



'ZERO CHILDHOOD CANCER' CLINICAL TRIAL DELIVERS PROMISING RESULTS WITHIN ITS FIRST 11 MONTHS

Despite the dramatic increase in childhood cancer survival rates over the last sixty years from virtually 0 to 80%, three children and adolescents still die every week in Australia from cancer.

The Zero Childhood Cancer national child cancer personalised medicine program aims to prove that personalised medicine, tailoring treatment recommendations to individual children's cancers through better scientific analysis of their tumours, can change outcomes. In many cases, it can lead to the use of a drug not previously tried or even considered, in some cases even changing a child's exact cancer diagnosis.

One year after the world-first Zero Childhood Cancer national clinical trial was opened, almost 130 children with serious and aggressive cancers have been enrolled on this state-of-the-art personalised medicine clinical trial that aims to give them the best possible chance of survival and quality of life.

Professor Michelle Haber, Executive Director Children's Cancer Institute explains "Using the latest molecular profiling techniques and laboratory testing of patient cancer cells against a wide range of anti-cancer drugs, Zero Childhood Cancer is giving unprecedented genetic and biological information for children with the most aggressive cancers. It is arguably the most comprehensive personalised medicine program for children with cancer in the world."

"The information we gather will not only benefit children on the national clinical trial but will inform new discoveries and further clinical trials that we believe will impact and benefit generations of children with cancer in the future. The Zero Childhood Cancer program is bringing us a step closer to our vision of one day curing all children of cancer."

As an example of the benefits of the personalised medicine approach underpinning The Zero Childhood Cancer Program, Ellie was eleven months old when she was admitted to the Sydney Children's Hospital, Randwick having been unwell for just a couple of weeks. A scan revealed a tumour so large in her chest it was pushing her heart to the right side of her chest. Within days she was in the Intensive Care Unit on life support because her little lungs could no longer help her to breathe unaided. The tumour – sarcoma – was aggressive, rare and resistant to chemotherapy.

Ellie was immediately enrolled onto the Zero Childhood Cancer Program, which meant her tumour biopsy was subjected to detailed genetic analysis, with the Zero team working around the clock to get results as soon as possible, as Ellie's condition was critical. Whole Genome Sequencing performed through our partnership with the Garvan Institute of





Medical Research (funded by Lions Clubs Australia) identified Ellie's cancer as infantile fibrosarcoma with a rare translocation likely to be critical in driving her cancer's growth. The research and clinical teams had recently learnt about a new drug discovered by the USA company Loxo Oncology, that targeted the exact translocation now identified in Ellie's tumour, and the company agreed to provide the drug on compassionate grounds, so treatment could begin.

Within four weeks the cancer had shrunk to a point where Ellie was off life support and could breathe on her own. Six weeks later she was home.

As Mina, Ellie's mother explains "We were told to think about saying goodbye, she was so sick we didn't even know if she would reach her first birthday. Now today to be celebrating her second birthday, when she is such an active, boisterous and energetic two-year-old is beyond our wildest dreams. We can't thank the teams at the children's hospital and research institute enough."

Ellie's story will be revealed this Sunday (2/9) as a kick-off of International Cancer Awareness Month. It is also the day after Ellie's second birthday and Father's Day.

"Zero Childhood Cancer is about using the best science we have to give hope to children with high risk cancer. We must try a different approach. Accepting the status quo means that 70% of these children won't survive to celebrate another birthday." Associate Professor Tracy O'Brien, Director of Kid's Cancer Centre, Sydney Children's Hospital says.

"We are starting with a small group of children with high risk cancers where current treatment affords little hope but as we learn more, I see future potential for targeted drug therapies to be used more broadly in all child cancers as a smarter way to achieve cure while importantly minimising therapy side effects in a growing child."

A clinical trial of larotrectinib, the drug used to treat Ellie, is now open in Australia for all children whose cancer is identified by the Zero Childhood Cancer program as having this same genetic marker, providing access for these children to targeted therapy which appears to be both more effective and far less toxic than standard chemotherapy.

One year on Zero Childhood Cancer has produced some remarkable results for children like Ellie. Childhood cancer is extremely complex meaning this kind of 'evidence-based miracle' will not be possible immediately for every child. However, the more that is understood about what drives the growth of childhood cancers and the more drugs that are developed to combat these drivers, the greater number of children with remarkable success stories like Ellie's are likely in the future.





