Facilitating access to novel and highly specialised treatments

KIDS CANCER CENTRE
SYDNEY CHILDREN'S HOSPITAL
RANDWICK

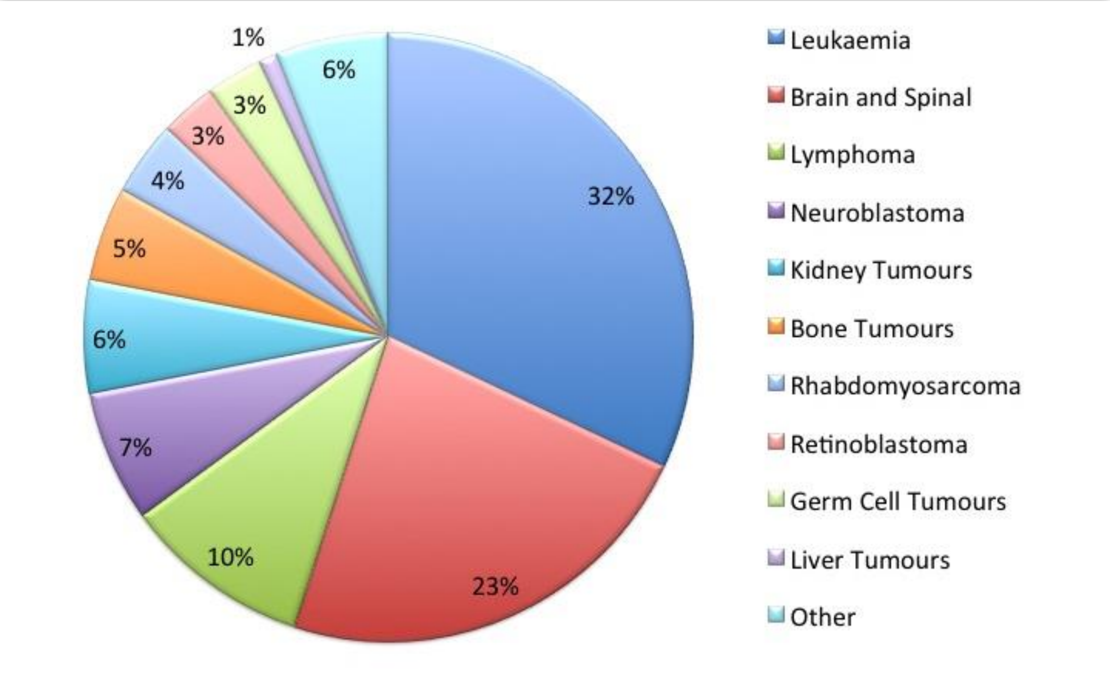
Dr Richard Mitchell

Director, Kids Cancer Centre SCH

ACCN Innovations Showcase 21st May 2024

Paediatric cancer

- 1000 patients/ year in Australia
- Different pathology to adult disease
- Most treatment led by med onc
- Relevance to wider audience?

