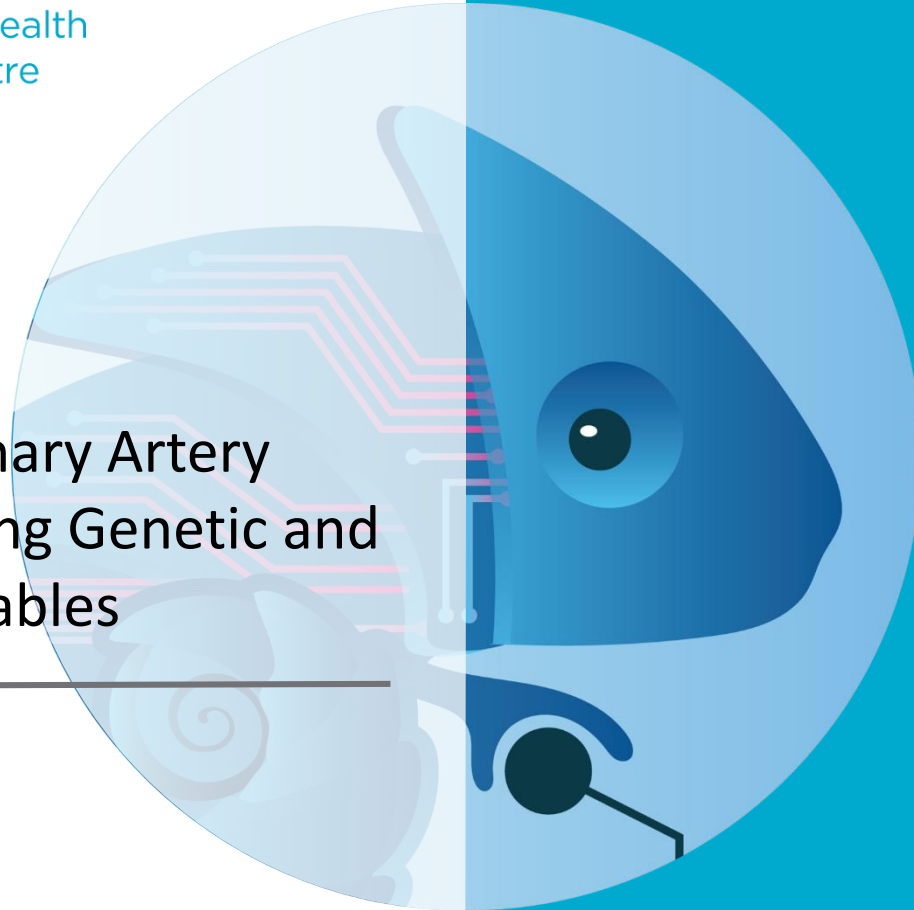




Australian e-Health
Research Centre

Predicting Coronary Artery Disease Risk Using Genetic and Phenotypic Variables

Letitia Sng
CSIRO



Coronary Artery Disease (CAD)



