Cardiovascular disease is a leading cause of death in most countries throughout the world and it presents a challenge to developing countries like China. Changes in lifestyle and ageing populations raise the importance of active prevention strategies focusing on known cardiovascular risk factors. One of these, high blood pressure, has already been named among the top 10 leading risk factors in the global burden of disease, but Tang et al. claim in this issue of IJE that the willingness of the Chinese population to pay for antihypertensive drugs does not support treatment based on a diagnosis using the current cut-offs in blood pressure levels.

In 1985, Geoffrey Rose outlined two strategies for dealing with risk factors in any population—the individual or high-risk approach and the population approach. There are many arguments in favour of the population approach, which aims to shift the population distribution of a potential risk factor such as blood pressure to a more protective level through lifestyle change and government measures such as legislation on food composition. The high-risk approach, on the other hand, targets those above a certain level of risk of disease; for cardiovascular disease, nowadays, this would normally be determined by multiple risk factors rather than by single risk factor such as blood pressure level. Tang et al. asked their respondents about their willingness to pay (WTP) for antihypertensive treatment after presenting them with differing descriptions of the potential benefits to be gained. These different descriptions included a general statement about benefit, relative risk reductions (RRRs) and number needed to treat (NNT).

While the specific interpretation of their findings could be debated, the paper raises some relevant questions and reminds us of several important issues in tackling cardiovascular risk factor reduction in any population.

First, the ways of presenting the effects of treatments greatly affects the public’s or the patient’s perception of benefit. Tang et al. found that the WTP for the benefit ranged from 698RMB (US$102) to 47RMB (US$7) for the same effects presented as RRRs compared with presenting them as NNT. Since many of the individuals being considered for antihypertensive treatment in this study were of acceptance of drug therapy to prevent myocardial infarction. Br J Clin Pharmacol 1999;47:580.


relatively low overall risk of disease, the absolute risk, as reflected by the NNT, was quite low.

Secondly, the risk status of any individual should be determined not by a single risk factor but rather by the absolute risk of cardiovascular disease, which is multifactorial. If we focus on just one risk factor e.g. blood pressure level, then we will predictably underestimate the risk for some people and overestimate it for others with resulting inefficiency of treatment. The use of absolute risk charts based on easily measurable indicators of risk may make this multifactorial approach feasible even for a low-income country. The absolute level of risk that should be treated can then be determined with regard to the availability of resources in that country and mindful of the trade-offs that need to be made against other uses of these resources. In the case of China, Tang et al. estimated that antihypertensive drugs would be considered worth the cost when the 5-year cardiovascular risk level was ≥35%.

Thirdly, the type of health-care system needs to be taken into account when setting up and allocating resources to treatment programmes. In countries with a public health-care system, the savings in hospital costs averted due to disease avoided may offset much of the cost of preventive treatments for cardiovascular disease, making the identification and treatment of high-risk groups a very cost-effective option from the health-care payer’s perspective. However, in China, many people will be faced with paying for these antihypertensive treatments from their own pocket. Even in Hong Kong, which has an extensive public health-care system, most people prefer to pay for their primary care from their own pocket rather than use the relatively crowded public system or purchase private insurance. To an individual faced with the cost of the drug, the benefits of prevention may not be so clear.

Finally, the success of an individual approach to prevention depends on being able to identify, treat and monitor all of those at high risk, i.e. coverage is a critical element of any strategy. Tang et al. quote a Chinese Ministry of Health study stating that only ~5% of those with hypertension in China have their blood pressure under control, suggesting a rule of twentieths rather than a rule of halves. To identify and attempt to treat 160 million people in China with hypertension based on an arbitrary cut-off level of blood pressure would not only be a very costly exercise and one not currently supported by public values, as Tang et al. argue, but also would be doomed to fail in preventing an epidemic of cardiovascular disease. What is needed, in addition to protective lifestyles, are suitably accessible methods of cardiovascular risk assessment, supportive systems of treatment and follow-up along with the provision of funding for cost-effective interventions and as Tang and his co-authors stress, effective public education underpinning a population risk reduction strategy. Preventing cardiovascular disease in China requires more than individual WTP.

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**References**