

Tackling High Blood Pressure in Kenya and Other Low- and Middle-Income Countries

Why Now and What Can We Do?



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In 2010, high blood pressure (BP) first became the leading single risk factor accounting for the global burden of disease (7% of global disability-adjusted life-years foregone), outdistancing common communicable diseases [1]. In 2015, 14% of the total global mortality was attributed to systolic BP above 140 mm Hg [2]. However, this commonly used criterion to determine hypertension does not capture the entire burden. More recent analyses find morbidity and mortality to be associated with even lower blood pressure levels—above 110 to 115 mm Hg—and find elevated blood pressure to be the leading contributor to preventable mortality [2].

Today's significant hypertension burden in low- and middle-income countries (LMICs) is occurring within poorly developed health care systems that are not poised to effectively address it [3]. LMICs often have poor health care infrastructure and often faced with a double burden of disease—rising rates of cardiovascular disease and other noncommunicable diseases alongside existing communicable diseases. The growing hypertension burden within LMICs has led to widening disparities in both burden and care provision compared with high-income countries (HICs). For example, from 1975 to 2015, mean blood pressure decreased in HICs, yet during the same time period it increased in less developed regions including East [4] and Southeast Asia [5], South Asia [6], Oceania, and sub-Saharan Africa [7,8]. In addition, from 2000 to 2010, the age-standardized prevalence of hypertension decreased by 2.6% in HICs yet increased by 7.7% in LMICs [9]. During the same period, the proportions with awareness (58.2% vs. 67.0%), treatment (44.5% vs. 55.6%), and blood pressure control (17.9% vs. 28.4%) increased substantially in HICs, whereas awareness (32.3% vs. 37.9%) and treatment (24.9% vs. 29.0%) increased less, and control (8.4% vs. 7.7%) slightly worsened in LMICs [9]. Large and growing global hypertension disparities have led to calls for hypertension control being a key component in the global mission to reduce the incidence of cardiovascular disease in LMICs [10].

For this call to global action we have, at hand, an extensive evidence base for prevention and treatment of hypertension. The World Health Organization best buys [11,12] are tailored to LMICs and have been found to be impactful when delivered with sufficient dose and intensity [13]. Drug therapy for hypertension using a total risk approach (e.g., the probability of having a cardiovascular disease event over 10 years) is strongly recommended and is highly cost effective. In addition, other examples of

interventions developed in HICs may prove useful [14,15]. Thus, we now know *what* we need to do. However, the major challenge is how to optimally and sustainably implement these proven-effective interventions across the different LMIC contexts and environments. Implementation research provides a means for studying delivery strategies [16-19] and a great opportunity in LMIC settings [20-24]. All levels of the socioecological spectrum involved in the intervention delivery process need consideration for this research, including the patient, family, providers, health care system and its infrastructure, and community context and deprivation.

In this issue, Ogola et al. [25] cite the significant hypertension burden in Kenya and report on an evaluation study done in matched intervention and control clinics 1 year after implementing a hypertension and cardiovascular disease program in public, private, and faith-based health care facilities. The intervention included a number of components: creation of Healthy Heart Africa, a pharma industry-sponsored program to improve hypertension control in primary care settings, training in provider awareness and clinical decision making, equipment use (e.g., blood pressure machines, training manuals), treatment protocols, educational materials (posters and brochures), and facilitated access to hypertension medications. A comparison of baseline and 1-year follow-up evaluation measures found modest increases in risk factor awareness, improvement in clinic blood pressure assessments, increased hypertension diagnoses, and more dedicated clinic days to hypertension care within intervention clinics.

Ogola et al. considered implementation levels, including health care providers and the medication access infrastructure, but did not consider community resources (e.g., water and electricity in clinics) and how these resources may impact effective care delivery. In part, these elements may have led to the study falling short in showing better hypertension control at study end. The relatively short 1-year study period may also have impacted the outcome—longer exposure may be needed to see behaviors and outcomes change. To impact hypertension control, the delivery system must reach across several levels, including awareness at both the patient and provider level, diagnosis, treatment, and, ultimately, blood pressure control. Success at one upstream level does not assure success at downstream levels [26]. Other key challenges for this study included adequate drug availability even with the study intervention facilitating this effort, and improvements with some intervention measures within control

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clinics where the intervention was not applied. Implementation research efforts could help understand factors involved that might explain these findings.

This study is useful in that the context was in primary care in low-resource settings. However, more detail about the intervention delivery, the variation across study sites, and the time frames when delivered would help understand some of the findings. Issues such as staff turnover and migration of staff and patients across study sites would provide better insights. Finally, parallel activities ongoing within the region related to hypertension control will be important to understand.

Calls are now being made for universal health coverage, which will expand availability of needed treatments and services to those with hypertension and other disorders [27]. Universal health coverage is being recognized as a needed element to meet Sustainable Development Goals for Noncommunicable Diseases [27]. However, a major challenge will be making sure that the quality of services avoids harms from poor care and results in improved outcomes—otherwise, this great effort to realize universal health coverage may result in only modest or little benefit [28-31].

Some of the key challenges for hypertension prevention and control include its asymptomatic nature until major morbidity and mortality occur (thus, the “silent killer” moniker) [10]; low awareness within and outside of the health care system, which was addressed by Ogola et al. [25]; delivering quality hypertension care resulting in improved outcomes; and finally, attending to risk factors such as high salt intake, low physical activity levels, and obesity, all of which require efforts from outside the health sector. This suggests a health role for every government ministry and the importance of addressing non-communicable diseases in the Sustainable Development Goals agenda [32,33].

Currently, we have the ability to measure disease burden quickly and use this information to act now. In addition, we can predict future burdens accounting for several facilitators and barriers within the complex system where interventions are delivered—while simulating what should be the expected impact [34,35]. Studies such as Ogola et al. can provide key inputs for these efforts and can be very useful to policy development and evaluation.

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