Computing power backs medical mega data needs

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The supercomputer at the Pawsey Centre in Kensington is expected to help medical researchers investigate the human genome in order to tailor medicines and treatments. Credit: Tony Malkovic

An increase in the use and linkage of data has significantly aided disease prevention efforts and an expansion of health-related advancements, according to two of the state's leading medical experts.

Speaking at the Harry Perkins Institute of Medical Research recently UWA Winthrop Professor Nigel Laing and WA Health executive director of Public Health Tarun Weeramanthri revealed the tremendous

influence that having vast amounts of data has on their specific fields of study.

W/Prof Laing, whose work involves finding genetic diseases, spoke about the increasing power of computer technology to process DNA analysis and its ability to reduce the time span of investigations.

"Between 1987 and 2011 we found 15 disease genes in WA," W/Prof Laing says.

"In the last 24 months we've found seven; this is a huge increase in productivity.

"[Next generation DNA sequencing] stops couples having to play genetic roulette.

"Any family who've shown the effective genetic mutation can now be tested and they can find out whether their unborn child is going to have the disease."

Linking data cuts out bias

Professor Weeramanthri says the prospect of linking large amounts of data from a variety of sources is a huge step forward for epidemiologists and has the prospect of reducing bias.

"Using [time and person] variables essentially you can build up a whole lot of important information about disease and risk," Prof Weeramanthri says.

"You need to have some idea about what you're thinking is a risk factor or a determinant of an outcome.

"There is big data inside health, but it sits by itself until you link it up."

WA Chief Scientist Professor Peter Klinken says mega data is "one of the most fundamental tools we will be utilising in the futures."

"The ability to analyse huge amounts of data will be unprecedented in this state and the excitement that I'm getting about this possibility is quite palpable," Prof Klinken says.

"There is a sense of energy, optimism and excitement around the capacity to do mega data analysis at a scale that is almost better then anywhere else in the world.

"This is going to underpin the future of this state...this is going to open up possibilities that we haven't even dreamt of."

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