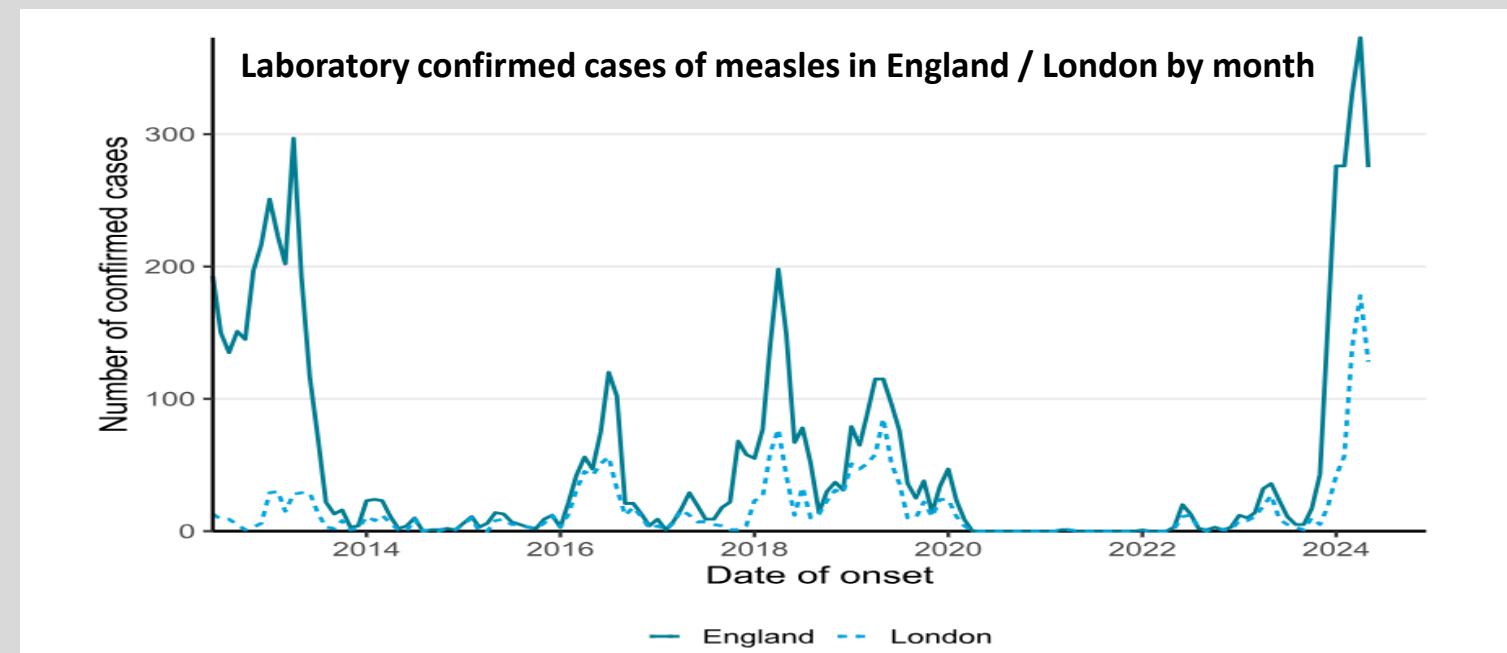


INTRODUCTION

- Measles cases are rapidly rising across the UK, with children under 10 years of age particularly affected in the current outbreak.
- Children with cancer are at increased risk of severe, complicated or prolonged measles infection and often have an atypical presentation.
- The UK Health Security Agency (UK HSA) recommend retesting measles serostatus in all immunosuppressed children now to identify vulnerable patients and guide decision-making regarding intravenous immunoglobulin therapy in the event of an exposure.