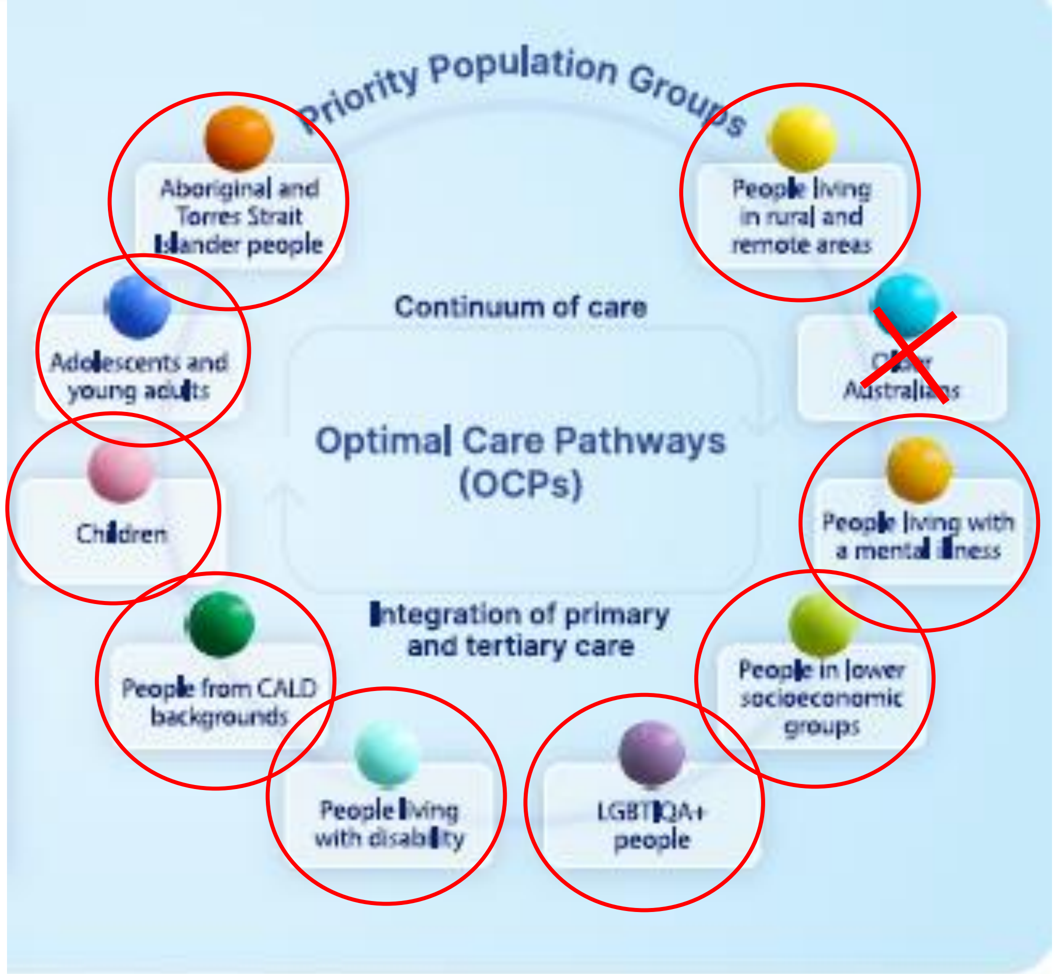


Australian Cancer Plan

SUMMARY

Australian Government
Cancer Australia

Australian Cancer Plan – Priority populations



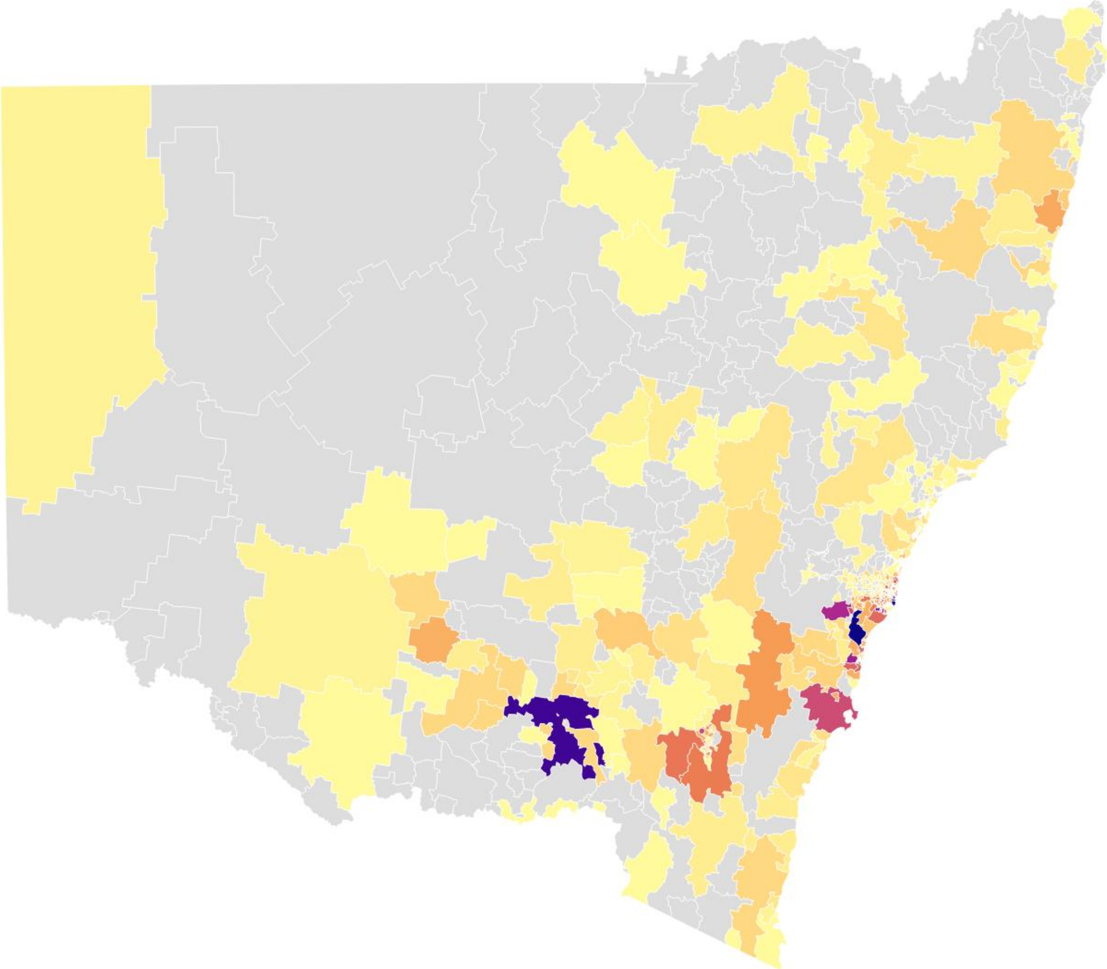
Patients in rural and remote areas

- 9 tertiary centres across Australia
- Highly specialised workforce
- Need to ensure equity of access
- Each state has various capabilities

KCC outreach program

- Principles of program
  - Increase skills of local providers
  - Multidisciplinary outreach clinics
  - Deliver therapy in local hospital where safe to do so

- Lead hospitals identified in each LHD
- Education F2F and virtual
- Currently 44 clinics per annum

