



Cardiovascular risk screening: **Targeting individuals or populations?**

POPULATION SCREENING for identifying individuals at high risk of cardiovascular disease (CVD) is a key objective of public health policy. However some health professionals are questioning the benefits of this approach.

The issue of screening was highlighted in a recent “Head to Head” debate in the British Medical Journal. The question was “**Will screening individuals at high risk of cardiovascular events deliver large benefits?**”

Professor Rod Jackson (University of Auckland) and colleagues said “Yes”, arguing that targeting high risk individuals is the most effective strategy. Professor Simon Capewell (University of Liverpool) answered “No”, arguing that greater gains are achieved by population wide strategies.

In New Zealand, we use a combination of both methods to reduce CVD risk. However is this the right approach? Should we be targeting high risk people, high risk behaviour or both? The following article presents a summary of the two view points.

THE ARGUMENT – FOR¹

Rod Jackson says interventions should be aimed at those at the greatest risk, arguing that this is both cost effective and maintains the long-term health of people better than population based interventions, such as reducing salt intake and managing obesity. He claims it is better to target people than risk factors.

Rod Jackson points out that approximately a third to a half of all cardiac events occur in people with a previous CVD event—approximately 6% of the population. By treating these people with aspirin, statins and antihypertensives (triple therapy), the number of events could be reduced by at least two-thirds. Even if only half of this group was adherent, this could achieve a 10% reduction in events over ten years.

On the other hand, to achieve a similar reduction with population based interventions the rest of the population would need to lower their personal risk by approximately 20%. Rod Jackson considers that this would be a “huge challenge now that much of the low hanging fruit receptive to population-wide strategies have been picked.”

Identifying the small group of high risk people with a previous CVD event is relatively easy and they are usually

motivated to make changes. In addition Rod Jackson argues that there are still gains to be made in this group as most patients with established CVD are not receiving triple therapy.

Accurately identifying people at risk of CVD is becoming easier as new equations to estimate risk are being developed. These include factors such as social deprivation and ethnicity and provide the opportunity to more precisely target treatment. But, as risk thresholds for treatment are lowered, more people will be identified who may benefit from therapy. This would result in an increased workload and cost for primary care, and Rod Jackson says that simplified drug regimens such as the “single daily combination pill” may be the solution.

Rod Jackson believes that the key for preventing CVD is well targeted treatment with safe, inexpensive and effective drugs for patients at high risk.

THE ARGUMENT – AGAINST²

Simon Capewell says that the “high risk” approach to preventing CVD has been disappointing in its effectiveness. He says it is also associated with high cost, medicalisation and increasing inequalities. He argues that whole population approaches are more effective such as those introduced in Denmark (banning trans-fatty acids), Finland (halving dietary salt) and UK, Ireland and Italy (promoting smoke-free public spaces).

Simon Capewell argues that in reality interventions targeted at high risk individuals have low effectiveness due to issues such as accurate identification of these patients, uptake of screening and adherence to treatment.

CVD risk scoring systems have been shown to be inaccurate in estimating an individual patient’s risk. Screening programmes require considerable effort, have high drop out rates and often those who experience the highest rates of disease and the most deprivation are not well engaged by these programmes. Studies show that long term adherence to both statins and antihypertensives is often less than 50%.

Furthermore, effectiveness is limited by the fact that medication does not remove the underlying pathology, it “merely puts a sticking plaster over the problem”. This is the idea of residual risk. Interventions can never completely eliminate risk. At best, risk reductions are around 40% therefore significant risk remains.

Simon Capewell raises the issue of medicalisation associated with the high risk approach. “The implicit message for patients is that the doctor can fix it. This takes responsibility away from the individual and may encourage further risk taking behaviour.” Studies show quality of life often decreases after starting treatment for CVD risk factors. Given this, he believes that most people would rather opt for behavioural change than lifelong medication.

Increased financial cost is a factor of the high risk approach as more people are prescribed medication due to reduced thresholds for intervention. Social costs are also increased, as targeting those at risk tends to benefit the affluent and educated, therefore contributing to increased disparity.

The answer, says Simon Capewell is small reductions in key modifiable cardiovascular risk factors which result in large reductions in cardiovascular events and deaths. These are best achieved through cheap policy interventions aimed at reducing risk factors across whole populations.

Finally, Simon Capewell argues that the greatest danger arising from the high risk approach, is that it is “misleading professionals, planners and politicians into thinking they can tick the mission accomplished box for preventing cardiovascular disease”.

References

1. Jackson R, Wells S, Rodgers A. Will screening individuals at high risk of cardiovascular events deliver large benefits? Yes. *BMJ* 2008;337:a1371.
2. Capewell S. Will screening individuals at high risk of cardiovascular events deliver large benefits? No. *BMJ* 2008;337:a1395.