

## THREE COMMENTS on the article written by Nadia Khan in the June issue of ISH Hypertension News:

### "Expanding the Workforce in Hypertension: A Focus on Pharmacists " ([Click here to read this report](#))



#### Comment 1

#### Basden Onwubere

Professor of Medicine/Consultant Cardiologist at the University of Nigeria Teaching Hospital, Ituku/Ozalla Enugu, Nigeria

Email: [basden.onwubere@unn.edu.ng](mailto:basden.onwubere@unn.edu.ng)

#### Expanding The Work Force in Hypertension: A Focus on Pharmacists - A rejoinder

#### Background

A recent article by Nadia Khan in the ISH Newsletter is highly commendable and appears to be more relevant in the developing countries where the burden of high blood pressure is greatest.

In 2000, **972 million** people had HBP with a prevalence rate of 26.4%, **333 million** in economically developed countries and **639 million** in economically developing countries. It is projected that by 2025 a total of **1.54 billion** people accounting for 30% of the World population would be hypertensive with **75% of these from the developing countries and regions**.<sup>1</sup>

In contrast to global trends, the prevalence of hypertension in most countries in Africa is increasing:

In 1990, less than 20% of the adult African population had hypertension. In 2010, more than 30% had hypertension. The prevalence rates of hypertension are amongst the world's highest in some African countries. Self-medication from ignorance and scarcity of healthcare personnel and facilities immensely contributes to the poor control rates. Individuals need to have a minimum level of knowledge and education to be able to benefit from self-medication. A major issue is the observed low awareness and relatively low control rates for hypertension in Africa as compared with the more economically advanced countries<sup>1,2,3</sup>.

#### Need for collaboration in addressing poor control of high blood pressure

These observations call for the contributions and collaboration of all health professionals to improve on the noted deficiencies in hypertension control in Africa,

and globally. Concerted efforts towards improving high blood pressure as an important cardiovascular risk factor are encouraged<sup>3,4,5</sup>. The Pan-African Society of Cardiology Task Force on Hypertension was inaugurated and given the task of proffering measures aimed at reducing hypertension burden in the African Region<sup>6</sup>. They have made considerable progress in this<sup>6</sup>. Pharmacists have not been appropriately involved in hypertension globally even though they can, indeed do, do a lot to improve drug compliance by hypertensive individuals. This awareness of the capabilities of healthcare professionals apart from medical doctors in high blood pressure control appears to be growing. At the eighth International Society of Hypertension African Hypertension Teaching Seminar held in Maputo, Mozambique (April 2016), a pharmacist and a nurse were included as participants and both presented papers. The pharmacist's paper was on "Adherence of hypertensive patients to therapy..." – a study carried out by her and her pharmacist colleagues in two tertiary health institutions.<sup>7</sup> She highlighted the role of pharmacists in promoting hypertension management and control. Nadia Khan was, indeed correct when she stated that "team-based models of care that leverage the full scope of pharmacists' and other health professionals' skills are an untapped solution whose time has come".

#### Roles specification

The role of the pharmacist should indeed be to work together with primary care physicians as well as other specialized healthcare personnel to ensure better control of high blood pressure. Roles should, however,

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be specified based on the training and experience of each professional group. The roles for pharmacists, as mentioned in the article, are quite in order and should be strictly maintained to improve control of high blood pressure. Pharmacists' roles should not be to support self-medication as mentioned in a recent paper by Fakeye et al<sup>8</sup>. Self-medication should be discouraged especially in an environment of low awareness and poor knowledge of effects and untoward actions of certain medications. Individuals identified as having high blood pressure should be encouraged or aided to see a primary care physician or any available specialist. Other healthcare team members would be very useful on follow-up (as mentioned by Nadia Khan) and creating and improving awareness which is currently very low in Africa and other developing countries<sup>5,6</sup>.

### Conclusion

Team-based models of approach are necessary to combat the scourge of the high global burden of high blood pressure with special reference to the developing economies where the burden is greatest, and where human and material resources remain scarce and below expectations. However, there is a need for roles specification and adherence.