In summary, outcomes of Zero in the past 11 months:

- 129 children are registered for the trial after just 11 months, each of these are children with an aggressive cancer that is identified as having less than a 30% chance of survival.
- Of these 36% have been enrolled at the time of relapse, 38% at diagnosis and 26% with progression of disease
- In terms of cancer types 36% have brain cancer, 29% sarcoma, 13% leukaemia, 6% neuroblastoma and 16% other rare cancers.
- For 67% of children a personalised treatment plan has been recommended
- Average turnaround time from receipt of samples to personalised treatment recommendation is 9 weeks

ABOUT THE ZERO CHILDHOOD CANCER PROGRAM

Zero Childhood Cancer is one of the world's most comprehensive child cancer personalised medicine studies and is led by Children's Cancer Institute and the Kids Cancer Centre at Sydney Children's Hospital, Randwick, in collaboration with scientists from nineteen leading Australian and international research institutes and doctors from all eight of Australia's paediatric cancer centres.

More than 200 children and adolescents in Australia will be diagnosed this year with a cancer type that has less than 30% survival, either on first diagnosis or after relapsing from their disease. The Zero Childhood Cancer program recognises that each child's cancer is unique, so they respond differently to anti-cancer treatment. Detailed laboratory analysis of tumour samples will help identify the drugs most likely to kill each child's specific cancer.

Zero Childhood Cancer will mean that children with the most aggressive or relapsed cancer will have their tumour samples sent to the laboratories at Children's Cancer Institute, where the researchers will leverage the most innovative research, technology, and tests, to more precisely analyse the genetic makeup of each individual child's cancer, and the response of their cancer to hundreds of anticancer drugs. This will enable identification of the precise drug or drugs that have the greatest likelihood of being effective against each child's individual cancer and so, through this personalised treatment, give each child the best chance of survival, with the fewest side effects.

Each fortnight a Multi-Disciplinary Tumour Board meets, comprising of clinicians from around Australia together with scientists, bioinformaticians, geneticists, pathologists and biologists to review the complex information from the sophisticated Zero Childhood Cancer testing platform and recommend a personalised treatment plan for each individual child.





The Zero Childhood Cancer national clinical trial will recruit 400 children nationally over a 3-year period. In addition to benefitting children on the clinical trial, Zero Childhood Cancer will mean that the knowledge and understanding of these aggressive cancers at a molecular level, will be shared with collaborators and partners nationally and internationally to benefit all children with cancer in the future. Thus, the data gathered will enable evidence-based treatment options in the present, also building a powerful research repository for the future, enabling further discoveries to flow from the trial.

The program is free to children who meet the clinical trial enrolment criteria and enrolment is through their treating oncologist. The trial is sponsored by the Australian and New Zealand Children's Haematology/Oncology Group (ANZCHOG).

About Zero Childhood Cancer

The Zero Childhood Cancer Program is a national initiative of Children's Cancer Institute and The Sydney Children's Hospitals Network. The Program is led by scientists and clinicians from Children's Cancer Institute and the Kid's Cancer Centre, Sydney Children's Hospital, Randwick and is one of the most exciting childhood cancer research initiatives ever undertaken in Australia, to tackle the most serious cases of infant, childhood and adolescent cancer. Participating hospitals and research centres include:

NSW – Children's Cancer Institute

NSW – Sydney Children's Hospital, Randwick

NSW – The Children's Hospital at Westmead

NSW – John Hunter Children's Hospital

NSW – Children's Medical Research Institute

NSW – Kids Research Institute, Westmead

NSW – Kinghorn Centre for Clinical Genomics, Garvan Institute of Medical Research