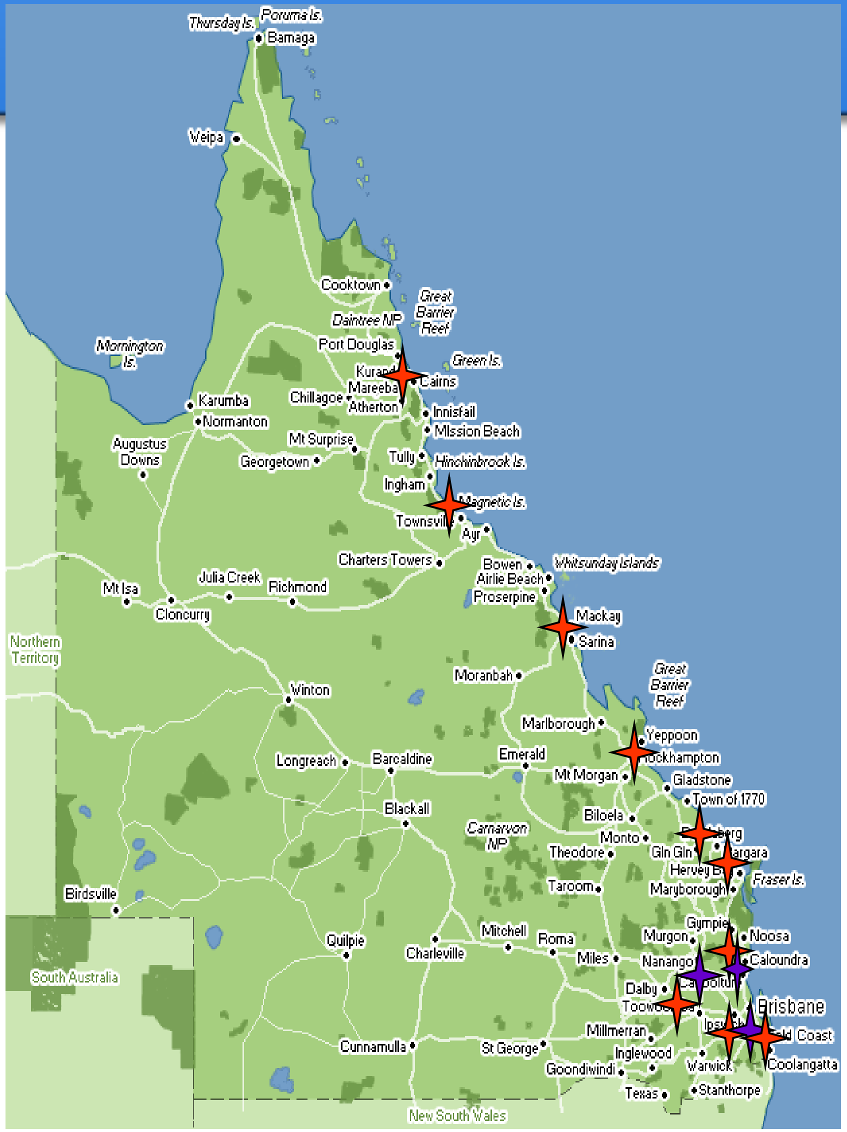


Queensland Paediatric Palliative care Haematology and Oncology Network (QPPHON)

- 10 Regional centres supported by oncology unit at QCH
- 4 metropolitan units under service development

- Regional centre has:
  - Lead paediatrician
  - Regional case manager
  - Local allied health

- QPPHON is subnetwork of Statewide Child and Youth Network
  - Links with Statewide Cancer Network



The Victorian PICS Regional Outreach Shared Care Program.

The program is a nurse-led (1.4 FTE) model, managed by PICS, supported by Sporting Chance.

1. One in three families treated for cancer at the RCH are from regional Victoria.
2. The program facilitates a formal service agreement with nine regional health services.
3. The service agreement is informed by the statewide PICS Service Capability Framework
4. There is a defined scope of practice, including chemo, supportive care and surveillance reviews.
5. PICS facilitates care coordination, governance, 22 outreach clinics and onsite education.

Monash Children's Hospital

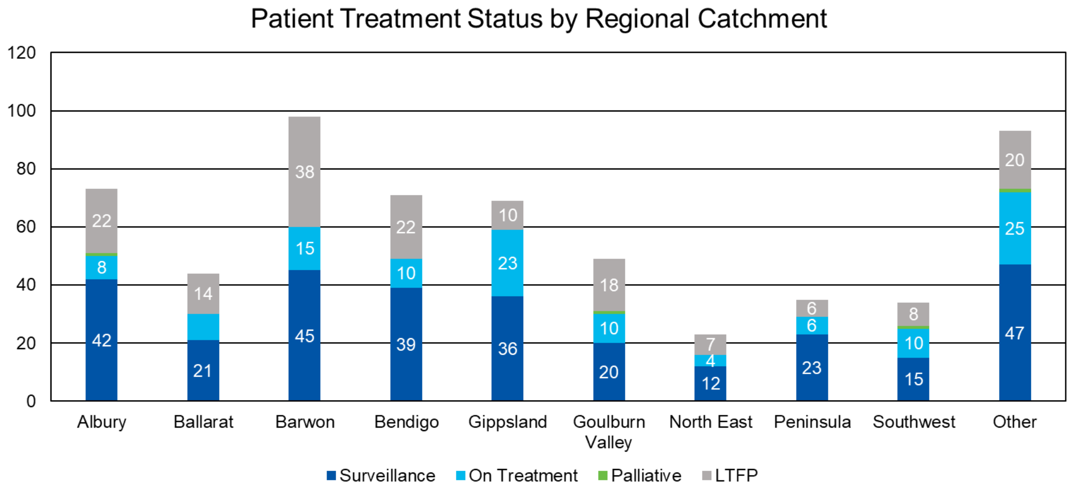
The Royal Children's Hospital Melbourne

TERTIARY REFERRAL CENTRES FOR PAEDIATRIC AND ADOLESCENT CANCER CARE

VICS PAEDIATRIC INTEGRATED CANCER SERVICE facilitation of shared care closer to home.

FORMAL HEALTH SERVICE PARTNERS IN VICTORIA

Northeast Health Wangaratta · Barwon Health · Bendigo Health · Grampians Health Ballarat · Latrobe Regional Hospital · Peninsula Health · South West Healthcare · Albury Wodonga Health · GV Health



ACP Strategic objectives

- Strategic objective 3: World class health systems for optimal care
  - 3.2.2 Develop a national framework for networked, distributed comprehensive cancer care, to facilitate provision of services as close as safely possible to where patients live

- Strategic objective 5: Workforce to transform the delivery of cancer care
  - 5.2.2 Build on existing capability of the primary care workforce to collaboratively and sustainably support the needs of consumers

ZERO Childhood Cancer Program

- National personalised medicine research platform available to every child with cancer in Australia
- Principle: diagnostic platform that better informs treatment
- Funded by MRFF and philanthropy
  - 2020-2025; $67 million