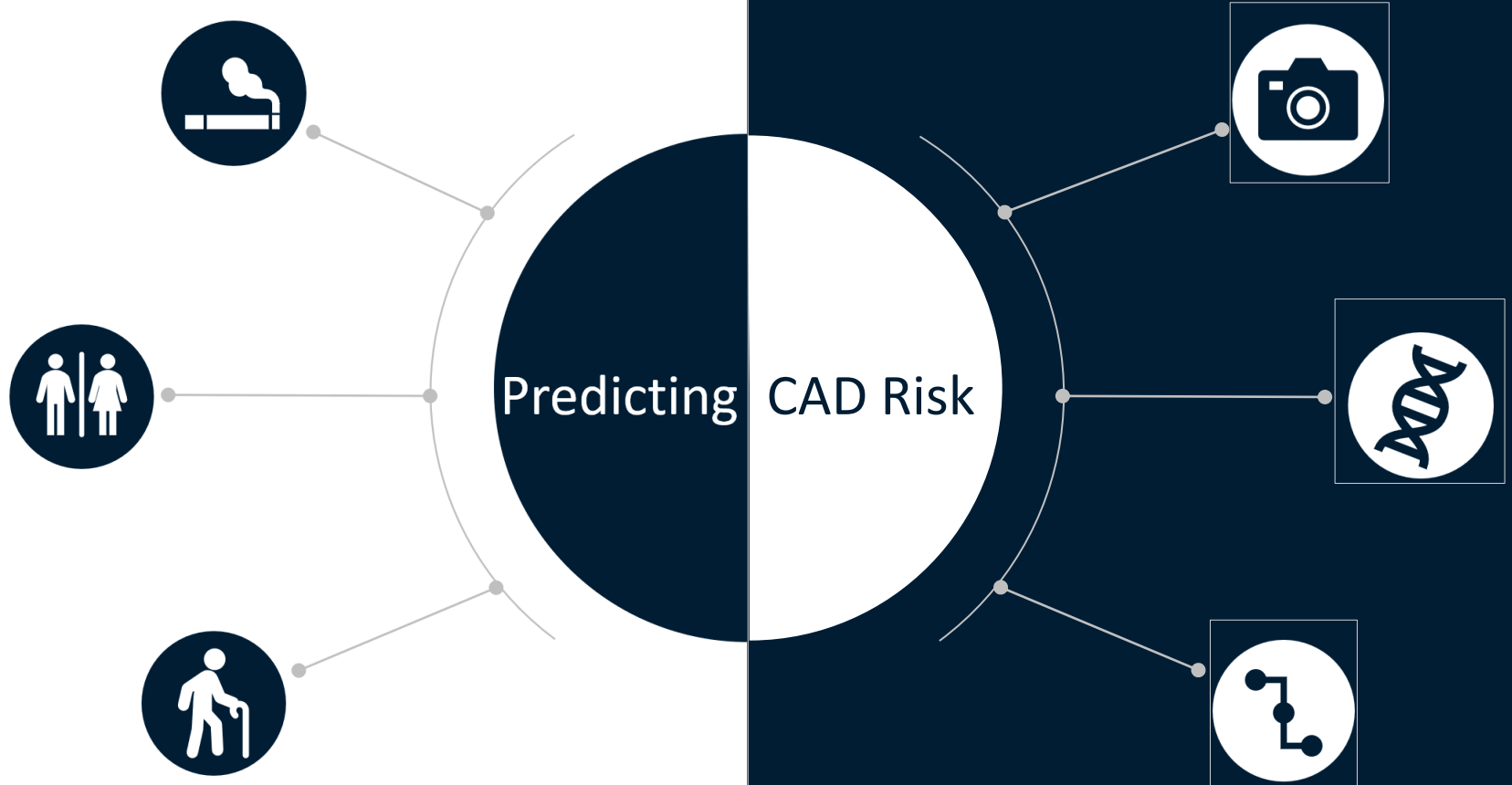
Arteries that supply your heart with blood become **blocked**

