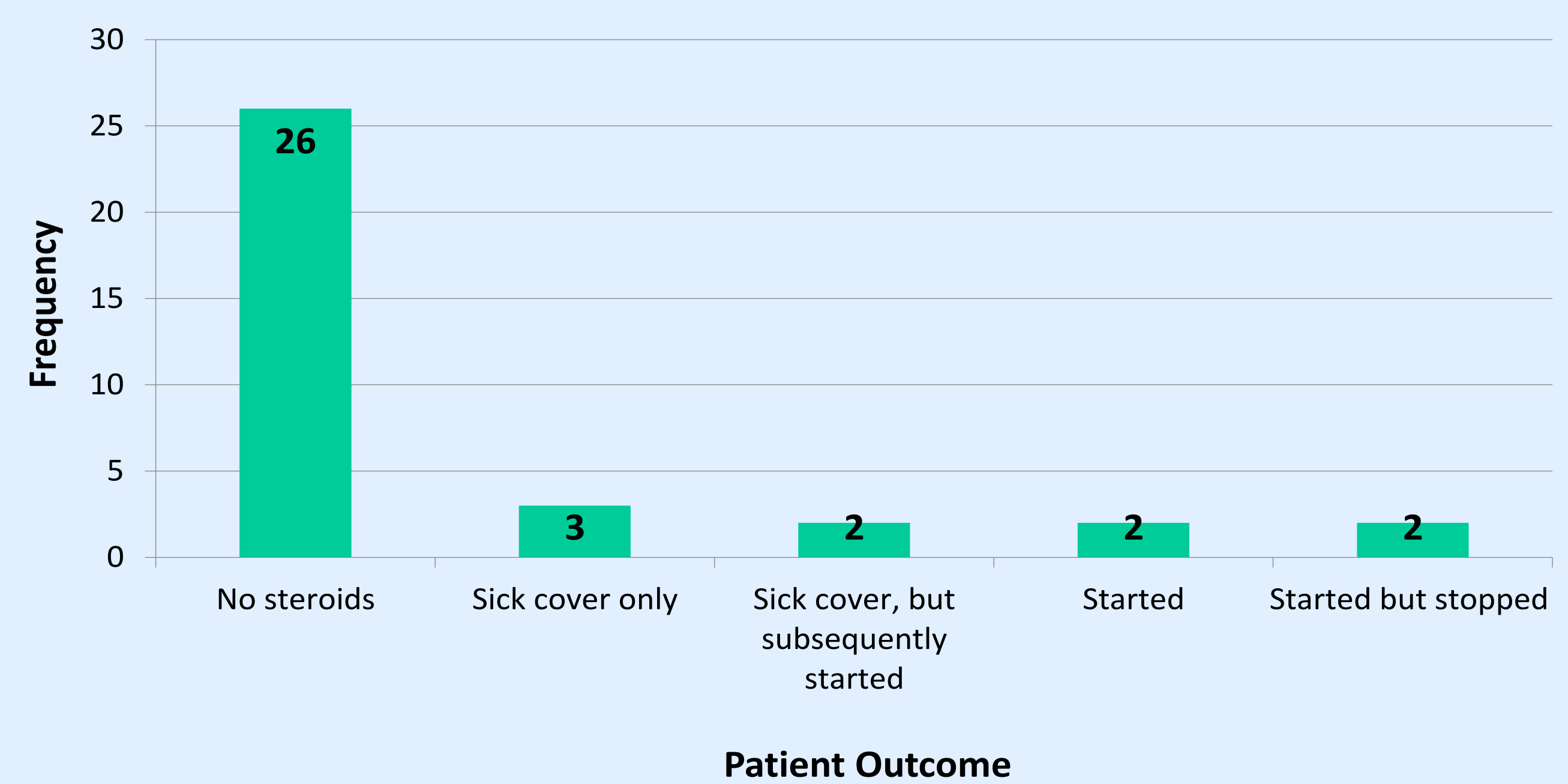


Figure 3. Classification of patient outcomes following borderline short synacthen test in patients who were not prescribed steroids prior to test.

### Repeat requests

- Repeat SST was performed in 13 patients within 6 months of borderline test.
- A further 4 patients had a repeat SST planned but not performed.