OBJECTIVES

1. To review baseline seroprevalence of measles antibodies at diagnosis for children with cancer at a UK Principal Treatment Centre over a 5 year period
2. To undertake a national audit of measles serostatus of children on active treatment for cancer in the UK at the time of a national measles outbreak

METHODS

1. Single centre review

- Single centre retrospective review of measles serostatus from a UK Paediatric Oncology Principal Treatment Centre with a new diagnosis of cancer over a 5-year period
- Data extracted for all Measles IgG antibody tests requested from the Paediatric Oncology unit from 1 January 2019 to 1 January 2024
- Measles IgG antibody testing performed by enzyme-linked immunosorbent assay (ELISA)

2. National audit

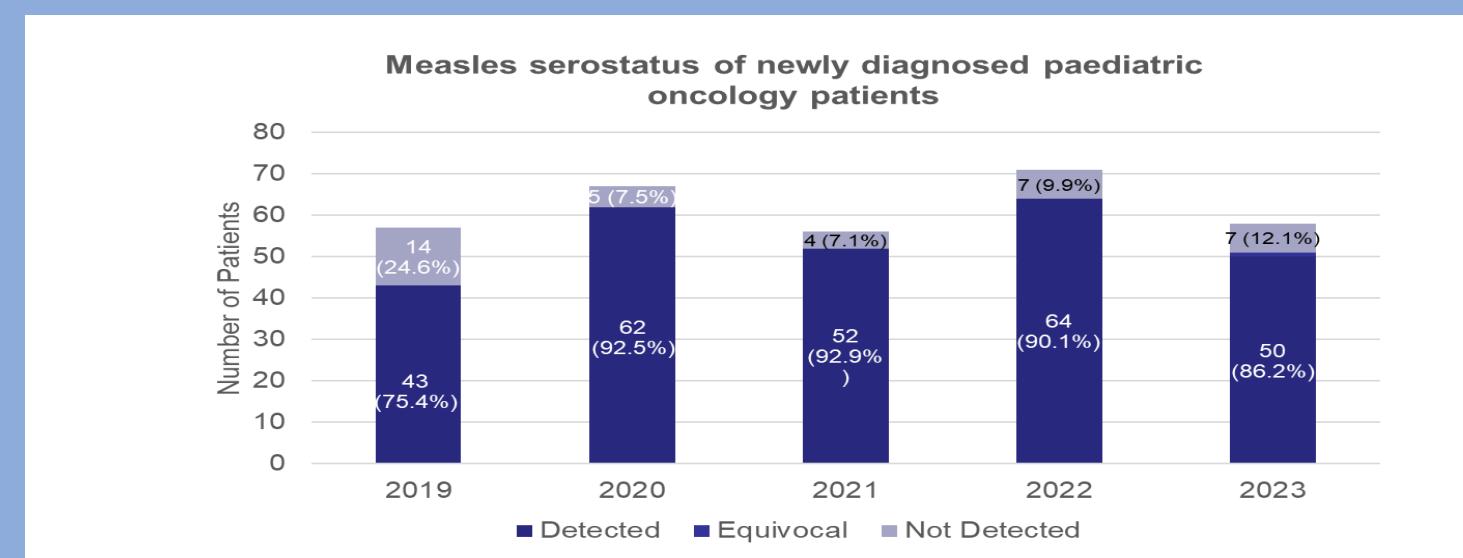
- Measles serostatus anonymised data requested for patients on active treatment for cancer at UK Paediatric Oncology Centres during Q1 2024
- Demographic data and measles serology data from diagnosis and/or post UK HSA guidance issue
- Data reviewed using descriptive statistics

REFERENCES

- UK Health Security Agency. Latest measles statistics published. GOV.UK. Published January 30, 2024. <https://www.gov.uk/government/news/latest-measles-statistics-published>
- Perry RT, Halsey NA. The clinical significance of measles: a review. *J Infect Dis.* 2004;189 Suppl 1:S4-S16. doi:10.1086/377712
- Kaplan LJ, Daum RS, Smaron M, McCarthy CA. Severe measles in immunocompromised patients. *JAMA.* 1992;267(9):1237-1241.
- Bochennek K, Allwinn R, Langer R, et al. Differential loss of humoral immunity against measles, mumps, rubella and varicella-zoster virus in children treated for cancer. *Vaccine.* 2014;32(27):3357-3361. doi:10.1016/j.vaccine.2014.04.042

