



# Hypertension control in sub-Saharan Africa: Clinical inertia is another elephant in the room

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In the past two decades, deaths from non-communicable diseases (NCDs) in low- and middle-income countries (LMICs) have spiked, whereas the numbers in high-income countries have stabilized.<sup>1</sup> A large proportion of deaths from NCDs in LMICs occurs among people younger than 60 years. This finding has been attributed to poor access to effective and equitable health care services in most LMICs.<sup>2</sup> In a cross-sectional survey of the Prospective Urban Rural Epidemiology (PURE) study, the use of cardiovascular disease (CVD) medicines, ascertained by self-report and verified by prescriptions or medical documents, was alarmingly low in many LMICs.<sup>3</sup> Compared to other low- and middle-income regions, sub-Saharan Africa, in particular southern and western Africa, has seen the largest increase in hypertension and hypertension-mediated complications.<sup>4</sup> Sarfo and colleagues examined the association between individual, societal and health care system-related factors and blood pressure (BP) control at five urban and rural sites in Ghana.<sup>5</sup> They included almost 3000 hypertensive patients with or without diabetes who visited the clinics every two months over an 18-month period. Meanwhile, a health system strengthening program, including patient education, implementation of hypertension treatment guidelines, and medication supply chain improvements, was put in place.<sup>6</sup>

During the study, hypertension control rates increased from 46% to 60%. Eight factors were identified that were independently associated with BP control. Most have also been associated with suboptimal BP control in high-income countries,<sup>7</sup> including male sex, lower level of education, presence of type 2 diabetes, kidney dysfunction, prescribed number of antihypertensive drugs, non-adherence to antihypertensive medications, and fruit intake. A few factors may be modifiable, such as non-adherence to antihypertensive medications

and fruit intake, although the latter can also be a proxy for better adherence to a healthy lifestyle.

What stands out most, however, is that the increase in BP control was only 14% and that 40% of hypertensive patients remained uncontrolled. A likely culprit is the extent to which antihypertensive medication was intensified by the treating physicians. The rate of clinical inertia—defined as a physician's decision not to alter antihypertensive medication when BP is  $\geq 140/90$  mm Hg<sup>8</sup>—was high, ranging from 80% to 90% during the course of the study. This is an important and remarkable finding.

The study of Sarfo and colleagues adds to the small body of literature on prescription behavior in hypertension care in sub-Saharan Africa. Studies have described patient- and health system-related barriers for optimal BP control,<sup>9</sup> but physician-related barriers such as clinical inertia have not been widely quantified, despite the fact that it is one of the fundamental conditions to achieve BP control. Studies that do report on clinical inertia in Ghana, Nigeria, and South Africa report that no treatment modification is made in up to 90% of patients who are uncontrolled.<sup>10-12</sup> Studies from high-income countries in Europe and North-America and LMIC outside sub-Saharan Africa have reported similar rates of clinical inertia.<sup>13-16</sup> These figures illustrate the magnitude of the problem and emphasize the need for more data on clinical inertia in hypertension care in other sub-Saharan African countries. Based on the study design and reported findings, it can be argued that many of the reasons underlying suboptimal BP control were properly dealt with in the study by Sarfo and colleagues. For instance, lack of clinical practice guidelines for the management of hypertension and insufficient training of health care professionals on the implementation of these

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guidelines, in addition to regular medication stockouts or medication not being covered by national health insurance program, have been noted as barriers for delivering optimal hypertension care in sub-Saharan African settings<sup>17,18</sup> and are known to impact clinical inertia.<sup>13</sup> However, Sarfo and colleagues accounted for these influences by the introduction of health system strengthening activities, and their findings clearly suggest the need to train physicians to tackle the problem of clinical inertia in hypertension care.

Despite the implementation of treatment guidelines, and unrestricted access to and reimbursement of antihypertensive medication,<sup>6</sup> medication was not actively prescribed. Explanations for this inertia could be clinician's doubt on patient's medication adherence or patient's reluctance against intensifying treatment, which have been shown to contribute to the decision not to modify medication, even if there is a clinical indication to do so.<sup>19</sup> Indeed, medication non-adherence and a higher number of prescribed medication, which is known to affect adherence, were associated with uncontrolled hypertension, potentially supporting clinician's assumptions that intensifying treatment does not necessarily result in improved BP control. Patients lack of trust in the beneficial effects of BP-lowering medication and fear of side effects have been reported among Ghanaians in rural Ghana and among Ghanaian migrants in Europe,<sup>20,21</sup> especially among men, and might have influenced physician's decision not to modify treatment. However, given the relatively high BP control rates at enrollment in the study, the high and improving (self-reported) medication adherence scores, as well as the high percentage of participants attending (nearly) all follow-up appointments, it seems probable that the patients included in this study were a selected population of highly motivated patients. It seems therefore that by reducing clinical inertia, hypertension control rates could have been further improved.

