

# Cardiovascular disease prevention: Mind the gap...

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Cardiovascular disease (CVD) is still one of the leading causes of reduced quality of life, disability and death. This is unfortunate, as we know that much of CVD morbidity and mortality can be avoided by application of primary and secondary prevention measures. Evidence-based guidelines for prevention of CVD have been developed worldwide. However, to accomplish their envisioned effect, adherence to the guidelines is of utmost importance.

Lifestyle, smoking, dyslipidaemia, hypertension and hyperglycaemia are modifiable risk factors for CVD. In the past decades, significant improvement has been made in the treatment and prevention of CVD, already leading to more favourable health outcomes.<sup>1,2</sup> Nonetheless, past surveys in several countries, including the Netherlands, have shown that CVD prevention guidelines are incompletely applied.<sup>3-7</sup> The lack of implementation of proven effective strategies is an 'evidence-practice gap'.<sup>8</sup> More specifically, this is an 'under-use evidence-practice gap'. An 'under-use evidence-practice gap' leads to much smaller health benefits compared with what could potentially be achieved if the guideline was optimally deployed.

In this issue of the Netherlands Journal of Medicine, Balder *et al.* describe a clear 'under-use evidence-practice gap' in the Netherlands.<sup>9</sup> They investigated the reported use of lipid-lowering drugs as a proxy of the adherence to the Dutch National guidelines for prevention and treatment of CVD. They find astonishingly low numbers of people eligible for treatment that are actually using lipid-lowering drugs (23% for primary prevention and 69% for secondary prevention). Looking further at the data, people being treated have an average LDL-cholesterol level of 2.6 mmol/l and 2.4 mmol/l for primary and secondary prevention, respectively. This means that part of the treated group will not have reached the treatment goal of LDL-cholesterol <2.6 mmol/l, which makes the results even more disappointing with regards to guideline adherence.

It has been extensively shown that LDL-cholesterol lowering by only 1 mmol/l reduces major vascular events by about 20%, major coronary events by about 25%, coronary revascularisations by about 25%, and ischaemic stroke by just under 20%. These findings apply to both men and women and to both primary and secondary prevention.<sup>10,11</sup> Moreover, lipid-lowering interventions are cost-effective and may improve quality of life, with low rates of adverse events. Considering these numbers, there should be no doubt that lipid lowering is useful. And this leads us to the question why guideline adherence is as poor as it is. Balder *et al.* identify some risk factors for not being treated according to the guideline, for example female gender in secondary prevention. Still, these risk factors do not fully clarify why the guideline is not adequately implemented. Are caretakers not adhering because of unawareness of their risk and risk factors? Do they experience side effects or other objections to the therapy? Are caregivers not adhering by not (correctly) assessing the risk in their patients? Are they not prescribing medication when indicated, and if so, why not? Or is our healthcare system not designed in a way that allows the guidelines to be implemented in the most effective way? These and many other questions should be answered to come up with strategies to improve the percentage of patients receiving the treatment they deserve.

Taken together, even though we do not know the exact reasons for non-adherence to the guidelines, the study by Balder *et al.* gives us a strong indication that a large number of people in the Netherlands are not receiving primary and secondary prevention measures for lipid lowering, while they should. Gaining a better understanding of the underlying causes and motivations for non-adherence to the guidelines is critical for designing effective interventions to improve public and physician awareness and adherence.

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