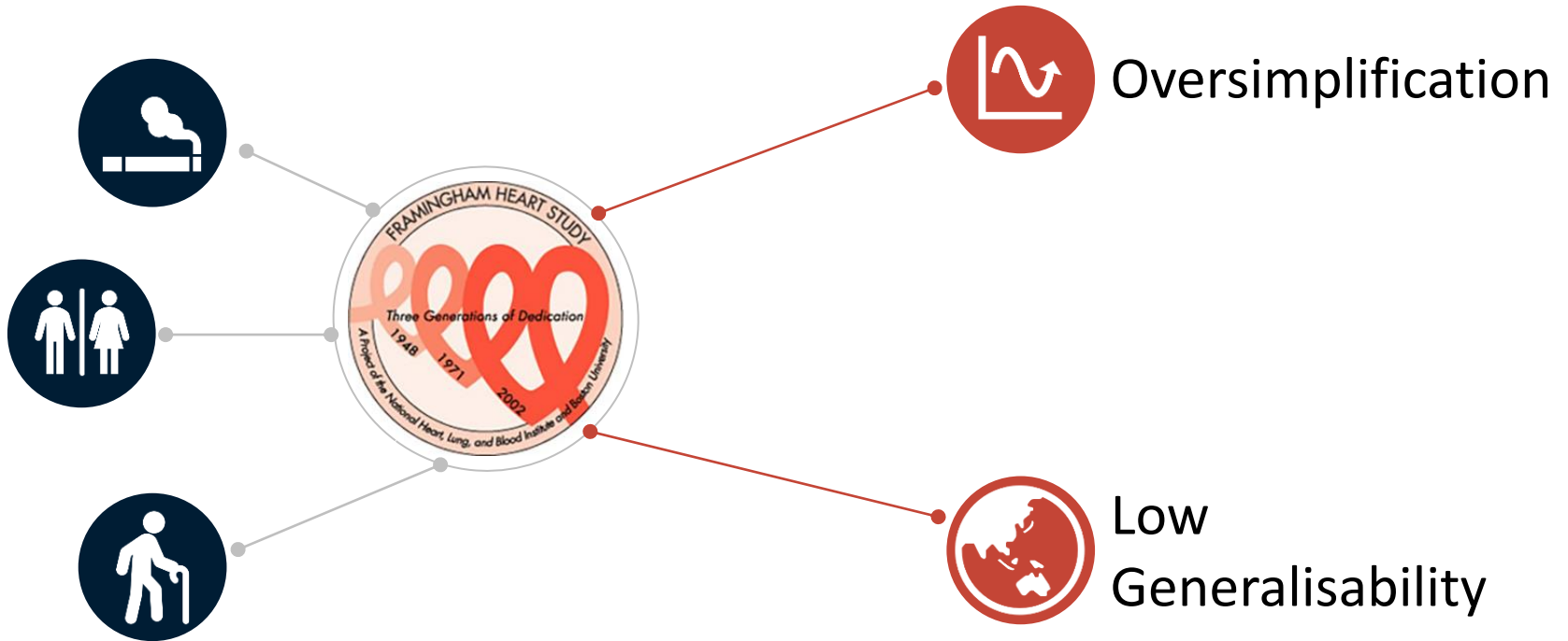


32% of all global deaths
\$2.4 **billion** AUD in expenditure



Multiple causes including lifestyle, medical conditions, and **genetics**.