A distinction should be made between adequate inaction, for instance when a doctor is waiting for the results of a 24 hours ambulatory BP measurement, and "true" inertia.<sup>22</sup> The fact remains, however, that the ultimate decision to treat or not to treat high BP lays in the hands of the physician, and that with inaction the risk of CVD remains. Treated but uncontrolled hypertensive patients are over two times more likely to die from CVD and three times more likely to die from stroke compared to normotensive controls,<sup>23</sup> while up to half of the coronary heart disease events can be prevented if BP is optimally controlled.<sup>24</sup> It has been estimated that reducing clinical inertia scores by 50% would result in a 20% absolute increase in BP control rates,<sup>15</sup> which would significantly contribute to reduction of CVD burden. In addition, intervention studies aiming to reduce clinical inertia in hypertension care have shown to be effective in improving hypertension control rates in high-income countries.<sup>25</sup> More quantitative research including detailed indicators for clinical inertia and qualitative research on the contribution of patient, physician, and health system factors should shed light on the prevalence and determinants of clinical inertia, in order to develop context-specific interventions to reduce clinical inertia and improve hypertension control rates in sub-Saharan African settings.


Lowering BP will have a major impact on reducing overall NCD burden, especially in sub-Saharan Africa.<sup>26</sup> The World Health Organization (WHO) Global NCD Action Plan 2013-2020 aims for a 25% reduction in NCD mortality by 2025, including a 25% reduction in the prevalence of hypertension compared to 2010.<sup>27</sup> In its current pace, this target will not be met in sub-Saharan Africa. Therefore, all possible efforts should be made targeting these modifiable risk factors.<sup>28</sup> The findings of Sarfo and colleagues could be a starting point to further disentangle factors impacting hypertension control rates in sub-Saharan Africa and to develop effective interventions to improve these rates. Furthermore, they show that next to improving access to medication, reimbursement of antihypertensive medication, and implementation of clinical guidelines, emphasis should be placed on actively initiating and intensifying BP-lowering medication by physicians. This is highly relevant because failure to act appropriately on uncontrolled hypertension costs lives.

### CONFLICT OF INTEREST

The authors have no disclosures to report.

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### REFERENCES

1. World Health Organization. *Global Health Estimates 2016: Disease burden by Cause, Age, Sex, by Country and by Region, 2000–2016*. Geneva: World Health Organization; 2018.
2. Agyemang C, van den Born BJ. Limited access to CVD medicines in low-income and middle-income countries: poverty is at the heart of the matter. *Lancet Glob Health*. 2018;6(3):e234–e235.
3. Murphy A, Palafox B, O'Donnell O, et al. Inequalities in the use of secondary prevention of cardiovascular disease by socioeconomic status: evidence from the PURE observational study. *Lancet Glob Health*. 2018;6(3):e292–e301.
4. Gomez-Olive FX, Ali SA, Made F, et al. Regional and sex differences in the prevalence and awareness of hypertension: an H3Africa AWI-Gen Study across 6 sites in Sub-Saharan Africa. *Glob Heart*. 2017;12(2):81–90.
5. Sarfo FS, Mobula L, Plange-Rhule J, et al. Longitudinal control of blood pressure among a cohort of Ghanaians with hypertension: a Multicenter, Hospital-based study. *J Clin Hypertension*. 2020. <https://doi.org/10.1111/jch.13873>. [Epub ahead of print].
6. Mobula LM, Sarfo S, Arthur L, et al. A multi-center prospective cohort study to evaluate the effect of differential pricing and health systems strengthening on access to medicines and management of hypertension and diabetes in Ghana: a study protocol. *Gates Open Res*. 2018;2:6.
7. Agyemang C, van Valkengoed I, Koopmans R, Stronks K. Factors associated with hypertension awareness, treatment and control among ethnic groups in Amsterdam, the Netherlands: the SUNSET study. *J Hum Hypertens*. 2006;20(11):874–881.
8. Phillips LS, Branch WT, Cook CB, et al. Clinical inertia. *Ann Intern Med*. 2001;135(9):825–834.
9. Iwelunmor J, Plange-Rhule J, Airhihenbuwa CO, Ezepue C, Ogedegbe O. A narrative synthesis of the health systems factors influencing optimal hypertension control in Sub-Saharan Africa. *PLoS ONE*. 2015;10(7):e0130193.