### REFERENCES:

1. WHO. Global view on hypertension. WHO. 2013. Geneva
2. Onwubere BJC, Ejim EC, Okafor CI, Emehel IA, Mbah AU,

Onyia U, Mendis S. Pattern of Blood Pressure Indices among the Residents of a Rural Community in South East Nigeria. *International Journal of Hypertension*, Article ID 621074, 6 pages. doi:10.4061/2011/62107

3. Ogah OS, Okpechi I, Chukwuonye II, Akinyemi JO, Onwubere BJC et al. Blood pressure, prevalence of hypertension and hypertension related complications in Nigerian Africans: A review. *World J Cardiol* 2012; 4(12): 327-340

4. Mendis S, Lindholm LH, Anderson SG, Alwan A, Koju R, Onwubere BJC, et al. Total cardiovascular risk approach to improve efficiency of cardiovascular prevention in resource constrain settings *Journal of clinical epidemiology* 2011 Dec;64(12):1451-1462

5. Ibrahim MM, Damasceno A. Hypertension in developing countries. *Lancet*. 2012; 380(9841):611-619.

6. Dzudie A, Ojji D, Anisiuba BC, Abdou BA, Cornick R, Damasceno A, Kane AL, Mocumbi AO, Mohamed A, Nel G, Ogola E, Onwubere B, Otieno H, Rainer B, Schutte A, Ali IT, Twagirumukiza M, Poulter N, Mayosi B. Development of the roadmap and guidelines for the prevention and management of high blood pressure in Africa: Proceedings of the PASCAR Hypertension Task Force meeting: Nairobi, Kenya, 27 October 2014. *Cardiovasc J Afr*. 2015 Mar-Apr; 26(2):82-85.

7. Onwubere B, Coca A, Damasceno A, Kadiri S, Kruger R, Lemogoum D, M'Buyamba-Kabangu J-R, Okpechi I, Poulter N, Rayner B, Seedat YK, Schutte AE, Touyz R. Report of the International Society of Hypertension Teaching Seminar organized by the International Society of Hypertension Africa Regional Advisory Group: Maputo, Mozambique, 2016. *Journal of Hypertension* 2016, 34(10): 2105-2107

8. Fakeye TO, Adisa R, Showande SJS. Attitude and opinion of Nigerian community pharmacists to self-medication practices. *African Journal of Pharmacy and Pharmacology*. 2012; 6(15): 1147 – 1152

-Basden Onwubere



## Comment 2

**Stefano Omboni**

Clinical Research Unit, Italian Institute of Telemedicine, Solbiate Arno, Varese, Italy. Email: [Stefano.omboni@iitelemed.org](mailto:Stefano.omboni@iitelemed.org)

**Telemedicine may help to implement effective physician-pharmacist collaborative practice for hypertension management**

Community pharmacists are integral members of the hypertension team management. The current model of a community pharmacy-based hypertension management includes three levels of intervention [1]. (i) The promotion of a healthy lifestyle in the population for cardiovascular prevention through health education. (ii) The early detection of hypertension by measuring blood pressure and referring possible hypertensive subjects to the

primary care doctor. (iii) The management of treated hypertensive individuals with regular blood pressure measurement in the pharmacy, the counselling and provision of information on drug treatment and drug safety, the reporting of possible drug-related problems to the general practitioner.

The pharmacy is usually within walking distance of

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home or workplace, is open 6 to 7 days a week, no appointment is generally required to be seen for a blood pressure measurement, and basic services are usually delivered at lower costs compared with other primary care settings, such as general practitioner clinics. For all these reasons, pharmacies may help to expand patient access to care in collaboration with the general practitioner, the hypertension specialist and other healthcare professionals.