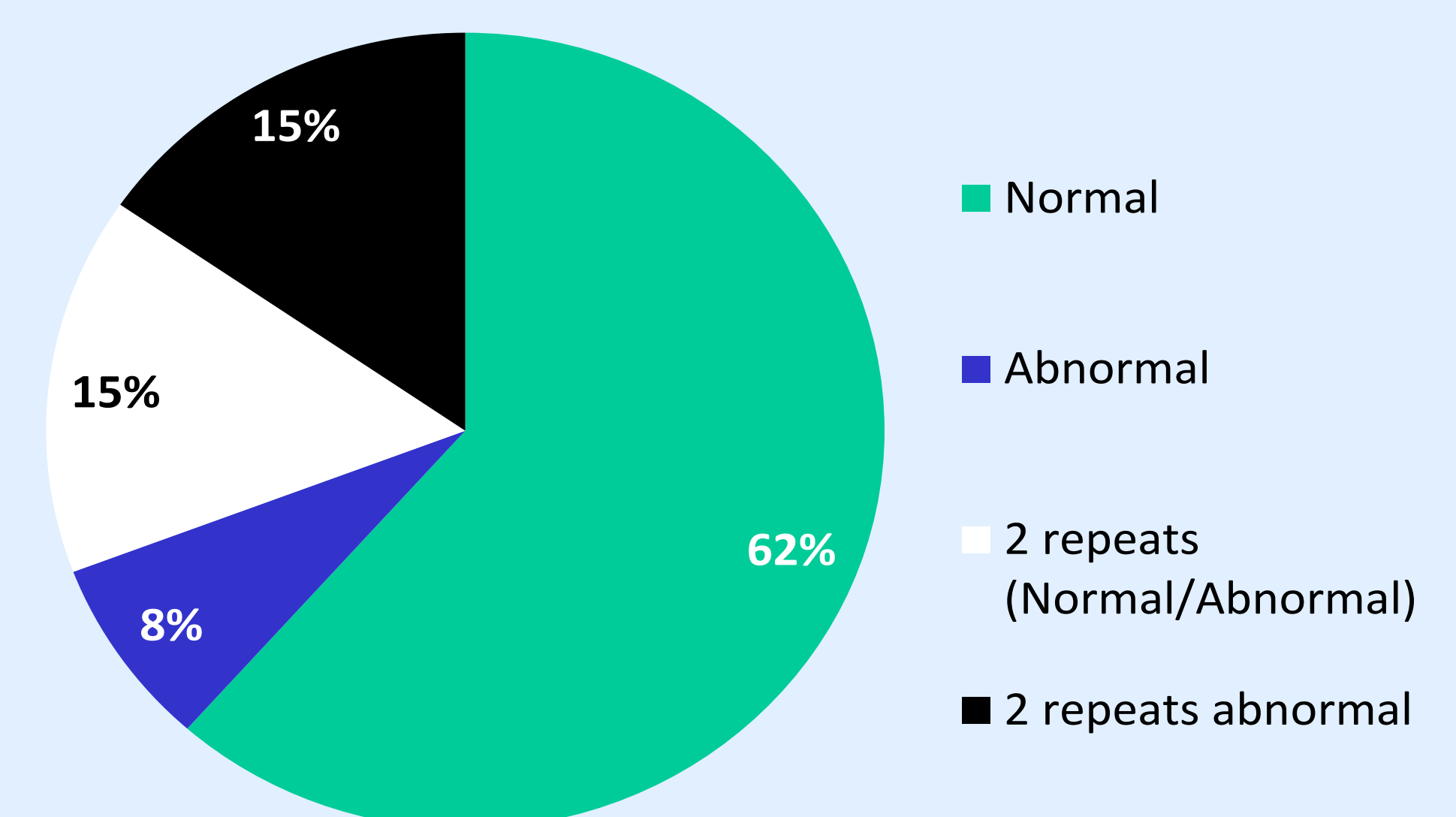


Figure 4. Outcome of repeat short synacthen testing

## Conclusion

- SSTs with results 430-450 nmol/L account for 3.4% of all requests.
- Repeat testing was performed or planned in 32% of these cases.
- Findings were reviewed by the endocrinology team and the 430 nmol/L cut-off has been implemented.

## References

1. El-Farhan, N et al, Method-specific serum cortisol responses to the adrenocorticotrophin test: comparison of gas chromatography mass spectrometry and five automated immunoassays, Clinical Endocrinology (2013) 78, 673–680, doi: 10.1111/cen.12039