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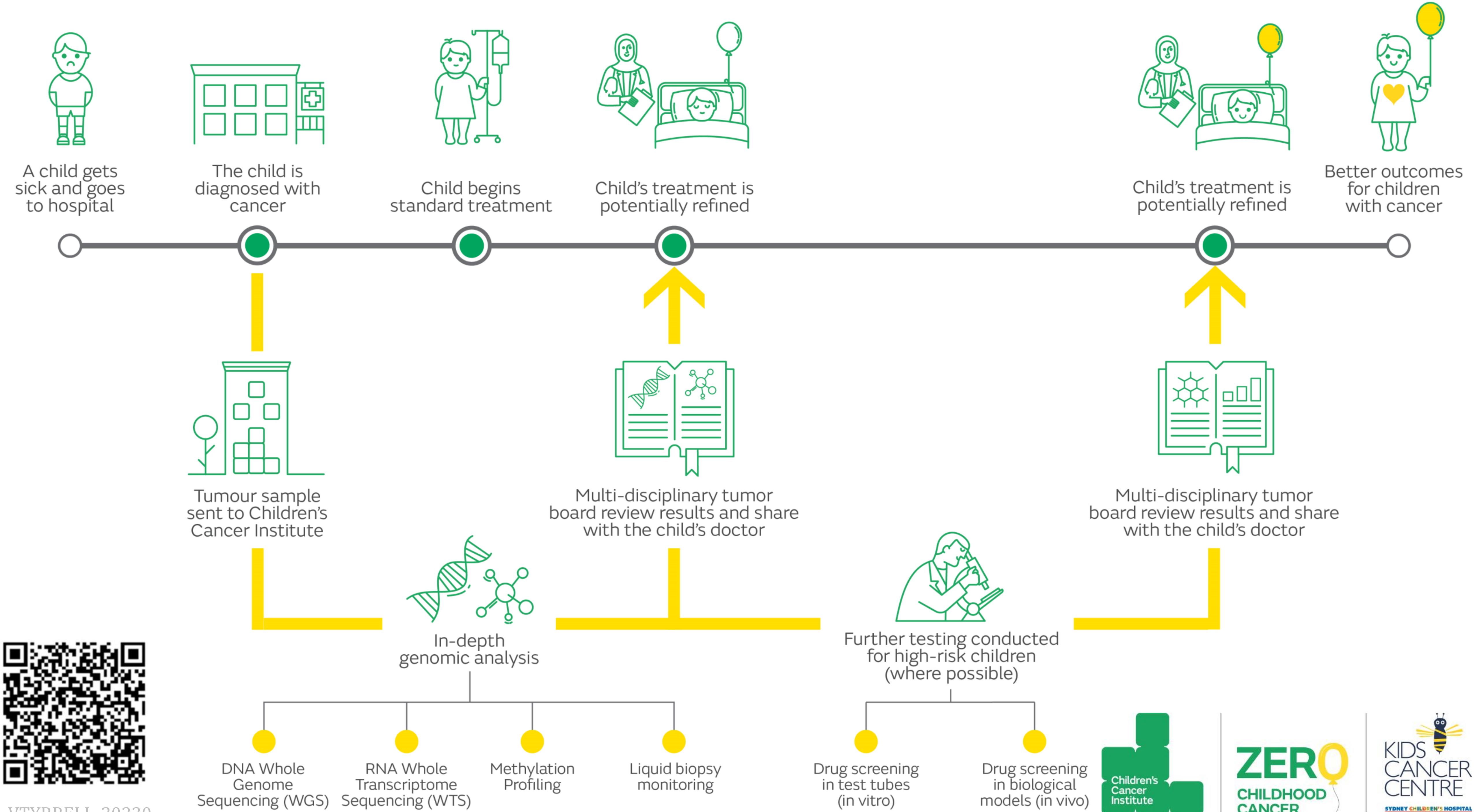

A child gets sick and goes to hospital

The child is diagnosed with cancer

Child begins standard treatment

Child's treatment is potentially refined

Child's treatment is potentially refined

Better outcomes for children with cancer

Tumour sample sent to Children's Cancer Institute

In-depth genomic analysis

- DNA Whole Genome Sequencing (WGS)
- RNA Whole Transcriptome Sequencing (WTS)
- Methylation Profiling
- Liquid biopsy monitoring

Multi-disciplinary tumor board review results and share with the child's doctor

Further testing conducted for high-risk children (where possible)

- Drug screening in test tubes (in vitro)
- Drug screening in biological models (in vivo)

Multi-disciplinary tumor board review results and share with the child's doctor

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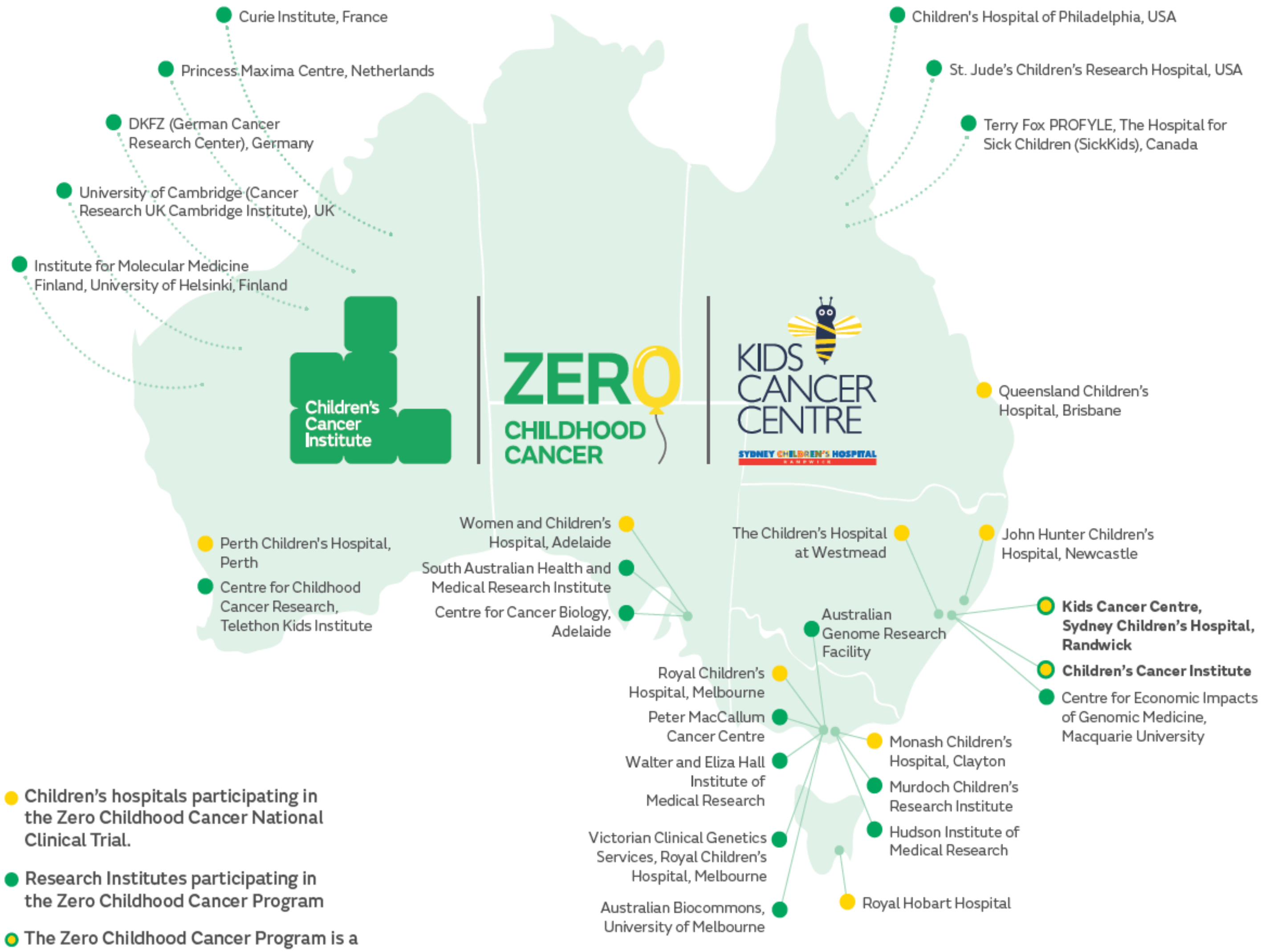
ZERO program collaborators