Multidisciplinary approaches, and particularly those including a community pharmacist, may improve high blood pressure detection, enhance blood pressure control, increase adherence to therapy and improve outcome [2,3]. Team-based care such as a physician–pharmacist collaboration also appears also to be a cost-effective strategy for managing hypertension, particularly for high-risk patients [4]. However, several aspects should be taken into consideration for the implementation of the hypertensive management model in the pharmacy. Thus, team-based care is efficient if adequate training on guidelines and on practical aspects of disease management is guaranteed and achievement of adequate expertise is verified. Accreditation programmes should be established in individual countries, taking into account education, licensing requirements, regulatory issues, scope of practice and responsibilities [5]. Defining clear tasks and roles pertinent to the respective educational backgrounds, and establishing an efficient communication between the team members may help to improve the quality and effectiveness of care and integration between various healthcare professionals involved in the management of the hypertensive patient.

The use of health information technologies may help in creating telehealth networks involving various healthcare professionals and providing patient-centered comprehensive disease management and preventive care. A physician, a nurse, a pharmacist, and an electronic communication system should constitute the minimum team. In the context of such a model the pharmacist may share some tasks with the doctor, reducing the general practitioner workload and inappropriate referral of patients to doctors.

Web-based telemedicine platforms may be used to provide home or 24-hour ambulatory blood pressure monitoring through community pharmacies, extending the screening for hypertension and providing quick, accurate and professional feedback and adjustment of care plans in treated hypertensive patients, with the support and supervision of the general practitioner or the specialist [6]. The effectiveness of such a telemedicine-based approach for hypertension management has been demonstrated. In the Electronic

Communications and Home Blood Pressure Monitoring (e-BP) study, involving 778 uncontrolled hypertensive patients, blood pressure control at 12 months significantly improved from 31 to 56% in patients who experienced the pharmacist care management delivered through web communication and home blood pressure telemonitoring compared with usual care-treated patients [7]. Severe hypertensive patients at baseline had the major benefit from this study. The benefit of the pharmacist-led care persisted at least 1 year after the completion of intervention [8]. In another randomized controlled study, the Hyperlink, home blood pressure telemonitoring and pharmacist case management allowed achieving better blood pressure control compared to usual care during 12 months of intervention in 450 hypertensive patients with a wide range of comorbidities and hypertension severity [9]. Also in this study the effect of the intervention persisted during 6 months of post-intervention follow-up.

In Italy and other countries community pharmacists are allowed independently to provide counselling on healthy lifestyle, monitor adverse events and provide support in the proper use of antihypertensive drugs prescribed by the doctor. In recent years national regulations have allowed web-based centres to provide blood pressure telemonitoring services with medical reporting and advice to patients through the community pharmacies. In this national setting we have set up an observational, cross-sectional, multicentre study (TEMPLAR, TELeMonitoring of blood Pressure in Local phARmacies). The study aims at assessing the potential advantage of 24-hour ambulatory blood pressure telemonitoring in community pharmacies for screening of potential hypertensive subjects and follow-up of treated patients [10]. In the nearly 18,000 patients seen so far 24-hour blood pressure was controlled (24-hour average <130/80 mmHg) in 52% of those untreated (representing 84% of the sample) and in 59% those receiving any antihypertensive medication (16% of the sample). Such a picture suggests that there is still much to do to achieve adequate blood pressure control in the community.

Thus, evidence from randomized or observational studies suggests that carefully organized, structured physician-pharmacist collaborative intervention based on e-health technologies (and particularly blood pressure telemonitoring plus patient education on lifestyle, drug therapy and cardiovascular risk factor control) may facilitate high blood pressure screening and detection, and may be particularly effective for improving blood pressure control in treated hypertensive patients.

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## REFERENCES:

1. World Health Organization (WHO). Pharmacy-based hypertension management model: protocol and guidelines. A joint CINDI/EuroPharm Forum Project. 2005. Available at <http://apps.who.int/iris/bitstream/10665/107638/1/E85730.pdf>
2. Santschi V, Chiolero A, Colosimo AL, et al. Improving blood pressure control through pharmacist interventions: a meta-analysis of randomized controlled trials. *J Am Heart Assoc* 2014;3:e000718.
3. Cheema E, Sutcliffe P, Singer DR. The impact of interventions by pharmacists in community pharmacies on control of hypertension: a systematic review and meta-analysis of randomized controlled trials. *Br J Clin Pharmacol* 2014;78:1238-1247.
4. Kulchaitanaroaj P, Brooks JM, Chaiyakunapruk N, et al. Cost-utility analysis of physician-pharmacist collaborative intervention for treating hypertension compared with usual care. *J Hypertens* 2017;35:178-187.
5. Dunn SP, Birtcher KK, Beavers CJ, et al. The role of the clinical pharmacist in the care of patients with cardiovascular disease. *J Am Coll Cardiol* 2015;66:2129-2139.
6. Omboni S, Sala E. The pharmacist and the management of arterial hypertension: the role of blood pressure monitoring and telemonitoring. *Expert Rev Cardiovasc Ther* 2015;13:209-221.
7. Green BB, Cook AJ, Ralston JD, et al. Effectiveness of home blood pressure monitoring, Web communication, and pharmacist care on hypertension control: a randomized controlled trial. *JAMA* 2008;299:2857-2867.
8. Green BB, Anderson ML, Ralston JD, et al. Blood pressure 1 year after completion of web-based pharmacist care. *JAMA Intern Med* 2013;173:1250-1252.
9. Margolis KL, Asche SE, Bergdall AR, et al. Effect of home blood pressure telemonitoring and pharmacist management on blood pressure control: a cluster randomized clinical trial. *JAMA* 2013;310:46-56.
10. Omboni S, Caserini M, Coronetti C. Telemedicine and M-Health in Hypertension Management: Technologies, Applications and Clinical Evidence. *High Blood Press Cardiovasc Prev* 2016;23:187-196.

-Stefano Omboni

## Comment 3



**Susanna M Wallerstedt<sup>1, 2</sup>, Naldy Parodi Lopez<sup>3</sup>, Karin Manhem<sup>4</sup>**

*(Pictured from left to right)*

**1**Department of Pharmacology, Sahlgrenska Academy, University of Gothenburg, Sweden

**2**Department of Clinical Pharmacology, Sahlgrenska University Hospital, Sweden

**3**Närhälsan Vårgårda Health Centre, Sweden

**4**Department of Internal Medicine, Sahlgrenska University Hospital, Gothenburg, Sweden

Corresponding author: Susanna M. Wallerstedt, Department of Pharmacology, Sahlgrenska Academy, University of Gothenburg, Box 430, SE-405 30 Göteborg, Sweden. E-mail: [susanna.wallerstedt@pharm.gu.se](mailto:susanna.wallerstedt@pharm.gu.se)

The prevalence of cardiovascular disease has decreased dramatically during the past decades. For example, in Sweden the number of individuals suffering from a myocardial infarction was 39,182 in 1987 and 26,602 (fatal events decreased from 18,408 to 6,640) in 2015 [1], despite a concomitant increase in the population of almost 1.5 million. Also for stroke, reassuring data on incidence and mortality are available [2]. Physicians'

efforts regarding drug treatment for individual patients have probably contributed largely to this favourable development.

Hypertension is the most common chronic disease diagnosis in Swedish primary care and every physician needs to master antihypertensive drug treatment, as hypertensive patients occur at all levels of care.

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Unpublished recent data from a primary care centre serving about 10,000 patients in Sweden indicate that more than 70% of patients 65 years or older with a planned visit to any physician at the centre during one month had hypertension. Upon assessing the drug treatment quality in these patients, by a physician with specialist competence in family medicine, and taking each patient's condition into account, the majority had appropriate cardiovascular drug treatment. Only one immediate change (withdrawal of nifedipine due to the fact that the patient had no reasonable indication) and few longer term changes (for example, one patient was treated with both felodipine and carbamazepine, a combination which may reduce the effect of the calcium blocker) were suggested upon the physician quality assessment.

For hypertension and cardiovascular disease, easily accessible SCORE risk charts and treatment guidelines constitute valuable tools guiding physicians during the patient consultation, especially those not specialized within the therapeutic area. Indeed, prescribing guideline booklets are appreciated among general practitioners [3]. Evidence-based tools are applicable at a general level, and may come well to hand during the physician-patient encounter. Nevertheless, all treatment needs to be individualized according to medical history, physical examination, laboratory test, and patient preferences. Thus, drug treatment is an integrated part of the process of diagnosing and follow-up of the patient.