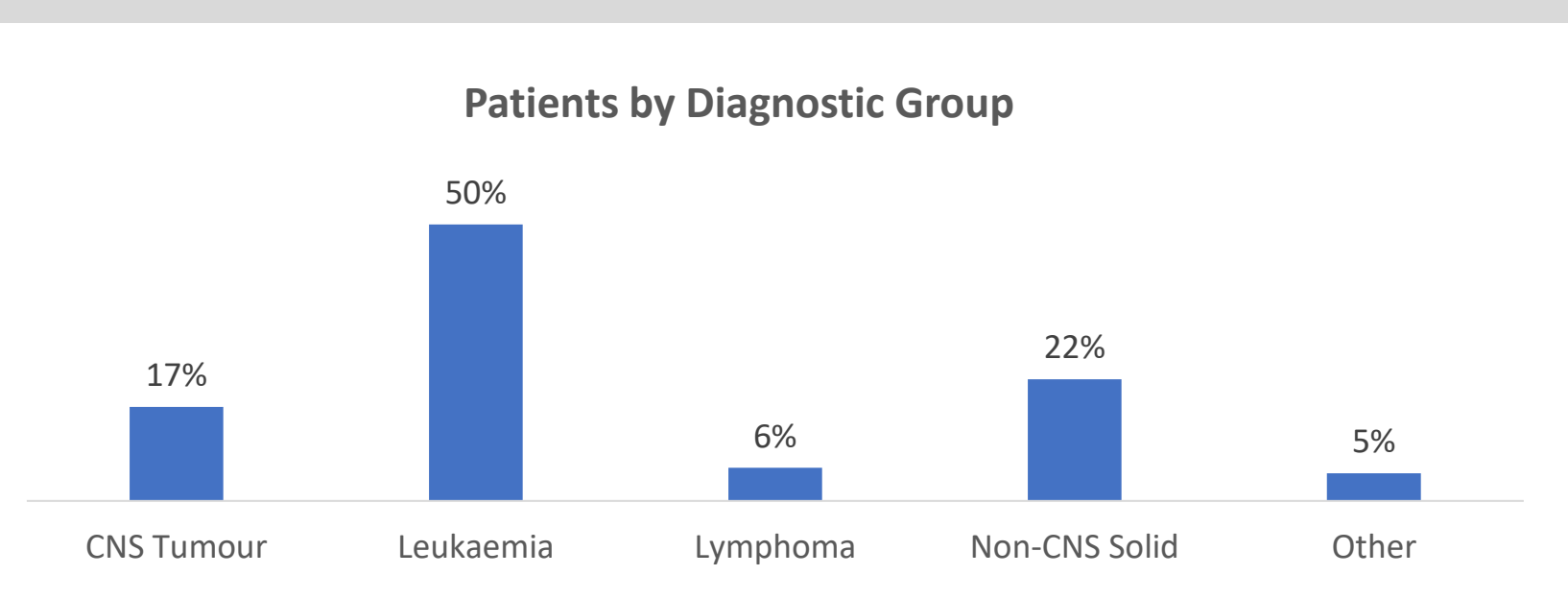
RESULTS – SINGLE CENTRE REVIEW

- 333 patient records reviewed, with results excluded if no oncological diagnosis confirmed (n=5), duplicate result (n=18) or rejected sample (n=1)
- 309 patients, median age 6.9 years (range 0.1-16 years)
- Measles IgG detected in 271 patients (87.7%)
- 38 patients had no humoral immunity to measles, 11/38 were <12m old