NSW – Prince of Wales Hospital – Hereditary Cancer Clinic

NSW – NSW Health Pathology, Prince of Wales Hospital

QLD – Lady Cilento Children's Hospital, Brisbane

QLD – The University of Queensland Diamantina Institute, Brisbane

SA – Women's and Children's Hospital, Adelaide

SA – South Australian Health and Medical Research Institute, Adelaide

SA – Centre for Cancer Biology, Adelaide





VIC – Royal Children’s Hospital, Melbourne

VIC – Monash Children’s Hospital, Clayton

VIC – Peter MacCallum Cancer Institute, Melbourne

VIC – Murdoch Children’s Research Institute, Melbourne

WA – The Perth Children’s Hospital, Perth

WA – Telethon Kids Cancer Centre, Telethon Kids Institute, Perth

GERMANY - DKFZ (German Cancer Research Centre), Heidelberg

NETHERLANDS – Princess Maxima Centre, Utrecht

FRANCE – Curie Institute, Paris

USA – Children’s Hospital of Philadelphia, Philadelphia

USA – St Jude’s Children’s Research Hospital, Memphis

USA – University of California, San Francisco

For more information, visit www.zerochildhoodcancer.org.au

Children’s Cancer Institute

Originally founded by two fathers of children with cancer in 1976, Children’s Cancer Institute is the only independent medical research institute in Australia wholly dedicated to research into the causes, prevention and cure of childhood cancer. Forty years on, our vision is to save the lives of all children with cancer and improve their long-term health, through research. The Institute has grown to now employ more than 250 researchers, operational staff and students, and has established a national and international reputation for scientific excellence. Our focus is on translational research, and we have an integrated team of laboratory researchers and clinician scientists who work together in partnership to discover new treatments which can be progressed from the lab bench to the beds of children on wards in our hospitals as quickly as possible. These new treatments are specifically targeting childhood cancers, so we can develop safer and more effective drugs and drug combinations that will minimise side-effects and ultimately give children with cancer the best chance of a cure with the highest possible quality of life. More at www.ccia.org.au

Kids Cancer Centre

The Kids Cancer Centre (KCC) at Sydney Children’s Hospital, Randwick has been treating children with cancer and blood diseases in NSW, Australia and the Asia-Pacific region for





nearly 50 years. Almost two thirds of children treated for cancer or leukaemia at the Centre are enrolled on clinical trials, in a unique model where research and clinical care are one, aimed at ensuring the best possible care for children and their families. During that time the survival rates for children with cancer have gone from 10 per cent to nearly 80 per cent. Clinical and research staff from the Centre have made major international and national contributions to the expansion of knowledge in the area: from important discoveries around bone marrow transplantation, chemotherapy for relapsed solid tumours and leukaemia, to the invention of novel anti-cancer drug combinations and minimal residual disease (MRD) testing in ALL. Centre staff have been leaders in devising new methods of outreach and home nursing, and in developing modern approaches to the bereaved family. These achievements have been founded on academic excellence and clinical expertise. In the past five years alone, Centre staff have published over 200 papers in peer-reviewed medical and scientific journals, and have been awarded more than \$60 million in competitive grant funding. Over the past 20 years a total of eight clinical staff have received Order of Australia honours for their work <http://www.kids-cancer.org/>

Sydney Children's Hospital, Randwick

Each year, Sydney Children's Hospital, Randwick cares for more than 69,000 seriously ill and injured children from across NSW, Australia and beyond in a family-centred, multidisciplinary, expert environment. Sydney Children's Hospital, Randwick is one the country's leading centres in paediatric clinical and research excellence and is part of The Sydney Children's Hospitals Network (SCHN), the largest network of hospital and services for children in Australia. For more information visit www.schn.health.nsw.gov.au

Zero Childhood Cancer Program Funding Partners:

Sydney Children's Hospital Foundation

Sydney Children's Hospitals Foundation has a vision to ensure that every child - now and in the future - can access world-class medical care whenever they need it.

We support The Sydney Children's Hospitals Network, which incorporates Sydney Children's Hospital, Randwick, The Children's Hospital at Westmead, Bear Cottage, the Newborn and Paediatric Emergency Transport Service, Kids Research and other vital children's services.

The Foundation funds the vital clinical care that children need today, so they have the best possible treatment and Hospital experience. We also invest in ground-breaking research that will help create a bright future for generations to come.

