Melbourne Genomics
Health Alliance

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Clinical utility of genomics in management of advanced solid cancers

Background

Melbourne Genomics' Clinical Flagships have been at the forefront of determining when genomic testing makes a demonstrable difference to the safety and quality of patient care. The Advanced Solid Cancers Flagship is one of 16 clinical projects conducted by Melbourne Genomics.

Tremendous insight has been gained into cancer in recent decades by investigating how genetic changes in cells drive tumour growth. Detailed understanding of an individual's cancer is now providing the opportunity to apply treatments targeted to specific gene changes.

Genomic sequencing in advanced solid cancers may lead to more accurate diagnosis and personalised treatments.

Project description

The objective: to determine if the use of genomic testing[1] is possible within the current infrastructure of the cancer care system in Victoria, and if it can improve clinical care.

Patients from five metropolitan hospitals in Victoria were involved. Archival tumour tissue and a new blood sample were collected upon patient enrolment into the Flagship.

Matched tumour-normal samples were tested, analysed and reviewed by a panel of experts including oncologists, molecular pathologists, genomic scientists, bioinformaticians and geneticists.

The Advanced Solid Cancers Flagship[2] was led by Dr Jayesh Desai and Professor Stephen Fox from the Peter MacCallum Cancer Centre and The Royal Melbourne Hospital, with key coordination from Dr Kortnye Smith of the Peter MacCallum Cancer Centre. The Flagship involved at least 19 healthcare and research professionals in Victoria.

Activities, outcomes and lessons learnt

Findings from this project will be made available following publication of results.

Impact

Multidisciplinary variant review meetings introduced for this Flagship have now become integrated into testing conducted for clinical care and clinical research at the Peter MacCallum laboratory.

[1] The Flagship team used a comprehensive cancer panel (~400 genes) for testing patients with solid cancers.
[2] This Flagship was a joint endeavour between Melbourne Genomics and the aligned national initiative, Australian Genomics. This summary presents findings from the Flagship's Victorian patients.

Clinical Flagship team

Name	Organisation	Role
Jayesh Desai	PeterMac/RMH	Medical oncologist
Stephen Fox	PeterMac	Pathologist
Kortnye Smith	PeterMac	Medical oncology fellow
Andrew Fellowes	PeterMac	Chief Scientist, Molecular Pathology
Andrew Schmidt	Austin Health	Medical oncologist
Andrew Weickhardt	Austin Health	Medical oncologist
Ben Markman	Monash Health	Medical oncologist
Ben Solomon	PeterMac	Medical oncologist
Ben Tran	PeterMac	Medical oncologist
Carmel Murone	Austin Health	Site coordinator
Clare Scott	PeterMac	Medical oncologist
Damien Kee	PeterMac/RMH	Medical oncologist
Dong Anh Khuong Quang	RCH	Medical oncology fellow
Grant McArthur	PeterMac	Medical oncologist
Hui Gan	Austin Health	Medical oncologist
Lindsay Thompson	Monash Health	Site coordinator
Paul Ekert	MCRI	Paediatrician/Researcher
Rachael Chang	Austin Health	Medical oncologist
Sophie O'Haire (née Beck)	PeterMac	Project manager

To further evaluate genomic testing for paediatric advanced cancer, members of the Flagship and the Melbourne Genomics evaluation team are collaborated with Dr Maria McCarthy – building on an existing research grant from Cancer Australia that she holds exploring decision-making and perceptions of genomics' value in paediatric advanced cancer.

Health economic evaluation for this Flagship was led by Prof Paula Lorgelly, King's College London and Monash University. A discrete choice experiment was conducted in collaboration with James Buchanan, University of Oxford.