

# NEW SYSTEMS OF CARE FOR HYPERTENSION

## Systems of Care Programs for Hypertension Management

TAZEEN H. JAFAR

Professor, Health Services and Systems Research Program,  
Duke-NUS Medical School, Singapore  
Consultant Nephrologist Durham VA Healthcare System, NC  
Chair ISH Global Health Partnership Committee



High blood pressure is the primary modifiable risk factor for global cardiovascular fatalities, contributing to over 11 million deaths yearly.<sup>1</sup> A staggering 1.4 billion individuals worldwide grapple with uncontrolled blood pressure, with the majority of those affected in low- and middle-income countries.<sup>2</sup>

Despite numerous clinical guidelines for hypertension management and evidence showing clear benefit of blood pressure (BP) control, achieving optimal BP control remains a challenge.<sup>3</sup> Furthermore, disparities persist among racial and income groups, even within high-income countries, resulting in disadvantaged subgroups facing greater difficulty in controlling blood pressure, leading to higher rates of cardiovascular mortality.

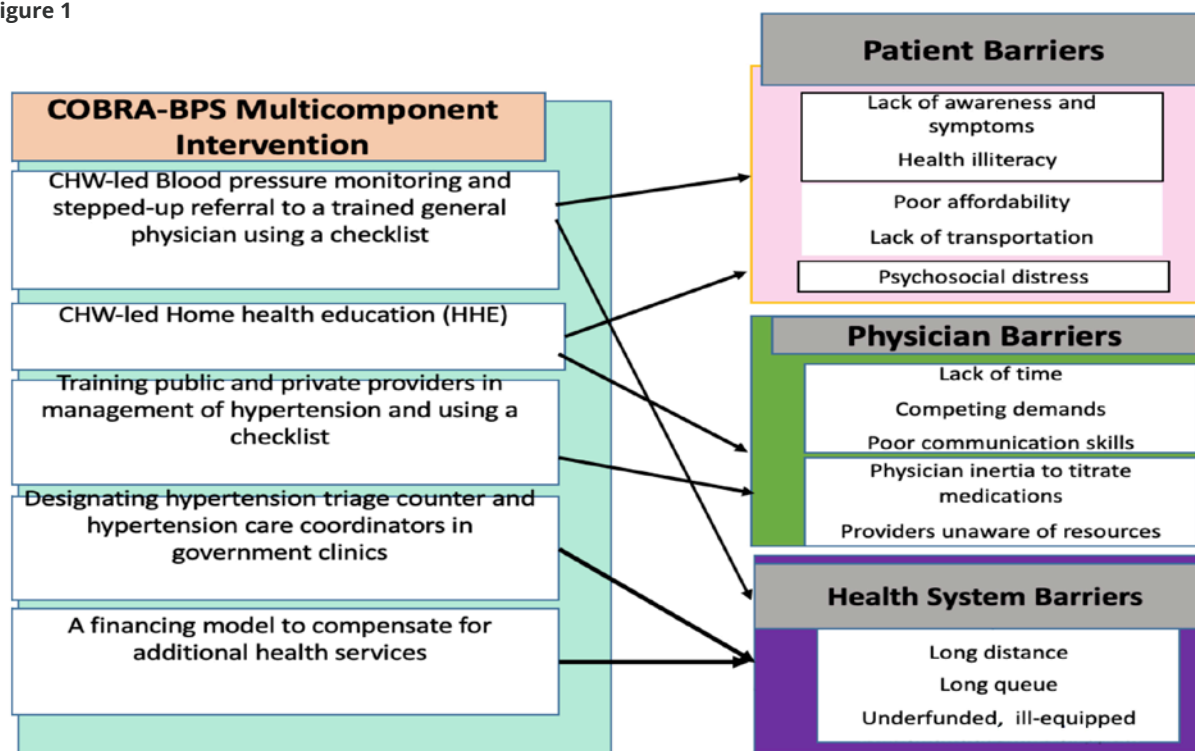
Barriers obstructing effective blood pressure control manifest at various levels, encompassing the patient, provider, health systems, and communities at large. Evaluations of trials through systematic reviews reveal that singular interventions, such as solely educating physicians or patients, deploying automated reminders, or distributing home blood pressure monitors, do not yield significant population-level benefits in blood pressure control.<sup>4,5</sup> On the contrary, strategies implemented at the systems level, addressing barriers across multiple tiers and fostering behavioral changes at the organizational, community, and individual levels, demonstrate clinically meaningful benefits and a higher likelihood of sustainability.<sup>4,5</sup> Notably, making

use of existing health infrastructure enhances feasibility, cost-effectiveness, scalability, and sustainability.

One promising model involves team-based care especially if led by non-physician health workers (NPHWs) guided by behavior change theories, providing increased social support and time for empathetic listening. Such models operate under physician supervision, delivering algorithm-driven care through collaborative agreements, and have exhibited considerable benefits.<sup>6</sup> However, these care models are primarily assessed in research settings within urban, high-income environments and need to be expanded to incorporate screening for social needs and response protocols in primary care to ensure equitable access to marginalized communities for maximum impact.