● Curie Institute, France

● Princess Maxima Centre, Netherlands

● DKFZ (German Cancer Research Center), Germany

● University of Cambridge (Cancer Research UK Cambridge Institute), UK

● Institute for Molecular Medicine Finland, University of Helsinki, Finland

● Children's Hospital of Philadelphia, USA

● St. Jude's Children's Research Hospital, USA

● Terry Fox PROFYLE, The Hospital for Sick Children (SickKids), Canada

● Queensland Children's Hospital, Brisbane

● Perth Children's Hospital, Perth

● Centre for Childhood Cancer Research, Telethon Kids Institute

● Women and Children's Hospital, Adelaide

● South Australian Health and Medical Research Institute

● Centre for Cancer Biology, Adelaide

● The Children's Hospital at Westmead

● John Hunter Children's Hospital, Newcastle

● Australian Genome Research Facility

◉ **Kids Cancer Centre, Sydney Children's Hospital, Randwick**

◉ **Children's Cancer Institute**

● Centre for Economic Impacts of Genomic Medicine, Macquarie University

● Royal Children's Hospital, Melbourne

● Peter MacCallum Cancer Centre

● Walter and Eliza Hall Institute of Medical Research

● Victorian Clinical Genetics Services, Royal Children's Hospital, Melbourne

● Australian Biocommons, University of Melbourne

● Monash Children's Hospital, Clayton

● Murdoch Children's Research Institute

● Hudson Institute of Medical Research

● Royal Hobart Hospital

● Children's hospitals participating in the Zero Childhood Cancer National Clinical Trial.

● Research Institutes participating in the Zero Childhood Cancer Program

◉ The Zero Childhood Cancer Program is a joint initiative of Children's Cancer Institute and the Kids Cancer Centre at Sydney Children's Hospital, Randwick.

Molecular tumour board

- Weekly virtual meeting
- Clinicians, researchers, trainees, and ZERO team
- Patient reports presented and discussed, including potential treatment options

Enrolment to date

>1600
children

CLINICAL DATA
TARGET,
PRISM,
ZERO2

Cancer
diagnosis/prognosis
clinical information

GENOMIC DATA
WGS
RNAseq
methylation
>130M
variants
analysed

Genetic variants
>2500 genetic
variants
identified

BIOLOGICAL MODEL DATA

PDX	HTS	Drugs
>200 cancer models established	*>160 curated drug screens*	*Up to 150 drugs*

BIOSPECIMENS
>2300 tumour samples
>1100 germline samples

Public annotation

Integration API

Published data
EUROPEAN
GENOME-PHENOME
ARCHIVE

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Increasing genomic infrastructure

- Tumour specific pipelines, customised software platforms
- Supporting large scale genomic precision medicine nationally
- Over 1000 patient data sets
  - ~1 pentabyte of data

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Integrated research programs

Target identification

- Functional Genomics
- Cancer Predisposition

Matching target to treatments

- Preclinical Testing
- Immunoprofiling
- Liquid biopsy

More treatment options

- New genomically guided clinical trials
- Drug access taskforce
- PrOSPeCT (Omico)

Preparing the health system

- Psychosocial sciences
- Health economics
- Health implementation
- Public health, Ethics, Legal

Cancer prevention in children

- Germline analysis for cancer predisposition syndromes

- Current rate of CPS estimated 16%
  - 3 times previous literature
  - Prevalence of adult cancer genes being found in children