Computerized decision support systems, for example alerting potential drug interactions, drugs with renal elimination in patients with reduced kidney function, and potentially inappropriate medications in the elderly [4, 5], may also have contributed to good prescribing practices. Such systems may facilitate the physician to adjust the treatment to the specific patient. Drug treatment is a complex task, where diagnostic skills need to be combined with pharmacologic knowledge and patient communication. The importance of professional learning concerning drug treatment in medical school has been emphasized [6]. In Sweden, efforts to facilitate the process of learning for medical students are ongoing [7]. In addition, efforts by the National Board of Health and Welfare may have contributed to the favourable development regarding drug treatment. Indeed, they have produced several web-based educational programs, and have clarified in national statutes that basic and expanded medication reviews are part of the attending physician's professional responsibilities [8].

The National Board of Health and Welfare has also developed indicators of prescribing quality, for example for benchmarking [9]. Although these

indicators may reflect quality to a limited extent and the applicability at the individual level may be questioned [10-13], they constitute a quick guide to what experts consider current best practice. Further, they enable feedback to physicians, and provide a basis for collegial discussion on drug treatment, a valuable type of continuous medical education [14]. Out of 63 nationally established diagnosis-specific indicators of prescribing quality, four concern hypertension. Two indicate potentially inappropriate drug treatment, both concerning diltiazem/verapamil, and two indicate rational treatment, both including angiotensin converting enzyme inhibitors.

Cardiovascular drugs constituted the most frequently dispensed prescription drugs in Sweden, measured in defined daily doses (DDD), in 2005 [15]. Of note, 69 (20%) out of 338 studies published in 2005-2014 using the Swedish Prescribed Drug Register as a data source concerned cardiovascular drugs, which was the second most studied therapeutic area after psychiatric disease [16]. The publications were primarily descriptive (n=27; 39%) or analytic (n=35; 51%), providing information on prescribing patterns, patient adherence, factors underlying treatment practices, and effects of drug exposure.

Decades of efforts and developments across a variety of levels may have contributed to better drug treatment in patients with cardiovascular disease and improved health outcomes. Thus, it may not be surprising that routine involvement of a third party in drug treatment matters, such as pharmacist participation in medication reviews, has not been shown to improve patient outcomes [17-21]. Senior colleagues may be consulted in complicated cases, and pharmacists upon pharmaceutical issues. However, it is the responsibility of attending physicians at all levels to integrate drug treatment in their daily patient work, taking advantage of available tools and applying their medical and pharmacological knowledge for the benefit of the patient.

## REFERENCES:

1. National Board of Health and Welfare. [Statistik om hjärtinfarkter] 2015. 2017. <http://www.socialstyrelsen.se/publikationer2017/2017-1-18>.
2. National Board of Health and Welfare. [Statistik om stroke]. 2014. <http://www.socialstyrelsen.se/SiteCollectionDocuments/statistik-om-stroke-2012.pdf>.
3. Axelsson MA, Spetz M, Mellén A, Wallerstedt SM. Use of and attitudes towards the prescribing guidelines booklet in primary health care doctors. *BMC Clin Pharmacol*. 2008;8:8.
4. Böttiger Y, Laine K, Andersson ML, et al. SFINX-a drug-drug interaction database designed for clinical decision support systems. *Eur J Clin Pharmacol*. 2009;65(6):627-33.