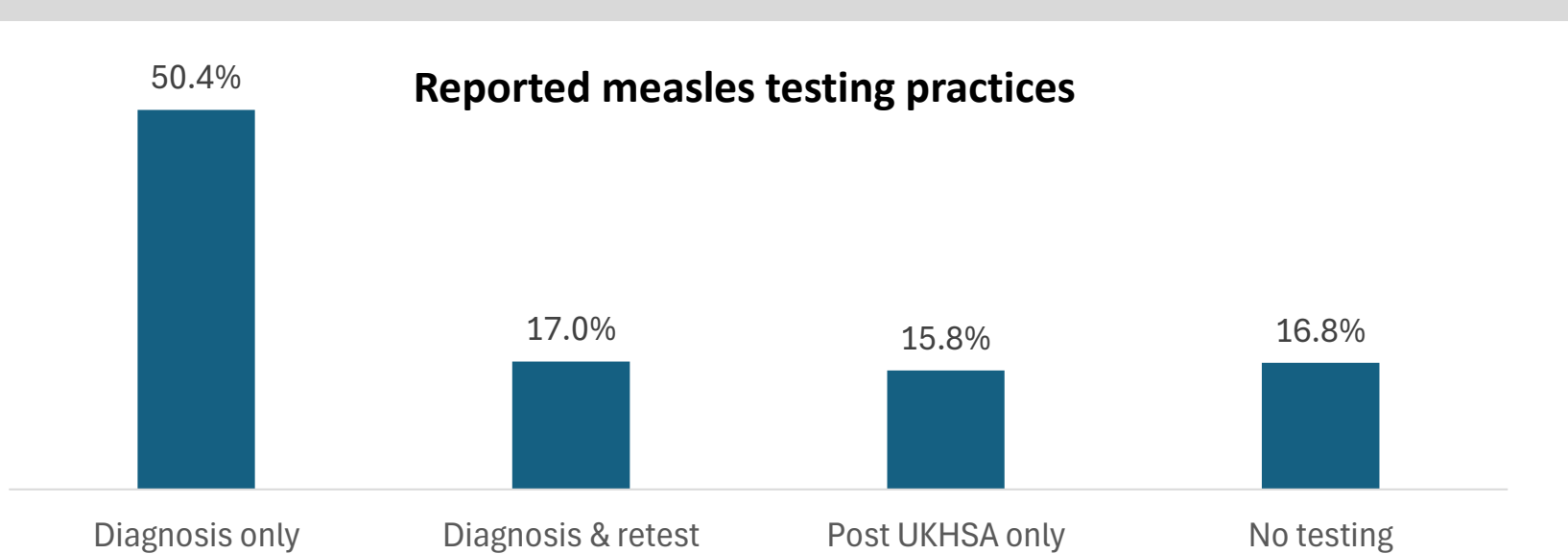


RESULTS – NATIONAL AUDIT (1)

- 840 patients from 11 UK centres, median age 5.1 years (range 0.1-18.7 years)



- Varying testing practices between centres



RESULTS – NATIONAL AUDIT (2)

