Implementing cardiovascular disease preventive care guidelines in general practice: an opportunity missed

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Cardiovascular disease (CVD) is the leading cause of death in Australia.[1] New treatment guidelines based on absolute CVD risk estimates were adopted in 2012.[2] General practitioners are central to implementing these guidelines, as about 90% of people in Australia consult GPs each year,[3] but large evidence–practice gaps in the management of people with CVD in general practice have been reported.[4]

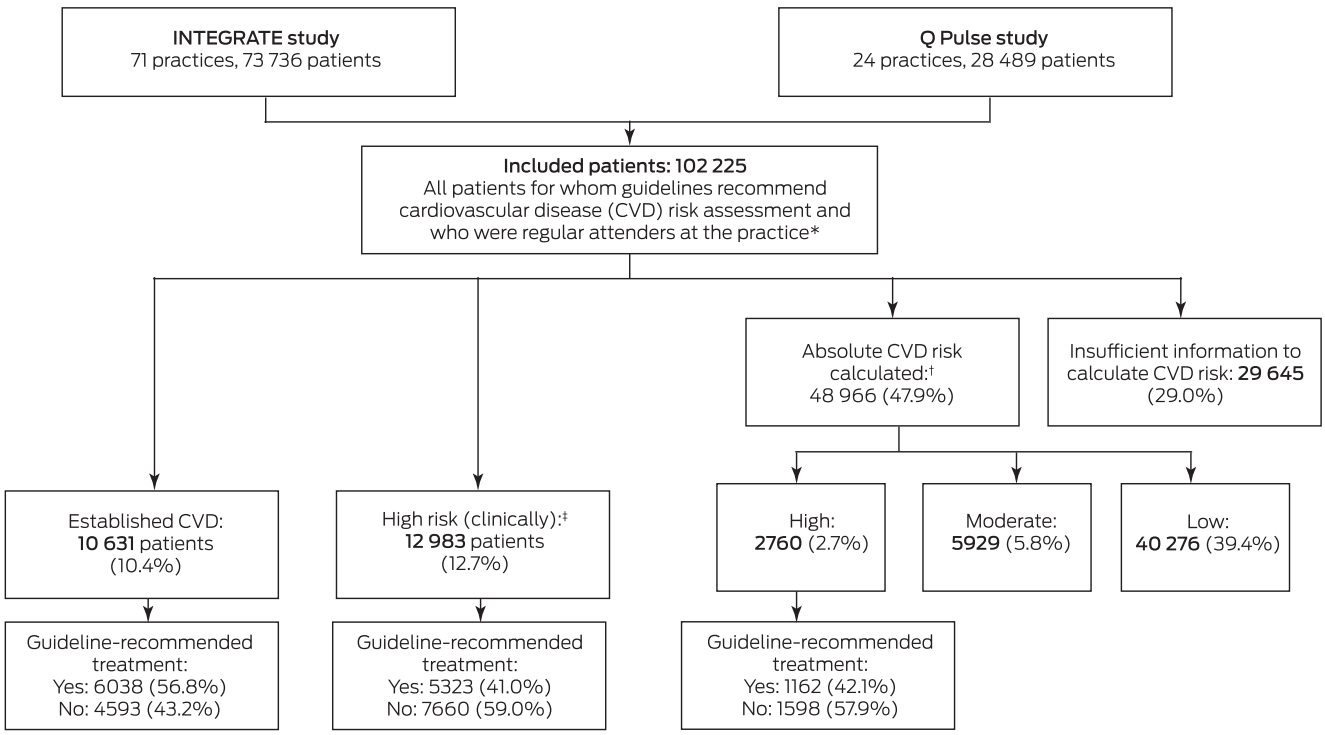
We therefore examined implementation of the 2012 CVD guidelines in general practice by analysing baseline electronic medical record (eMR) data from two clinical trials of computer-supported interventions for improving CVD care conducted during 2015–2018, the INTEGRATE[5] and Q Pulse studies.[6] Our analysis is based on data for 102 225 patients from 95 general practices in four Australian states and territories. The study was approved by the Human Research Ethics Committees of the University of Sydney (reference, 2015/616) and the University of Notre Dame (reference, 014105S/016011S).

