A call to action and a life-course strategy to address the global burden of raised blood pressure on current and future generations. The Lancet Commission on Hypertension

Michael H. Olsen (Chair), *Denmark*; Sonia Y. Angell, *New York, US*; Samira Asma, *Georgia, US*; Pierre Boutouyrie, *France*; Dylan Burger, *Canada*; Julio A. Chirinos, *Pensylvania, US*; Albertino Damasceno, *Mozambique*; Christian Delles, *Glasgow, UK*; Anne-Paule Gimenez-Roqueplo, *France*; Dagmara Hering, *Australia*; Patricio López-Jaramillo, *Columbia*; Fernando Martinez, *Spain*; Vlado Perkovic, *Australia*; Ernst R. Rietzschel, *Belgium*; Giuseppe Schillaci, *Italy*; Aletta E. Schutte, *South Africa*; Angelo Scuteri, *Italy*; James E. Sharman, *Australia*; Kristian Wachtell, *Norway*; Ji Guang Wang, *China*; Manan Pareek, *Denmark* (technical support)

Background
Elevated blood pressure (BP) is the strongest modifiable risk factor for cardiovascular disease worldwide. Despite extensive knowledge regarding prevention and treatment of hypertension, the global incidence and prevalence of hypertension and, more importantly, its cardiovascular complications are not reduced – in part due to inadequacies in prevention, diagnosis and control of the disorder in an ageing world.

Aim
Therefore, *The Lancet* has taken the initiative to launch a Commission on Hypertension with the aim of identifying key actions to improve the management of BP at both the population and the individual level, and generating a campaign to adopt the suggested actions at national levels to reduce the impact of elevated BP globally. The first task of *The Lancet* Commission on Hypertension was to prepare a report, which was presented at the International Society of Hypertension conference in Seoul, September 2016. The report briefly reviews the current evidence for prevention, identification and treatment of elevated BP, hypertension and its cardiovascular complications. The report focuses on unsolved issues, rethinking these in the context of approaches with population-wide impact and new methods for patient evaluation and education in its broadest sense, and suggesting new ways that are not always strictly evidence-based for global BP management.

Structure
The report is built around the concept of lifetime risk, applicable to the entire population from conception. Development of subclinical and sometimes, clinical, cardiovascular disease results from the lifetime exposure to cardiovascular risk factors combined with individual susceptibility to the harmful consequences of these risk factors. The Commission recognizes the impact of other cardiovascular risk factors including smoking, obesity, dyslipidaemia and diabetes mellitus on cardiovascular risk, which is very important for the initiation of and goals for antihypertensive treatment. However, as a Commission on Hypertension, this report focuses primarily on issues and actions related to elevated BP.

Essential goals and key actions
Previous action plans for improving management of elevated BP and hypertension have not yet provided adequate results. Therefore, the Commission has identified 10 essential and achievable goals and 10 accompanying mutually additive and synergistic key actions which, if implemented effectively and broadly, will make substantial contributions to the prevention and management of BP globally. The Commission deliberately has not prioritised the key actions listed below, because the actions are complementary, and the balance between strength of evidence and potential benefit as well as feasibility may vary according to setting.

The lifecourse approach

An average individual follows the blue line, when their lifecourse undergoes arterial ageing. This arterial ageing is – in part and simultaneously – a hallmark, a resultant and the driver of an increase in BP and cardiovascular risk. The black dotted lines represent the three avoidable thresholds on which preventive efforts should be focused: The development of elevated BP, subclinical cardiovascular damage, and finally, overt cardiovascular disease, leading to loss of quality of life. Certain individuals with "Early Vascular Ageing" (red line) will cross these thresholds earlier in life. The ideal lifecourse (green line) represents individuals who only develop elevated BP or subclinical cardiovascular damage too late in the life-course for them to have a substantial impact on the individual´s quality of life. The main goal of preventive efforts (small grey arrows) is to shift an individual's lifecourse towards the ideal lifecourse. Depending upon genetic disposition and/or epigenetic imprinting during foetal life, individuals can start their life-course higher or lower on the health-disease continuum (the enlarged insert), reflecting the so-called cohort effect. The orange dashed lines show the impact of a preventive effort, with a resultant downward shift in the life-course curve. Early preventive efforts are likely to result in a substantial gain in time (x-axis) or disease progression (y-axis) compared to later preventive efforts.

