Childhood cancer experts call for more research into population screening and targeted surveillance for the disease

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Research into population screening and targeted surveillance for childhood cancer should be a key priority, according to leading experts in a new review published in EJC: Paediatric Oncology.

Each year in the UK 1,900 children are diagnosed with cancer and it's the biggest cause of death by disease in children aged 0-14 years. One in around 300 children will develop cancer by the age of 18. Despite this, many children experience long waits for diagnosis, contributing to treatment delays and their cancer being diagnosed when it's much harder to treat.

According to the paper, 'A review calling for research directed at early detection of childhood cancers: the clinical, scientific, and economic arguments for population screening and surveillance', childhood cancers can often be traced back to inherited predisposition conditions or linked to genetic mutations that make cancer more likely to develop.

The authors are calling for prioritisation of research which investigates population screening and targeted surveillance for childhood cancer. Population screening would identify at-risk children, and targeted surveillance would identify changes and enable diagnosis as soon as they develop cancer. Earlier diagnosis could then improve survival rates and quality of life for young people with cancer.

David Walker, Emeritus Professor of Paediatric Oncology at the University of Nottingham and the paper's corresponding author, said: "Symptoms are hard to spot for families and health practitioners, so research into detecting cancer before symptoms present offers an approach that would make all children safer.

"If we could identify children before their cancer is so advanced, new approaches to treatment could be explored which would further improve the chances of cure and reduce risks of lifelong disability."

Population screening is already common for certain childhood diseases, even though the risk of developing cancer by age 18 is higher than for many routinely screened-for conditions. Research into the early detection of adult cancers has found ways to predict and identify cancer sooner, to offer earlier, often lifesaving, interventions. Despite this, the authors assert that a concerted research effort looking at how to make diagnoses of childhood cancer at earlier points in tumour development hasn't happened.

They state that the aim of any population screening programme would be to offer a structured means of reassuring most children that they're not expected to develop cancer — whilst crucially, identifying those at risk. For these children, targeted surveillance with further blood, clinical and imaging tests may be recommended during specific periods of their childhood. However, the authors recognise that further research is needed to introduce a successful population screening and targeted surveillance programme for children.

Co-lead author Dr John Apps, Associate Clinical Professor in Paediatric Neuro-Oncology at the University of Birmingham, said: "As our understanding of the biology of cancer has improved, we know that some children have mutations that predispose them to developing cancers.

"Some of these conditions are well understood and have screening programmes, such as retinoblastoma, but as we learn about more genes it's important that we learn what the risks are and, if predispositions are present in a family, how we should best screen siblings and family members.

"Currently, for some genes there are guidelines, and for others we know there's a risk, but don't yet know enough to give meaningful information to support families.

"We're keen to learn from current practices to improve the screening, better inform families about their risk, and potentially, develop treatments to prevent cancers developing."

In June 2022, Tori Reeve's then six-year-old son Wilf was diagnosed with stage 4 Wilms' tumour, a kidney cancer. He showed no symptoms until a couple of days before his diagnosis, when he woke with pain in his side, nausea and looking pale.

Media:

Following months of intense chemotherapy, either side of major surgery to remove the tumour, Wilf's now in remission and back to his loud, lively self. However, Tori, from Catford in south London, said that although he's doing well, he's still battling the physical and mental effects of his treatment.

Had Wilf's cancer been discovered sooner, Tori believes this might have meant he'd been able to have less invasive treatment – sparing him some of the physical and mental trauma he experienced.

She explained: "I can't deny treatment was hard on Wilf. He absolutely hated it and fought it every step of the way. As a parent, it's such an awful thing, knowing your child hates it, that it makes them feel terrible, but you have no choice.

"Wilf still has some real psychological repercussions from the treatments that we're looking to get him support for. Anything that reduces that need for long, difficult treatments, I think has to be supported."

Co-lead author, Dr Tim Ritzmann, Clinical Associate Professor in Paediatric Neuro-Oncology from the Children's Brain Tumour Research Centre at the University of Nottingham, said: "This paper represents the start of a new discussion about how we better diagnose all types of childhood cancers before they cause significant problems.

"Our international authorship group, including parent experts and world-leading researchers, is well placed to widen this conversation and develop new and better strategies for intervening in childhood cancer earlier than ever before."

Ashley Ball-Gamble, CEO of Children's Cancer and Leukaemia Group (CCLG) and a co-author of the paper, commented: "Finding and developing new methods and strategies to accelerate the detection of cancer in children and young people should be a key priority for cancer research. We want to ensure that childhood cancers aren't left behind."

The paper can be read here: https://www.ejcped.com/article/S2772-610X(24)00051-5/fulltext

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