De-identified eMR data — demographic information, medical history, prescribed medications, smoking status, blood pressure, low-density lipoprotein cholesterol (LDL-C) levels — were extracted at each practice with the CAT 4 Clinical Audit tool (PenCS). Absolute CVD risk was calculated according to current guidelines[2] and patients with a documented CVD diagnosis (coronary heart disease, cerebrovascular disease, peripheral vascular disease, left ventricular hypertrophy, atrial fibrillation, or heart failure) were identified (Box 1).

Guideline-recommended treatment was defined as the prescribing of blood pressure- and lipid-lowering medications for patients at high CVD risk, and also of antiplatelet or anticoagulant medications for patients with established CVD (Supporting Information). The proportions of patients who had attained treatment targets for blood pressure (< 140/90 mmHg for patients at high CVD risk, < 130/80 mmHg for people with established CVD or diabetes) and LDL-C level (< 2.0 mmol/L) were calculated.

Of 102 225 patients in the two studies, 10 631 (10.4%) had established CVD and 12 983 (12.7%) clinically high risk conditions; estimated CVD risk was high for 2760 (2.7%) and low or intermediate for 46 205 people (45.2%), while the available eMR data were inadequate for estimating risk for 29 645 participants (29%).

1 Flow chart of patient risk and treatment identification



* Including Aboriginal and Torres Strait Islander people aged 35 years or more and non-Indigenous Australians aged 45 years or more, and people of any age at clinically high risk of CVD. Regular attendance was defined as attending the practice at least three times during the preceding 24 months and at least once during the preceding six months. † Australian Cardiovascular Risk Calculator (based on the Framingham Risk Equation). High CVD risk defined as either 5-year risk exceeding 15%, or presence of a clinically high-risk condition.[2] ‡ Clinically high-risk conditions: people with diabetes and over 60 years of age, diabetes and albuminuria, estimated glomerular filtration rate below 45 mL/min/1.73 m^2, systolic blood pressure above 180 mmHg, diastolic blood pressure above 110 mmHg, or total cholesterol level exceeding 7.5 mmol/L. ◆

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2 Prescribing practices and attainment of blood pressure and lipid targets for patients with established cardiovascular disease or at high risk of cardiovascular disease

	Established cardiovascular disease	High cardiovascular disease risk
Number of patients	10 631	15 742
Medications prescribed		
No risk-lowering medications	2137 (20.1%)	3731 (23.7%)
Blood pressure-lowering medication only	1340 (12.6%)	3542 (22.5%)
Lipid-lowering medication (statin) only	1116 (10.5%)	1983 (12.6%)
All guideline treatments*	6038 (56.8%)	6486 (41.2%)
Clinical targets achieved		
Blood pressure†	4114 (38.7%)	8988 (57.1%)
Low-density lipoprotein cholesterol‡	5645 (53.1%)	5714 (36.3%)

* One or more blood pressure-lowering medications and a statin; for people with established cardiovascular disease, either an antiplatelet or anticoagulant medication is also recommended (Supporting Information). † High cardiovascular disease risk: < 140/90 mmHg; established cardiovascular disease or diabetes: < 130/80 mmHg. ‡ < 2 mmol/L. ◆

Among patients with established CVD, 6038 (56.8%) had been prescribed the guideline-recommended treatments; blood pressure targets had been achieved by 4114 patients (38.7%) and LDL targets by 5645 (53.1%). Among the 15 743 patients at high CVD risk, 6486 (41.2%) were prescribed recommended treatments; 8988 (57.1%) had achieved blood pressure targets and 5714 (36.3%) LDL-C targets (Box 1, Box 2).

Our findings indicate that primary care management of patients with CVD is sub-optimal. Adopting the absolute risk assessment approach has not improved adherence to management guidelines,[4,7] similar to the experience in Europe, Canada, and the United Kingdom.[8,9]

We may have underestimated CVD risk for patients already receiving blood pressure- and lipid-lowering therapies. Risk estimates were based on information in eMR structured data fields; additional information recorded as free text was not considered. Rural and Aboriginal Medical Service practices were underrepresented in our practice sample.

GPs play essential roles in identifying patients at risk of CVD and managing their treatment,[10] but ensuring their adherence to evidence-based recommendations is challenging. While risk assessment tools are important, overcoming patient, GP, and health system barriers to changes in care delivery will be critical to progress.

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Competing interests: George Health Enterprises, the social enterprise arm of the George Institute for Global Health, has received funding for the development of fixed dose combination therapy, and has commercial relationships involving digital innovations similar to the interventions in the INTEGRATE study. ■

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Supporting Information

Additional Supporting Information is included with the online version of this article.