Medical Xpress

Cardiovascular disease risk prediction equations published in The Lancet

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University of Auckland academics have developed new equations to predict the risk of cardiovascular disease (mainly heart attacks and strokes) in New Zealanders that has just been published in the prestigious medical journal *The Lancet*.

The study is significant for New Zealanders as it is the first of its kind derived from local data and it has found that the prediction equations currently in use, which are based on US data, now substantially over-predict the risk of cardiovascular disease.

Lead author, Professor Rod Jackson of the University's School of Population health, says

"Our findings are very significant as unless risk of cardiovascular disease is estimated using equations from modern populations that represent the patients they are applied to, there could be substantial underestimation or overestimation of risk, and therefore substantial undertreatment or overtreatment, is likely."

The study, "Cardiovascular disease risk prediction equations in 400 000 primary care patients in New Zealand: a derivation and validation study", included people without prior cardiovascular disease, congestive heart failure, or significant renal disease who had their cardiovascular risk assessed by their GPs or practice nurses using PREDICT software during patient consultations. The software stores an anonymised copy of each patient's risk factor data that is then linked to national hospital and

mortality databases.

The study is one of the largest of its kind in the world, including 401 752 New Zealanders aged 30–74 years at the time of their first PREDICT risk assessment. They were recruited between Aug 27, 2002, and Oct 12, 2015 and represented about 90 per cent of the eligible population, mainly in Auckland and Northland.

The mean follow-up was 4·2 years, and 15,386 (4 per cent) of the people included had a cardiovascular disease event during follow-up, with 1507 (10 per cent) being fatal events. The median 5-year risk of total cardiovascular disease events predicted by the new equations was only 2·3 per cent in women and 3·2 per cent in men, however Māori, Pacific, and Indian patients were at 13–48 per cent higher risk of cardiovascular disease than Europeans, and Chinese or other Asians were at 25–33 per cent lower risk of cardiovascular disease than Europeans. Risk also increased with increasing socioeconomic deprivation, which had a multiplying effect on risk for many Māori and Pacific people in particular.

Professor Jackson says that a Ministry of Health organised expert group on Cardiovascular disease risk assessment and management has already endorsed the new equations and that the Ministry of Health has agreed to support a national implementation programme. The new PREDICT equations will now replace older, overseas equations that are no longer relevant for the ethnically and socioeconomically diverse New Zealand population.

More information: Romana Pylypchuk et al. Cardiovascular disease risk prediction equations in 400 000 primary care patients in New Zealand: a derivation and validation study, *The Lancet* (2018). DOI: 10.1016/S0140-6736(18)30664-0