Established in 1986, the Foundation has contributed more than \$130 million over 30 plus years to support sick children and their families. For more information visit www.schf.org.au





ACRF

The Australian Cancer Research Foundation (ACRF) is a charity dedicated funding the best cancer research initiatives across Australia that focus on effective prevention, detection and treatment. ACRF funds are used to purchase essential equipment and provide state-of-the-art technologies that speed up the discovery process – ultimately working to save lives by saving time <https://acrf.com.au/>

Cure Brain Cancer Foundation

Cure Brain Cancer is the largest dedicated funder of brain cancer research in Australia. Their mission is to increase five-year survival from the current 20% to 50% by 2023. Partnering with the research community, they are steering the national agenda – and influencing the global agenda – for brain cancer research <http://www.curebraincancer.org.au/>

The Kids' Cancer Project

The Kids' Cancer Project is a leading Australian charity dedicated to funding medical research to find a cure for children's cancer. Col Reynolds founded the independent charity in 1993 when he learned research was the only way to help end the pain and suffering children and their family's experience. Today the charity is one of the largest funders of childhood cancer research in Australia and works together with families, the community, government, corporate, researchers and clinicians to help find the cure <https://www.thekidscancerproject.org.au/>

The Charles Warman Foundation

The Charles Warman Foundation is a philanthropic family foundation.

CTx

Cancer Therapeutics CRC (CTx) is in the business of finding cures for cancer. It is a collaborative partnership of leading Research Institutes, Universities and biotechnology companies that is solely focussed on translating Australia's innovative research discoveries into new cancer drugs ready for clinical development. The company's research and development capabilities span the full range of technologies and expertise required to discover novel small molecule cancer drugs and develop them to the clinical candidate stage <https://www.cancercrc.com/>

Australian Government Department of Health

The Department of Health is committed to achieving better health and wellbeing for all Australians, now and for future generations. For more information visit, www.health.gov.au





NSW Health

NSW Health works to provide the people of NSW with the best possible health care that not only meets today's health needs but also responds to the health needs of the future. For more information visit, www.health.nsw.gov.au

UNSW Sydney

At UNSW, we take pride in the broad range and high quality of our teaching programs. Our teaching gains strength and currency from our research activities, strong industry links and our international nature; UNSW has a strong regional and global engagement. In developing new ideas and promoting lasting knowledge we are creating an academic environment where outstanding students and scholars from around the world can be inspired to excel in their programs of study and research. Partnerships with both local and global communities allow UNSW to share knowledge, debate and research outcomes. UNSW Sydney (The University of New South Wales), is one of Australia's leading research and teaching universities. For more information visit www.unsw.edu.au

Lenity Australia

Lenity Australia is an independent, not-for-profit, registered charity that provides additional financial support to established projects. Lenity Australia is supporting the Zero Childhood Cancer program through their association with The Sydney Children's Hospital Foundation www.lenityaustralia.com

Lions Clubs of Australia

The Lions Clubs of Australia have a decades-long history in supporting research in childhood cancer. In 2009, the Clubs formed the Australian Lions Children's Cancer Research Foundation (ALCCRF) to focus the efforts of Lions Australia's 1400 clubs into one foundation with the vision of achieving 100% survival for kids with cancer. ALCCRF has developed an ethos of 'donors without borders' – an approach to bringing together diverse individuals, institutions and states to unite behind a common goal of eliminating deaths from childhood cancer. <http://lionsclubs.org.au/>

The Lions Genome Power Project

The Lions Kids Cancer Genome Project (Genome Power), funded by the Lions Clubs International Foundation and the Australian Lions Childhood Cancer Research Foundation, is bringing whole genome sequencing and informatics capability at the Kinghorn Centre for Clinical Genomics (Garvan Institute of Medical Research) to all children with high risk cancer participating in the Zero Childhood Cancer program.





Robert Connor Dawes Foundation

Inspired by a big heart and brain, the RCD Foundation was created in June 2013 in the memory of Robert 'Connor' Dawes. Who, at just 18 years of age, lost his 16-month battle with brain cancer. Now, the foundation works tirelessly to support brain projects in the areas of research, care and development – to fund the science to end brain cancer and support patients.

www.rcdfoundation.org

Tour De Cure

Tour De Cure raise vital funds to support the doctors and scientists who have dedicated their lives to uncovering a cure for cancer. They pride themselves on their ability to work with others to achieve their mission. They fund the boldest research, the most talented scientists and the world-class cancer projects that they believe will have the biggest impact

<https://tourdecure.com.au>

