

Global prevention of stroke: focus on the individual?

On World Stroke Day, which takes place on Oct 29, the World Stroke Organization (WSO) will launch probably their most ambitious campaign so far. Their *Don't be the one* campaign is underpinned by WSO's analysis that suggests the lifetime risk of stroke now stands at 1 in 4. The landmark INTERSTROKE study showed that about 90% of all strokes are attributable to a few potentially modifiable risk factors (such as high blood pressure, physical inactivity, and smoking) in both women and men, and in people of different ethnicities. Primary prevention is therefore vital to curb the high burden of stroke, which is a leading cause of mortality and disability worldwide.

The WSO campaign will use a three-pronged approach. First, to raise awareness and allow self-assessment and monitoring of stroke risk. Second, to encourage adoption of a polypill (with generic low-dose blood pressure and lipid lowering medications) in people at high risk. And third, to engage health professionals to help tackle modifiable risk factors. By the combined use of all these measures, the aspiration is that, eventually, global incidence will be reduced. An underlying assumption is that the current emphasis of campaigns on prevention in individuals at high risk should be extended to people at any level of risk. Current recommendations mainly target middle-aged or older people with cardiovascular disease or diabetes. In the absence of these, many individuals might be falsely reassured that they are at 'no risk', and might not be motivated to modify unhealthy behaviours, such as smoking and physical inactivity.

The message promoted by WSO will be that an individual's risk of stroke is very much in their own hands. Hence, as a first step, the campaign will encourage everybody, no matter their age, to assess their individual risk. WSO believes that smartphone technology can tackle prevention even in low-income settings, so the campaign will promote the use of a mobile phone application to spread awareness of stroke risk. After the input of demographic, health, and lifestyle information by the user, the mobile application (named *Riskometer*), available for free and in 14 languages, can estimate absolute and relative risk of stroke. It can then help self-management of risk with goal-setting options and produce notifications to prompt the user to modify their behaviour. But, even if everyone could have access to mobile phones or the

internet, different ways to raise awareness are needed, and the next stages of WSO's multi-pronged campaign will also need to capture those not receptive to an app-based strategy. Having a smartphone does not necessarily mean that the user will download the app or be motivated to change behaviour. Indeed, some providers of health-care insurance offer financial incentives to modify unhealthy behaviours but some people distrust such schemes. Before more evidence is available on nudges and incentives that can help achieve healthier lifestyles, an important first step would be to keep people up to date with accurate and reliable information on risk factors modification for primary prevention. In that respect, WSO can join efforts with governments and other brain-health organisations to reinforce the message that avoiding the risks associated with poor cerebrovascular health is crucial to prevent not only stroke, but also dementia.

Because of the large body of evidence about its detrimental effects on brain health, high blood pressure might be the most important risk factor to raise awareness about, and for which effective screening programmes must be implemented. The Systolic Blood Pressure Intervention Trial (SPRINT) and other studies have proven that treatment of high blood pressure reduces the incidence of stroke. Furthermore, the SPRINT Memory and Cognition in Decreased Hypertension (MIND) study showed that reducing systolic blood pressure also cut the incidence of mild cognitive impairment. In this issue of *The Lancet Neurology*, an epidemiological study shows that high blood pressure from early adulthood into midlife is associated with increased white matter hyperintensities and smaller brain volumes in late life, and suggests that blood-pressure monitoring and prevention interventions might need to start earlier than previously assumed, at around 40 years of age, to maximise brain health at old age.

The ambitious aims of the *Don't be the one* campaign to reduce the lifetime risk of stroke by primary prevention are realistic in the medium term if, for instance, the life-saving effects of blood pressure control and physical activity can be actioned. On World Stroke Day, as WSO launches its campaign, the *Stroke Alliance for Europe* will also release its Economic Burden of Stroke in Europe Report. This document should expose the unsustainable costs of inaction, and hopefully add momentum to the campaign. ■ *The Lancet Neurology*



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For more on **World Stroke Day** see <https://www.worldstrokecampaign.org/>

For the **INTERSTROKE** study see **Articles Lancet** 2018; **391**: 2019–27

For the **global burden of stroke** see **Articles Lancet Neurol** 2019; **18**: 439–58

For more on the **efficacy of polypills in cardiovascular disease prevention** see **Articles Lancet** 2019; **394**: 672–83

For more on the **Riskometer** app see *Int J Stroke* 2015; **10**: 231–44

For more on the **efficacy of self-monitoring in reducing blood pressure** see **Articles Lancet** 2018; **391**: 949–59

For more on **hypertension** see **Editorial Lancet** 2019; **394**: 611

For the **findings from SPRINT** see *N Engl J Med* 2015; **373**: 2103–116

For the **SPRINT-MIND** study see *JAMA* 2019; **321**: 553–61

For the **British birthweight cohort study** see **Articles** page 942

For the **new economic report on stroke burden in Europe** see <https://www.safestroke.eu/>