- ZERO funding genetic counsellors at every Australian site

- Planning for national registry for children with CPS

Training the next generation

MORE

Molecular Oncology Education and Research Group

- Biennial workshop
- 3 monthly virtual education

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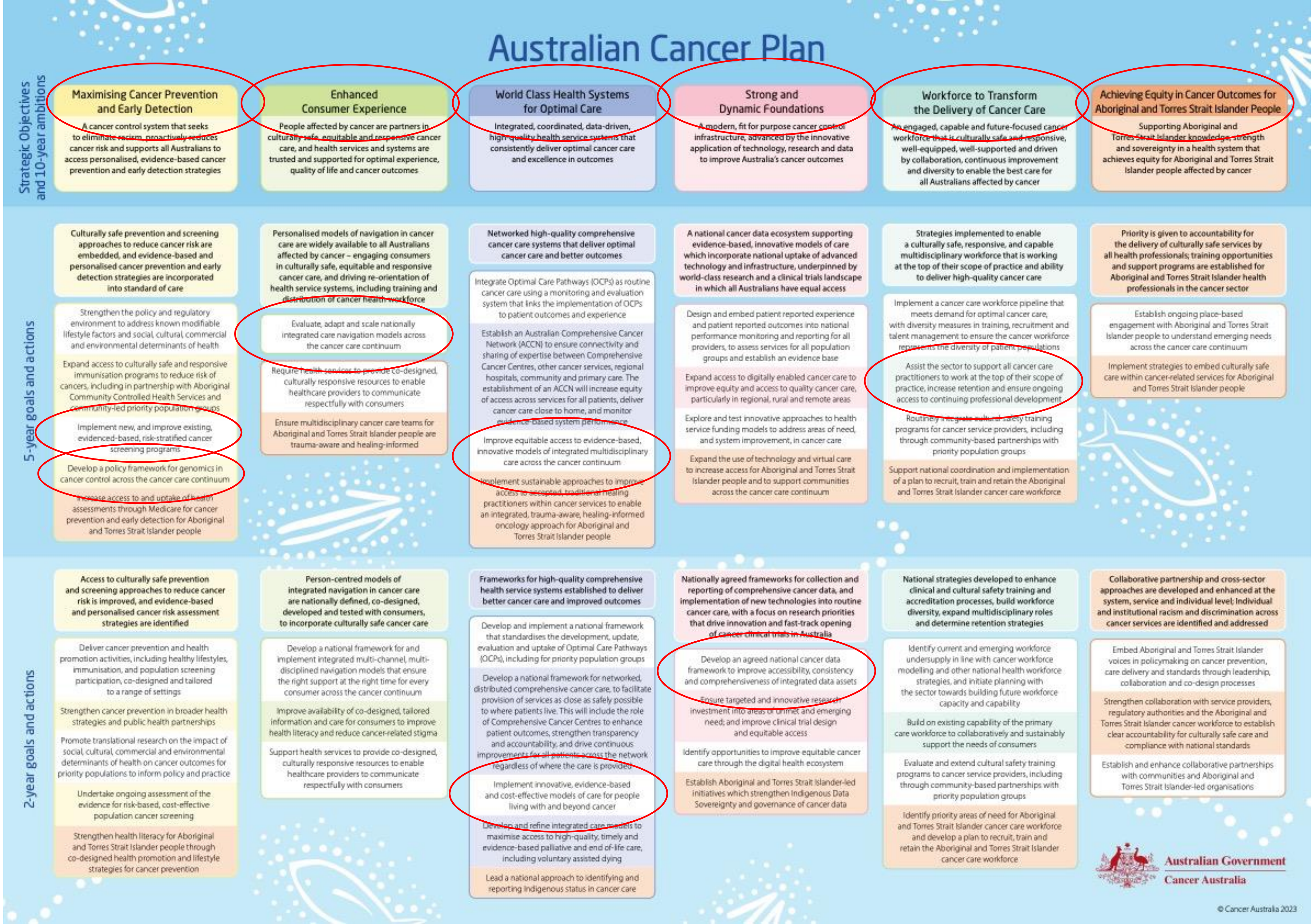


