



Media Release

Kids with Cancer: Enabling Better Treatment with Big Data Analytics

A Western Sydney University researcher is exploring how genetic data can be used to create tailored treatment options for kids with leukemia.

Dr Quang Vinh Nguyen, from the MARCS Institute for Brain, Behaviour and Development [and Senior Lecturer with the School of Computing, Engineering and Mathematics], is researching how large amounts of genetic data can be analysed to explore and guide better diagnosis and treatment options that are safer, less toxic and more effective for kids with leukemia.

In Australia, more than 650 kids are diagnosed with cancer each year, and around 215,000 children worldwide.

Through advancements in technology and research, Australia now records an 83 per cent survival rate in the first five years post remission.

But Dr Nguyen said we should be aiming higher.

His research explores a unique approach that assesses how genomic and biomedical data is interpreted to determine which cancer patients were likely to respond poorly to a particular treatment and / or relapse.

He said it was intended that new patients who were yet to be treated, could have their genetic and biological information compared to a group of other patients' genetic data to develop a customized treatment plan.

"The human genome is comprised of thousands of genes containing information about individual patients and the biological mechanisms of their diseases," he said.

"By comparing one patient's biological information to a group of others who have already been treated and have a similar biology, we can determine how a new patient might respond to similar treatment and develop a personalized approach to their cancer treatment.

"This research will also allow medical practitioners to make more informed decisions about treatment options overall."

The research is financially supported by the Cancer Institute NSW and Oracle.

This work is one component of a collaborative research study involving researchers at The Children's Hospital at Westmead (lead by Associate Professor Daniel Catchpoole) and The University of Technology Sydney (lead by Associate Professor Paul Kennedy).

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References:

[1] Children's Cancer, Australian Government, <https://childrenscancer.canceraustralia.gov.au/about-childrens-cancer/statistics#reference>

[2] WHO's International Agency for Research on Cancer (IARC), https://www.iarc.fr/en/media-centre/pr/2016/pdfs/pr241_E.pdf

Grants:

Big Data, Big Impact Grant — Stage 2 at Cancer Institute NSW

(<https://www.cancerinstitute.org.au/about-us/events/premiers-research-awards>)

Oracle (<https://blogs.oracle.com/TheOracleBlog/oracle-invests-in-childhood-cancer-research>)