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5. Hellden A, Al-Aieshy F, Bastholm-Rahmner P, et al. Development of a computerised decisions support system for renal risk drugs targeting primary healthcare. *BMJ Open*. 2015;5(7):e006775.
6. Brinkman DJ, Tichelaar J, Schutte T, et al. Essential competencies in prescribing: A first european cross-sectional study among 895 final-year medical students. *Clin Pharmacol Ther*. 2017;101(2):281-9.
7. Eriksson AL, Wallerstedt SM. [Läkemedelsbehandling kräver övning och handledning. *Läkartidningen*]. 2016;113:D94Y.
8. National Board of Health and Welfare Statutes [Socialstyrelsens författningssamling] Medication reviews [Läkemedelsgenomgångar]. SOSFS 2012:9;Chapter 3.
9. Fastbom J, Johnell K. National indicators for quality of drug therapy in older persons: the Swedish experience from the first 10 years. *Drugs Aging*. 2015;32(3):189-99.
10. Lönnbro J, Wallerstedt SM. Clinical relevance of the STOPP/START criteria in hip fracture patients. *Eur J Clin Pharmacol*. 2017;73(4):499-505.
11. Wallerstedt S, Belfrage B, Koldestam A, Sjöberg C. [Many patients with suboptimal drug treatment are missed. Sensitivity, specificity and prediction value of drug-specific quality indicators for the elderly]. *Läkartidningen*. 2016;113:DSU4.
12. Wallerstedt SM, Belfrage B, Fastbom J. Association between drug-specific indicators of prescribing quality and quality of drug treatment: a validation study. *Pharmacoepidemiol Drug Saf*. 2015;24(9):906-14.
13. Belfrage B, Koldestam A, Sjöberg C, Wallerstedt SM. Number of drugs in the medication list as an indicator of prescribing quality: a validation study of polypharmacy indicators in older hip fracture patients. *Eur J Clin Pharmacol*. 2015;71(3):363-8.
14. Rognstad S, Brekke M, Fetveit A, Dalen I, Straand J. Prescription peer academic detailing to reduce inappropriate prescribing for older patients: a cluster randomised controlled trial. *Br J Gen Pract* : 2013;63(613):e554-62.
15. Wettermark B, Hammar N, Fored CM, et al. The new Swedish Prescribed Drug Register--opportunities for pharmacoepidemiological research and experience from the first six months. *Pharmacoepidemiol Drug Saf*. 2007;16(7):726-35.
16. Wallerstedt SM, Wettermark B, Hoffmann M. The first decade with the Swedish Prescribed Drug Register - A systematic review of the output in the scientific literature. *Basic Clin Pharmacol Toxicol*. 2016;119(5):464-9.
17. Huiskes VJ, Burger DM, van den Ende CH, van den Bemt BJ. Effectiveness of medication review: a systematic review and meta-analysis of randomized controlled trials. *BMC Fam Pract*. 2017;18(1):5.
18. Christensen M, Lundh A. Medication review in hospitalised patients to reduce morbidity and mortality. *Cochrane Database Syst Rev*. 2016;2:Cd008986.
19. Hohl CM, Wickham ME, Sobolev B, et al. The effect of early in-hospital medication review on health outcomes: a systematic review. *Br J Clin Pharmacol*. 2015;80(1):51-61.
20. Wallerstedt SM, Kindblom JM, Nylén K, Samuelsson O, Strandell A. Medication reviews for nursing home residents to reduce mortality and hospitalization: systematic review and meta-analysis. *Br J Clin Pharmacol*. 2014;78(3):488-97.
21. Lehnbohm EC, Stewart MJ, Manias E, Westbrook JI. Impact of medication reconciliation and review on clinical outcomes. *Ann Pharmacother*. 2014;48(10):1298-312.

-Susanna M Wallerstedt, Naldy Parodi Lopez,  
Karin Manhem

## Author Reply: Expanding the Workforce in Hypertension: A Focus on Pharmacists

**Nadia Khan**

Professor of Medicine at Department of Medicine University of Columbia Centre for Health Evaluation & Outcomes Sciences. Vancouver, British Columbia, Canada. Email: [nakhanubc@gmail.com](mailto:nakhanubc@gmail.com)



Thank you to my colleagues Drs. Onwubere, Omboni, and Wallerstedt et al, for their thoughtful comments. I agree with Dr. Onwubere who highlights that it may be particularly advantageous to leverage skills of other health professionals, including pharmacists, in developing countries. As Dr. Onwubere points out, the prevalence of hypertension in Africa and other low and middle-income regions of the world are escalating rapidly, fuelled by urbanization and an aging population. The hypertension and consequent cardiovascular epidemic is outpacing the scarce resources in these regions for screening and management (1). Pharmacists are currently focused on drug dispensing. Pharmacy reform to provide more patient centered care may enhance lower cost access to hypertension screening and control especially among those living in poverty or rural areas (2).