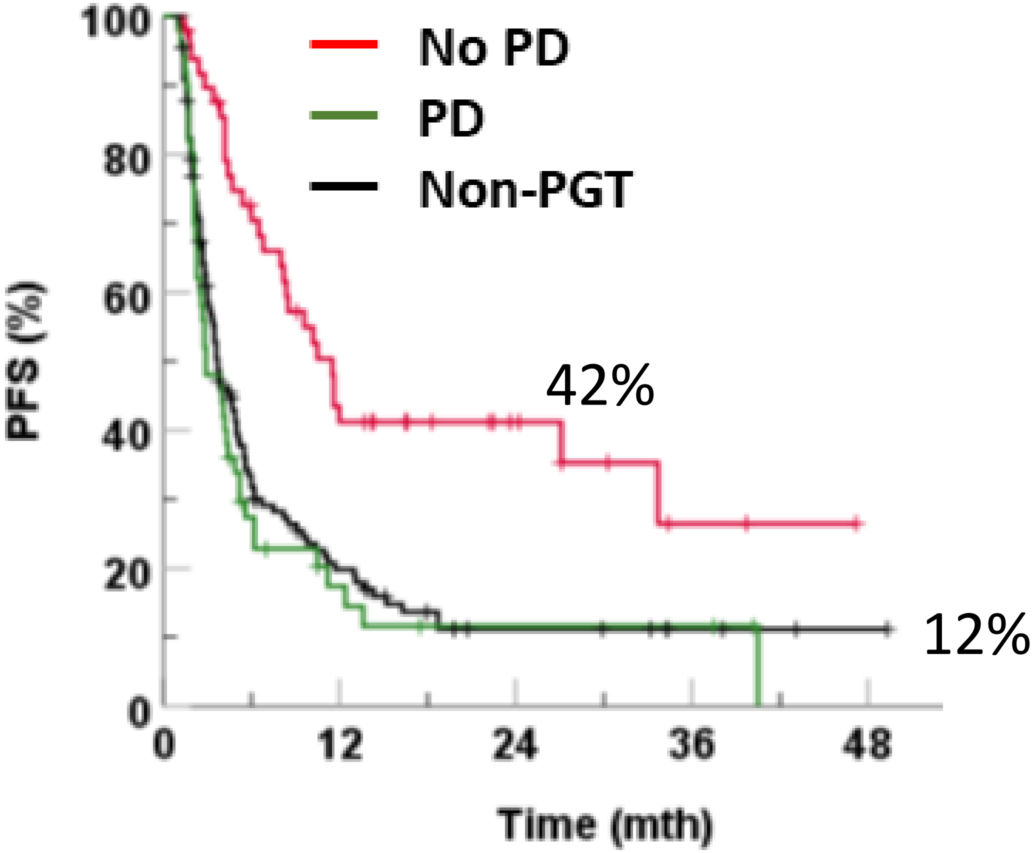
Australian Cancer Plan

	Maximising Cancer Prevention and Early Detection	Enhanced Consumer Experience	World Class Health Systems for Optimal Care	Strong and Dynamic Foundations	Workforce to Transform the Delivery of Cancer Care	Achieving Equity in Cancer Outcomes for Aboriginal and Torres Strait Islander People
Strategic Objectives and 10-year ambitions	A cancer control system that seeks to eliminate racism, proactively reduces cancer risk and supports all Australians to access personalised, evidence-based cancer prevention and early detection strategies	People affected by cancer are partners in culturally safe, equitable and responsive cancer care, and health services and systems are trusted and supported for optimal experience, quality of life and cancer outcomes	Integrated, coordinated, data-driven, high-quality health service systems that consistently deliver optimal cancer care and excellence in outcomes	A modern, fit for purpose cancer control infrastructure, advanced by the innovative application of technology, research and data to improve Australia's cancer outcomes	An engaged, capable and future-focused cancer workforce that is culturally safe and responsive, well-equipped, well-supported and driven by collaboration, continuous improvement and diversity to enable the best care for all Australians affected by cancer	Supporting Aboriginal and Torres Strait Islander knowledge, strength and sovereignty in a health system that achieves equity for Aboriginal and Torres Strait Islander people affected by cancer
5-year goals and actions	**Culturally safe prevention and screening approaches to reduce cancer risk are embedded, and evidence-based and personalised cancer prevention and early detection strategies are incorporated into standard of care** Strengthen the policy and regulatory environment to address known modifiable lifestyle factors and social, cultural, commercial and environmental determinants of health Expand access to culturally safe and responsive immunisation programs to reduce risk of cancers, including in partnership with Aboriginal Community Controlled Health Services and community-led priority population groups Implement new, and improve existing, evidenced-based, risk-stratified cancer screening programs Develop a policy framework for genomics in cancer control across the cancer care continuum Increase access to and uptake of health assessments through Medicare for cancer prevention and early detection for Aboriginal and Torres Strait Islander people	**Personalised models of navigation in cancer care are widely available to all Australians affected by cancer – engaging consumers in culturally safe, equitable and responsive cancer care, and driving re-orientation of health service systems, including training and distribution of cancer health workforce** Evaluate, adapt and scale nationally integrated care navigation models across the cancer care continuum Require health services to provide co-designed, culturally responsive resources to enable healthcare providers to communicate respectfully with consumers Ensure multidisciplinary cancer care teams for Aboriginal and Torres Strait Islander people are trauma-aware and healing-informed	**Networked high-quality comprehensive cancer care systems that deliver optimal cancer care and better outcomes** Integrate Optimal Care Pathways (OCPs) as routine cancer care using a monitoring and evaluation system that links the implementation of OCPs to patient outcomes and experience Establish an Australian Comprehensive Cancer Network (ACCN) to ensure connectivity and sharing of expertise between Comprehensive Cancer Centres, other cancer services, regional hospitals, community and primary care. The establishment of an ACCN will increase equity of access across services for all patients, deliver cancer care close to home, and monitor evidence-based system performance Improve equitable access to evidence-based, innovative models of integrated multidisciplinary care across the cancer continuum Implement sustainable approaches to improve access to accepted, traditional healing practitioners within cancer services to enable an integrated, trauma-aware, healing-informed oncology approach for Aboriginal and Torres Strait Islander people	**A national cancer data ecosystem supporting evidence-based, innovative models of care which incorporate national uptake of advanced technology and infrastructure, underpinned by world-class research and a clinical trials landscape in which all Australians have equal access** Design and embed patient reported experience and patient reported outcomes into national performance monitoring and reporting for all providers, to assess services for all population groups and establish an evidence base Expand access to digitally enabled cancer care to improve equity and access to quality cancer care, particularly in regional, rural and remote areas Explore and test innovative approaches to health service funding models to address areas of need, and system improvement, in cancer care Expand the use of technology and virtual care to increase access for Aboriginal and Torres Strait Islander people and to support communities across the cancer care continuum	**Strategies implemented to enable a culturally safe, responsive, and capable multidisciplinary workforce that is working at the top of their scope of practice and ability to deliver high-quality cancer care** Implement a cancer care workforce pipeline that meets demand for optimal cancer care, with diversity measures in training, recruitment and talent management to ensure the cancer workforce represents the diversity of patient populations Assist the sector to support all cancer care practitioners to work at the top of their scope of practice, increase retention and ensure ongoing access to continuing professional development Routinely integrate cultural safety training programs for cancer service providers, including through community-based partnerships with priority population groups Support national coordination and implementation of a plan to recruit, train and retain the Aboriginal and Torres Strait Islander cancer care workforce	**Priority is given to accountability for the delivery of culturally safe services by all health professionals; training opportunities and support programs are established for Aboriginal and Torres Strait Islander health professionals in the cancer sector** Establish ongoing place-based engagement with Aboriginal and Torres Strait Islander people to understand emerging needs across the cancer care continuum Implement strategies to embed culturally safe care within cancer-related services for Aboriginal and Torres Strait Islander people
2-year goals and actions	**Access to culturally safe prevention and screening approaches to reduce cancer risk is improved, and evidence-based and personalised cancer risk assessment strategies are identified** Deliver cancer prevention and health promotion activities, including healthy lifestyles, immunisation, and population screening participation, co-designed and tailored to a range of settings Strengthen cancer prevention in broader health strategies and public health partnerships Promote translational research on the impact of social, cultural, commercial and environmental determinants of health on cancer outcomes for priority populations to inform policy and practice Undertake ongoing assessment of the evidence for risk-based, cost-effective population cancer screening Strengthen health literacy for Aboriginal and Torres Strait Islander people through co-designed health promotion and lifestyle strategies for cancer prevention	**Person-centred models of integrated navigation in cancer care are nationally defined, co-designed, developed and tested with consumers, to incorporate culturally safe cancer care** Develop a national framework for and implement integrated multi-channel, multi-disciplined navigation models that ensure the right support at the right time for every consumer across the cancer continuum Improve availability of co-designed, tailored information and care for consumers to improve health literacy and reduce cancer-related stigma Support health services to provide co-designed, culturally responsive resources to enable healthcare providers to communicate respectfully with consumers	**Frameworks for high-quality comprehensive health service systems established to deliver better cancer care and improved outcomes** Develop and implement a national framework that standardises the development, update, evaluation and uptake of Optimal Care Pathways (OCPs), including for priority population groups Develop a national framework for networked, distributed comprehensive cancer care, to facilitate provision of services as close as safely possible to where patients live. This will include the role of Comprehensive Cancer Centres to enhance patient outcomes, strengthen transparency and accountability, and drive continuous improvements for all patients across the network regardless of where the care is provided Implement innovative, evidence-based and cost-effective models of care for people living with and beyond cancer Develop and refine integrated care models to maximise access to high-quality, timely and evidence-based palliative and end of-life care, including voluntary assisted dying Lead a national approach to identifying and reporting Indigenous status in cancer care	**Nationally agreed frameworks for collection and reporting of comprehensive cancer data, and implementation of new technologies into routine cancer care, with a focus on research priorities that drive innovation and fast-track opening of cancer clinical trials in Australia** Develop an agreed national cancer data framework to improve accessibility, consistency and comprehensiveness of integrated data assets Ensure targeted and innovative research investment into areas of unmet and emerging need; and improve clinical trial design and equitable access Identify opportunities to improve equitable cancer care through the digital health ecosystem Establish Aboriginal and Torres Strait Islander-led initiatives which strengthen Indigenous Data Sovereignty and governance of cancer data	**National strategies developed to enhance clinical and cultural safety training and accreditation processes, build workforce diversity, expand multidisciplinary roles and determine retention strategies** Identify current and emerging workforce undersupply in line with cancer workforce modelling and other national health workforce strategies, and initiate planning with the sector towards building future workforce capacity and capability Build on existing capability of the primary care workforce to collaboratively and sustainably support the needs of consumers Evaluate and extend cultural safety training programs to cancer service providers, including through community-based partnerships with priority population groups Identify priority areas of need for Aboriginal and Torres Strait Islander cancer care workforce and develop a plan to recruit, train and retain the Aboriginal and Torres Strait Islander cancer care workforce	**Collaborative partnership and cross-sector approaches are developed and enhanced at the system, service and individual level; Individual and institutional racism and discrimination across cancer services are identified and addressed** Embed Aboriginal and Torres Strait Islander voices in policymaking on cancer prevention, care delivery and standards through leadership, collaboration and co-design processes Strengthen collaboration with service providers, regulatory authorities and the Aboriginal and Torres Strait Islander cancer workforce to establish clear accountability for culturally safe care and compliance with national standards Establish and enhance collaborative partnerships with communities and Aboriginal and Torres Strait Islander-led organisations