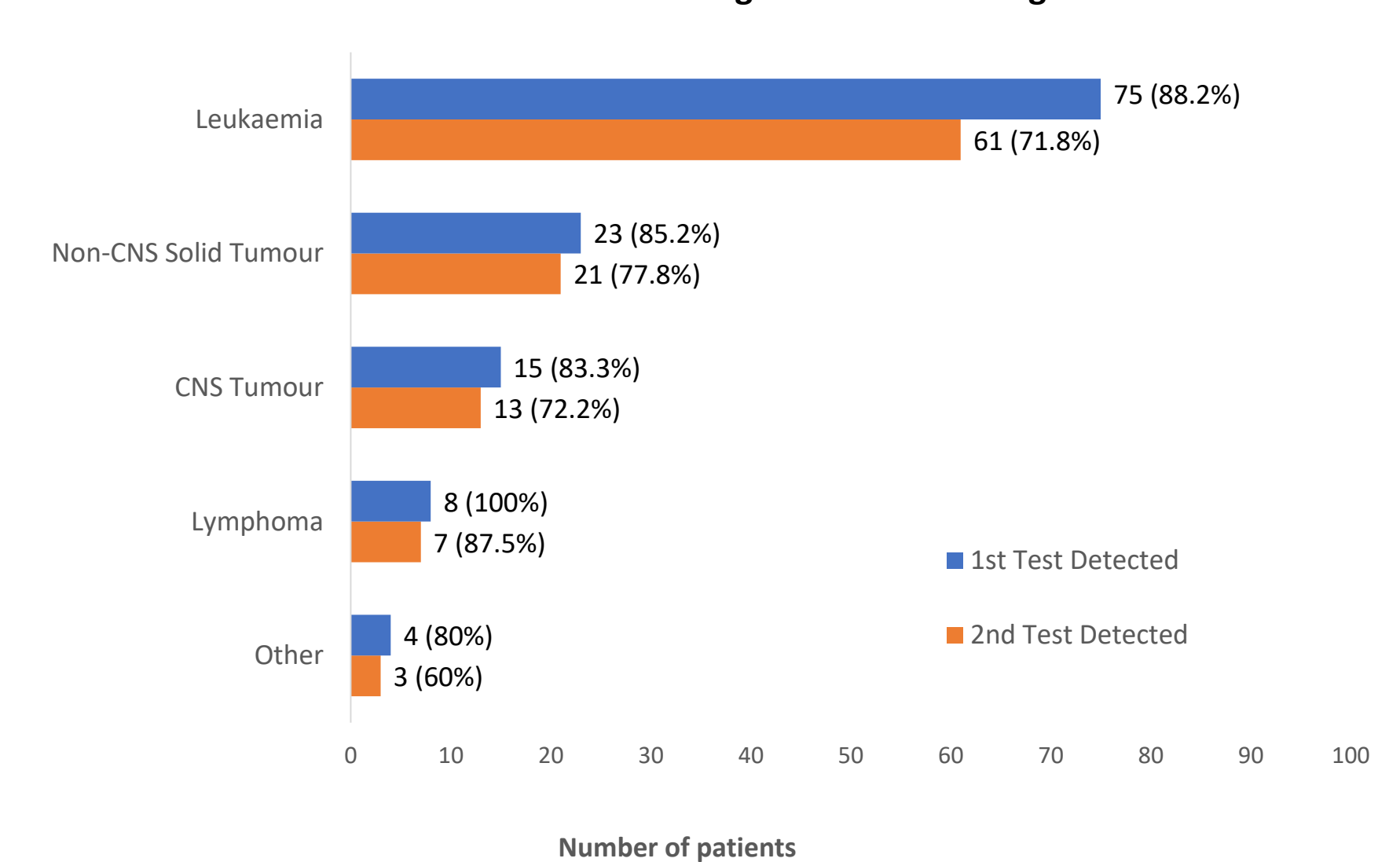
Of patients tested at diagnosis (n=566), 502 (88.7%) had baseline humoral immunity to measles.

Cross-sectional testing post UK HSA guidance (n=276): 215 (77.9%) patients had humoral immunity to measles

Tested both at diagnosis and post UK HSA guidance (n=143):

- 24 (16.8%) had lost pre-existing humoral immunity to measles
- Only 2 of 24 patients who lost immunity had a history of previous transplant (1 allogeneic and 1 autologous)
- Most patients who lost immunity had an underlying diagnosis of leukaemia (n=14, 58%)

Measles serostatus at diagnosis and retesting



CONCLUSION

- These results show approximately 12% of paediatric oncology patients in the UK do not have humoral immunity to measles at time of diagnosis, consistent with wider population.
- Cross-sectional sampling during current measles outbreak revealed loss of humoral immunity in 16.8% of patients, highest in those with leukaemia.
- Patients should have antibody testing for measles immunity to ensure appropriate management.

ACKNOWLEDGEMENTS

Oncology centres who contributed data: Southampton, Oxford, Belfast, Newcastle, Liverpool, Cambridge, Brighton, Chelsea & Westminster, Birmingham, Bath, Leicester