

Transition to a Healthcare Scientist-led cardiopulmonary exercise testing (CPET) service in a paediatric service and evaluation of outcomes three years post-implementation



Jess LL¹, Blacklock SJ¹, Forster JL¹, Urquhart DS^{1,2}

¹Department of Paediatric Respiratory and Sleep Physiology, Royal Hospital for Children and Young People (RHCYP), Edinburgh, UK

²Department of Child Life and Health, The University of Edinburgh, Edinburgh, UK



INTRODUCTION

In December 2022, a workforce planning strategy enabled the transition to a Healthcare Scientist-led CPET service in the paediatric respiratory physiology service, NHS Lothian. Historically all CPETs were medically overseen, however following a change in workforce staffing model, an opportunity presented to implement a change in CPET service provision utilising appropriate, existing, advanced practice skill set.

There is now a requirement to evaluate effectiveness of this model for improvement to ensure the service continues to provide safe and accurate CPET provision long-term.

AIMS AND OBJECTIVES

The aims of this evaluation were:

- To determine if a Healthcare Scientist-led paediatric CPET service can provide safe, autonomous and accurate CPET provision.
- To determine if a Healthcare Scientist-led CPET service can create efficiencies in medical time.

The objectives of this evaluation were therefore:

- Evaluate the referral source of CPET referrals within the three-year period (identify the number of cross-specialism MDT sessions undertaken).
- Identify reasons for stopping CPET tests.
- Identify accurate ECG, safety and appropriate comments within interpretation.
- Calculate the number of hours saved in medical time.

SERVICE MODEL



Referral

- Infection risk
- Clinical details
- Relevant contraindications
- Patient specific direction for administration of 400mcg Salbutamol if required



Triage

- Clinical history
- Safety considerations for test
- Other investigations
- Relevant medication



Performing CPET

- Led by Clinical Scientist or Advanced Specialist Healthcare Scientist as minimum
- Assisted by Specialist Healthcare Scientist as minimum
- Safety considerations – reasons for stopping
- Cardiac considerations – electrocardiogram (ECG)