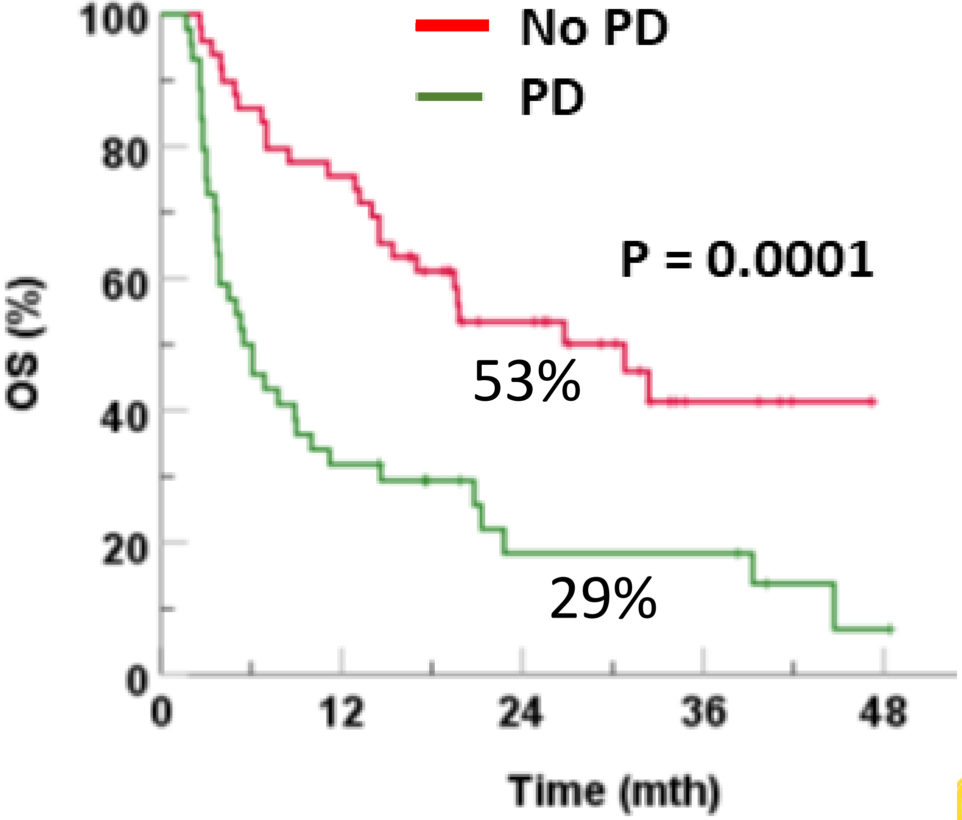
Australian Government
Cancer Australia

Improving outcomes

2 year Progression Free Survival



2 year Overall Survival



Lau et al Nat Med 2024

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Future challenges

- Determine who needs what testing
- Continuous improvement of the platform
- Integration into the health system
- Sustainable funding model

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QCH, QLD: Wayne Nichols, **Steve Foresto**, Andrew Moore
Monash, Vic: Paul Wood, **Peter Downie**
JHCH, Newcastle NSW : **Frank Alvaro**
PCH, WA: **Nick Gottardo**, Rishi Kotecha
RCH, Vic: David Eisenstat, Rachel Conyers, Dong Anh Khuong Quang**, Kanika Bhatia**
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Australian Government
Department of Health

Medical Research
Future Fund

MINDEROO FOUNDATION

Cure Brain Cancer FOUNDATION
Many minds, one purpose

THE KIDS' CANCER PROJECT

Tour de Cure

RIDING TO CURE CANCER

LUMINESCE Alliance
Innovation for Children's Health

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AUSTRALIAN CANCER RESEARCH FOUNDATION

J Farren-Price
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FINEST WATCHES AND JEWELLERY • SINCE 1942

CHILDREN'S CANCER FOUNDATION

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Australian & New Zealand Childrens Haematology/Oncology Group

Australian Brain Cancer Mission

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SCHF Sydney Children's Hospitals Foundation

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