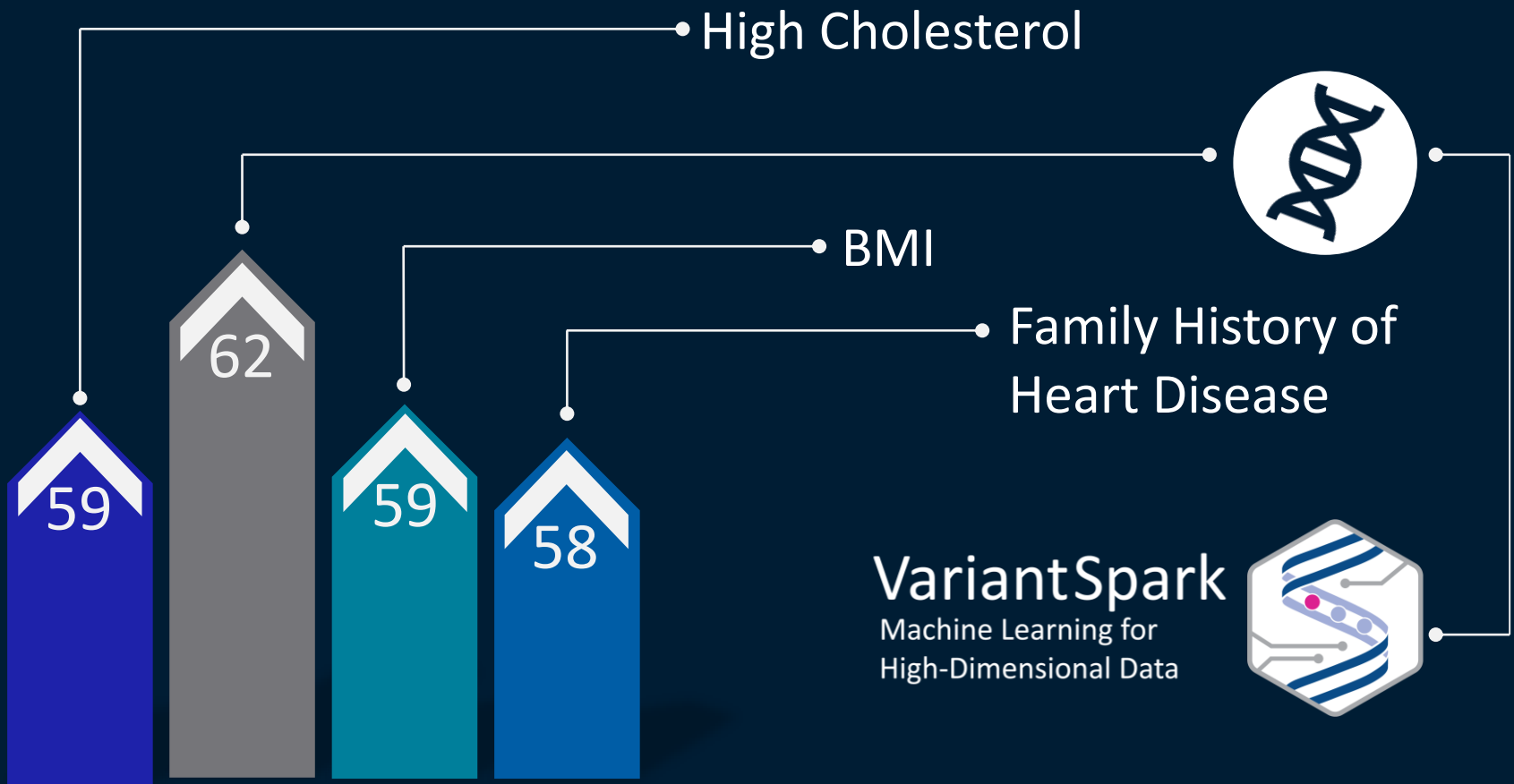




Risk increased by
factor of 1.15 with
0.1mm increase^{1,2}

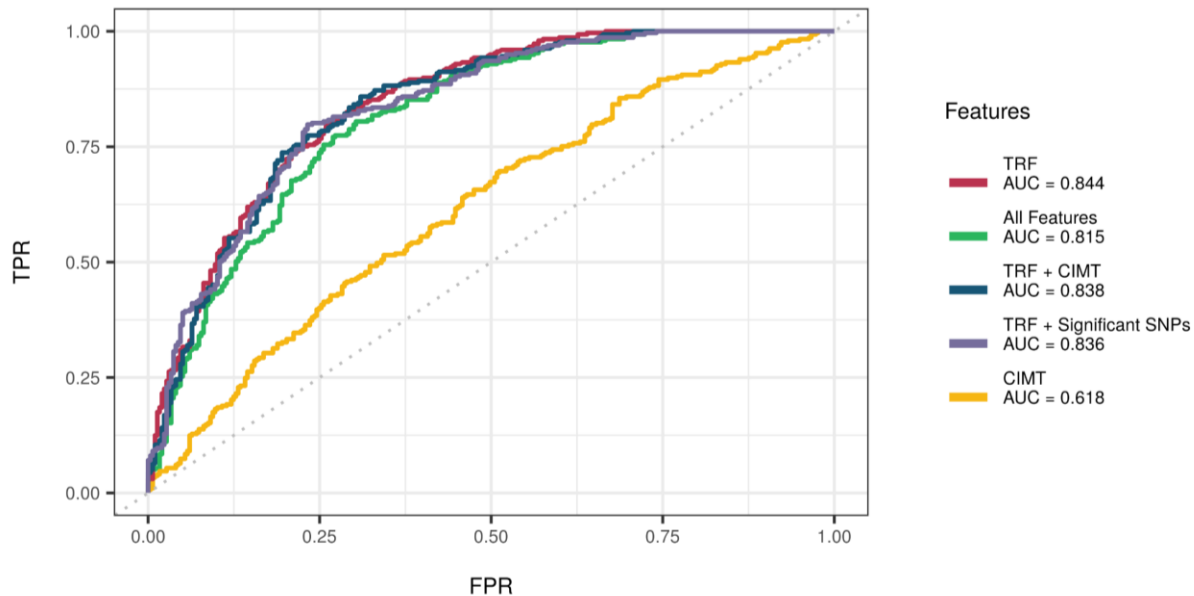
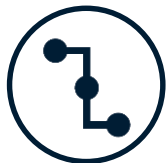
Little to no value
added to traditional
risk scores^{3,4}