Dr. Omboni also discusses the potential merits of team-based care including a pharmacist-physician as a cost effective solution to advancing hypertension awareness and control. Dr. Omboni also rightfully cautions that to establish team

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based care, several key considerations must be met. I fully agree that accreditation programs for pharmacists must be developed to ensure expertise in screening and managing hypertension. Of note, Hypertension Canada developed an educational program with considerable interest from pharmacists. Dr. Omboni further emphasizes that health information technologies such as tele-health may be utilized as a part of effective communication strategies between pharmacists, nurses and physicians. In Dr. Omboni's Templar study, pharmacies include 24 ABPM tele-monitoring for screening and control (3). Dr. Omboni notes while there was improvement, sub-optimal control of hypertension remained. Having an enlarged scope of practice with pharmacists that include prescribing in addition to tele-monitoring may help further close this control gap.

Dr. Wallerstedt and colleagues rightfully assert that it is the responsibility of primary care physicians to diagnose and treat hypertension, and there are numerous tools designed to improve the ability of physicians to do so. In their comment, Dr. Wallerstedt et al., state that routine involvement of pharmacists in medication review was not effective in improving patient outcomes. However, a systematic review of all pharmacy interventions beyond medication reconciliation, demonstrates an overall reduction of blood pressure in patients (4). Further, when pharmacists also have a prescribing role with ongoing physician management, blood pressure is significantly reduced compared with physician care alone (5). Despite available tools, it remains challenging for primary care physicians to achieve high rates of BP control. In Canada, where hypertension awareness and control rates are among the highest in the world, 17% of the population with hypertension remain unaware and 20% of those diagnosed and treated for hypertension are uncontrolled (6). Many of the unaware population are working aged and likely do not access physician care routinely. Non-adherence rates for patients under the care of their physician in Canada are as high as 50% (7). While primary care should be commended for dramatically improving hypertension awareness and control in Canada and other countries, to achieve optimal control rates, additional interventions are needed. The evidence indicates that pharmacist care is an effective intervention for advancing hypertension control.

#### REFERENCES:

1. Status report on hypertension in Africa - Consultative review for the 6th Session of the African Union Conference of Ministers of Health on NCD's. The Pan African Medical Journal. 2013;16:38.
2. Basak SC, van Mil JW, Sathyanarayana D. The changing roles of pharmacists in community pharmacies: perception of reality in India. Pharm World Sci. 2009;31(6):612-8.
3. Omboni S, Caserini M, Coronetti C. Telemedicine and M-Health in Hypertension Management: Technologies, Applications and Clinical Evidence. High Blood Press Cardiovasc Prev 2016;23:187-196
4. Santschi V, Chiolero A, Colosimo AL, et al. Improving blood pressure control through pharmacist interventions: a meta-analysis of randomized controlled trials. Journal of the American Heart Association. 2014;3(2):e000718.
5. Tsuyuki RT, Houle SK, Charrois TL, et al. Randomized Trial of the Effect of Pharmacist Prescribing on Improving Blood Pressure in the Community: The Alberta Clinical Trial in Optimizing Hypertension (RxACTION). Circulation. 2015;132(2):93-100.
6. McAlister FA, Wilkins K, Joffres M, Leenen FH, Fodor G, Gee M, et al. Changes in the rates of awareness, treatment and control of hypertension in Canada over the past two decades. CMAJ. 2011;183(9):1007-13.
7. Liu Q, Quan H, Chen G, Qian H, Khan N. Antihypertensive medication adherence and mortality according to ethnicity: a cohort study. Can J Cardiol. 2014;30(8):925-31.

-Nadia Khan

## West China Hypertension Control Teaching Workshops (supported by ISH)

Read a full report on workshops held in Xining, Qinghai Province and Changsha, Hunan Province from 29-30 July. [Click here.](#)