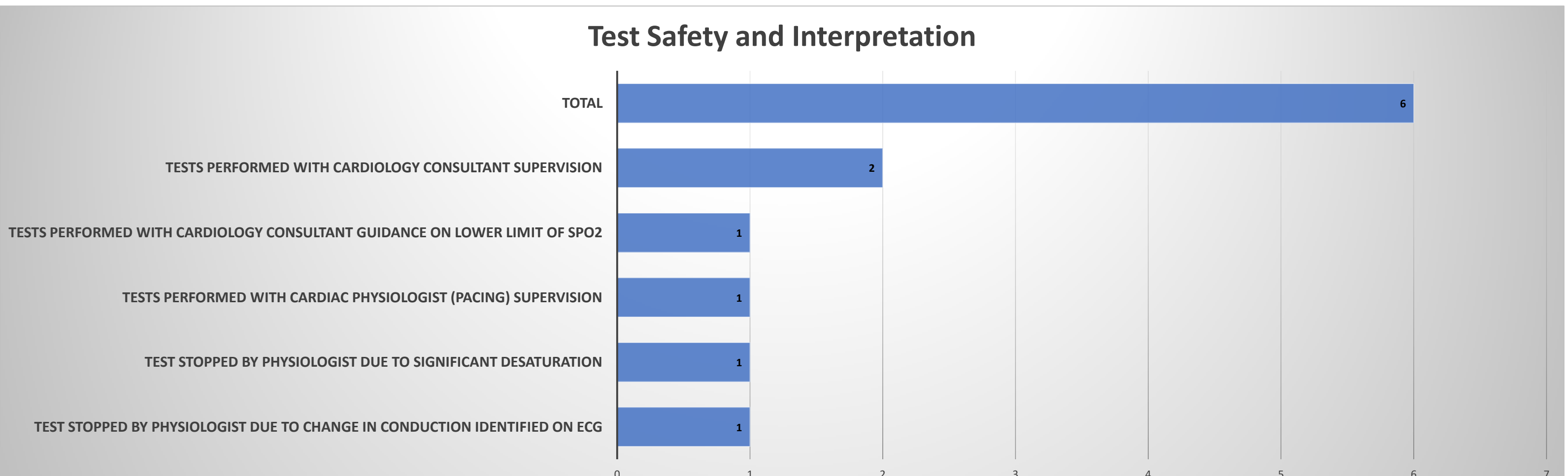
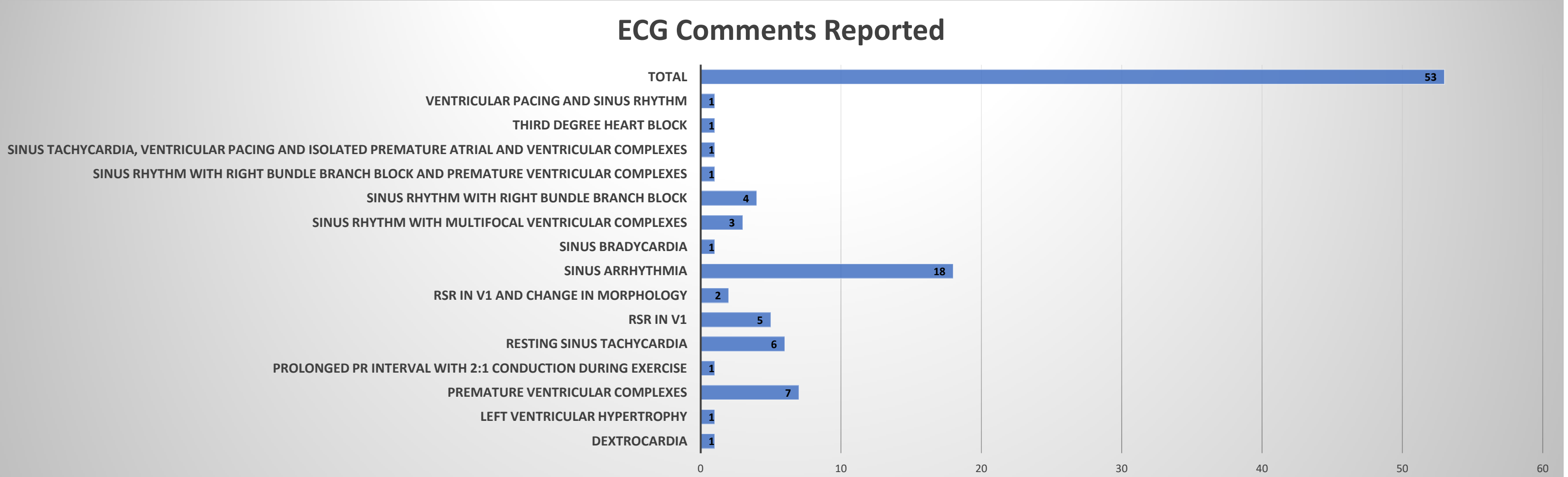
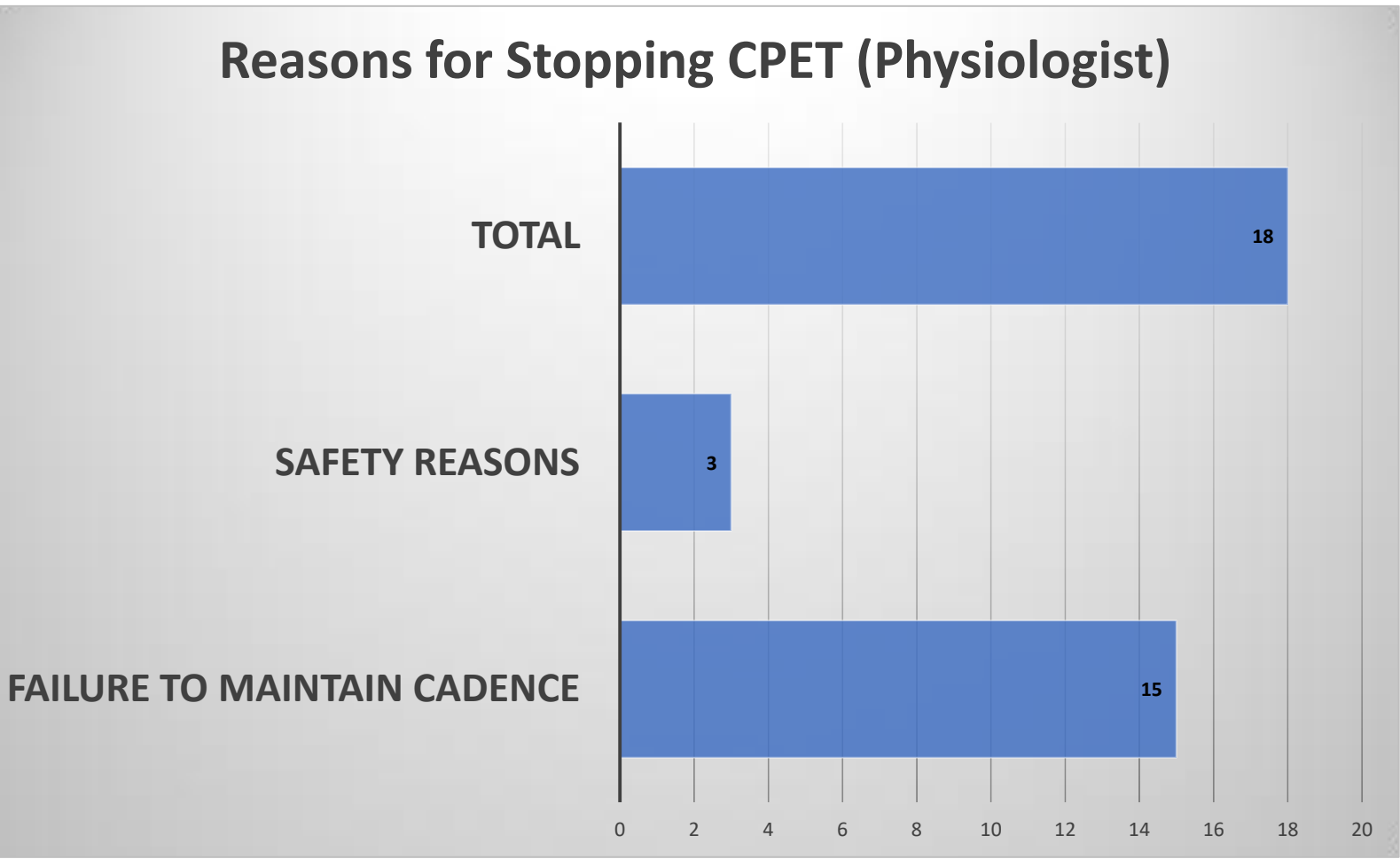
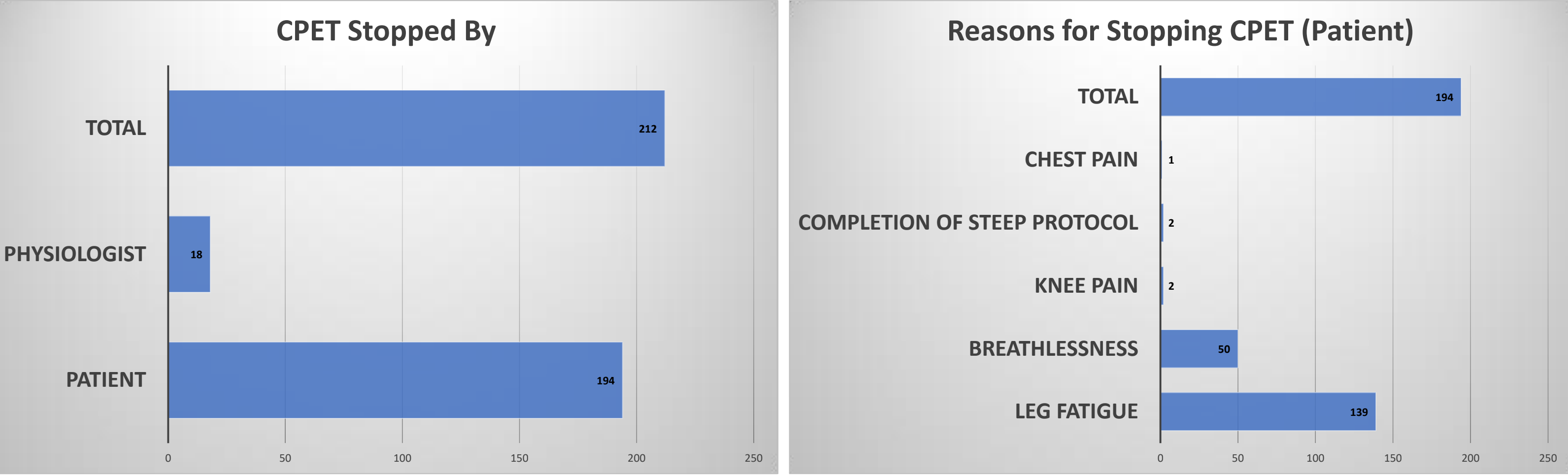
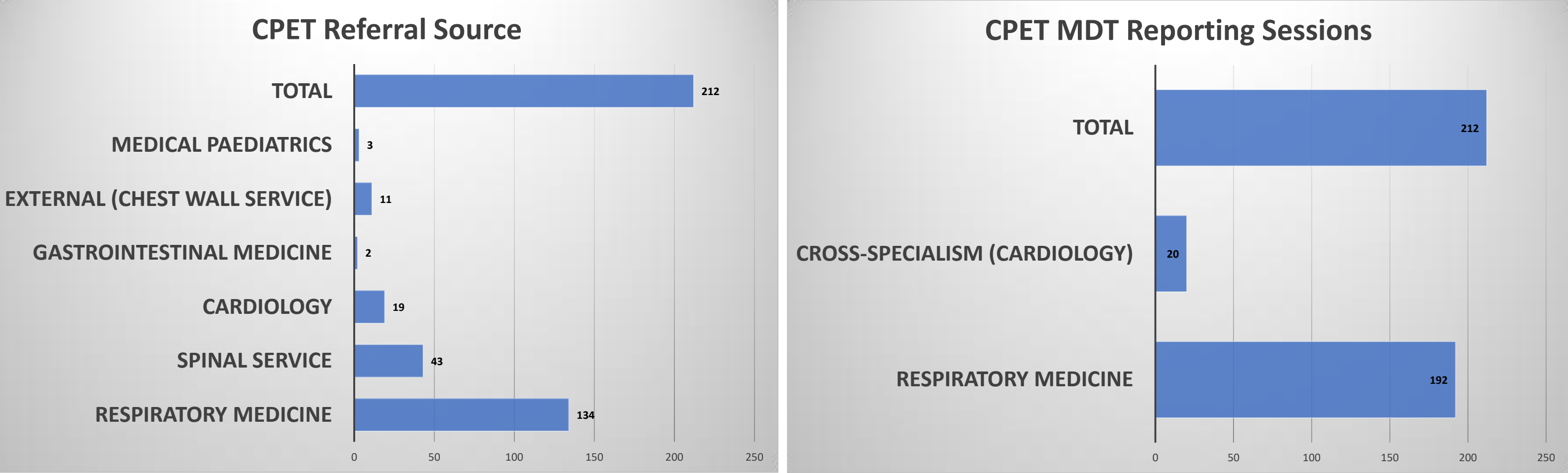
Interpretation

- Technical interpretation by Clinical Scientist or Advanced Specialist Healthcare Scientist as minimum
- Peer reviewed
- MDT reporting (clinical interpretation)
- Outcomes and patient follow-up

METHODS

Data from young people that underwent CPET testing in the three-year period from implementation (January 2023 to December 2025) were evaluated. Referral source, reasons for stopping tests, ECG interpretation, safety comments and the number of hours saved in medical time were reported.

RESULTS



Number of hours saved in Medical time = 318 hours

CONCLUSIONS

- The paediatric respiratory physiology service can safely and autonomously perform CPETs with accurate interpretation and escalation to appropriate MDT for clinical discussion, relative to specific patient needs.
- The implementation of a Healthcare Scientist-led CPET service has saved 318 hours in medical time from overseeing the test in the three-year period.
- A Healthcare Scientist-led CPET service supports initiatives for the delivery of Healthcare Scientist-led services to improve population health.