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Stroke and heart groups pan cardiovascular risk prediction



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Amid disagreement about screening for CVD risk, the importance of primary prevention is not in dispute

Two international health organisations have launched an attack on the kind of cardiovascular disease risk assessment spearheaded by University of Auckland epidemiologist Rod Jackson.

Michael Brainin, of the World Stroke Organisation and Danube University Krems in Austria, and Karen Sliwa, of the World Heart Federation and the University of Cape Town in South Africa, fire their broadside as a letter in *The Lancet* and specifically name Professor Jackson and cite his research.

In a media release, Valery Feigin, professor of neurology at the Auckland University of Technology and a member of the World Stroke Organisation executive committee, [has supported their stance](#).

In an interview with *New Zealand Doctor | Rata Aotearoa*, Professor Feigin says he and the two organisations do not urge abandonment of screening; they want it made free of charge and the emphasis should move to a population-wide strategy of CVD prevention through measures that lead to healthier lifestyles.

Professor Jackson is a designer of the PREDICT algorithm for CVD risk assessment, and he rejects the criticisms.

Asymptomatic CVD risk assessment is recommended in New Zealand primary care from age 45 for men and 55 for women, and earlier for Māori, Pacific and Asian people and those with known risk factors. People found to be at high risk of a cardiovascular event within five years are recommended to make lifestyle changes and offered medicines.

‘No effect on incidence’

Professors Brainin and Sliwa cite “reliable evidence” from a trial called Inter99 and a Cochrane meta-analysis, that CVD risk screening in the general population has “no significant effect on the incidence and mortality of ischaemic heart disease and stroke”.

Age-standardised CVD incidence and mortality have declined less in the last decade than during the past 25 years, they write.

“In some countries, such as the UK, the Netherlands, the USA, and New Zealand (specifically the Māori and Pacific people), the incidence and mortality of cardiovascular disease is increasing, particularly in middle-aged individuals.”

The authors say the World Stroke Organisation has suggested that, when communicating the absolute risk of CVD to patients, categorising people by low, moderate and high risk of disease – including the use of heat charts – should be abandoned.

“There is an urgent need to improve the primary prevention of stroke and cardiovascular disease, with priority given to population-wide primary prevention strategies that would also strengthen global health systems and aid economic recovery in the wake of pandemics such as COVID-19.”



University of Auckland epidemiologist Rod Jackson says a Lancet letter criticising cardiovascular risk prediction is based on 'seriously flawed' studies

'Seriously flawed'

Professor Jackson disputes the letter's assertions on CVD incidence and mortality trends and that strategies of screening to find those at high risk don't work.

He says the authors have relied on "seriously flawed" studies about the effectiveness of the high-risk approaches, which are impossible to do well.

"A meta-analysis of flawed studies is a flawed meta-analysis. These people are looking at the wrong studies. It's because they only look at randomised trials of where you randomly allocate people to risk prediction versus no risk prediction."

Describing studies whose findings support screening, Professor Jackson says hundreds of thousands of people have been in trials in which they were randomised to receive drugs or a placebo based just on their cholesterol level or just on their blood pressure.

When the participants are retrospectively given a predicted risk, "it actually is a perfect randomised trial, because in effect it's a blinded

risk assessment approach". There is a direct relationship to the size of benefit of treatment.

"So if you give two people a statin or two people a blood pressure lowering drug, the evidence is overwhelming that the person who had the highest predicted risk gets the greatest benefit."

Professor Jackson says New Zealand's incidence and mortality of CVD are declining. Mortality and hospitalisation for coronary heart disease are declining in all age groups, he says. For stroke, the picture is more nuanced, because of treatment and definition changes.

"In people under 65 and over 85, stroke hospitalisations are not declining – but mortality from stroke is – and I believe that it is probably an artefact due to hospital admission criteria for the elderly and changes in diagnostic criteria for all ages."

Most strokes and heart attacks in low, moderate risk

Speaking to *New Zealand Doctor*, Professor Feigin agrees with the letter that categorisation of screened patients should be abandoned.

"The high cardiovascular risk strategy by definition is targeting high cardiovascular risk people, whose risk is 15 per cent or greater over the next five years. We know 80 per cent of strokes and heart attacks happen in people with low and moderate risk. Therefore those people are virtually not covered by this screening strategy.

"If you tell someone their risk is low or moderate, they are not motivated to reduce their risk. They can have some important risk factors for stroke or myocardial infarction, like elevated blood pressure or smoking. In practical terms they are given full reassurance they are protected from cardiovascular disease, which in fact they are not."

He says screening to find high-risk patients is of benefit to individual patients, but not to the wider society.

Responding to the assertion that the letter relies on flawed studies, Professor Feigin says the evidence is published in good journals, such as the *BMJ*, and the Cochrane review library.

“The only comparisons which you could base our conclusion about the effectiveness or not of the intervention is randomised, controlled trials involving high-risk screening versus not screening.

“We base our practice on Cochrane systematic reviews. I can admit that one or two trials may be flawed, but not all these trials, 15 trials, with 240,000 patients overall, followed up for 10 years.”



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Agreement on one thing

Professor Jackson and *The Lancet* authors, however, agree on primary prevention.

He says, “No one has ever – we certainly haven’t – said that we should prioritise risk prediction over prevention. They are entirely complementary.

“Risk prediction studies are designed to decide who gets drugs. The population-based studies are designed to impact on everybody.”

Professor Feigin says the problem is that policy makers prefer screening to primary prevention.

“The reasons are quite obvious. It’s easy to tick the box: screening done, prevention accomplished. And also this high-risk strategy is supported by the big pharmaceutical industry. They benefit from that. That’s where it’s very difficult to change on the government level.”

Reply to journal

Professor Jackson says he intends to write a reply for publication in *The Lancet*.