10. Sarfo FS, Kyem G, Ovbiagele B, et al. One-year rates and determinants of poststroke systolic blood pressure control among Ghanaians. *J Stroke Cerebrovasc Dis*. 2017;26(1):78-86.
11. Ono AE, Oyekigho EW, Adeleke OA. Isolated systolic hypertension: primary care practice patterns in a Nigerian high-risk subpopulation. *Sao Paulo Med J*. 2006;124(2):105-109.
12. Rayner B, Schoeman HS. A cross-sectional study of blood pressure control in hypertensive patients in general practice (the I-TARGET study). *Cardiovasc J Afr*. 2009;20(4):224-227.
13. Ferrari P. National coordinators for the reasons for not intensifying antihypertensive treatment. Reasons for therapeutic inertia when managing hypertension in clinical practice in non-Western countries. *J Hum Hypertens*. 2009;23(3):151-159.
14. Mu L, Mukamal KJ. Treatment intensification for hypertension in US Ambulatory Medical Care. *J Am Heart Assoc*. 2016;5(10):e004188.
15. Okonofua EC, Simpson KN, Jesri A, Rehman SU, Durkalski VL, Egan BM. Therapeutic inertia is an impediment to achieving the Healthy People 2010 blood pressure control goals. *Hypertension*. 2006;47(3):345-351.
16. Wang YR, Alexander GC, Stafford RS. Outpatient hypertension treatment, treatment intensification, and control in Western Europe and the United States. *Arch Intern Med*. 2007;167(2):141-147.
17. Nyaaba GN, Stronks K, de-Graft Aikins A, Kengne AP, Agyemang C. Tracing Africa's progress towards implementing the non-communicable diseases global action plan 2013-2020: a synthesis of WHO country profile reports. *BMC Public Health*. 2017;17(1):2013-2020.
18. Odusola AO, Stronks K, Hendriks ME, et al. Enablers and barriers for implementing high-quality hypertension care in a rural primary care setting in Nigeria: perspectives of primary care staff and health insurance managers. *Glob Health Action*. 2016;9:29041.
19. Erdine S, Redon J, Böhm M, et al. Are physicians underestimating the challenges of hypertension management? Results from the Supporting Hypertension Awareness and Research Europe-wide (SHARE) survey. *Eur J Prev Cardiol*. 2013;20(5):786-792.
20. Beune EJ, Haafkens JA, Agyemang C, Schuster JS, Willems DL. How Ghanaian, African-Surinamese and Dutch patients perceive and manage antihypertensive drug treatment: a qualitative study. *J Hypertens*. 2008;26(4):648-656.
21. Nyaaba GN, Masana L, Aikins AD, Stronks K, Agyemang C. Lay community perceptions and treatment options for hypertension in rural northern Ghana: a qualitative analysis. *BMJ Open*. 2018;8(11):e023451.
22. Lebeau J-P, Cadwallader J-S, Aubin-Auger I, et al. The concept and definition of therapeutic inertia in hypertension in primary care: a qualitative systematic review. *BMC Fam Pract*. 2014;15:130.
23. Clark D 3rd, Colantonio LD, Min YI, et al. Population-attributable risk for cardiovascular disease associated with hypertension in black adults. *JAMA Cardiol*. 2019;1-9.
24. Wong ND, Thakral G, Franklin SS, et al. Preventing heart disease by controlling hypertension: impact of hypertensive subtype, stage, age, and sex. *Am Heart J*. 2003;145(5):888-895.
25. Milman T, Joundi RA, Alotaibi NM, Saposnik G. Clinical inertia in the pharmacological management of hypertension: a systematic review and meta-analysis. *Medicine (Baltimore)*. 2018;97(25):e11121.
26. World Health Organization. *A Global Brief on Hypertension*. Geneva: World Health Organization; 2013.
27. World Health Organization. *Global Action Plan For The Prevention and Control Of Noncommunicable Diseases 2013-2020*. Geneva: World Health Organization; 2013.
28. Kontis V, Mathers CD, Bonita R, et al. Regional contributions of six preventable risk factors to achieving the 25 x 25 non-communicable disease mortality reduction target: a modelling study. *Lancet Glob Health*. 2015;3(12):e746-e757.

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