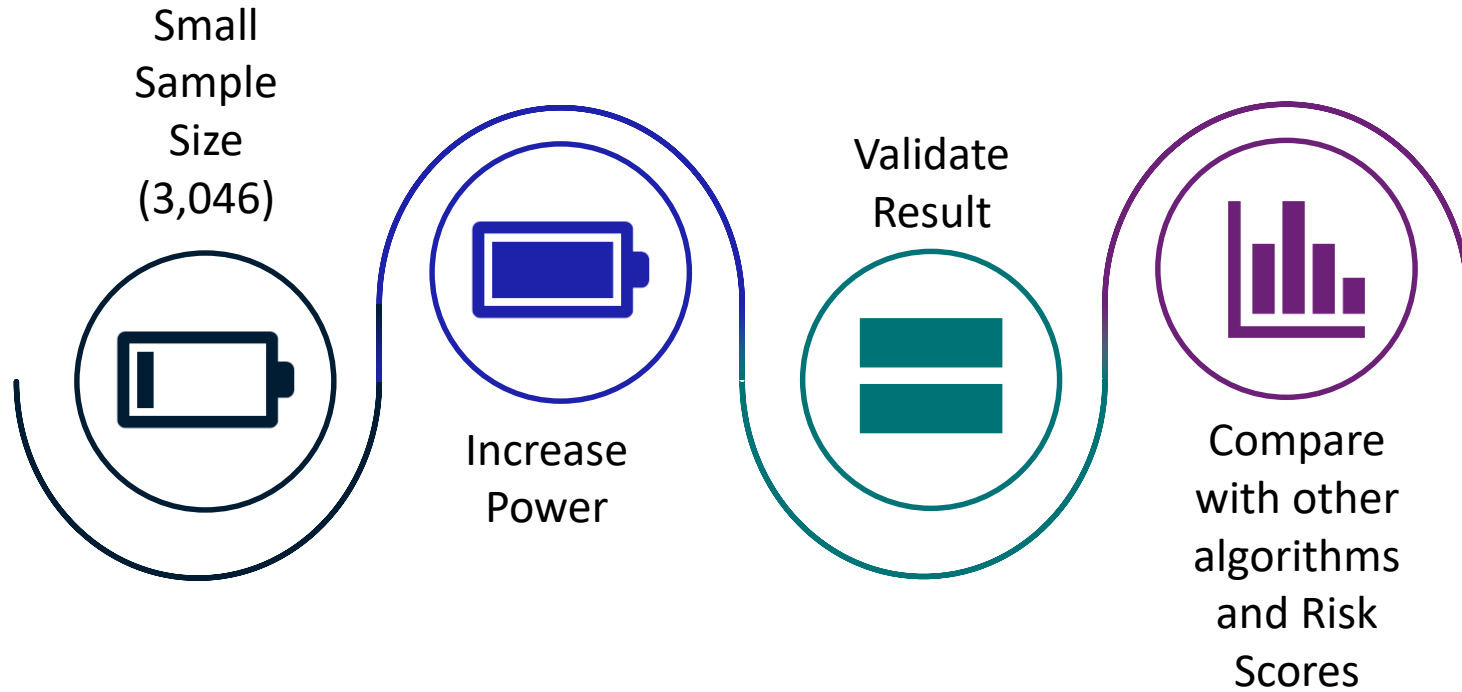


VariantSpark
Machine Learning for High-Dimensional Data





Metric	CIMT Only	SNPs Only	TRF	TRF + CIMT	TRF + SNPs	All Features
Accuracy	0.57 (0.54, 0.62)	0.56 (0.52, 0.60)	0.77 (0.73, 0.80)	0.77 (0.73, 0.80)	0.76 (0.72, 0.79)	0.72 (0.68, 0.76)
Precision	0.573	0.549	0.788	0.774	0.747	0.691
Recall	0.623	0.640	0.727	0.751	0.785	0.805
F1	0.597	0.591	0.757	0.762	0.765	0.743





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