**Title page**

**Title:**

Impact of the COVID-19 pandemic on time to diagnosis and treatment in children with cancer at tertiary care level.

**Authors:**

Dr. Dufour. Lionel

Barking Havering and Redbridge Hospitals NHS Trust, Paediatrics, Romford, UK

Dr. Simon, Ashly

1. Department of Paediatric Haematology and Oncology, Cambridge University Hospital NHS Foundation Trust, Cambridge, CB2 0QQ, UK

Dr. Murray, Matthew J

1. Department of Paediatric Haematology and Oncology, Cambridge University Hospital NHS Foundation Trust,Cambridge, CB2 0QQ, UK
2. Department of Pathology, University of Cambridge**,** Cambridge, CB2 1QP, UK

Dr. Behjati, Sam\*

1. Department of Paediatric Haematology and Oncology, Cambridge University Hospital NHS Foundation Trust, Cambridge, CB2 0QQ, UK
2. Wellcome Trust, Sanger Institute, Hinxton, CB10 1RQ, UK

**\*Corresponding Author**

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The UK NHS responded to the COVID-19 pandemic from early 2020 by focusing all, bar indispensable services, on pandemic management. There are numerous reports of the adverse impact this diversion of resources has had on various health services, including cancer care. The degree to which childhood cancer services have been affected, including diagnostic delay, are less well documented. Such delays have been observed at presentation to primary and secondary care [1,2]. Further delays may occur at any stage of a child’s diagnostic journey, including assessment and investigation by primary or secondary care; and delays to diagnostic work-up at tertiary level. The latter would seem to be particularly susceptible to the diversion of resources, as the initial management of children with cancer relies on the very services required for acute pandemic management, including access to e.g., anaesthetics, theatres, and surgery. Here, we assessed the impact of the COVID-19 pandemic on the initial management of children with cancer who presented to our regional tertiary service by auditing (against nationally defined standards [3,4]) the time to achieving key milestones.

We reviewed electronic patient records of children diagnosed with leukaemia, lymphoma or malignant tumours and managed by our service (Cambridge University Hospitals NHS Foundation Trust) during the period from 01/02/2019 to 31/11/2020 (n=136 individuals <16 years old at presentation; 66 girls and 70 boys). To assess the impact of the COVID-19 pandemic, the cohort was subdivided into 73 pre-pandemic (31 girls, 42 boys) and 63 pandemic (35 girls, 28 boys) patients, using the start of the first ‘lockdown’ (23/03/2020) as the cut-off. Taking the date of the referral as start point, we recorded the time to achieve the following targets: review by consultant; first MDT discussion; diagnostic biopsy and central line insertion (where necessary for treatment).

Overall, there were no delays in the initial management of children with cancer during the COVID-19 pandemic at our institution (Figure). There was no significant difference in the auditable parameters recorded comparing pre-pandemic and pandemic times, with key milestones achieved within 14 days for most children (>66%). The national standard of commencing treatment within 28 days of diagnosis [4] was not achieved for 2 children (1.5%). These patients underwent surgery with our immediate service (n=1) or another institution (n=1); the delay in their treatment was related to the nature of their surgeries rather than the COVID-19 pandemic.

Our service maintained the timely initial management of children diagnosed with cancer during the first eight months of the COVID-19 pandemic; at a time when hospital services we rely upon had been curtailed.

There was no explicit directive to maintain our service, but there was a tacit understanding of the multidisciplinary team to protect children’s cancer care from resource-related delays. Notably, initiatives were taken (such as dedicated messenger groups) to improve communication around bottlenecks of the diagnostic journey, such as surgery slots. Our experience may be representative of tertiary paediatric oncology services across the UK. It will however be important to assess the impact of the COVID-19 pandemic on the entire journey of children with cancer to inform future pandemic management.

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