Health systems in low- and middle-income countries suffer from significant underfunding and have traditionally concentrated on addressing communicable diseases, as well as maternal and child health. Evidence from these countries, including findings from major multi-country trials, suggests that comprehensive interventions addressing contextually relevant barriers to hypertension care at various levels have the potential to enhance blood pressure control and reduce cardiovascular risk. For instance, the multi-country **COBRA-BPS** cluster randomised trial demonstrated the effectiveness, cost-effectiveness, and acceptance of a non-traditional model (**Figure 1**) involving trained community health

Figure 1



workers conducting blood pressure monitoring at home, providing healthy lifestyle counseling using behavior change communication strategies, and referring patients to trained physicians, all tailored to the local public healthcare infrastructure, in rural communities across Bangladesh, Pakistan, and Sri Lanka.<sup>7</sup>

The community health workers were trusted individuals within the community, collaborating closely with households and employing behavior change communication strategies. They recommended healthful diets, emphasizing seasonal produce that could be accommodated within the household budget, and encouraged physical activities that were both practical for the environment and culturally suitable. Referrals were made to the local community physician, equipped with training in the latest hypertension management techniques and utilizing a comprehensive checklist. As these health workers provided in-home health education and conducted blood pressure measurements, the entire family, including children and adolescents, reaped the benefits.

This intervention led to an enhancement in blood pressure control and was cost-effective, amounting to less than US\$2 per person annually from the perspective of the healthcare system.<sup>8</sup>

Similarly, research conducted in various low- and middle-income countries (LMICs), such as Argentina, Nepal, Kenya, and China has highlighted the advantages of implementing task-sharing strategies.<sup>9</sup> These involve utilizing community health workers to provide hypertension care through blood pressure monitoring, lifestyle guidance, and facilitating connections to clinics.

Furthermore, taking advantage of existing infrastructure for infectious diseases like HIV and tuberculosis enables the possibility of opportunistic screening, raising awareness, and treating hypertension. Therefore, the expansion of non-traditional healthcare models tailored for underprivileged populations is likely to significantly narrow the gaps in blood pressure control and cardiovascular disease (CVD) management.

Simultaneously, it is imperative that primary healthcare centers make antihypertensive and

lipid-lowering medications easily accessible or available at subsidized costs for patients. Universal health coverage, which encompasses affordable access to high-quality essential medicines for all, is advocated by the United Nations' Sustainable Development Goals.

Reforms in health insurance must incorporate inclusive coverage for hypertension care, including non-traditional healthcare models integrated into primary care, while also reducing out-of-pocket expenses for antihypertensive drugs.

Another illustrative example of non-traditional model of hypertension care is the integration of community pharmacists and barbers in a US barbershop setting, resulting in significant improvement in blood pressure among Black individuals through health counseling and adjustment of antihypertensive medications.<sup>10</sup> Despite its efficacy, integrating such models into the existing healthcare system remains a considerable challenge.

Empirical evidence, including findings from pragmatic studies in Singapore, indicates that single-pill combination (SPC) antihypertensive medications for high-risk patients, as part of the SingHypertension multicomponent intervention, are more effective and cost-efficient compared to standard care in primary care settings. These medications should ideally be available at no cost or at subsidized rates.<sup>11</sup> The SingHypertension program demonstrated cost-effectiveness relative to standard care, with an incremental cost-effectiveness ratio (ICER) of SG\$33,474 per disability-adjusted life year (DALY) averted, based on a willingness-to-pay threshold of SG\$75,000. These findings were presented recently at the AHA Scientific Sessions in Philadelphia 2023.

The World Health Organization recently launched the first Global Hypertension Report, and has also embarked on the Global Hearts Initiative with Resolve to Save Lives which resulted in the development of the HEARTS Technical Package, comprising of crucial modules for training healthcare providers. Integrating outreach programs with trained community health workers leading blood pressure monitoring and referrals is expected to enhance the program's effectiveness and scope.

Accumulating evidence underscores the potential benefits of digital health interventions in hypertension care. For instance, the use of smartphones by healthcare workers and patients for virtual follow-ups improves adherence to antihypertensive medications and promotes connections to clinics. These initiatives should be integrated into multicomponent interventions to enhance outreach and efficiency whenever possible.

Most importantly, advocacy campaigns and community engagement initiatives are essential for the widespread implementation of evidence-based healthcare systems. The International Society of Hypertension urges each country to establish a Hypertension Task Force, aiming to improve blood pressure control rates by at least 50% by 2030, relative to the rates in 2015, in order to accomplish Sustainable Development Goals 3.4.<sup>2</sup> Such concerted efforts are expected to save millions of lives and prevent disabilities related to hypertension worldwide.

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Tazeen H. Jafar – [tazeen.jafar@duke-nus.edu.sg](mailto:tazeen.jafar@duke-nus.edu.sg)

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