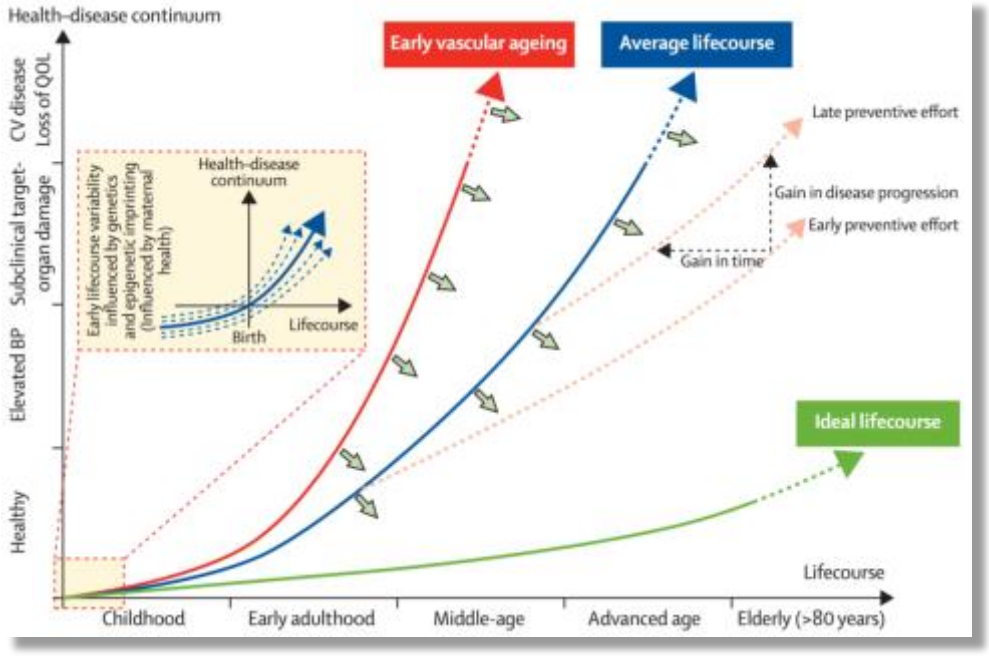

Figure 3: **Early-life effects and impact of preventive efforts in the management of elevated blood pressure**
The insert shows the effects of genetic susceptibility and epigenetic imprinting during fetal life. Preventive efforts result in downward shifts in the lifecourse curve, with earlier preventive efforts affecting lifecourse trajectory more than later preventive efforts. CV=cardiovascular. QOL=quality of life. BP=blood pressure.

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The 10 Key Actions

Health promoting environment:
Creating a healthy environment through strategies that accelerate socio-economic improvements and implementation of accepted health promoting policies

Healthy behaviours:
Universal understanding of unhealthy and healthy lifestyles and BP through endorsed, early and sustained education using new technologies

Measurement access:
Universal access to measurement of BP through inexpensive BP monitors (linked to global BP surveil.)

Measurement quality:
Better quality of BP measurements through endorsed protocols and certified/validated BP monitors

Empowerment:
Better identification of people at high risk in order to optimize treatment approaches through endorsed education of patients and healthcare professionals (linked to stratified treatment)

Secondary Hypertension:
Better identification of people with secondary hypertension through endorsed and simple flow charts (linked to stratified treatment approaches)

Workforce expansion:
Expanded workforce engaged in the management of BP through task sharing and the use of endorsed education of community health workers (linked to health care system accountability)

Medication access:
Universal access to affordable, high quality and effective antihypertensive drugs through collaboration between all major stakeholders

Standardised treatment:
Treatment approaches stratified according to age, cardiovascular risk, social, cultural and ethnic differences through endorsed education of health care professionals and initiation of new research

Health system strengthening:
Promote and ensure capacity and accountability of the health system to conduct surveillance and monitoring, and respond appropriately to BP levels